BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BENCH, PUNE
AT PUNE

APPEAL NO. 3 OF 2025 (WZ)

SHRI. MAHUVA BANDHARA KHETIVADI

PARYAVARAN BACHAV SAMITI & ORS

… APPELLANTS

V/S

NIRMA LIMITED & ORS

… RESPONDENTS

INDEX

SR NO	ANNEXURE	PARTICULARS	PAGE NOS.	
			From	To
1.		Index	666	667
2.		Reply Affidavit of the Respondent No.5	668	715
3.	R-1	Copy of the Final EIA Report	716	1362
4.	R-2	Copy of the relevant Extract of 21st Minutes of Meeting of EAC	1363	1598
5.	R-3	Copy of the Plant EC dated 11.12.2008	1599	1604
6.	R-4	Copy of the PIL Order dated 26.04.2010	1605	1633
7.	R-5	Copy of the Order dated 27.09.2010	1634	1641

8.	R-6	Copy of the Plant EC Revival Order	1642	1680
		LAST PAGE NO.		**1680**

PUNE

DATE : 23/01/2026

ADVOCATE FOR RESPONDENT NO.1

BEFORE THE NATIONAL GREEN TRIBUNAL, WESTERN ZONE BENCH AT PUNE

Appeal No.3 of 2025

In the matter of:

Shri Mahuva Bandhara Khetivadi Paryavaran Bachav Samiti & Ors.	--	Appellants
Versus		
Nirma Limited and Ors.	--	Respondents

Reply on behalf of Respondent No. 1, Nirma Limited

The Respondent No.1, Nirma Limited, most respectfully states as under:

1. The Respondent no. 1 (hereinafter referred to as the "Answering Respondent") is a company incorporated under the provisions of Companies Act, 1956 and is engaged, *inter alia*, manufacturing soaps, detergent, chemicals in the state of Gujarat and other parts of India.

2. The Answering Respondent states that the present Appeal pertains to Environment Clearance dated 16.9.2024 (hereinafter referred to

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

as the "subject EC") granted by the Respondent No.1 in respect of mining of Limestone in mining lease area of 332.24 hectares located in Village Padhiarka & Doliya, Taluka Mahuva, District Bhavnagar in the state of Gujarat (hereinafter referred to as the "subject ML").

3. The Answering Respondent is filing this reply to the present Appeal, as under.

3.1 At the outset, the Answering Respondent states that the present Appeal is misconceived, devoid of merits, vexatious, an attempt to mislead this Hon'ble Tribunal, suffers from the vice of suppression of material facts and the grounds as pleaded do not infact arise in the facts of the case. The same is, accordingly, liable to be dismissed with cost.

3.2 Before dealing with the averments in the present Appeal, it will be pertinent to submit as under:

(a) It is submitted that the mining project with which the present appeal is concerned is environment and eco- friendly. The Answering Respondent will carry out mining by fully

mechanized non-conventional methods. The Answering Respondent will use non-conventional methods of mining by using either surface miner or dozer ripper or rock breaker or excavator tipper combination which are technologies to extract limestone in an environment friendly manner. It is a better alternative to conventional method of mining than by drilling and blasting. Therefore, the said mining project is free from drilling and blasting and environment friendly. Therefore, no significant damage would be caused to the environment. The mitigation measures suggested in Final EIA /EMP report and considered by EAC will arrest any impact.

(b) The Limestone deposit has thin top soil/waste rock. The topsoil will be removed with the help of dozer by scraping. The collected topsoil will be removed by shovel loader and tipper combination and will be stored at earmarked site and used for plantation. The limestone will be excavated by non-conventional methods of mining as stated above, without use of drilling and blasting.

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(c) It is submitted that the Environment Clearance dated 16.9.2024 (hereinafter referred to as the "subject EC") has been granted by the Respondent No. 1 after following due process of law and complying with the EIA Notification dated 14.9.2006 (hereinafter referred to as "EIA 2006"). The Expert Appraisal Committee (hereinafter referred to as "EAC") has, in its various meetings held on 5-6 December 2022, 17-18 January, 2023, 18-20th October 2023, 09-10 January 2024, 14-15 March 2024, 12-14 June 2024, and 12-13 August 2024, deliberated upon the Final EIA Report and has taken note of the anticipated environmental impact and mitigation measures. The Report was prepared based on the ToR issued by the Respondent No. 1 which were prescribed by the EAC after considering all the environmental aspects relating to the project. It was also based on various studies such as ambient air monitoring data, water, noise and soil analysis data, biological study, hydrogeological & hydrological studies, wildlife conservation study, socio-economic study, Portable impact on migratory birds and Central Asian Flyway due to mining and Coastal Regulation Zone study etc. It also considered and addressed all the issues raised during the

public hearing by the villagers including the Appellants herein, in line with the EIA 2006 and subsequent amendments thereto. A complete Environment Management Plan has been submitted and analyzed by the Expert Appraisal Committee.

(d) It is submitted that in the present case, the EAC, upon receiving written complaints from the Appellants herein as well as the other local people, deferred the proposal till a view was taken by the Respondent No.1 who found that the points raised the letters of the Complainants are already included in the public hearing proceedings as well as the EIA and the same may be considered for taking appropriate decision. The EAC recorded the same in its meetings during 18-20th October 2023, 09-10 January 2024, 14-15 March 2024, 12-14 June 2024, and 12-13 August 2024. It is submitted that, therefore, in the present case the EAC as well as the Answering Respondent have taken all efforts, even beyond what is generally followed in normal course, to ensure that all the complaints of the local people have been addressed even at the cost of delaying the procedure of grant of the subject EC. It is further submitted that in the present case stringent

specific conditions have been recommended by EAC for grant of the subject EC so as to ensure that all the concerns addressed and project is environmentally safe.

(e) It is further submitted that all the grounds raised by the Appellants in the present appeal were also raised at the time of public hearing. The same were duly addressed by the Answering Respondent in the final EIA Report and considered by the EAC as per EIA 2006. It is submitted that the Appellant is re-agitating the very same issues again without any cogent reasons and without adverting to the final EIA Report which adequately addresses all the issues raised.

(i) It is submitted that the subject ML has been granted over an area of 332.24 hectares for a period of 50 years after reducing LoI area. As per the mining plan approved by the Indian Bureau of Mines, only 32.25 hectares have been proposed for mining in the period of first 5 years. The Answering Respondent has given a detailed rehabilitation and re-settlement plan which provides for stepwise procedure for land purchase. Private land purchase is being done on willing

seller, willing buyer concept through private negotiations and mutual consent. The rehabilitation and resettlement plan prepared after a detailed socio-economic study identified the impact on income generation opportunities, impact on agriculture due to loss of standing crop, impact on infrastructure facilities, impact on community property etc. It will organize vocational training, entrepreneur development program and provide advice for starting small scale industries.

(ii) It is submitted that the EIA Report has also studied the impact on air quality, water quality, noise pollution and suggested mitigation measures. The biological study, Hydrogeological & Hydrological studies, wildlife conservation study, socio-economic study, Portable impact on migratory birds and on Central Asian Flyway due to mining and Coastal Regulation Zone study etc. has also been conducted. The depth of mining will not intersect the ground water table. A detailed Hydrogeological & Hydrological study report was also prepared to show that there would be no saline ingress in the ground water towards the land due to mining. A detailed conservation plan has also been prepared for conservation of

flora and fauna and Portable impact on migratory birds and Central Asian Flyway due to mining. After submission of the report by Institute of Remote Sensing, Anna University, which found that no part of the mining lease falls within the CRZ. Copy of the Final EIA Report is annexed hereto and marked as **Annexure - R-1**.

5. The Answering Respondent now deals with the present Appeal in seriatim.

(a) The contents of paragraph no. 1 to 5 of the present Appeal are formal in nature and do not warrant any comments. The Appellants are, however, put to the strict proof of the contents thereof.

(b) The contents of paragraph no. 6 are true.

(c) With reference to the contents of paragraph no. 7 of the present Appeal, it is submitted that:

(i) Firstly, three separate applications for Environmental Clearance in respect three separate mining leases, including

the subject ML was made by the Answering Respondent. Therefore, three EIA reports are submitted. However, on perusal of the EIA report for each mining project, it is evident that each report gives a cumulative and comprehensive effect and is not limited to an individual mine.

(ii) Secondly, the Respondent No.3 issued ToR with Specific TOR condition no. viii, which reads as under:

> *"The project proponent needs to carry out the cumulative impact assessment by considering all the mining activity including the transport scenario of the mines in the study area and should indicate the capacity of each mine considered for predication of air quality modeling. The control case and worst-case scenario needs to be demonstrated with controlling factor and GLCs values for all the pollutants needs to be clearly mentioned. The input parameters used for the modeling also needs to be submitted."*

(iii) Thirdly, the study area included an area of 10 km radius from the mine lease boundary which included the other two mining leases as mentioned above. The cumulative impact of transportation of Limestone to the Cement plant has also been considered in EIA study.

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(d) With respect to the contents of paragraph no. 8 of the present appeal, it is submitted that the Answering Respondent shall undertake mining in a mechanized manner and/or eco-friendly manner with the help of either surface miner and mine dozer, ripper, rock breakers to remove the limestone rather than conventional method of mining in which blasting and drilling.

(e) With reference to the contents of paragraph no. 9 of the present appeal, it is denied that the proposed mining activity will case any permanent or irreversible damage to the ecosystem, as alleged or at all. It is denied that health risks are not considered. It is submitted that Chapter 4 of the EIA report deals with the issue in extenso. It is denied that Point 4.14.3 of the Draft EIA lacks effective measures to mitigate impact on villagers, as alleged or at all.

(f) With reference to contents of paragraph no. 10 of the present appeal, it is denied that the EIA fails to point out concrete steps to protect the villages health, as alleged or at all. I submit that specific mitigation measures are mentioned in the EIA report.

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(g) With reference to the contents of paragraph no. 11 of the present appeal, I submit that adequate health protection measures are provided and will be available to the villagers and this issue does not warrant challenge to the EC.

(h) The contents of paragraph no. 12 of the present appeal are a matter of record and do not warrant any comments.

(i) With reference to the contents of paragraph no. 13 of the present appeal, it is submitted that as stated above, mining operations will be undertaken in a mechanized manner and/or eco-friendly manner with the help of either surface miner and mine dozer, ripper, rock breakers to remove the limestone rather than conventional method of mining in which blasting and drilling. Thus, the likelihood of damage to built infrastructure is minimal, if not absent.

(j) The contents of paragraph no. 14 of the present appeal are formal in nature and do not warrant any comments.

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(k) With reference to the contents of paragraph no. 15 of the present appeal, it is submitted that the subject EC is granted in full compliance of the procedure prescribed by law.

(l) The contents of paragraph nos. 16 to 18 of the present appeal are matters of record and do not warrant any comments.

(m) With reference to the contents of paragraph no. 19 of the present appeal, It is denied there are any immediate or long term chances of irretrievable health impact due to the operation of the cement plant in future or that any toxic ambient air quality or hazardous dust will be released in atmosphere, as alleged or at all. These are mere conjectures and the Appellants have failed to recognize that a cement plan can only be operated within the parameters prescribed under the laws relating to pollution control and are monitored 24x7 by the pollution control board.

(n) With reference to the contents of paragraph no. 20 of the present appeal, the Answering Respondent reiterates that it shall undertake mining activity in an eco-friendly manner with the help of either surface miner and mine dozer, ripper, rock breakers to remove the

limestone rather than conventional method of mining in which blasting and drilling. Therefore, there is no cause for concern. It is denied that the mine area falls within the reservoir area, as alleged or at all. It is submitted that the existence of reserved forests near the subject ML is disclosed to the Respondent No.3 in the Final EIA report and has been considered by the EAC in various meetings. It is submitted that since the mining activity will be without any drilling and blasting, there is no likelihood of any adverse impact. Further, the Deputy Conservator of Forests has certified by his letter dated 09.11.2020 that "No National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant within 15 km of the Reserve". Further, the Principle Chief Conservator of Forest, Gandhinagar vide his letter dated 14.02.2022 issued the authenticated map and distance between the protected area (i.e. Gir National Park, Gir Wildlife Sanctuary and Mitiala Wildlife Sanctuary) and mining lease are located at a distance of over 46.7 km away.

With reference to the contents of paragraph no. 21 of the present appeal, It is denied that the additional species added to Schedule I have been found in the in the project area, as alleged or at all. It is

submitted that as suggested by the EAC and in terms of the Wildlife Protection Amendment Act, 2022, budget allocation for the wildlife conservation plan has been increased from Rs.19.9 Lakh to Rs.65.9 Lakh for all 3 mines.

(p) With reference to the contents of paragraph no. 22 of the present appeal, it is submitted that the Answering Respondent has undertaken the responsibility to act in terms of the wildlife conservation plan as approved and the terms of the subject EC, which are in accordance with law.

(q) With reference to the contents of paragraph nos. 23 and 24 of the present appeal, it is denied that the villages of Padhiarka and Doliya are a part of the Gir Sanctuary or the Extended Gir Sanctuary or any other national park or wildlife sanctuary as alleged. It is submitted that no such Greater Gir Conservation Area has been notified. As a matter of fact, the Deputy Conservator of Forest by his letter dated 9.11.2020 has certified that there is no national park or wildlife reserve within 15 kms of the subject ML. It is submitted that no 'Bruhad Gir Vistar' has been declared as Reserve Forest in resolution No. WLP-1107-572-J of the Department of Forest and

Environment, Gandhinagar dated 18.05.2007, as alleged and the same is relied upon totally out of context. It is denied that the proposed project in any manner threatens the lives of lions or that the status of the land was omitted from the EIA, as alleged. It is denied that the status of land is omitted from the EIA report or was not addressed in the public hearing, as alleged or at all.

(r) The contents of paragraph no. 25 are denied.

(s) With reference to the contents of paragraph no. 26 of the present appeal, it is denied that there exists any reason with respect to honest and judicious consideration of the issue of buffer zone wildlife area, as alleged or at all. The purport of the statement that the Respondent No. 3 has supported the Answering Respondent or that any false documents are prepared is denied. The same is merely a bald allegation without any particulars.

(t) The contents of paragraph no. 27 of the present appeal are a matter of record and do not warrant any comments.

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(u) With reference to the contents of paragraph no. 28 of the present appeal, it is submitted that the period of 45 days is not sacrosanct. It is submitted that the Southern Zone Bench at Chennai of this Hon'ble Tribunal in its Judgment and Order dated 6.11.2023 in Appeal Nos. 49/2022(SZ) in the matter of *K. Rukmangada Reddy & ors v/s Union of India & ors* and allied matters taken a view that delay beyond 45 days' in holding public hearing cannot result in cancellation of an environmental clearance.

(v) With reference to the contents of paragraph no. 29 of the present appeal, it is submitted that in accordance with Clause 2.2 of Appendix 4 of the EIA 2006 and as per the fresh TOR dated 28.11.2022, the Answering Respondent submitted the Fresh Draft EIA Report alongwith Executive Summary in Gujarati and English to the Respondent No. 2, for public hearing on 28.02.2023. The date for public hearing was decided by the Respondent No. 5 as being 28.4.2023. It is denied that the same was in violation of the EIA Notification 2006, as alleged or at all.

(w) With reference to the contents of paragraph no. 30 of the present appeal, it is denied that the 3 public hearings were combined, as

alleged. The same were separate public hearings for 3 separate environmental clearances and for different villages. The public hearings were conducted in accordance with Office Memorandum bearing no. J-15042/29/20 10-1A-11(M) dated 19.4.2010. Each hearing pertained to a separate mining lease in a separate area, with a view to ensure that residents of the concerned / affected villages can participate therein. The said public hearing for the subject ML was attended by more than 772 persons and are video graphed. The minutes as well as the videography shows that each public hearing had a large number of people who participated. The public hearings were conducted in an orderly and transparent manner and full opportunity was available for one and all to present their views.

(x) With reference to the contents of paragraph no. 31 and 31 I of the present appeal, it is denied that the issues raised at the public hearing were not addressed, as alleged or at all. As stated above, the said public hearing for the subject ML was attended by more than 772 persons and are video graphed. The minutes as well as the videography shows that each public hearing had a large number of people who participated. The public hearings were conducted in an orderly and transparent manner and full opportunity was available

for one and all to present their views. It is denied that the so called division of the 7 villages into three units will have larger or severe impact on bio diversity, as alleged or at all.

(y) With reference to the contents of paragraph no. 31 II of the present appeal, it is denied that in the cumulative impact assessment considered only air quality prediction or ignored other critical factors, as alleged or at all. It is submitted that Paragraph No. 4.4 of Chapter 4 of the Final EIA Report deals with Ambient Air Quality, including transportation, CALINE – 4 modelling for transportation and control measures. Paragraph no. 4.5 of the Final EIA Report deals with Water environment including, surface water, ground water and salinity ingress with control measures. Paragraph no. 4.6 deals with Water quality and its management. Paragraph no. 4.12 deals with Ecological impact.

(z) The contents of paragraph Nos. 31 III, 31 IV and 31 V of the present appeal of the appeal are contrary to record, hence denied.

(aa) With reference to the contents of paragraph no. 31 VI of the present appeal, I deny that Page C3-24 to 26 of the Final EIA Report or the

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 3-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

Draft EIA report deals with buffer zone and the Appellant has made false and misleading statements in the present appeal. The said pages deal with Ground Water Resources. The land use in buffer zone is deal with in Paragraph no. 3.6.2 of Chapter 3 of the Final EIA Report. The Khasra plan showing the core area of mining lease is provided in Figure C3-10 of the Final EIA Report. It is denied that names of each village falling in buffer zone was required to be mentioned, as alleged or at all. Please refer table no. C3.11 & C3.12 which clearly mentioned the village covered under core and buffer zone of particular mine. List of villages is given in Annexure – IX attached along with final EIA.

(bb) With reference to the contents of paragraph no. 31 VII of the present appeal, it is denied that the Draft EIA Report or the Final EIA Report fail to mention the nitrogen level of 12.57mg/kg in the soil, as alleged or at all. The same is mentioned in Table No. C3-15 of the Final EIA Report. It is apparent that the Appellant is making false statements to mislead this Hon'ble Tribunal.

(cc) Contents of Paragraph no. 31 VIII of the present appeal are denied. It is reiterated that the Answering Respondent will carry out mining

by fully mechanized non-conventional methods. The Answering Respondent will use non-conventional methods of mining by using either surface miner or dozer ripper or rock breaker or excavator tipper combination which are technologies to extract limestone in an environment friendly manner.

(dd) Contents of Paragraph no. 32 of the present appeal are denied. It is submitted that the Final EIA Report considers cumulative impact assessment of all the mines for which the subject EC has been granted.

(ee) Contents of Paragraph no. 33 of the present appeal are vague and without any material particulars and are denied.

(ff) With reference to the contents of paragraph no. 34 of the present appeal, it is denied mining operations of the Answering Respondent can be or ought to be considered in conjunction with that of M/s Ultratech Ltd., as alleged or at all. The mining project of the Answering Respondent are entirely separate had not commenced at the time of grant of the subject EC. On the other hand, the mining area of M/s Ultratech Cement Ltd is at a distance of 25km from the

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

mines of the Answering Respondent and it is believed that their mining activity was on going when the subject EC was granted to the Answering Respondent. By no stretch of imagination can the two projects be seen in conjunction. It is denied that mining activity will denude the coastline of limestone or lead to salinity ingress. The mining activity of the Answering Respondent is outside the Costal Regulation Zone.

(gg) With reference to the contents of paragraph no. 35 of the present appeal, it is denied that the land under which Limestone is available is fertile or good for agriculture, as alleged or at all. It is denied that pt. 37 on Page C3-29 of the Draft EIA Report corroborates the same, as alleged. It is submitted that the Answering Respondent has been granted mining leases in accordance with law and the subject EC is granted after examining and considering all aspects, including so called fertility of land.

(hh) With reference to the contents of paragraph nos. 36 and 37 of the present appeal, the Answering Respondent states as under:

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(i) In the 25th EAC meeting it was directed that the Answering Respondent should engage wildlife experts/avian experts for conservation of the avian fauna within and near its mine lease. In this regard, the Answering Respondent had engaged Dr. Bharat Kumar Jethva, NABET Accredited Ecology & Biodiversity Expert, Ahmedabad to undertake study on the probable impact of mining of three i.e. 1) Padhiarka & Doliya, 2) Vangar & Madhiya and 3) Gujarda, Dudheri & Dudhala limestone mines on migratory bird species and their fly-way passage (Central Asian Flyway) due to mining activity and conservation plan for migratory bird species. Dr. Bharat Kumar Jethva& his team has conducted the study during month of April & May 2024 and prepared report entitled with mitigation measures for conservation of migratory bird species. The answering respondent had submitted the report entitled "Study of Probable Impact of Mining on Migratory Bird Species and Their flyway passage".

(ii) EAC in 30th meeting, directing the Answering Respondent to get above referred report vetted by an institute of national repute having specialization on conservation and protection of

migratory birds. The engaged institute shall also submit site specific tangible mitigative measures to ensure the protection of these migratory birds. In this regard, the EAC noted in the 32nd EAC meeting that Answering Respondent got the above referred report from the Salim Ali Center for Ornithology and Natural History (SACON) Coimbatore, which gave the following conclusion:

"(g) *Though the report provides an overview of management requirements for mitigation of potential impacts of mining on migratory birds, a systematic field survey covering the main winter migratory season would enable us to develop a site-specific action plan for the conservation of migratory birds and other avifauna of conservation significance in the landscape.*

h) *A detailed field survey on abundance, distribution, and habitat use of the migratory birds in and around the mining blocks (esp. the IBA covering the Nikol-Samadhiyala-Malan bandharas) during the peak migratory season (December-January) needs to be conducted for understanding any site- and species-specific impacts arising from mining and associated activities. In particular migratory taxa like cranes, waders, ducks & geese, and migrant passerines should be studied.*

To address the shortcomings of the study as discussed above, SACON has just initiated a study to cover the

upcoming winter migratory season of birds. The SACON study will update the migratory season data and would bring out detailed site-specific recommendations, which shall be implemented by the Answering Respondent to minimize and mitigate the impacts of the proposed limestone mines by Nirma Ltd. on the migratory birds and their habitats in Mahuva Taluka of Bhavnagar district in Gujarat."

(iii) In view of the above conclusion of the study, the EAC was of the opinion that Answering Respondents should implement the site-specific recommendations under the supervision of SACON to mitigate the effects of mining on migratory species and should submit an action taken report to the Ministry on yearly basis. In this regard Answering Respondents submitted and undertaking dated 11.07.2024 stating that they will implement all the mitigative measures mentioned in the aforesaid study report and it will comply with all the additional specific mitigative measures suggested by SACON.

(iv) The answering respondent submit that as per condition of the subject EC, SACON had visited during the peak migratory

season (December 2024 - January-2025) and conducted study for understanding site- and species-specific impacts arising from mining and associated activities. Further, SACON has submitted the report, which is also submitted to the Respondent No.1 in compliance of condition. The given site specific mitigative measures are under implementation.

(ii) With reference to the contents of paragraph no. 38 of the present appeal, it is denied that the Respondent No. 3 disregarded the concerns of the Appellants or granted the subject EC to the Answering Respondent without adequate review, as alleged or at all. It is submitted that the subject EC has been granted by the Respondent No. 1 after following due process of law and complying with the EIA Notification dated 14.9.2006 (hereinafter referred to as "EIA 2006"). The Expert Appraisal Committee (hereinafter referred to as "EAC") has, in its various meetings held on 5-6 December 2022, 17-18 January, 2023, 18-20th October 2023, 09-10 January 2024, 14-15 March 2024, 12-14 June 2024, and 12-13 August 2024, deliberated upon the Final EIA Report and has taken note of the anticipated environmental impact and mitigation measures. It was also based on various studies such as ambient air monitoring data,

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

water, noise and soil analysis data, biological study, hydrogeological & hydrological studies, wildlife conservation study, socio-economic study, Portable impact on migratory birds and Central Asian Flyway due to mining and Coastal Regulation Zone study etc. It also considered and addressed all the issues raised during the public hearing by the villagers including the Appellants herein, in line with the EIA 2006 and subsequent amendments thereto. A complete Environment Management Plan has been submitted and analyzed by the Expert Appraisal Committee. It is submitted that in the present case, the EAC, upon receiving written complaints from the Appellants herein as well as the other local people, deferred the proposal till a view was taken by the Respondent No.1 who found that the points raised the letters of the Complainants are already included in the public hearing proceedings as well as the EIA and the same may be considered for taking appropriate decision. The EAC recorded the same in its meetings during 18-20th October 2023, 09-10 January 2024, 14-15 March 2024, 12-14 June 2024, and 12-13 August 2024. It is submitted that, therefore, in the present case the EAC as well as the Answering Respondent have taken all efforts, even beyond what is generally followed in normal course, to ensure that all the complaints of the local people have been addressed even

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

at the cost of delaying the procedure of grant of the subject EC. It is further submitted that in the present case stringent specific conditions have been recommended by EAC for grant of the subject EC so as to ensure that all the concerns addressed and project is environmentally safe. It is submitted that in the 21st meeting of the EAC held on 18-20 October 2023 (after public hearing and after Final EIA Report was submitted), it was decided to form a sub committee and defer the proposal to grant environmental clearance, for the following reasons:

> "*Thus the EAC opined that there is a need to ascertain the ground reality w.r.t natural low lying areas, water logging areas, old mine pits, sequence of mining, feasibility for backfilling, impact on socio economic, agriculture land, transportation route, traffic congestion, salt pans, effectiveness of salinity ingress control bund, proximity of habitations, schools, water bodies, roads etc., The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC* ***deferred*** *the proposal for want of following additional information:*"

Copy of the relevant extract of the 21st Minutes of Meeting of the EAC is annexed hereto and marked **Annexure – R2**. It is submitted

that the sub committee after its visit gave 17 recommendations, which were examined and considered in the 25th meeting of the EAC held on 9-10 January 2024 before recommending the grant of the subject EC. It is thus apparent that all relevant issues have been examined and considered threadbare before the grant of subject EC. It is submitted that the observations and recommendations of the sub committee are recorded in the Minutes of the 25th Meeting of EAC and are in public domain. It is submitted that at the time of appointment of the sub committee, all issues raised by the Appellants were before the EAC, and the mandate of the sub committee was not to conduct any inquiry or hearing but assess the ground situation. Thus, there is no gainsaying in the Appellant contending that the sub committee ought to have held a public hearing.

(jj) With reference to the contents of paragraph nos. 39 and 40 of the present appeal, it is denied that that the Answering Respondent has falsified any letter for securing consent of local farmers and submitted the same to the regulatory authorities, as alleged or at all. It is denied that any document submitted by the Answering Respondent to the EAC was fabricated, as alleged or at all.

(kk) The contents of Paragraph no. 41 of the present appeal are denied and the contents of paragraph no. 5(hh) above are reiterated.

(ll) With reference to the contents of paragraph nos. 42 to 46 of the present appeal, the contents thereof are denied. In this regard, the Answering Respondent submits as under:

(i) In the year 2003, the Answering Respondent decided to set up a Cement Plant at Village Padhiarka, Taluka Mahuva, District Bhavnagar in the State of Gujarat, in respect of which it signed a Memorandum of Understanding with the Government of Gujarat (hereinafter referred to as the "State Government").

(ii) On 5.7.2007, the Answering Respondent applied for Terms of Reference ("ToR", for short) for its proposed Cement Plant, which were issued on 27.2.2008. on 14.7.2008, the Answering Respondent submitted its Environmental Impact Assessment ("EIA", for short) Report and Environmental Management Plan ("EMP", for short) to the Respondent No. 1.

(iii) On 15.2.2008, the State Government issued Letters of Intent for the grant of three mining leases falling in Villages Padhiyarka & Doliya, Gujrada, Dudheri & Dudhala and Vangar & Madhiya in District Bhavnagar, Gujarat in respect of Cement Grade Limestone.

(iv) Pursuant to public hearing that was conducted on 9.9.2008, the Environmental Clearance for the Cement Plant dated 11.12.2008 (hereinafter referred to as the "Plant EC") was granted to the Answering Respondent. A copy of the Plant EC dated 11.12.2008 is annexed hereto and marked **Annexure – R-3**.

(v) The grant of the Plant EC triggered a catena of motivated, ulterior and vexatious events with a view to derail the setting up of the Cement Plant with active political involvement. On 17.12.2008, on the representation of a local Member of Legislative Assembly ("MLA", for short), yet another public hearing was conducted by the Collector, Bhavnagar which was attended by the said MLA and villagers. While the said

public hearing did not have any impact on the Plant EC, it resulted in the filing of a public interest litigation being Special Civil Application No. 3477 of 2009 (hereinafter referred to as the "said PIL") before the Hon'ble High Court of Gujarat at Ahmedabad by one, Shree Mahuva Bandhara Khetiwadi Pariyavaran Bachav Samiti & ors, of which the Appellant No. 1 was member.

(vi) During the pendency of the said PIL, the State Government constituted a High Level Committee (hereinafter referred to as the "Shelat Committee") under the chairmanship of Sh. S.K. Shelat, Advisor to the Chief Minister of Gujarat which constituted of the Secretary, Narmada Water Resources, Water Supply and Kalpasar Department, Chairman of the Respondent No.2, Ex Collector, Bhavnagar, Retired Additional Director, Geology and Mines Department and the Commissioner, Geology and Mines Department. The Shelat Committee visited the site including the Samadhiyala Bandhara, conducted a public consultation and on 4.8.2009 submitted a report to the State Government. On the basis of the report of the Shelat Committee, the State Government

constituted a sub / Expert Committee of four ministers under the chairmanship His Excellency, Vajubhai Vala, who was the Minister for Finance, Labour & Employment. The said sub-committee / expert committee suggested that that the Answering Respondent surrenders 54 hectares of land out of the total 268 hectares for the Cement Plant and continue the work.

(vii) On 9.12.2009, the Answering Respondent, without wanting to enter into any controversy, gave written consent for the surrender of 54 Hectares of land and the construction work at the Cement Plant site restarted, after demarcation.

(viii) The said PIL then came to be disposed of vide Judgment and Order dated 26.4.2010 (hereinafter referred to as the "PIL Order"). In the said PIL Order, Hon'ble High Court has recorded and, *inter alia*, directed that:

(a) The Samadhiyala Bandhara Reservoir is an artificial manmade lake;

(b) The Answering Respondent shall surrender a further area of 46 hectares in addition to the 54 hectares already surrendered;

(c) The Answering Respondent shall further deepen the 100 hectares of land surrendered by it;

(d) The Answering Respondent shall construct and regularly de silt 3 canals for flow of rainwater;

(e) The Answering Respondent shall not use any water from the reservoir for its activities;

The relevant extract of the PIL Order is reproduced hereunder:

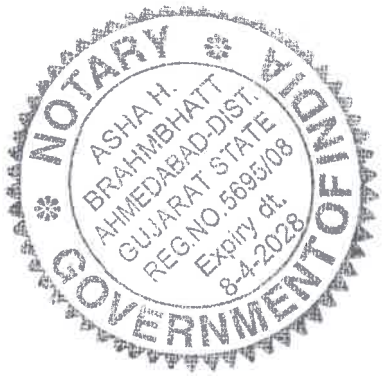
"*21. Question is whether all the measures provided by the Government coupled with the surrender of additional 46 hectares of land is sufficient safeguard to protect and preserve the Samadhiyala Bandhara reservoir so as to permit respondent No.4 Company to carry on with the further construction of the cement factory. In our view, with certain minor fine tuning and further conditions, it would be so.*

22. ***Firstly***, *further surrendering of 46 hectares of land would ensure that against total allotment of 100 hectares of submergence land of Samadhiyala Bandhara Reservoir, the Company would have surrendered equal area. We are conscious that it will not be exactly the same land.* ***However, we have considered the fact that the Reservoir was created by construction of wasteweir in the year 1999 and is thus an artificial Manmade lake****. Without in any manner affecting its water carrying capacity or the total inflow of water, if by minor modifications, a major industry can be sustained in a rural area, in our view the Court should not interject by ignoring and discarding the reports of several agencies comprising experts in the field.* ***Secondly***, *in addition to restoring 100 hectares of land, 75 hectares of additional Government land is to be excavated to increase the water carrying capacity of the reservoir.* ***The Company has also agreed to excavate further approximately 40 hectares of land out of 54 hectares to be surrendered*** *under order dated 8th December 2009 passed by the Government.* ***Thirdly***, *pursuant to our suggestion,* ***as accepted by the Company, further 46 hectares of land will be returned****. This can also be ordered to be excavated as per the suggestions of the Government Agencies.* ***Fourthly, the Company is required to construct and maintain three canals which will act as drains into the Reservoir*** *of rainwater from surrounding area.* ***Fifthly***, *the Company is prevented from using any part of water of reservoir for its consumption.*

23. *Considering the above measures and taking into account the reports of various agencies, there is*

nothing before us to hold that even after implementation of these measures, either the water carrying capacity of the Reservoir would reduce or the availability of water during rainy season will in any manner be adversely affected. Significantly, surrendering of total 100 hectares of land by the Company is one of the alternatives suggested by the Shelat Committee Report also. Here also, we are aware that the location of the land to be returned differs.

In the present case, ***we do find that though initially substantial portion of the land which was part of submergence area of the Samadhiyala Bandhara was sought to be alienated in favour of respondent No.4 Company, by combination of orders passed by the Government, undertaking given by respondent No.4 Company and the directions that we are in the process of issuing in this order, virtually the entire area would stand restored to the Government****. In addition to return of 100 hectares of land to the Government, various measures directed by the Government as well as by us in the present order, we feel would, to a large degree restore the original position. In that view of the matter, we find that there would be substantial compliance with the directions of the Division Bench in the case of S.R.Shah (supra). Nothing stated in this order is, however, meant to dilute the said directions in any manner. However, when we find that by substantial compliance with the said directions and while simultaneously preserving the waterbody, if an industry in which substantial investment has already been made can be allowed to be set up, such project should not be stalled.* ***By preserving waterbody, if industrial development can still be achieved, surely the same***



should not be objected to. The cement plant would bring in substantial investment in addition to generating employment in the region and would also sustain ancillary and incidental industries and businesses."

"26. Under the circumstances, this petition is disposed of with following directions:

1) Respondent No.4 Company shall, in addition to 54 hectares of land ordered to be surrendered by the Government in its order dated 8th December 2009, surrender further 46 hectares of land indicated in the map at Annexure I to the affidavit dated 16th April 2010, copy of which map is attached to this judgment at Exh.A and shall form part of this judgment. No part of this 46 hectares will include any land to be occupied by canals which the Company is obliged to construct;

2) Respondent No.4 Company shall strictly adhere to its obligation to construct canals A, B and C shown in the official maps and maintain the same as directed by the Government and further ensure that it is desilted periodically, so that the flow of rain water from the surrounding areas to the Reservoir is not obstructed;

3) Respondent No.4 Company shall excavate and deepen 75 hectares of Government waste land as directed by the Government;

4) *Respondent No.4 shall excavate and deepen part of 54 hectares of land returned by it under the Government order dated 8th December 2009;*

5) *Respondent No.4 shall excavate and deepen any part of the additional 46 hectares of land as may be suggested by the Government. For this purpose, the Government shall have a survey carried out and make suggestions for excavation of the land as per the topography of the area to ensure that this additionally surrendered land also forms part of Samadiyala Bandhara and increases the water carrying capacity of the Reservoir.*

6) *Respondent No.4 Company shall not use any water from the reservoir for its activities.*

7) *Respondent No.4 Company shall ensure that its activities shall not pollute or contaminate the Reservoir water in any manner.*

*****

10) *The Government shall, on the basis of the records of rainfall in the region and the total amount of water collected in the Reservoir immediately after the monsoon, judge whether on account of setting up of the factory there has been any significant reduction in income of the fresh water in the Reservoir. If so, the Government shall require respondent No.4 Company to take such remedial measures as may be found necessary."*

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(Emphasis Supplied)

A Copy of the PIL Order dated 26.4.2010 is annexed hereto and marked **Annexure – R-4**.

(ix) It is pertinent to point out that the petitioners in the said PIL applied for review of the PIL Order, which came to be dismissed by the Hon'ble Gujarat High Court vide Order dated 27.9.2010. A Copy of the Order dated 27.9.2010 is annexed hereto and marked **Annexure – R-5**.

(x) Both the PIL Order and the Order dated 27.9.2010 dismissing the review application were made a present matter of challenge before the Hon'ble Supreme Court in SLP (c) No. 14698 of 2010 and allied matters and SLP (c) No. 32414 of 2010, respectively.

(xi) On 21.1.2011, the Respondent No.1 appointed a 7 members committee headed by Mr. C.K. Varshney (hereinafter referred to as the "Varshney Committee') to check the ground situation. The Varshney Committee submitted a report stating

that the area in question for the Cement Plant has all characteristics of a wetland ecosystem. Even before the Varshney Committee could give its report, the Respondent No.1 issued a Show Cause Notice dated 11.3.2011 to the Answering Respondent for showing cause as to why the Plant EC should not be cancelled. The said show cause notice was challenged by the Answering Respondent before Hon'ble Supreme Court of India but no stay was granted at the relevant time.

(xii) Thereafter, an expert body headed by Mr. C.R. Babu (hereinafter referred to as the "Babu Committee") to inquire, *inter alia*, whether the land for the Cement Plant was a wet land or a water body. The Babu Committee gave its findings upon making certain inquiries, wherein it took the view that the Cement Plant site lies within the water spread of catchment, and the water run-off terrain of Samadhiyala Bandhara; and what earlier was a costal saline natural eco system was converted into fresh water man-made eco system providing assistance of lift irrigation. This led to the issuance of another show cause notice dated 11.5.2011 as to why the

Plant EC not be revoked in light of the Babu Committee report. Though the Answering Respondent requested the Respondent No.1 to get a further study conducted, the Respondent No.1 vide Order dated 1.12.2011 (hereinafter referred to the "Plant EC Cancellation Order") proceeded to cancel the Plant EC. While the Answering Respondent challenged the Plant EC Cancellation Order before this Hon'ble Tribunal, Principal Bench at New Delhi, all the special leave petitions before Hon'ble Supreme Court came to be disposed of vide Order dated 9.12.2011 since the Plant EC stood cancelled.

(xiii) In these circumstances, the process of grant of environmental clearance for the mining leases, including the Present lease also got stalled.

(xiv) Pursuant to orders of this Hon'ble Tribunal, Principal Bench at New Delhi, another committee of expert members was constituted to look at the ground situation. On 7.6.2013, the said committee undertook a visit and found that the Bandhara was totally dry despite good rainfall. Thereafter, in the month

of September, 2013, the said committee undertook a post-monsoon visit and observed that the Bandhara was at full level with shallow level depth all over in submergence and growth of aquatic vegetation and presence of a few water/migratory birds and that no part of the Cement Plant was under submergence.

(xv) By an Order dated 14.1.2015 (hereinafter referred to as the "Plant EC Revival Order"), the Principal Bench of this Hon'ble Tribunal allowed the appeal of the Answering Respondent and Hon'ble Tribunal quashed & set aside the Plant EC Cancellation Order, in doing so, they have disbelieved the Babu Committee report and found that the Samadhiyala Bandhara serves only as a temporary storage of waters and cannot be called a wetland having features of a perennial wetland. Hon'ble Tribunal also found that the PIL Order had become final. The relevant observations of the Plant EC Revival Order read as under:

"42. Visit of the Expert Members twice to the project site, firstly in the first week of June 2013 and secondly in

the month of September 2013 brought to light some material facts concerning the water body. On the first visit of the Expert Members it was noticed that the Bandhara was totally dry despite good rains over short period ("75 mm false" recorded at Bhavnagar) and on second visit it was noticed that the Bandhara was almost at full level with shallow water depth all over in submergence and no part of the proposed project land was under submergence and the adjoining areas beyond the boundaries of the proposed project land was having shallow water accumulation. Expert Members also noticed during their second visit that there was growth of aquatic vegetation and the presence of few migratory birds around the water body. ***One wonders how Prof. Babu Committee could document exhaustive list of birds, presence of endangered vulture and Asiatic lions and could give soil type extra in two hours of field visit without any backing of any specific scientific study in relation to the project site.*** *On visits to site in question the Expert Member had made pointed enquiry and asked for data/information as regards month wise rainfall pattern over the years, month wise water levels in the Bandhara, month wise irrigation area provided from the reservoir, soil type and its characteristics in the project area and adjoining area, lay out maps of the area in question along with superimposition of project boundaries from the parties to the Appeal. This information/data was made available to us and was exchanged between the parties.* ***Having gone through the entire information/data thus made available we are of the considered opinion that the Samdiyala Bandhara serves as a temporary storage of water, which gets used by farmers or gets evaporated due to its large***

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

spread or gets percolated due to fairly high porosity of soil and as such cannot be called as a productive wetland having all perennial features of a wetland.

43. *As noted above, the revenue records described the area in question as a 'waste Land' and it was never, even till today, identified as wet land by the Central Wetlands Regulatory Authority and so notified by the Central Government under the provisions of the Act for the purposes of Wetland (Conservation & Management) Rules, 2010."*

(Emphasis Supplied)

A copy of the Plant EC Revival Order is annexed hereto and marked **Annexure – R-6**.

(xvi) The Plant EC Revival Order is a present matter of challenge before Hon'ble Supreme Court in Civil Appeal Nos. 8302 – 8303 of 2015, which pending. However, the Plant EC Revival Order is not stayed.

(xvii) A perusal of the above chain of events and a co-joint and harmonious reading of the PIL Order and the Plant EC Revival Order, clearly demonstrate that:

(a) The Samadhiyala Bandhara reservoir which is at a distance of about 2.3 kilometres from the Subject ML is not a wetland. Nor the same has been declared a wetland.

(b) As recorded in the PIL Order and the Plant EC Revival Order, the issue of Samadhaliya Bandhara being a wetland or the issue of the catchment area being affected or salinity ingress do not survive.

(c) The reliance of the Appellants on the reports of the Varshney Committee and Babu Committee is misplaced and unjustified. It is also misleading since the Appellants have not clarified that the said reports were disbelieved in the Plant EC Revival Order.

(d) The Appellants have suppressed material facts by not giving requisite details about the PIL Order and the Plant EC Revival Order and also not placed them on record.

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

(mm) With reference to the contents of Paragraph no. 47 of the present appeal, it is submitted that the Notification dated 13.8.2024 is issued under the Gujarat Irrigation and Drainage Act, 2013. The said act applies to works constructed or maintained in relation to irrigation, *inter alia*, by the State Government. Section 4 of the said Act, reads as under:

> "*4. Whenever it appears expedient or necessary to the Government that the water of any river or stream flowing in a natural channel, or of any lake or any other natural collection of still water,* ***should be applied or used by the State Government for the purposes of any existing or projected canal****, the State Government may, by notification in the Official Gazette, declare that the said water shall be so applied or used after such date as may be specified in the said notification, not being earlier than three months from the date thereof.*"
>
> (Emphasis Supplied)

Firstly, the mining leases of the Answering Respondent do not fall within the area of the Samadhiya Bandhara or its catchment area and, therefore, the said notification is irrelevant for the purposes of the present Appeal.

Secondly, the said Notification is under the Act, which deals with irrigation and not with declaring any area as a wetland or a water body. Declaration of a wet land is the function of the Principal Chief Conservator of Forest, Government of Gujarat and Samadhiyala Bandhara has not been declared to be a wetland.

Thirdly, under Section 4 of the said Act, water can be utilized or applied for the purposes of a canal. This will lead to diversion of water from the Samadhiya Bandhara and may infact lead to salinity ingress.

(nn) Contents of Paragraph nos. 48 to 50 of the present appeal are formal in nature and do not warrant any reply.

(oo) With reference to the contents of Paragraph nos. I to XV being the grounds of the present Appeal, the same are denied in light of what is stated hereinabove.

(pp) In light of what is stated hereinabove, the present Appeal is devoid of merits and deserves to be dismissed in liminie. The Appellants are

NOTARY ASHA H. BRAHMBHATT AHMEDABAD-DIST. GUJARAT STATE REG.NO.5695/08 Expiry dt. 8-4-2028 GOVERNMENT OF INDIA

NIRMA LIMITED AHMEDABAD

not entitled to be granted any prayer made therein, including the interim prayers.

(qq) The Answering Respondent craves leave to modify, alter or amend the present affidavit if deemed necessary with the permission of this Hon'ble Tribunal.

For, NIRMA LIMITED

Authorised Signatory

DEPONENT

VERIFICATION

I, Ajay B. Khushu, son of Sh B.L. Khushu, adult, Occu: service, having my office at Nirma House, Ashram Road, Ahmedabad-380009, the Deponent above named do hereby verify that the contents of the foregoing affidavit are true and correct to my knowledge, no part of it is false and nothing material has been concealed there from.

23 JAN 2026

Verified at Ahmedabad on this day of January 2026

Sr. No.....206...../2026

ASHA H. BRAHMBHATT
NOTARY
GOVT. OF INDIA

SOLEMNLY AFFIRMED
BEFORE ME

ASHA H. BRAHMBHATT
NOTARY
GOVT. OF INDIA

DEPONENT

23 JAN 2026

For, NIRMA LIMITED

Authorised Signatory

FINAL ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

OF ANNEXURE-R-1

PADHIARKA & DOLIYA LIMESTONE MINE

AT
VILLAGE PADHIARKA & DOLIYA,
TALUKA MAHUVA, DISTRICT BHAVNAGAR, GUJARAT
(EXTENT 332.24 Ha., 1.50 MTPA R.O.M)

Project Proponent:

NIRMA LTD.

Nirma House, Ashram Road, Ahmedabad (Gujarat)
Phone – 079-27546565–74. Fax – 079-27546999

ToR granted: Letter no. J-11015/154/2016-IA.II (M)
Dated 28th November, 2022

Baseline Monitoring Period: 1st March - 2nd June 2021 (Summer Season) by Min Mec R&D Laboratory

AUGUST 2023
(Issue 02, Rev. 0)

EIA Consultant:

Centre for Envotech and Management Consultancy Pvt. Ltd.
AN ISO: 9001:2015, ISO 14001:2015 & ISO 45001:2018 certified company,
Empanelled with OCCL, Govt. of Odisha, OSPCB as Category "A" Consultant Organization,
Accredited by NABET, Quality Council of India for EIA studies
As Category "A" Consultant Organization
Regd. Off: Plot No. 522/3458, Pahal, Bhubaneswar-752101, Odisha.
E-mail: cemc_consultancy@yahoo.co.in, cemc122@gmail.com
Website: www.cemcpl.com

NIRMA LIMITED

REGD. OFFICE : NIRMA HOUSE, ASHRAM ROAD, AHMEDABAD-380 009. PHONES : 079-27546565 - 74 FAX : (079) 27546603 - 27546605 Email : info@nirma.co.in

UNDERTAKING

I, Ashish Desai, S/O Shri Kantilal Desai, hereby, undertake that prescribed Terms of Reference received vide letter No. J-11015/154/2016-IA. II(M) dated 28.11.2022 with respect to EIA/EMP studies of Padhiarka & Doliya Limestone Mine (Extent 332.24 ha., 1.5 MTPA R.O.M) located at Villages Padhiarka and Doliya, Taluka Mahuva, District Bhavnagar, Gujarat, has been complied while conducting the EIA studies. The contents (Information and data) as given by our consultant in the EIA/EMP report are factually correct, with full knowledge of the undersigned.

Ashish Desai.

Place: Ahmedabad
Dated: 04.01.2023

Ashish Desai
Authorized Signatory

DECLARATION BY EXPERTS CONTRIBUTING TO THE EIA

EIA/EMP Report for Padhiarka & Doliya Limestone Mine of M/s Nirma Ltd. located at Village Padhiarka and Doliya, Taluka Mahuva, District Bhavnagar, Gujarat" of M/s Nirma Ltd.

The baseline data was generated by MoEF & NABL Accredited Laboratory M/s Min Mec R&D Laboratory, a division of Min Mec Consultancy Pvt. Ltd., New Delhi.

We have carried out verified the baseline measurements carried out by M/s Min Mec R&D Laboratory.

I, hereby certify that I was a part of the EIA team in the following capacity that developed the above EIA.

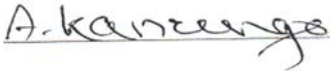
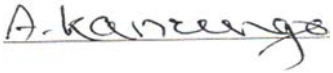
EIA Coordinator:

Name: Mr. Debashish Mishra

Signature and Date: 14.08.2023
Period of Involvement: December 2022-till date
Contact Information: 9438500471

Functional area experts:

Sl. No.	Functional Area	Name of the expert/s	Involvement (period and task)		Signature and date
1	Air pollution monitoring, prevention and control (AP)	Mr. Dayananda Pandey	**Period:**	December 2022-till date	
			Task:	Prediction of Air Pollution and its Impacts & Mitigation Measures. Interpretation of Baseline Environment.	
2	Water pollution monitoring, prevention and control (WP)	Mrs. Anupama Swain	**Period:**	December 2022-till date	
			Task:	Prediction of Water Pollution and its Impacts & Mitigation Measures. Interpretation of results, comparison with limits for writing in present baseline scenario.	
3	Solid and hazardous waste management (SHW)	Er. Ananta Prasad Barik	**Period:**	December 2022-till date	
			Task:	Identification of nature of waste, categorization, and quantity of generated waste. Prediction of waste pollution and its management.	

Sl. No.	Functional Area	Name of the expert/s	Involvement (period and task)		Signature and date
4	Socio-economics (SE)	Dr. Nihar Ranjan Das	**Period:**	December 2022-till date	
			Task:	Secondary data of Census of India, 2011. Socio-Economic Survey; Socio Economic Impact Assesment.	
5	Ecology and biodiversity (EB)	Mr. Debashish Mishra	**Period:**	December 2022-till date	
			Task:	Ecological and biodiversity survey. Identification of species (flora and fauna) and preparation ofecology section in EIA/EMP report.	
6	Hydrogeology (HG)	Mr. Ashutosh Kanungo	**Period:**	December 2022-till date	
			Task:	Hydrogeological survey for assessing aquifer distribution of the area. Water resource evaluation of the area.Pre-monsoon & Post-monsoon collection of water level & quality data.	
7	Geology (Geo)	Mr. Ashutosh Kanungo	**Period:**	December 2022-till date	
			Task:	Geological survey for assessing aquifer distribution of the area. Water resource evaluation of the area. Pre-monsoon & Post-monsoon collection of water level & quality data.	
8	Soil conservation (SC)	Dr. Rabindra Kumar Mishra	**Period:**	December 2022-till date	
			Task:	Identification of existing quality of soil. Prediction of Impact and its management.	
9	Meteorology, air quality modeling and prediction (AQ)	Mr. Dayananda Pandey	**Period:**	December 2022-till date	
			Task:	Study of primary data, Air Quality Modelling and itsinterpretation.	

Sl. No.	Functional Area	Name of the expert/s	Involvement (period and task)		Signature and date
10	Noise and vibration (NV)	Dr. Dilip Kumar Pandey	**Period:**	December 2022-till date	
			Task:	Prediction of Noise Pollution & its Mitigation Measures. Review of the section of noise and vibration and recommended mitigation measures for control of noise and vibration.	
11	Land use (LU)	Dr. Nihar Ranjan Das	**Period:**	December 2022-till date	
			Task:	Satellite image interpretation and preparation of land use map of study area, prediction of impact on land use pattern (existing & proposed), suggest mitigation measures.	
12	Risk Assessment and hazard management (RH)	Er. Ananta Prasad Barik	**Period:**	December 2022-till date	
			Task:	Assess risk due to projectand prepare chapter on disaster management plan & safety measures.	

Declaration by the Head of the Accredited Consultant Organization

I, Dr. Bidyut Kumar Patra, hereby, confirm that the above mentioned experts prepared the EIA for Padhiarka & Doliya Limestone Mine of M/s Nirma Ltd. located at Village Padhiarka and Doliya, Taluka Mahuva, District Bhavnagar, Gujarat" of **M/s Nirma Ltd.** I also confirm that I shall be fully accountable for any misleading information mentioned in this statement.

Signature: 

Name: **Dr. Bidyut Kumar Patra**
Designation: **Director**

Name of the EIA Consultant Organization: **Centre for Envotech & Management Consultancy Pvt. Ltd.**

NABET Certificate No. & Issue Date: **NABET/EIA/2124/RA 0243, dated 05.09.2022 and Valid upto 18.03.2024.**

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar

N5/305, IRC Village, Nayapalli, Bhubaneswar-751015, Odisha

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S.No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals – opencast only	1	1 (a) (i)	A
2	River Valley projects	3	1 (c)	A
3	Thermal power plants	4	1 (d)	B
4	Coal washeries	6	2 (a)	A
5	Mineral beneficiation	7	2 (b)	A
6	Metallurgical industries (ferrous & non-ferrous)	8	3 (a)	A
7	Petroleum refining industry	10	4 (a)	A
8	Petro-chemical complexes (industries based on processing of petroleum fractions & natural gas and/or reforming to aromatics)	18	5 (c)	A
9	Highways	34	7 (f)	A
10	Common Municipal Solid Waste Management Facility (CMSWMF)	37	7 (i)	B
11	Building and construction projects	38	8 (a)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated May 06, 2022 and posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/22/2511 dated Sept 05, 2022. The accreditation needs to be renewed before the expiry date by Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar following due process of assessment.

Sr. Director, NABET
Dated: Sept 05, 2022

Certificate No.
NABET/EIA/2124/RA 0243

Valid up to
March 18, 2024

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to the QCI-NABET website.

CONTENTS

Sl. No.	Description	Page No.
	COMPLIANCE OF TERMS OF REFERENCE (TOR)	1 to 22
	CHAPTER 1 : INTRODUCTION	
1.1	Purpose of the EIA report	C1-1
1.2	Identification of the project	C1-1
1.3	Project proponent	C1-6
1.4	Brief description of the project	C1-7
1.5	Importance in the region and country	C1-9
1.6	Scope of the study	C1-10
1.7	Status of litigation	C1-12
	CHAPTER 2 : PROJECT DESCRIPTION	
2.1	Geology	C2-1
2.2	Details of exploration	C2-3
2.3	Reserves estimation	C2-7
2.4	Quality parameters	C2-10
2.5	Mining	C2-11
2.6	Tentative yearwise development programme	C2-13
2.7	Drilling & Blasting	C2-15
2.8	Production	C2-22
2.9	List of mining equipment	C2-23
2.10	Site services and infrastructures	C2-25
2.11	Fuel and storage of explosives	C2-26
2.12	Power requirement	C2-26
2.13	Water requirement	C2-26
2.14	Employment potential	C2-27
	CHAPTER 3 : DESCRIPTION OF THE ENEVIRONMENT	
3.1	General	C3-1
3.2	Topography and drainage	C3-2
3.3	Climate and meteorology	C3-4
3.4	Ambient air quality	C3-11
3.5	Water resources	C3-18
3.6	Land environment	C3-30
3.7	Soil Characteristics	C3-34
3.8	Noise level	C3-37
3.9	Traffic volume survey	C3-38

Sl. No.	Description	Page No.
3.10	Ecology	C3-38
3.11	Socio-economic conditions	C3-47
3.12	Amenities	C3-51
3.13	Seismicity	C3-52
3.14	Industries or polluted areas around the project area	C3-53
3.15	Places of tourist/ religious/ historical interest/ national park/ sanctuary	C3-53
3.16	CRZ, coastal features, mangroves, etc.	C3-54
	CHAPTER 4 : ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION MEASURES	
4.1	General aspects	C4-1
4.2	Topography and drainage	C4-1
4.3	Climate	C4-4
4.4	Ambient air quality	C4-5
4.5	Water environment	C4-16
4.6	Water quality	C4-22
4.7	Noise level	C4-25
4.8	Ground vibrations- impact and management	C4-28
4.9	Traffic volume	C4-32
4.10	Land use	C4-33
4.11	Solid waste – impact and management	C4-40
4.12	Ecology	C4-43
4.13	Socio-economic conditions	C4-56
4.14	Occupational health and safety	C4-59
4.15	Conservation of natural resources	C4-63
	CHAPTER 5 : ANALYSIS OF ALTERNATIVES	
5.1	Site alternatives	C5-1
5.2	Technology alternatives	C5-2
	CHAPTER 6 : ENVIRONMENTAL MONITORING PROGRAMME	
6.1	Introduction	C6-1
6.2	Proposed setup	C6-1
6.3	Monitoring schedule and parameters	C6-3
6.4	Budgetary provision for environmental management	C6-6
	CHAPTER 7 : ADDITIONAL STUDIES: RISK ASSESSMENT, DISASTER MANAGEMENT PLAN & PUBLIC CONSULTATION	
7.1	Risk analysis and disaster management plan	C7-1

Sl. No.	Description	Page No.
7.2	Care and maintenance during temporary discontinuance	C7-6
7.3	Disaster management plan	C7-7
7.4	Off-site emergency planning	C7-9
7.5	Summary of the proceeding of public consultation	C7-14
	CHAPTER 8 : PROJECT BENEFITS	
8.1	Employment potential	C8-1
8.2	Physical & social infrastructure development due to mine	C8-1
8.3	Social welfare initiatives undertaken by M/s Nirma Ltd.	C8-2
8.4	Need assessment	C8-7
8.5	Proposed CSR Expenditure	C8-13
8.6	Environmental benefit	C8-13
	CHAPTER 9 : ENVIRONMENTAL COST BENEFIT ANALYSIS	C9-1
	CHAPTER 10 : ENVIRONMENT MANAGEMENT PLAN	
10.1	Environment management plan	C10-1
10.2	Corporate Environment policy	C10-14
10.3	Standard operating process / procedures to address deviation/ violation	C10-15
	CHAPTER 11 : SUMMARY OF CONCLUSION	
11.1	Introduction	C11-1
11.2	Project description	C11-3
11.3	Present environmental scenario	C11-4
11.4	Anticipated environmental impact and mitigation measures	C11-8
11.5	Analysis of alternatives	C11-14
11.6	Environmental control and monitoring organisation	C11-14
11.7	Additional studies: Disaster management plan	C11-14
11.8	Project benefits	C11-15
11.9	Consultants	C11-15
	CHAPTER 12 : DISCLOSURE OF CONSULTANTS ENGAGED	
12.1	Centre for Envotech and Management Consultancy (P) Ltd. (CEMC)	C12-1

LIST OF TABLES

Table No.	Particulars	Page No.
Table No. C1-1	Salient Features of the Project	C1-5
Table No. C1-2	Production facilities of Nirma group in Gujarat	C1-6
Table No. C1-3	Baseline data generated as per TOR	C1-11
Table No. C2-1	Regional geological sequence of the area	C2-1
Table No. C2-2	Programme of future exploration	C2-7
Table No. C2-3	Summarized Geological Reserve of Limestone	C2-9
Table No. C2-4	UNFC Classification of reserves	C2-9
Table No. C2-5	Anticipated ROM quality of different limestone	C2-10
Table No. C2-6	Expected run of mine quality (%)	C2-11
Table No. C2-7	Blasting parameters for limestone	C2-16
Table No. C2-8	Quantum of soil, waste rock and limestone production (CUM)	C2-22
Table No. C2-9	Excavation during first plan period (million tonne)	C2-23
Table No. C2-10	Phase wise working programme for mine life	C2-23
Table No. C2-11	List of other Miscellaneous Mining Equipment	C2-24
Table No. C2-12	List of machinery/ equipment required for site services	C2-24
Table No. C2-13	Water requirement	C2-27
Table No. C2-14	Manpower details	C2-28
Table No. C3-1	List of water bodies in 10 km radius of mine	C3-4
Table No. C3-2	Monthly average maximum and minimum temperature (°C), Relative humidity (%) and rainfall (mm) at IMD Station, Bhavnagar (1991-2020)	C3-5
Table No. C3-3	Summary of monitored micro-meteorological data, 1st March - 2nd June, 2021	C3-8
Table No. C3-4	Wind frequency of monitored data at site (01/03/2021-02/06/2021)	C3-8
Table No. C3-5	Location of air sampling stations	C3-12
Table No. C3-6	Procedure for determining various air quality parameters	C3-16
Table No. C3-7	Summary of ambient air quality monitoring results (March - May 2021)	C3-16
Table No. C3-8	Hydrogeological well inventory in the Buffer Zone of Padhiaraka & Doliya Lime stone mine	C3-20
Table No. C3-9	Location of water sampling stations	C3-27
Table No. C3-10	Water test results	C3-27
Table No. C3-11	Pre-operational land ownership in core zone (in ha)	C3-30
Table No. C3-12	Districts/taluka wise villages in buffer zone	C3-30

Table No.	Particulars	Page No.
Table No. C3-13	Land use details of study area (10 km radius) based on Census 2011	C3-32
Table No. C3-14	Location of soil sampling stations	C3-34
Table No. C3-15	Soil analysis result	C3-35
Table No. C3-16	Ambient noise levels in the study area (in Leq dB(A))	C3-37
Table No. C3-17	Traffic volume survey	C3-38
Table No. C3-18	Area under major field crop and horticulture in Bhavnagar district	C3-40
Table No. C3-19	Tree flora at Doliya	C3-43
Table No. C3-20	Tree flora at Padhiarka	C3-43
Table No. C3-21	Tree flora at Dundas	C3-43
Table No. C3-22	Tree flora at Dudheri	C3-44
Table No. C3-23	Summary of project affected families	C3-47
Table No. C3-24	Demographic profile of Study Area	C3-47
Table No. C3-25	Summary of Employment and Occupation in Study Area	C3-49
Table No. C3-26	Amenities available in villages and towns within the study area (as per Census 2011)	C3-51
Table No. C4-1	Predicted incremental ground level concentration by ISCST3 model (µg/m3) with and without control measures	C4-8
Table No. C4-2	Calculated Maximum Ground Level Concentration (µg/m3) from road (Mine exit to Cement plant)	C4-10
Table No. C4-3	Anticipated peak incremental GLC values due to Padhiarka & Doliya Limestone mine at the air quality monitoring stations (µg/m3)	C4-11
Table No. C4-4	Table No. C4-4: Anticipated cumulative peak incremental GLC values due to all the three mine at the air quality monitoring stations (µg/m3)	C4-12
Table No. C4-5	Flow-chart indicating the specific areas generating fugitive emissions and control measures throughout the mine	C4-13
Table No. C4-6	Potential impact of mining on water environment	C4-16
Table No. C4-7	Site elevation and working depths of conceptual pits as per mining plan and its likely intersection with ground water table	C4-19
Table No. C4-8	Noise attenuation with distance on flat bare ground without and with green belt Combined noise of more than one source = 103 dB(A)	C4-27
Table No. C4-9	Permissible Peak Particle Velocity (PPV) at the foundation level of structures in mining areas in mm/sec	C4-29
Table No. C4-10	Existing land use pattern of core zone (in Ha.) as on 01.04.2021	C4-33

Table No.	Particulars	Page No.
Table No. C4-11	Land use pattern of the mining lease area at the end of plan period (31.03.2026) (Ha)	C4-33
Table No. C4-12	Land use pattern at the end of life of mine (Ha.)	C4-34
Table No. C4-13	Stage wise land use and reclamation area (Ha.)	C4-37
Table No. C4-14	Post mining land use of core zone (Ha)	C4-38
Table No. C4-15	Solid waste generation	C4-41
Table No. C4-16	Removal of soil and its disposal	C4-42
Table No. C4-17	Re-handling of soil towards reclamation after this plan period	C4-42
Table No. C4-18	Programme of backfilling	C4-43
Table No. C4-19	Species of saplings proposed	C4-47
Table No. C4-20	Summary of protective measures	C4-51
Table No. C6-1	Monitoring schedule and parameters	C6-3
Table No. C6-2	Capital investment for environmental protection in lakhs	C6-6
Table No. C6-3	Recurring cost for environmental protection	C6-6
Table No. C7-1	Check list for likely disaster in opencast mines	C7-2
Table No. C7-2	Statement of main Issues Raised by the Public and Comments of the Project Proponent	C7-15
Table No. C7-3	Budget of welfare expenditure based on public hearing for Doliya & Padhiyarka limestone mine, district Bhavnagar	C7-95
Table No. C8-1	List of Activities/material supplied (under CSR) to nearby villages of Cement Plant & Limestone Mining Complex at Mahuva, Bhavnagar	C8-2
Table No. C8-2	CSR activities & expenditure made in last 10 years by M/s.Nirma limited, Bhavnagar	C8-3
Table No. C8-3	Present physical & social infrastructure, need assessment and proposed interventions in villages around Padhiarka & Doliya Limestone Mine	C8-8
Table No. C9-1	Environmental cost benefit (ECB) analysis for opencast mining vs. no mining scenario	C9-2
Table No. C10-1	Environment management measures	C10-1

LIST OF FIGURES

Figure No.	Particulars	Page No.
Fig No. C1.1	Location map	C1-8
Fig No. C2-1	Present surface Plan	C2-4
Fig No. C2-2	Geological plan	C2-5
Fig No. C2-3	Geological sections of ML	C2-6
Fig No. C2-4	Tentative excavation plan at the end of 2021-22	C2-17
Fig No. C2-5	Tentative excavation plan at the end of 2022-23	C2-18
Fig No. C2-6	Tentative excavation plan at the end of 2023-24	C2-19
Fig No. C2-7	Tentative excavation plan at the end of 2024-25	C2-20
Fig No. C2-8	Tentative excavation plan at the end of 2025-26	C2-21
Fig No. C2-9	Water balance diagram (KLD)	C2-27
Fig No. C3-1	Topography and drainage map in 10 km radius	C3-3
Fig No. C3-2	Monthly Average Max. & Min Temperature (°C) at IMD Station, Bhavnagar (1991-2020)	C3-5
Fig No. C3-3	Monthly Average Relative Humidity (%) at IMD Station, Bhavnagar (1991-2020)	C3-6
Fig No. C3-4	Monthly Average rainfall (mm) at IMD Station, Bhavnagar (1991-2020)	C3-6
Fig No. C3-5	Windrose diagram at IMD Station Bhavnagar at 8:30 Hrs	C3-7
Fig No. C3-6	Windrose diagram at IMD station Bhavnagar at 17.30 Hrs	C3-7
Fig No. C3-7	Windrose diagram of Monitored data	C3-10
Fig No. C3-8	Location of air & noise sampling stations (integrated map for 3 mines)	C3-14
Fig No. C3-9	Location of water sampling stations	C3-26
Fig No. C3-10	Khasra plan	C3-31
Fig No. C3-11	Land use Pattern in the Study area (Census 2011)	C3-32
Fig No. C3-12	Map showing satellite imagery interpretation for 10 km radius	C3-33
Fig No. C3-13	Location of soil sampling stations & traffic census	C3-36
Fig No. C3-14	Literacy level in the study area (Census 2011)	C3-48
Fig No. C3-15	Break up of SC & ST in the Study area (Census 2011)	C3-48

Figure No.	Particulars	Page No.
Fig No. C3-16	Employment pattern in the study area (Census 2011)	C3-50
Fig No. C3-17	Break up of Main Workers in the study area (Census 2011)	C3-50
Fig No. C3-18	Break up of Marginal Workers in the study area (Census 2011)	C3-50
Fig No. C3-19	Earthquake Hazard Map	C3-53
Fig No. C4-1	Proposed diversion channels	C4-3
Fig No. C4-2	Typical Roof top rain water harvesting structure on mine office	C4-24
Fig No. C4-3	Noise attenuation with distance in all directions over flat open bare ground (sound at source = 103 dB(A))	C4-26
Fig No. C4-4	Conceptual plan	C4-35
Fig No. C4-5	Conceptual section	C4-36
Fig No. C4-6	Environment plan	C4-49
Fig No. C4-7	Reclamation plan	C4-50
Fig No. C6-1	Organisation chart for implementation of pollution control measures	C6-2
Fig No. C7-1	Organisation chart	C7-10
Fig No. C8-1	Some Glimpse of Past CSR activities conducted by Nirma Ltd.	C8-4

LIST OF ANNEXURES

Annexure No.	Particulars	Page No.
I	TOR issued by MoEF&CC vide letter no. J-11015/154/2016-IA.II (M) Dated 28th November, 2022	A-1
II	Copy of mine lease grant order no. MCR-102004-1945-CHH dated 08.01.2017	A-16
III	NABL & MoEF&CC Certificate of laboratory	A-19
IV	Daily micro-meteorological monitored data	A-24
V	Ambient air quality test results	A-26
VI	National ambient air quality standard (NAAQS)	A-32
VII	Water quality test results	A-34
VIII	Classification of surface water by CPCB and Test characteristics for drinking water (IS 10500 : 2012)	A-43
IX	Land use pattern in the study area based on Census 2011	A-47
X	Noise levels within the study area [Leq in dB(A)]	A-49
XI	Ambient air quality standards in respect of noise	A-55
XII	Traffic density monitoring results	A-57
XIII	List of flora and fauna in the study area and core zone	A-59
XIV	Authenticated map by PCCF, Bhavnagar vide letter dated 13.01.2022	A-75
XV	Soil Test Report	A-79
XVI	Village wise population and literacy within the study area (Census 2011)	A-83
XVII	Village wise employment pattern in the study area (Census 2011)	A-85
XVIII	Village wise amenities in the study area (Census 2011)	A-87
XIX	CRZ report and recommendations of GCZMA	A-92
XX	ISCST3 & CALINE 4 modeling for Padhiarka & Doliya Mine	A-119
XXI	Cumulative ISCST3 & CALINE 4 modeling for three mines	A-136
XXII	Mining plan approval letter	A-162
XXIII	Approval letter of Wildlife Conservation Plan	A-164
XXIV	Permission for withdrawal of water from Gujarat Water Infrastructure limited vide letter no. GWIL/Bhavnagar/Ind.conn./1257 dated 4-6-2008	A-167

Annexure No.	Particulars	Page No.
XXV	Letter from Deputy Chief Conservator of Forest regarding distance of turtle breeding centre	A-168
XXVI	List of land Khasras falling with proposed lease area certified by Land Authority	A-170
XXVII	Monitoring stations photographs	A-175
XXVIII	Drone image of the lease area and transportation route photographs	A-183
XXIX	Sample consent agreement with land owner	A-186
XXX	Proceedings of the public hearing	A-189

LIST OF ABBREVIATIONS

AMSL	-	Above mean sea level
AAQ	-	Ambient Air Quality
APHA	-	American Public Health Association
ANFO	-	Ammonium Nitrate–Fuel Oil
BDL	-	Below Detectable Limit
BGL	-	Below Ground Level
°C	-	Degree centigrade
CER	-	Corporate Environment Responsibility
CGWB	-	Central Ground Water Board
CHC	-	Community Health Centres
cm	-	Centi meter
CPCB	-	Central Pollution Control Board
CRZ	-	Coastal Regulation Zone
CSM	-	Continuous Surface Miner
CSR	-	Corporate Social Responsibility
CTE	-	Consent to establish
Cum/day	-	Cubic metres per day
Cum/hr	-	Cubic metres per hour
CGM		Commissioner of Geology and Mining
CCOM	-	Office of the Chief Controller of Mines
D	-	Dispensary
dB	-	Decibel
DCAS	-	Degree College Arts & Science only
DFO	-	Divisional Forest Officer
DG	-	Diesel Generator
DGMS	-	Director General of Mines Safety
E	-	East
EAC	-	Expert Appraisal Committee
EC	-	Environmental Clearance
EC	-	Engineering College
EIA	-	Environment Impact Assessment
EMD	-	Environment Management Department
EMP	-	Environmental Management Plan
EO	-	Others
FWC	-	Family Welfare Centre
FY		Financial Year
G	-	Gram
GDP		Gross Domestic Project
GLC	-	Ground Level Concentration

GoG	-	Government of Gujarat
Govt.	-	Government
Ha	-	Hectare
HA	-	Hospital Allopathic
HAM	-	Hospital Alternative Medicine
HEMM	-	Heavy Earth Moving Machinery
HQ	-	Head Quarters
HTL	-	High Tide Line
H.P.	-	Horsepower
HSD	-	High Speed Diesel
HRS	-	Hours
HMV	-	Heavy Motor Vehicles
IMD	-	Indian Meteorological Department
IBM	-	Indian Bureau of Mines
Kg	-	Kilogram
KL	-	Kilo litre
KLD	-	Kilo litre/day
KLH	-	Kilo litres per hour
KVA	-	Kilo Volt Ampere
KW	-	Kilo Watt
KWH	-	Kilo Watt Hour
L	-	Litres
Lpd	-	Litres per day
LOI	-	Letter of Intent
LTL	-	Low Tide Line
LMV	-	Light Motor Vehicles
M	-	Meter
m^2	-	Square meter
m^3	-	Cubic meter
MC	-	Medicine College
MCM	-	Million Cubic Meter
MCWC	-	Maternity And Child Welfare Centre
Mg/l	-	Miligram per litre
MHC	-	Mobile Health Clinic
MI	-	Management Institute
ML	-	Mine Lease
MoEF&CC	-	Ministry of Environment, Forest and Climate Change
MOU	-	Memorandum of Understanding
MS	-	Middle school
MT	-	Million Tonnes
MTPA	-	Million Tonnes Per Annum

MVA	-	Mega Volt Ampere
MW	-	Mega watt
MMDR	-	Mines and Minerals (Development and Regulation) Act
MMR	-	The Metalliferous Mines Regulations, 1961
MEMC	-	The Minerals(Evidence of Mineral Contents) Rules, 2015
MCDR	-	Mineral Conservation and Development Rules, 2017
N	-	North
NABL	-	National Accreditation Board of Laboratories
NFTC	-	Non Formal Training Centre
NGMF-C	-	Non Govt. Medical Facilities: Charitable
NGMF-IOP	-	Non Govt. Medical Facilities: In&Out patient
NGMF-MBBS	-	Non Govt. Medical Facilities: Medical practitioner with MBBS degree
NGMF-MS	-	Non Govt. Medical Facilities: Medicine shop
NGMF-ND	-	Non Govt. Medical Facilities: Medical practitioner with no degree
NGMF-O	-	Non Govt. Medical Facilities: Others
NGMF-OD	-	Non Govt. Medical Facilities: Medical practitioner with other degree
NGMF-OP	-	Non Govt. Medical Facilities: Out Patient
NGMF-TPFH	-	Non Govt. Medical Facilities: Traditional practitioner and faith healer
NGT	-	National Green Tribunal
NH	-	National Highway
NOC	-	No objection certificate
Nos.	-	Numbers
NE	-	North- East
NAAQS	-	National Ambient Air Quality Standards
OB	-	overburden
OSHA	-	Occupational Safety & Health Administration
ONGC	-	Oil & Natural Gas Corporation
OPC	-	Ordinary Portland Cement
P	-	Polytechnic
PF	-	Protected Forest
PHC	-	Primary Health Centre
PHSC	-	Primary Health Sub-Centre
PPS	-	Pre-Primary School
PS	-	Primary school
PUC	-	Pollution Under Control
PM	-	Particulate Matter
PCU	-	Passenger Car Unit
PPE	-	Personal Protection Equipment

Pvt.	-	Private
R&R	-	Resettlement and Rehabilitation
RF	-	Reserve Forest
ROM	-	Run of Mine
RPM	-	Respirable Particulate Matter
RO/ DM		Reverse Osmosis/ Demineralised
RET	-	Rare, Endangered and Threatened species
SFD	-	School For Disabled
SOI	-	Survey of India
SPCB	-	State Pollution Control Board
SPM	-	Suspended Particulate Matter
Sq.m.	-	Square metre
SS	-	Secondary school
SSS	-	Senior Secondary School
SC	-	Scheduled Caste
ST		Scheduled Tribe
T	-	Tonnes
TBC	-	TB Clinic
TOR	-	Terms of Reference
TPA		Tonnes Per Annum
UNFC	-	United Nations Framework Classification
VH	-	Veterinary Hospital
VTS/ITI	-	Vocational Training School/Industrial Training Institute
W	-	West

COMPLIANCE OF TERMS OF REFERENCE (TOR)

Table No. 1 gives the compliance of Terms of Reference (TOR) for Padhiarka and Doliya Limestone Mine (capacity 1.5 MTPA in project area 332.24 Ha) of M/s Nirma Ltd., issued by Ministry of Environment, Forest and Climate Change vide Letter no. J-11015/154/2016-IA. II(M) dated November 28, 2022.

TABLE NO. 1: COMPLIANCE OF GENERIC TOR FOR OPENCAST MINE PROJECT

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	SPECIFIC TERMS OF REFRERENCE	
1.	The Project Proponent needs to submit the copy of layout superimposed on the HTL/LTL map demarcated by an authorized agency on 1:4000 scales and SCZMA Gujarat's recommendation at the time of appraisal of Environmental Clearance.	Institute of Remote Sensing (IRS), Anna University, Chennai has demarcated HTL/LTL CRZ Mapping on 1:4000 scales & superimposed the proposed limestone mining area of M/s. Nirma Limited at Mahuva. As per report & authenticated superimposed map said limestone mining lease area is away from the CRZ. The copy of layout superimposed on the HTL/LTL map demarcated by Institute of Remote Sensing, Anna University, Chennai on 1:4000 scales and the letter dated 19.07.2023 received from GCZMA stating "….the proposed project of mining at Padhiarka & Doliya mine lease (332.24 ha), District Bhavnagar is outside CRZ area. You are further, directed to ensure that no mining activity shall be carried out in CRZ area means outside proposed boundary. Further, you shall provide physical demarcation at the boundary of your proposed project towards seaside before starting any mining activity" have been given in **Annexure XIX.**
2.	In view of the agricultural land proposed under the mining lease area, the Project Proponent needs to submit the Cost Benefit analysis comparing the current agricultural production and annual turnover including the cost and the benefits drawn by the local villages vis-a-vis the mineral cost and beneficiaries.	Cost Benefit analysis has been given in Table No. C9-1, Ch. 9
3.	The Project Proponent needs to submit	As per approved mining plan, mining is

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	the action plan for deploying the Ripper- Dozer combination to eliminate the drilling and blasting.	proposed to be done @ 50% by surface miner & 50% with drilling & blasting. In the 50% mineral that requires drilling & blasting, wherever soft rock will be encountered during operation, the operation team will use ripper-dozer. This will reduce drilling & blasting substantially in cement grade limestone. For soda ash plant, limestone of size 25-100 mm is a process requirement. Hence, for soda ash grade rock breaker instead of ripper is proposed to reduce drilling & blasting. Company shall try to eliminate drilling & blasting completely during the mining.
4.	The Project Proponent shall ensure that the Shallow pits to depth of 4 mts will be refilled and reclaimed and given back to the farmers as agriculture land. Return all the proposed non-mining area to farmers/owners of the land. The mining plan, *inter-alia*, includes the above mentioned details with regard to pits and reclamation.	The shallow pit of depth <4.0 m will be backfilled. The area of <4 m depth pits will be 26.52 ha as shown in conceptual plan (Fig No. C4-4, Chapter 4). Backfilling is proposed after 2026-27/ 2027-28. Backfilled area shall be utilized for agriculture in case of private land and for plantation purpose in case of government land. Refer section 4.10.2 (page no. 4-36), Chapter 4. Only that land shall be purchased from farmers that will be required for mining & allied activities (including greenbelt). Based on observations of EAC, MoEF&CC during meetings dated 23-24 May 2016 & 22-23 August 2016, the Company revised the initial mine lease proposal of 616.7254 ha to a reduced area of 332.24 ha, thus, minimising the impact on private agricultural land. Furthermore, the shallow pit in southern side of approximately <4 m depth & 26.52 ha area shall be backfilled and the private land portion of the backfilled area shall be returned to the owner. Accordingly, an agreement shall be executed prior to commencement of mining. The approved review of mining plan includes the details of pits and reclamation area (refer Page no. 74-78). The review of mining plan has been approved by IBM and the copy of the

Sl. No. of TOR	Description as per MoEF&CC	Compliance
		approval letter is given in **Annexure XXII**.
5.	The Project Proponent needs to submit the detailed measures to be taken for protection of turtle breeding sites and also needs to specifically address the movement of Lions and conservation in the Wildlife Conservation plan in consultation with the Forest Department.	The ecological sensitives areas like sand dunes and Turtle breeding sites are not in vicinity of proposed site. The letter no. A/GMN/T-11/2075/22-23 dated 27.01.2023 from Deputy Chief Conservator of Forest, Bhavnagar certifying that the nearest turtle breeding centre is approximately 70 km from the limestone mines is given in **Annexure XXV**. As per authenticated map provided by the forest department, there is no National Park, Sanctuaries, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant Reserves in 10 km area of the mine (Letter given in **Annexure XIV**). Financial layout for conservation plan along with approval letter is given in **Annexure XXIII**.
6.	The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution. PP also needs to submit the breakup of total excavation in tonnes.	The EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air is given at section 4.4.1 & 4.4.2 in chapter 4 and for noise pollution given at section 4.7.1 & 4.7.2 in chapter 4. The expected excavation during first plan period in terms of million tonnes is given in Table 2.9 of chapter 2.
7.	The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.	Ambient air quality and noise level has been monitored as a part of baseline study and given at section 3.4 & section 3.8 respectively. Continuous ambient air quality monitoring station will be installed after commencement of operation of mine, during the first year of operation.
8.	The Project Proponent needs to carry out the cumulative impact assessment by considering all the mining activity including the transport scenario of the mines in the study area and should	Cumulative impact due to all three mines and transportation scenario has been given at section 4.4, Chapter 4.

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	indicate the capacity of each mine considered for predication of air quality modeling. The control case and worst-case scenario needs to be demonstrated with controlling factor and GLCs values for all the pollutants needs to be clearly mentioned. The input parameters used for the modeling also needs to be submitted.	
9.	The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. PP need to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan. PP also needs to submit the possession certificate and timeline for acquiring the land at the time of appraisal of EC.	Detailed R&R Plan has been given at section 3.11, Chapter 3, section 4.13 Chapter 4, Table No. C10-1 Chapter 10 & 11.3.8, 11.4.11 Chapter 11. Plan for socio economic development of the neighbourhood habitats based on the need based assessment along with the time bound action plan is given in section 8.4, Chapter 8. The company has purchased/ obtained surface rights (i.e. consented land) of some land and shall purchase/ obtain surface rights (i.e. consented land) as per the timeline given in Section 4.13, Chapter 4.
10.	The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.	There will be no intersection of ground water table during five years of plan period or upto 11^{th} year of operation. i.e. end of mine life. The shallow depth pits shall be backfilled simultaneously after mining for limestone and shall be converted into agriculture land / utilized for plantation purpose. M/s Ground Water & Mineral Investigation Consultancy Centre (P) Ltd., Jaipur has assessed the hydrogeological conditions and impact of mining in "Report on hydrogeological & hydrological studies of core and buffer zone of Padhiarka & Doliya limestone mine and impact of mining on water regime near village Padhiarika, Taluka Mahuva, district

Sl. No. of TOR	Description as per MoEF&CC	Compliance
		Bhavnagar, Gujarat" in January 2022. Extract from their report has been included in Section 3.5 (page 3-19), Chapter 3 and Section 4.5.1 (page 4-16), Chapter 4. Since the proposed mine pits will not intersect the ground water table, no mine seepage is envisaged and hence no permission is required from Central Ground Water Authority.
11.	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.	Optimised water requirement and source is given in section 2.13 (page 2-25) and water balance is shown in Fig No. C2-9 of Chapter 2.
12.	The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.	No ground water withdrawal is envisaged for this project. The rain water collected in mine pits as well reject from RO / DM plant of the proposed cement plant (when it becomes operational) shall be used to minimise fresh water requirement.
13.	The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years.	The time bound action plan on concerns of the public has been incorporated in Table C7-3 of Chapter 7 after conducting the public hearing on 28.04.2023.
14.	The Project Proponent needs to submit the documents related to part surrender of the mine lease area at the time of appraisal of EC.	LOI was granted for an area 616.7254 ha vide letter dated 15.02.2008. The EC process for this proposal had previously also initiated in 2016 (ToR lapsed). During the process of grant of that TOR, MoEF & CC, New Delhi had directed to reduce the area and TOR was recommended for an area of 332.24 ha. Accordingly, on our request vide letter dated 30.12.2016, the State Govt. had issued grant order for an area of 332.24 ha vide letter dated 08.01.2017. Copy of grant order dated 08.01.2017 is attached herewith

Sl. No. of TOR	Description as per MoEF&CC	Compliance
		as **Annexure II**.
15.	The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.	Drone image attached in **Annexure XXVIII**.
	STANDARD TOR FOR MINING PROJECT	
16.	Year-wise production detail since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government.	Not Applicable. This is a new mine and no production has been done till date.
17.	A copy of the document in support of rightful lessee of the mine should be submitted. In case of new mines copy of LoI granted by State Government to be submitted. PP should ensure that LoI is valid at the time of grant of ToR. PP should submit the copy of lease deed/supplementary lease deed/extension letter/transfer deed, from its initial grant to subsequent renewals/ transfer/extension of validity.	Copy of Grant of Order of Mining Lease dated 08.01.2017 is in the name of Nirma Ltd. and the mining lease deed dated 11.01.2017 for 50 years i.e. upto 10.01.2067 is given in **Annexure II**.
18.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	All the documents are compatible to each other. The project data given in the EIA Report has been taken from approved Review of Mining Plan. The final EIA report has been prepared.
19.	PP should submit the District Survey	Not applicable since this project is proposed

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	Report (DSR) as per S.O. 3611(E) dated 25.07.2018 in case of minor minerals.	for mining of major minerals only.
20.	Brief of proposal to be submitted which include total excavation of the material required for the production of certain quantity of the minerals, location of the project, mining lease area, latitude longitude, seismic zone etc. In case of expansion project details of expansion viz. expansion in mining lease area or expansion in production of any particular mineral or expansion in total excavation, latest certified Compliance report (CCR) from IRO of conditions granted in existing EC needs to be submitted.	Brief of proposal can be seen in Chapter 1, Section 1.4 Total excavation for production is given in Table C2-8, Chapter 2. Location of the project along with latitude longitude can be seen in Chapter 1, Section 1.4.3 and 1.4.4. Mining lease area boundary can be seen in Fig C2-1, Chapter 2. Seismic zone is given in Chapter 3, Section 3.13. CCR and expansion not Applicable. This is a new mine. Hence no production has been done till date.
21.	The PP should submit the real-time aerial video footage & video of the mining lease area and of the transportation route.	Drone image attached in **Annexure XXVIII**. Photos of road also given in **Annexure XXVIII**. Video shall be submitted to and presented to MOEF during appraisal for EC since there is no provision to upload a video file of such large size in Form C on parivesh.nic.in, which is the application for the environmental clearance.
22.	All corner coordinates of the mine lease area, superimposed on a high resolution imagery/ Toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone)	The boundary of the mine lease area superimposed on high resolution satellite image sourced from Google Earth is given in Section 1.4.3 (refer page no. 1-8) earlier along with the coordinates. A map showing mine lease area and the 10 km radius around it superimposed on the SOI open series map is shown in Fig No. C3-2 of Chapter 3. The geological map of the mine lease area is given in Fig No. C2-2, Chapter 2. The interpreted satellite image showing the

<table>
<tr><th>Sl. No. of TOR</th><th>Description as per MoEF&CC</th><th>Compliance</th></tr>
<tr><td></td><td></td><td>present land use of the project area and the area within 10 km of the project is given in Fig No. C3-13, Chapter 3.</td></tr>
<tr><td>23.</td><td>Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.</td><td>As toposheet of the area is restricted, it is not available. However, open series map is available and the project area superimposed on the same is shown in Fig No. C3-2 of Chapter 3.
The geological map of the area is given in Fig No. C2-2, Chapter 2.
Geomorphology of the area has been discussed in terms of topography and drainage in Section 3.2 (refer page no. 3-2), Chapter 3.
Existing minerals were assessed through exploration carried out by CGM, GoG as explained in section 2.2.1 (refer page no. 2-3), Chapter 2.
Mining history of the area- old pits have been found and mapped in present surface plan in Fig No. C2-1, of Chapter 2.
Important water bodies, streams and rivers have been tabulated in Table No. C3-1 and can be seen in various maps such as Fig No. C3-2 (SOI map) and Fig No. C3-13 (interpreted satellite image), Chapter 3.
Soil characteristics area discussed in Section 3.7 (page no. 3-29) of chapter 3.</td></tr>
<tr><td>24.</td><td>The PP should collect the Baseline data (BLD) in respect of initial level of the mining lease. For this permanent bench marks (BM) needs to be established at prominent location preferably close to mining leases in question and should have precisely known relationship to the level datum of the area, typically mean sea level.</td><td>Baseline study has been carried out. (Chapter 03).
Permanent Ground Control Points as permanent benchmarks have been established in lease area as follows:
<table>
<tr><th colspan="4">Bench Mark</th></tr>
<tr><th colspan="4">Ground Control Points survey by DGPS</th></tr>
<tr><th>Sr. No.</th><th>Latitude, N</th><th>Longitude, E</th><th>Altitude in m, AMSL</th></tr>
<tr><td>1</td><td>21.03542355</td><td>71.67389128</td><td>4.298</td></tr>
<tr><td>2</td><td>21.03469947</td><td>71.67184025</td><td>4.941</td></tr>
<tr><td>3</td><td>21.03506333</td><td>71.67084227</td><td>4.713</td></tr>
<tr><td>4</td><td>21.03475608</td><td>71.66991641</td><td>4.477</td></tr>
<tr><td>5</td><td>21.03440345</td><td>71.67163591</td><td>11.436</td></tr>
<tr><td>6</td><td>21.03666603</td><td>71.66933122</td><td>5.006</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Sl. No. of TOR</th><th>Description as per MoEF&CC</th><th>Compliance</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>7</td><td>21.03736579</td><td>71.67688123</td><td>5.685</td></tr>
<tr><td>8</td><td>21.02349961</td><td>71.67497486</td><td>2.83</td></tr>
<tr><td>9</td><td>21.02900279</td><td>71.67130333</td><td>3.393</td></tr>
<tr><td>10</td><td>21.02963397</td><td>71.67278539</td><td>3.647</td></tr>
<tr><td>11</td><td>21.02698103</td><td>71.67284737</td><td>3.713</td></tr>
<tr><td>12</td><td>21.02474757</td><td>71.67245509</td><td>3.373</td></tr>
<tr><td>13</td><td>21.02453491</td><td>71.6678537</td><td>3.172</td></tr>
<tr><td>14</td><td>21.03426154</td><td>71.67269095</td><td>3.942</td></tr>
</table>
</td></tr>
<tr><td>25.</td><td>In case of sand mining, the entire mining lease area should be divided suitably into grids of 25 m x 25 m with the help of sections across the width of river and along the direction of flow of the river. The levels (MSL & RL) of the corner point of each grid
needs to be recorded. Each Grid should be suitably numbered for identification. PP should identity grids which will be worked out and grids which will come under no mining zone i.e. safety barriers from the river bank. PP should comply with the sustainable sand mining management guidelines 2016 and enforcement and monitoring guidelines, 2020 etc.</td><td>Not applicable.</td></tr>
<tr><td>26.</td><td>A time bound progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good</td><td>Details of plantation is given in para 4.12.1 (page 4-42) of Chapter 4.
Trees recommended for plantation is given in Table No. C4-19 of Chapter 4
The plant species have been selected from native species and shall aid in pollution abatement.
The phase wise plan for plantation is given in Table No. C4-20, Chapter 4.</td></tr>
</table>

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	utility value to the local population with emphasis on local and native species and the species which are tolerant pollution.	
27.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report	Details of Onsite services and facilities is given in section 2.10 (page 2-23) of Chapter 2
28.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA Report	Conceptual post mining land use is given in Table No. C4-13 (page 4-34) and conceptual Mine Plan and section are shown in Fig No. C4-7 and C4-8 respectively of Chapter 4.
29.	The cost of the project (Capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Capital and recurring cost towards implementation of EMP is given in Table No. C6-2 and C6-3, respectively of Chapter 6
30.	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social, economic, employment potential, etc.	Project Benefits is given in chapter 8.
31.	Compliance of the Ministry's Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.	This is a new mine. There is no violation in this mine, hence, not applicable.
32.	PP shall submit a certificate from Chief Conservator of Forests regarding involvement of Forest Land in the mining lease area if any. In case forest land is involved i) PP should submit the proof of application made for obtaining forest clearance and ii) a map clearly showing the forest & non-forest area.	Not applicable as no forest land is involved.
33.	Status of forestry clearance for the	Forest land is not present within Lease area.

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	
34.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act. 2006 should be indicated.	Not Applicable since no forestland is present within mine lease area
35.	The vegetation in the RF/PF areas in the study area, with necessary details, should be given.	The natural vegetation in the study area predominantly consist of *Prosopis juliflora.* Reserve Forest present in the study area are RF near Patwa (0.4 km, SW), RF near Dudheri village (1.8 km, SE), RF near Gujarada village (2.1 km, ESE), RF near Doliya village (0.4 km, S), RF near Khared village (5.8 km, E) within the study area. The vegetation in the study area (including forests) is given in Section 3.10 (page no. 3-33), Chapter 3.
36.	Details of litigation pending against the project, if any, with direction/order passed by any Court of Law against the project should be given.	There is no litigation against this mining project. Company's adjoining proposed cement plant Environment Clearance is sub-judice before Hon. Supreme Court. Earlier, EC was cancelled by MoEF, New Delhi. However, NGT has set aside the cancellation of EC. An appeal has been filed in Hon. Supreme Court against the NGT order by the opponent and the matter is sub-judice, there is no stay in the matter. As per the direction of Hon. Gujarat High Court vide order dated: 26.04.2010, 100 Ha plant land was surrendered and required to be deepened to store more fresh water. Some part of this surrendered land is falling in mining lease area which will be deepened in process of mining with consultation of irrigation dep't and surrendered to the State Government.

Sl. No. of TOR	Description as per MoEF&CC	Compliance
37.	PP should submit the details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area.	Mining lease deed has been executed in favour of PP on 11.01.2017 by the State Government and details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area has been given in lease deed. Copy of details of survey nos authenticated by DILR, State Government is given in **Annexure XXVI**.
38.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine/lease period.	The study area map is given in Fig No. C3-2, chapter 3. The waste generation in the plan period is given in Table No. C4-16 and limestone produced is given in section 2.8 (page no. 2-21) of Chapter 2.
39.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass pre-operational, operational and post operational phases and submitted, impact, if any, of change of land use should be given.	Landuse of the study area as per Census 2011 is given in Table No. C3-12 of Chapter 3 and as per the interpretation for 10km satellite imagery is given in Fig No. C3-13, Chapter 3. The landuse plan for existing, after five years and end of life of mine is given in Table No. C4-10, C4.11 and C4.12 respectively. Impact and Management of land is given in section 4.10 (page no. 4-29) of Chapter 4.
40.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	There will be no overburden dumps outside mine lease area and no R & R issues are there within the proposed mine.
41.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	Impact and management of project on wildlife is given in section 4.12 (page no. 4-42) of Chapter 4. Peafowl, Chinkara and Asiatic Lion are reported as the only Schedule I species present in the study area as per Wildlife Protection Act 1972 as amended upto 2019. Wildlife Conservation Plan for the same had been approved by the Forest Department on 20.12.2021. Approval letter & conservation

Sl. No. of TOR	Description as per MoEF&CC	Compliance
		plan are given in **Annexure XXIII**
42.	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Detailed of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost. Proof of its submission of conservation plan to the CWLW needs to be submitted.	Ecology of the study area is given in section 3.10 (page 3-33) of Chapter 3. List of Flora and Fauna found in core and buffer zone is given in **Annexure XIII** and letter from DFO is given in **Annexure XIV**. Peafowl, Chinkara and Asiatic Lion area the Schedule I species reported from the study area. Wildlife Conservation Plan for the same has been approved from Chief Wildlife Warden., Gandhinagar. Approval letter & conservation plan are given in **Annexure XXIII.** Budgetary provision of Rs. 2.1 lakhs as capital & Rs. 7.7 Lakhs towards recurring has been allocated for the same.
43.	PP shall submit a certificate from Chief Wildlife Warden regarding distance of mining lease from the protected area falling within 10 KM of the mining lease. In case project requires clearance under Wildlife (Protection) Act, 1972 then copy of application made for the same needs to be submitted.	There are no National parks, Wildlife Sanctuary, Biospheres reserves or Wildlife Corridor within 10 km radius. However, nearest National Park & Wildlife Sanctuary is the GIR National Park, Gir Wildlife Sanctuary & Mitiyala Wildlife Sanctuary located at a nearest distance of 79 km, 47.6 km and 46.7 km respectively. Duly authenticated map showing aforesaid distance alongwith certificate issued by the Chief Wildlife Warden, Gandhinagar vide letter dated: 13.01.2022 & 14.02.2022 are attached herewith as **Annexure XIV**
44.	One Season (non-monsoon) [i.e. March – May (Summer Season); October-December (Post monsoon Season); December – February (winter Season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality,	Base line data for water quality, noise level, soil and flora and fauna has been collected in summer season (1st March- 2nd June 2021). Site specific meteorological data is given in para 3.3.3 (page 3-9) of Chapter 3. Air monitoring station has been chosen as per in view the pre-dominant downwind direction

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented data-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. the location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	and location of sensitive receptors and is given in Table No. C3-5 and shown in Fig No. C3-9 of Chapter 3. The mineralogical composition of PM10 of core zone is given in **Annexure V**.
45.	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Air quality modelling is given in section 4.4.1 (page no. 4-5) of Chapter 4 and details is given in **Annexure XX** and cumulative impact for 3 mines is given in **Annexure XXI.**
46.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this, PP should submit the original test reports and certificates of the labs from which samples were analyzed.	The photograph of monitoring stations & sampling locations are given in **Annexure-XXVII** Test Reports for Air, Water, Noise & Soil are given in **Annexure -V, VII, X & XV** respectively and certificates of the labs are given in **Annexure III.**

Sl. No. of TOR	Description as per MoEF&CC	Compliance
47.	The water requirement for the Project, its availability and source should be furnished. Quantity of surface or ground water to be used for the Project should be indicated. A detailed water balance should also be provided. Submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. The capital and recurring expenditure to be incurred needs to be submitted.	Water requirement and source is given in section 2.13 (page 2-25) and water balance is shown in Fig No. C2-9 of Chapter 2. The rain water collected in mine pits as well reject from RO / DM plant of the proposed cement plant (when it becomes operational) shall be used to minimize fresh water requirement.
48.	Impact of the project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Impact and mitigation measures of the project on water quality is given in section C4-6 (page 4-9) of Chapter 4.
49.	Details of any stream, seasonal or otherwise, passing through the lease area and modification/diversion proposed, if any, and the impact of the same on the hydrology should be.	Two first order streams originate within the lease area and exit from the western and southern sides. There is one stream which is originating outside the mine lease, passing through the adjacent Dudhala mine on eastern side and entering the Padhiarka mine lease along the northern boundary, ultimately exiting to the west towards Samadiyala village. Another stream originates from Dudhala lease along the eastern boundary of Padhiarka and moves southward. Rainwater will fall directly into the mine pit and reused, to the extent possible prior to discharge into the salinity ingress control Bandhara. There will be garland drains around all pits to protect from runoff inflow into the mine.
50.	Information on site elevation, working	Site elevation, working depth is given in in

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	depth, groundwater table etc. should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	Table No. C4-7 (page 4-17), Chapter 4.
51.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished. In case of surface water is proposed to be utilized then Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	There will be no intersection of ground water table during five years of plan period or upto 11th year of operation. i.e. end of mine life. The shallow depth pits shall be backfilled simultaneously after mining for limestone and shall be converted into agriculture land / utilized for plantation purpose. M/s Ground Water & Mineral Investigation Consultancy Centre (P) Ltd., Jaipur has assessed the hydrogeological conditions and impact of mining. Extract from the same has been included in Section 3.5 (page 3-19), Chapter 3 and Section 4.5.1 (page 4-16), Chapter 4. Since the proposed mine pits will not intersect the ground water table, no mine seepage is envisaged and hence no permission is required from Central Ground Water Authority.
52.	Impact on local transport infrastructure due to the project should be indicated. Projected increase in truck traffic as a result of the project in the present road network (including those outside the project area) should be worked out, indicating whether it is capable of handling the incremental load, arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. project proponent shall conduct impact of Transportation study as per Indian Road Congress Guidelines.	Impact on transport is given in section 4.9 (page 4-29) of Chapter 4.
53.	Details about the land proposed for	The proposed land use at the end of plan

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	period and life of mine is given in Table No. C4-11 and C4-12 of Chapter 4. The mine lease has been executed with District Collector, Bhavnagar. The change in land use from its present land use has to be carried out prior to commencement of mining, as per applicable rules of Govt. of Gujarat. Since the execution of lease deed, the second rights in case of government land has already been granted to the Company for mining. In case of private agricultural land, as and when the land becomes available for use by obtaining consent for mining/ownership, the change in land use to non-agriculture shall be obtained.
54.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	The R&R Plan/compensation details for the Project Affected People (PAP) has been incorporated in Chapter 3,within the private land in conceptual pits at initial stage, as per latest survey carried out there are 35 houses/hutments in Padhiarka (08 nos.) & Doliya villages (27 nos.) There will be direct purchase or leasing of private land, with the willing consent of the private land owners. The detailed R&R Plan is given at section 3.11, Chapter 3, section 4.13 Chapter 4, Table No. C10-1 Chapter 10 & section 11.3.8 & 11.4.11 Chapter 11. Table C8-3, Chapter-8 is need based assessment. There are no ST in the villages touched by mine lease area as per Census 2011. SC are 17 in Padhiarka. The schemes available for them from government are given in point 9, Table C8-3 along with action plan (proposed intervention) to aid them to use these schemes efficiently.
55.	Public health implications of the project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be	Implications and mitigation measures of surrounding public is given in section 4.14.2 (page 4-51) of Chapter 4.

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	detailed along with budgetary allocations.	
56.	Measures of socio economic significance and influence to the local community proposed to be provided by the project proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Measures of socio economic significance is given in section 4.13 (page 4-48) of Chapter 4 and under CSR and CER planning in sections 9.3 & 9.4 of Chapter 9.
57.	Public Hearing points raised and commitment of the project proponent on the same along with time bound Action plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the project.	The points raised in Public hearing & commitments have been incorporated in Table C7-3 of Chapter 7 after conducting the public hearing on 28.04.2023.
58.	Activity-wise time-bound action plan on the issues raised and commitment made during public hearing to be submitted as part of the final EMP Report in compliance of the Ministry's OM F.No.22-65/2017-IA.III dated 30° September, 2020.	The time bound action plan on concerns of the public has been incorporated in Table C7-3 of Chapter 7 after conducting the public hearing on 28.04.2023.
59.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/conditions? The hierarchical system or administrative order of the Company to deal with environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large,	Nirma Ltd. has a well laid down Environment policy as given in section 10.2 (page no. 10-11) of Chapter 10. Hierarchical system or administrative order of the Company to deal with environmental issues and for ensuring compliance with the EC conditions is given in section 10.3.1 (page no. 10-12) of Chapter 10. The hierarchy of environmental cell is given in Fig C6.1 of Chapter 6 also.

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	may also be detailed in the proposed safeguard measures in each case should also be provided.	
60.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed project.	EMP is given in Chapter 10
61.	Proximity to Areas declared as 'Critically Polluted' or the project areas likely to come under the 'Aravali Range' (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. should be secured and furnished to the effect that the proposed mining activities could be considered.	The project does not lie in critically polluted area. The nearest critically polluted area is Gujarat Industrial Development Corporation, Chitra, Bhavnagar present at a distance of 89 km, NE. The project does not fall in Aravalli range.
62.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should furnished (Note: The mining projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	The proposed project lies beyond distance of 0.5 km from High Tide Line of Arabian Sea Coast. The CRZ map has been prepared by Institute of Remote Sensing, Anna University, Chennai and reproduced in **Annexure XIX** along with report.
63.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of opencast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	Mine safety parameters are addressed as follows: ▪ ***Subsidence*** - not applicable as this is an open cast mine ▪ ***Slope stability-*** The standard practice of maintaining the slopes below the angle of repose of the material to be handled will

Sl. No. of TOR	Description as per MoEF&CC	Compliance
		be followed for ensuring safe opencast mining. The bench and ultimate pit slope shall be maintained below 45 degree and gradient of ramp at 1 in 16 shall be maintained as per MMR, 1961 as detailed in Approved Review of Mining Plan. After commencement of mine, geo-technical investigations on excavated and dumped material shall be carried out for identifying any mid course corrections, if needed. ***Blasting*** - It may be noted that only 50% of the mining operations shall be blasting based and balance shall be through surface miners. Safeguard measures that will be taken for blasting have been given in section 4.4.2 (page no. 4-13), point 15 (page no. 4-15) of Chapter 4. Blasting shall be carried out in compliance to DGMS, Dhanbad (Circular No. 7 dated 29-08-1997) as detailed in Section 4.8 (page no. 4-27), Chapter 4. After commencement of operation, blasting studies shall be periodically carried out to check whether any modifications needed as per actual ground conditions.
64.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	As this is a proposed project, anticipated occupational Health and safety impact and preventive measures are given in section 4.14 (page 4-51) of Chapter 4.
	The general points are also to be followed: -	
65.	A Disaster management Plan shall be prepared and included in the EIA/EMP report	Disaster management Plan is given in Chapter 7

Sl. No. of TOR	Description as per MoEF&CC	Compliance
a)	All documents to be properly referenced with index and continuous page numbering	All documents are properly referenced with index and continuous numbering
b)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	The data is presented with the period of collection.
c)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	All the analysis reports are enclosed and has been done by NABL Accredited Min Mec R & D laboratory. The certificate is given in **Annexure III**.
c)	Where the documents provided are in a language other than English, an English translation should be provided.	All documents are provided in English
d)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The latest forms of MOEF&CC on parivesh portal shall be filled.
e)	While preparing the EIA Report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.	O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, has been followed while preparing EIA Report.
f)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing Changes in structure and content of the draft EIA/EMP (other than modifications arising out of	No change is there after the grant of TOR

Sl. No. of TOR	Description as per MoEF&CC	Compliance
	the P.H. Process) will entail conducting the PH again with the revised documentation.	
h)	As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional office of ministry of environment, forest and climate change, as may be applicable	As the project is proposed, Environment Clearance is under process.
i)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	The EIA report includes (i) Surface plan of the ML area is given in Fig No. C2-1 of Chapter 2. (ii) Topography map indicating contours of main topographic features, drainage and mining area- Fig No. C3-2, Chapter 3 (iii) Geological map and section Fig No. C2-2 and C2-3, respectively, of Chapter 2. (iv) Section of the mine pit-five year development Plan in Fig No. C2-4 to C2-8 of Chapter 2.

CHAPTER 1
INTRODUCTION

1.1 PURPOSE OF THE EIA REPORT

Environmental Clearances is a statutory requirement for the projects listed in the Schedule of EIA notification dated 14th September 2006 and its amendments till date. Leases more than 250 ha mining lease area fall under Sl. No. 1(a) in category A of the schedule to the EIA Notification 2006. Category A project shall seek Environmental clearance from the Ministry of Environment, Forest & Climate Change (MoEF&CC), New Delhi. The procedure covers submission of application with Form 1(Part-A & B) and pre-feasibility report to MoEF&CC, preparation of draft EIA/EMP in line with the Terms of Reference, applying to the State Pollution Control Board for public hearing, recording of suggestions/ objections and statements of the public and finalizing the EIA/EMP report after incorporating the responses and action plans to the points raised by the public. The final EIA/EMP report shall be submitted to the MoEF&CC which shall be appraised by the Expert Committee and thereafter only the Environmental Clearance is granted.

To obtain the Environmental Clearance for the proposed project, environmental studies have been carried out and Environmental Impact Assessment (EIA) / Environment Management Plan (EMP) has been prepared in line with Terms of References (TOR) issued by Ministry of Environment, Forest & Climate Change, New Delhi. This EIA/EMP report has been prepared for proposed 1.5 million tonnes per annum (MTPA) ROM production by mechanized open cast method in the total ML area of 332.24 ha. (reduced from 616.7254 ha.) by M/s Nirma Limited in villages Padhiarka and Doliya, Tehsil Mahuva, District Bhavnagar, Gujarat.

1.2 IDENTIFICATION OF THE PROJECT

Nirma Ltd. (NL) is setting up a Cement Plant (Cement 1.91 MTPA) and Captive Power Plant (capacity 50 MW) in first phase at village Padhiarka, in District Bhavnagar of Gujarat State. Company is also having Soda ash plant near Bhavnagar & limestone is used for manufacturing of Soda ash & company is proposing to use limestone in Soda ash plant with the permission of the State Govt.

In order to source the major raw material for the cement plant, the company has various mining lease of limestone for captive use in taluka Mahuva, district Bhavnagar. The State Govt. had issued Letter of Intent (LOI) to grant the mining lease near village Padhiarka & Doliya over an area of 616.7254 ha vide letter no. MCR-102004-1945-CHH dated 15.02.2008 for a period of 30 years from the date of execution. A copy of Letter of Intent (LOI) is attached as

Annexure II. Mining of limestone will be carried out as per Review of Mining Plan with Progressive Mine Closure Plan approved by IBM on 05.08.2021. The proposed run of mine (R.O.M.) excavation of limestone is 5000 tonnes per day i.e. 1.5 MTPA.

The proposed "Padhiarka & Doliya Limestone Mines" of M/s Nirma Ltd. having lease area of 332.24 ha of land, according to the environmental notification 14th September, 2006 at project identification schedule read at 1(a) "Mining of mineral", comes under category 'A' project.

The project is located within villages Padhiarka & Doliya in Mahuva Taluka of District Bhavnagar, Gujarat.

1.2.1 Background of the Project

Company submitted the fresh Form I (Part A & Part B) and Pre-feasibility Report for grant of Terms of Reference vide letter No. NL/BH/ENV-154/1911/2022 dated 23.09.2022. The EAC recommended the proposal in the 5th EAC (Non-Coal Mining) meeting held during 18-20 October, 2022 for grant of Terms of Reference (ToR) under the provisions of EIA Notification, 2006 for M/s Nirma Limited for mining of limestone in Padhiarka and Doliya Limestone mine with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha. The Terms of Reference were issued for the preparation of EIA/EMP Report vide MOEF&CC's letter no. J-11015/154/2016-IA. II(M) dated 28.11.2022(copy given in **Annexure I**).

The chronology regarding the project is as follows:

i. Company applied for mineral Limestone & Marl over an area of 616.7254 ha at village Padhiarka & Doliya, Taluka Mahuva in District Bhavnagar (Gujarat).

ii. The State Govt. issued LOI to grant the mining lease for mineral limestone and marl over an area of 616.7254 ha vide letter no. MCR-102004-1945-CHH dated 15.02.2008.

iii. Meantime, the Environmental Clearance was accorded for company's proposed cement plant at village Padhiarka, District Bhavnagar by MOEF, New Delhi vide letter no.J-11011/992/2007-IAII(I) dated 11.12.2008.

iv. As per the statutory provisions in MCR at the time of fresh grant, State Government had asked for Mining Plan. Thus, the Mining Plan including Progressive Mine Closure Plan as per Rule 22 of MCR 1960 for said Limestone & Marl Deposit at villages Padhiarka & Doliya was prepared and its approval obtained from competent authority i.e. IBM vide letter no. 682(23)(623)/2008-UDP dated 24.03.2009.

v. The company submitted the project proposal to Ministry of Environment and Forests, Govt. of India and in turn MoEF issued Terms & Reference (ToR) for the said mining lease area vide letter dated 24.03.2009.

vi. However, the Environmental Clearance of the cement plant was revoked by MoEF, New Delhi vide their order dated 01.12.2011. Hence, in the corresponding time period, the process of Environmental Clearance of the said mining lease was also stalled.

vii. The revoked order of the cement plant was challenged in National Green Tribunal (NGT), which vide their order dated 14.01.2015 in the appeal no. 04 of 2012 has set aside MoEF's revocation order dated 01.12.2011

viii. Accordingly, Company re-initiated the process for grant of Environmental Clearance for the Mining Lease area as per LOI by submission of fresh project proposal April 2016 to Ministry of Environment, Forest & Climate Change (MoEF&CC), New Delhi.

ix. The Expert Appraisal Committee (Mining) of MoEF&CC recommended the proposal for grant of ToR in Padhiarka & Doliya Limestone Mining Lease with reduced mining lease area of 332.24 ha and issued Terms of Reference (TOR) vide letter no. J-11015/154/2016-IAII(M) dated 03.01.2017 for the mining lease. The same has been extended vide letter no. F.No. J-11015/154/2016-IA-II (M) dated 16.03.2020 by MoEF&CC.

x. Ministry of Mines, Govt. of India, New Delhi issued order titled "Mines & Minerals (Development and Regulations) Removal of Difficulties Order 2017" dated: 04.01.2017. It permitted to consider the grant of the mining lease in those cases where in the condition of obtaining Environment Clearance has not been complied herewith by the applicant on or before 11.01.2017 but all other conditions specified in LOI have been fulfilled.

xi. Accordingly, the order for grant of mining lease was issued by Industries and Mines Department, Govt. of Gujarat, Gandhinagar vide order no. MCR-102004-1945-CHH dated 08.01.2017 in an area of 332.24 ha for 50 years (refer **Annexure- II**).

xii. Thereafter, the mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the lessee Nirma Ltd. for a period of 50 years under the provision of MMDR Amendment Act, 2015 and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017.

xiii. Under provision of Minerals (other than Atomic & Hydro Carbons Energy Minerals) Concession Rules, 2016, "Mine Development and Production Agreement" (MDPA) has been signed between State Govt. and proponent on 11.01.2017.

xiv. The proposal of Nirma Ltd. for seeking Environmental Clearance for production capacity 1.5 MTPA has been considered by the competent authority i.e. MoEF&CC and issued Terms of Reference (TOR) vide letter no. J-11015/154/2016-IAII(M) dated 03.01.2017 for the reduced area 332.24 ha. The area reduction took place due to exclusion of Gaucher land, part of the private land, villages periphery and highway & its periphery area as safety barrier as per directions of EAC, MoEE&CC, New Delhi.

xv. Modified Mining Plan along with Progressive Mine Closure Plan over an area of 332.24 ha. for Padhiarka & Doliya Limestone Mining Lease has been approved by Indian Bureau of Mines, Gandhinagar, Gujarat vide letter No. 684 (4) (1)/MP-195/2018-GNR dated 04.02.2019.

Thereafter, Review of Mining Plan with Progressive Mine Closure Plan over area of 332.24 ha. for Padhiarka & Doliya Limestone Mining Lease has been approved by Indian Bureau of Mines, Gandhinagar, Gujarat vide letter no. 684(4)(1)/MP-349(195)/2021-22 GNR/ 1129 dated 05.08.2021. Approval of the mine plan is enclosed as **Annexure XXII.**

The land ownership within the lease is private & government land as per revenue records and no Gauchar land is involved in the lease area. Lease area does not form a part of any Reserve Forest, National park, Wild life Sanctuary or National biosphere reserve.

It is pertinent to be noted here that mining lease has been executed with condition that the lessee will have to produce Environment Clearance Certificate issued by MoEF& CC, New Delhi before commencing mining activity as stated in MM(DR) Removal of Difficulties order 2017, dated: 04.01.2017.

Looking towards its date of execution, lease period as well as the five years block period of mining lease period has been started from year 2016-17. The date of expiry of mining lease period is 10.01.2067. Furthermore, the applicability of approved mining plan has also been started from the date of execution i.e. 11.01.2017 (FY 2016-17) and shall five year block period will be up to FY 2020-21 (31.03.2021).

Modified Mining Plan has been approved by IBM which was valid up 31.03.2021. On expiry of Modified Mining Plan, Review of Mining Plan with Progressive Mine Closure Plan for further five years period from 2021-22 to 2025-26 has been approved by Indian Bureau of Mines, Gandhinagar on 05.08.2021, as discussed earlier.

Salient features

The salient features of the project are summarized in **Table No. C1-1**.

TABLE NO. C1-1: SALIENT FEATURES OF THE PROJECT

Project name	Padhiarka and Doliya Limestone Mine
Project proponent	Nirma Limited
Villages in block area	Padhiarka and Doliya
Coordinates	Lat.: 21º 00' 42.8152" to 21º02' 28.0965" N Long.: 71º 40' 09.8824" to 71º 41' 39.9437" E
Mining Lease Area	332.24 Ha
Rated Capacity	1.5 MTPA
Mineable Reserves	10.707 million tonnes
Life of the mine	11 years (Life of mine may be increased subject to conversions of resources under 333 category into category of reserves 111)
Stripping ratio for Plan period	1:0.00 tonne/ cum
Topsoil Generation for plan period	127,122cum
Method of Mining	Opencast Mechanized (Conventional & Non-conventional)
Working days	300 days/year, 2 shifts of 8 hours each
Manpower	55
Transportation	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease/ through dumpers/ trucks to the Soda Ash Plant located at Kalatalav, Bhavnagar.
Expected cost of project	Rs. 29 Crore
Elevation of lease area	1 m to 15.31 m above mean sea level
Topography	Mostly plain with minor undulations
Water requirement	41 cum/day
Source of water	(i) Water harvested within mine lease during rainy season. (ii) Narmada water pipeline, permission has been taken vide letter No. GWIL/Bhavnagar/Ind.conn. /1257 dated 4.06.2008 or private water tankers. (iii) Reject water of RO /DM plant (proposed at Cement plant)
Power requirement	100 KW, DG Set-5 KVA
Power source	Gujarat State Electricity Board / Captive Power Plant located at Cement Plant near Padhiarka

1.3 PROJECT PROPONENT

M/s Nirma Ltd. (a Public Limited Company) is having its registered office at "Nirma House" on Ashram Road, Ahmedabad- 380 009, Gujarat. Nirma Ltd. is one of the leading soda ash producing company in India.

Nirma Ltd. is a part of the Nirma Group engaged in the business of consumer products like Soap, Detergent and Industrial products like Sulphuric acid, Oleum, Distilled Fatty acids, Linear Alkyl Benzene, Soda ash (Light & Dense), Salt & Caustic Soda etc. This Group came in existence in the year 1980. Company has established Soda Ash manufacturing plant located in Bhavnagar and also acquired Soda Ash plant in Porbandar District of Gujarat. The present capacity of Soda ash plant is 10,08,000 TPA for Bhavnagar location and 5,40,000 TPA for Porbandar location. Company is also having captive Power Plants along with its Soda Ash plants in Bhavnagar & Porbandar District. The high quality of Limestone i.e. CaO >48% is one of the basic raw materials used in boiler of Power Plant for de-sulfurization process and soda ash manufacturing process. Company is continuously expanding its wings for increase in production capacities and diversification and set up a cement plant in Rajasthan. It has overall about 18000 employee-base and annual turnover of around Rs. 7000 crores.

Production facilities of the Nirma group at its various units are given in **Table No. C1-2**.

TABLE NO. C1-2: PRODUCTION FACILITIES OF NIRMA GROUP IN GUJARAT

Sl. No.	Location	District	State	Products Manufactured
1.	Kalatalav	Bhavnagar	Gujarat	Soda Ash, Detergent Powder & Cake, Toilet Soap, Edible Salt, solar salt & Caustic Soda etc.
2.	Alindra	Baroda	Gujarat	Linear Alkyl Benzene, Detergent Powder & Cake etc.
3.	Mandali	Mehsana	Gujarat	Oleum, Sulphuric Acid, Fatty Acids, Alpha Olefin Sulphonate, Glycerin, Toilet Soap, Detergent Powder & Cake etc.
4.	Moraiya	Ahmedabad	Gujarat	Detergent Powder & Cake, Single Super Phosphate, Packaging materials etc.
5.	Porbandar	Porbandar	Gujarat	Soda Ash
6.	Sachana	Ahmedabad	Gujarat	Intravenous Fluids, Large Volume Parenterals (LVP), Small Volume Parenterals (SVP), Medical Devices etc.

The company (Nirma Ltd.) is diversifying its activities into cement manufacturing in Gujarat.

1.4 BRIEF DESCRIPTION OF THE PROJECT

1.4.1 Nature of project

The proposed project will be an Opencast Mechanized limestone mine having production capacity 1.5 MTPA.

1.4.2 Size

The proposed capacity will be 1.5 million tonnes per annum (MTPA) ROM production by mechanized open cast method (Conventional & Non-conventional) in the total ML area of 332.24 ha.

1.4.3 Location

The proposed project is a limestone Mine present in villages Padhiarka and Doliya, Tehsil Mahuva, District Bhavnagar, Gujarat.

The lease area falls within the Survey of India Toposheet No. 41 O/12 (restricted). The lease area is bounded by the following geographical coordinates: Complete geographical coordinates are given in **Fig No. C1-1**.

Point	Latitude, N	Longitude, E	Pillar No.
A	21º 02' 28.0965"	71º 41' 15.3007"	1
B	21º 01' 01.3133"	71º 41' 39.9437"	53
C	21º 00' 42.8152"	71º 41' 00.3940"	70
D	21º 02' 12.0077"	71º 40' 09.8824"	194

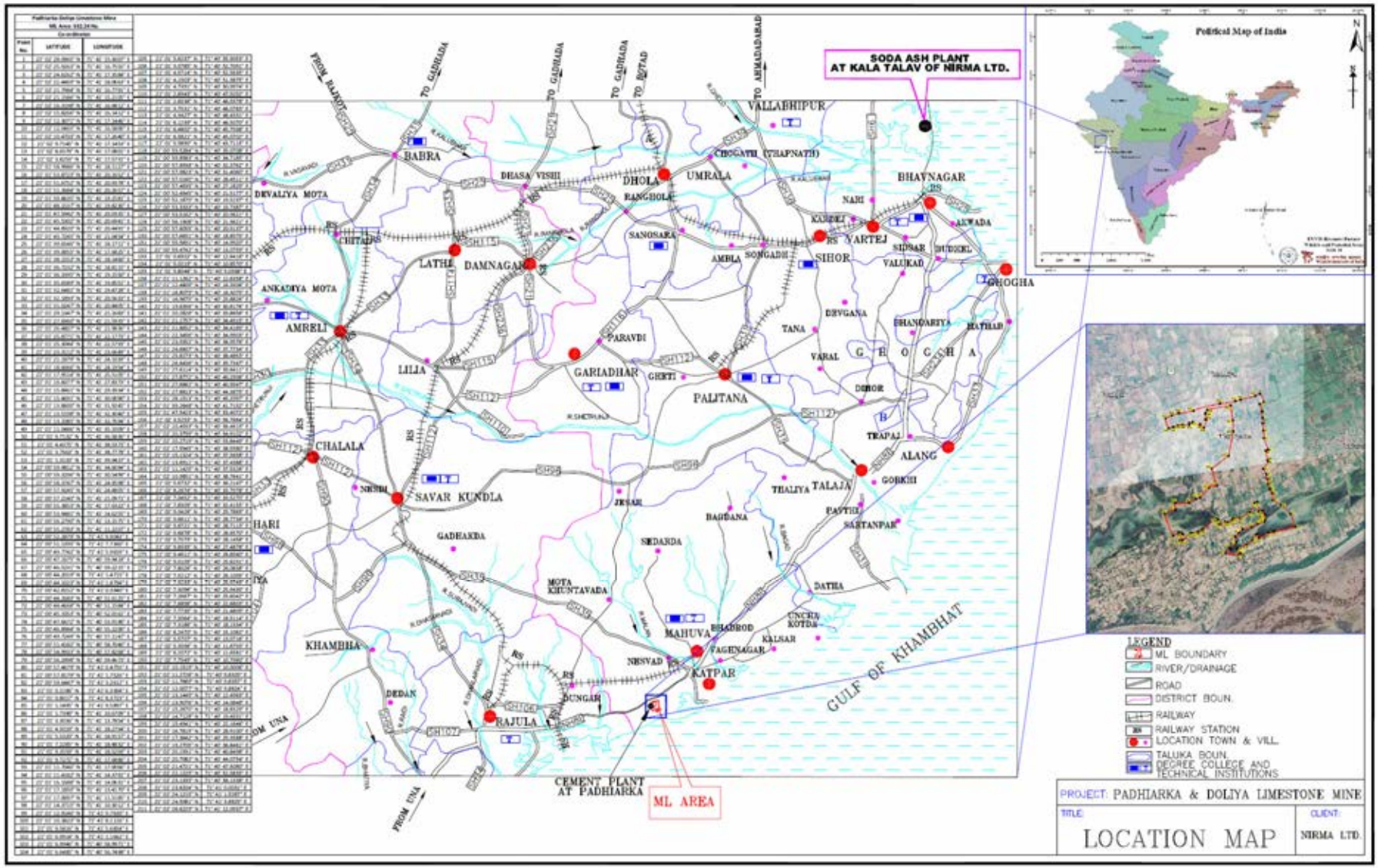
The location of the project can be seen in **Fig No. C1-1**.

1.4.4 Communication

Road link

The lease area is located at a distance of 9.5 km, NE of Mahuva town (Tehsil Headquarter) and is easily approachable by road. National Highway NH-51/ NH-8E (Una/Rajula-Mahuva/Bhavnagar highway) is at a distance of 0.7 km, North. Mahuva is Taluka Head Quarter in Bhavnagar district of Gujarat. Mahuva is about 85 km from District Head Quarter Bhavnagar.

FIG No. C1-1: LOCATION MAP



Rail link

The nearest railway station is Mahuva is present at a distance of 9.8 km (by road) in NE and lies on Mahuva-Rajula broad gauge section of Western Railway Zone.

Air link

The nearest airport for regular commercial flight is Bhavnagar situated at about 100 km NE of ML area.

Sea Coast

The nearest coast is Arabian sea coast present at a distance of about 0.50 km, South from mine lease.

Port

Pipavav is the nearest Port at about 25 kms west of lease area.

1.5 IMPORTANCE IN THE REGION AND COUNTRY

The principal use of limestone is in the Cement Industry. Other important uses are as raw material in boiler of Power Plant for de-sulfurization process and soda ash manufacturing process, manufacture of quicklime (Calcium Oxide), slaked lime (Calcium hydroxide) and mortar. Pulverised limestone is used as a soil conditioner to neutralize acidic soils (agricultural lime). It is used in sculptures because of its suitability for carving. It is often found in medicines and cosmetics. In some circumstances, limestone is used for glass making. As a reagent in fuel-gas de-sulphurisation, it reacts with sulphur dioxide for air pollution control. It can suppress methane explosions in underground coal mines. It is added to toothpaste, paper, plastic, paint, tiles and other materials as both white pigment and cheap filler. In blast furnaces, limestone binds with sillica and other impurities to remove them from the iron.

India has huge resources of limestone distributed over different parts of the country. It is comfortably placed in terms of annual capacity and production of cement. Cement-grade limestone occurs in all the limestone-bearing areas, while SMS,BF and chemical-grade limestone occur in selective areas. Concerted efforts to locate SMS and BF grade limestone along with cement- grade limestone are imperative to meet the growing demand.

As per Indian Minerals Yearbook 2018 (Part- III: Mineral Reviews), published by IBM in August 2019, the demand of raw materials for cement, such as limestone and gypsum is expected to cause disruptive growth in the next few decades. The second largest Cement Industry in the world, the Indian Cement Industry, is expected to grow to an extent of 550 million tonnes per annum of capacity by FY2025 from 502 mtpa recorded in 2018. The demand for paper in

India is expected to rise at a healthy rate by 2020, due to the Packing Industry and the increasing number of schools. The increasing number of construction projects is expected to lead to a thriving Building and Construction Industry in India. This is anticipated to contribute to around 10% to the GDP of India. Also with rising Indian pharmaceutical, food and beverage industries the consumption of calcium carbonate (limestone) in India is expected to increase.

The company is leading producer of Soda Ash in the country and are now diversifying into the Cement manufacturing sector. The Padhiarka and Doliya Limestone mine will be captive mine to the proposed adjacent cement plant of the company, therefore maintaining self-reliance of the state as well as the country. The project will be contributing to the state exchequer, by paying the mineral royalty and strengthening the self-sufficiency in cement industry in the country and if and when required, will earn foreign exchange in the future through exports. It is pertinent to note here that recently company has collected few samples from various locations in upper strata of this mine lease area. The chemical analysis results show high quality of CaO content >48% which can be utilized in boiler of Power Plant for de-sulfurization process and can also for manufacturing of Soda Ash apart from Cement manufacturing. Lessee propose to utilize high quality of Limestone (CaO>48%) to its existing Power Plant and Soda Ash plant in Gujarat State for captive purpose.

1.6 SCOPE OF THE STUDY

The Environmental Impact Assessment and Environment Management Plan for the mine addressing the environment related issues are prepared in accordance with the requirements of Terms of Reference prescribed by Ministry of Environment, Forest & Climate Change, Govt. of India.

The study evaluates the prevailing environmental conditions. The adverse impacts have been identified and possible mitigation measures have been drawn in order to protect the environment. In order to carry out the study, the baseline environmental scenario has been established and the project activities superimposed on them to assess the impact and subsequent mitigation.

The main objectives of the present EIA study are briefly summarized below:

- To establish the baseline environmental scenario.
- To identify, predict and assess the future impacts of proposed project on the environment.
- To prepare a detailed action plan for implementation of mitigation measures.
- To suggest preventive measures to minimize adverse impacts and to maximize beneficial impacts.
- To suggest a monitoring programme to evaluate the effectiveness of mitigation measures.

- To suggest the formation of a core group responsible for implementation of the EMP.
- To prepare a capital cost estimate for environment management plan.
- To address the concerns of disaster management, R&R plan, CSR and points raised in public hearing.

The scope of the present study is to conduct EIA covering all the disciplines of environment and field monitoring in relevant disciplines over one full season of 3 (three) months (excluding monsoon months). The draft EIA report is prepared as per the MoEF&CC Notification dated 14.09.2006 and it's amendments till date to submit at GPCB for Public Hearing. After public hearing, Final Report has been prepared for submission to MoEF&CC.

Study area:

The mine lease (ML) area (332.24 ha) is termed as "core zone". The area within 10 km radius around the periphery of the ML boundary has been considered as the "buffer zone" for identifying and assessing impact with respect to air, water, noise, land use, ecology, socio-economic environment, etc. The core zone and buffer zone together comprise the "study area"

Data Generation:

The data that had been generated during summer season from 1st March to 2nd June 2021 by NABL accredited Min Mec R&D Laboratory, New Delhi, in accordance with the requirement of statutory agencies, is given in **Table No. C1-3**. Since there are two other mines also proposed by Nirma Ltd. in the vicinity of Padhiarka & Doliya Limestone Mine i.e. (1) Vangar & Madhiya Limestone Mine in North and (2) Gujarda, Dudheri & Dudhala Limestone Mine in east direction and EIA/ EMP is also being prepared for the other two mines together, air quality stations were established giving due consideration to all three mines in core zone and buffer zone. The monitoring and testing have been done as per the guidelines of MOEF&CC, CPCB and the IS standards. Monitoring have been conducted for the following parameters:

TABLE NO. C1-3: BASELINE DATA GENERATED AS PER TOR

Description	No. of locations	Total No of samples
Air (For all 3 mines) Ambient air monitoring (24 hourly samples), twice a week for 3 months for one season for PM10, PM 2.5, SO_2, NO_2	16 (1 in core zone & 15 in buffer zone)	384
Meteorological parameters (For all 3 mines) Measured at hourly duration simultaneously in the project area for 3 months. Parameters monitored:	1	90 days

Description	No. of locations	Total No of samples
A. Wind speed, direction B. Relative humidity C. Temperature D. Rainfall		
Water Water/ effluent samples collected from various locations (surface and ground water) in core and buffer zone (10 km radius) and tested for physical, chemical and biological parameters according to applicable standards	Ground water-12 Surface water -3	15
Soil (For all 3 mines)	12	12
Noise Hourly readings taken for 24 hours (Leq)	16	16
Traffic Density	1	1

Secondary and primary data collection was done comprising of, but not restricted to the following:

- Long Term Climatic data from Indian Meteorological Department (IMD) for available previous decade.
- Geo-hydrological aspects based on available data from various sources as well as field survey.
- Identification of water bodies, hills, roads etc. within 10 km radius.
- Details of fauna, flora, information in forests, major habitats, sanctuaries, sensitive places within a distance of 10 km from the project site (including forest details).
- Major industries within 10 km radius.
- Historical monuments and sanctuaries within 10 km radius.
- Land use pattern within core zone and buffer zone (10 km radius around the core zone), Cropping pattern.
- Demography and Socio-economic based on last available Census data for entire study area, etc.

The preparation of the EIA/EMP report has been done as per the generic structure prescribed in EIA Notification dated 14th September 2006.

1.7 STATUS OF LITIGATION

There is no litigation against this mining project.

Company's adjoining proposed cement plant Environment Clearance is sub-judice before Hon. Supreme Court. Earlier, EC was canceled by MoEF, New Delhi. However, NGT has set aside the cancellation of EC. An appeal has been filed in Hon. Supreme Court against the NGT order by the opponent and the matter is sub-judice, there is no stay in the matter.

As per the direction of Hon. Gujarat High Court vide order dated: 26.04.2010, 100 Ha plant land was surrendered and required to be deepen to store more fresh water. Some part of this surrendered land is falling in mining lease area which will be deepen in process of mining with consultation of irrigation dep't and surrendered to the State Government.

CHAPTER 2
PROJECT DESCRIPTION

The project Padhiarka & Doliya Limestone Mine is located at Village Padhiarka & Doliya, Taluka Mahuva, District Bhavnagar, Gujarat. The proposed production capacity is 1.5 MTPA R.O.M in the total ML area of 332.24 ha. The data used in this EIA/EMP Report has been taken from approved Review of Mining Plan with Progressive Mine Closure Plan of Padhiarka & Doliya Limestone mine. The approval letter dated 05.08.2021 of Review of Mining Plan with Progressive Mine Closure Plan is attached as **Annexure XXII.**

2.1 GEOLOGY

2.1.1 Regional geology

The Saurashtra coastal tract is composed extensively of tertiary sediments, which are mostly calcareous in nature. The mainland however, is covered by extensive flows of basalt and its derivatives, developed over a period of time. These basalts have been intersected by a number of acidic and basic dykes. The regional geological setup of the region is defined by the stratigraphic sequence is given in **Table No. C2-1**.

TABLE NO. C2-1: REGIONAL GEOLOGICAL SEQUENCE OF THE AREA

Formation	Age
Alluvium and Blown Sand	Recent
Loose Grits and Conglomerates	Sub-Recent
Miliolitic Limestone	Late Tertiary
Gaj sediments comprising of limestone and clays	Miocene
Lateritized/ Bauxitized Volcanics	Post Eocene
Basalt and its variants forming regional bed rock	Eocene to Cretaceous

Source: Table A1.1 of Review of Mining plan with Progressive Mine Closure Plan approved on 05.08.2021

2.1.2 Local geology

The area under reference forms part of the Late Tertiary Miliolitic Limestone, which is believed to have been deposited under a marine transgressive environment. Apart from the miliolitic limestone, lithological units of recent age are also seen in the area under reference.

The deposit forms part of a vast flat plain, which has very gentle undulations and is seen to be overlain by the alluvium and wind blown sand of recent origin. The deposit is underlain by the Gaj Limestone and clay that have been encountered in the boreholes drilled in the adjoining areas with have similar geological setup.

The following rock types are encountered over the lease area:

- Wind Blown Sand/Overlain soil
- Miliolitic Limestone
- Marly Limestone/ Marl

Wind blown sand/Overburden

The southern end of the deposit near sea is covered by 2-6 m thick layer of sand that appears to have been partly consolidated over a period of time. These sand dunes are reported to be calcareous in nature. The limestone lies concealed beneath a thin over burden layer of 0.4 – 0.80 m thick soil.

Miliolitic limestone

The limestone is not well exposed in the entire area under reference but can be seen in the dug well and small existing pits in the area. The miliolitic limestone of the area under reference can be divided into two major units:

- Limestone
- Marly limestone/ Marl

Being immature shoreline shallow water deposition, the different units are expected to show extreme variations in thickness and chemical behaviour. The contacts between the different limestone units are sharp but irregular.

Limestone

This unit is dull white to cream in colour, compact in nature and is medium hard to hard. It comprises of thin to thick beds, with intermittent layers of hard colored limestone. The pink limestone often shows tubular cavities, which are generally filled up the small amounts of clay. The thickness of this formation varies from 1.00 m to 5.0 m.

The compact limestone is essentially composed of angular and in-equigranular calcite, which is made up of the shells and tests of the foraminifer fossil, the miliolite. Accessory minerals viz. quartz and iron oxide can also be seen within the calcite matrix, which is held together by calcareous cement.

The limestone shows that high amounts of inter granular spaces, thus indicating higher porosity. In the central, slightly depressed portion of the area, the compact limestone is underlain a thin layer of soil varying from 0.0 m to 1.1 m in thickness.

Marly limestone/Marl

Dull white to earthy brown in colour, the marly limestone is similar in its physical character to the compact limestone. However, this unit is more porous and cavernous, with the cavernous portions being filled up with argillaceous material. Generally occurring below the compact limestone, its contact with the overlying compact limestone is inconspicuous on the surface because of the similar nature of both the units. However, this contact can be observed in pits

or dug wells on the basis of the clay content resulting from the replacement of this limestone. The extent of replacement varies considerably with the result that concentrated clay pockets can be observed in several areas while no replacement is seen in others. The thickness of this formation varies from 0.19 m to 12.5 m as observed from the dug wells.

General Structure

The deposit exhibits a simple structural setup. The dip of the area appears to be almost horizontal.

The present surface plan is shown in **Fig No. C2-1**. The geological map of the mine lease is shown in **Fig No. C2-2** while the geological sections are shown in **Fig No. C2-3**.

2.2 DETAILS OF EXPLORATION

2.2.1 Previous exploration

The area was explored on regional basis by CGM, Govt. of Gujarat in two phases i.e. in the year 1989-1991 on regional basis of south-eastern coastal part of Saurashtra. The area is covered in Toposheet no. 46 C/1,2,3,4,5,6 & 7 and in 41 O/15 covering various villages of Mahuva Taluka.

ONGC carried out Geological Mapping of Saurashtra during 1957-64 with the emphasis on parts of coastal tracts where exposed sedimentary sequences held prospects of containing oil and gas. GSI once again, revived their systematic geological mapping in this area in 1975 and covered Mahuva amongst various villages. In order to find out further extension of reported occurrence of various lithos, Directorate of Geology & Mining took up systematic geological mapping in parts of the Bhavnagar during 1980s. The same was verified by the Asstt. Geologist, District Office, Bhavnagar during inspection of the area on 13.04.2004.

M/s Holtec Consultancy has also conducted field studies and has collected samples from excavated pits and accordingly feasibility report for cement plant was prepared.

Other than these, 35 numbers open dug wells are seen throughout the ML area in which presence of limestone/ Marly Limestone was observed. The depth of the wells is variable. On the other hand, two numbers of old excavations with variable sizes can also be seen in the area in focus. The study of dug wells was carried out in terms of the following:-

1. Mapping of open dug well/ tube well
2. Mapping of old pits
3. Measurement of open dug wells
4. Observation of lithos exposed in the open dug well

FIG NO. C2-1: PRESENT SURFACE PLAN

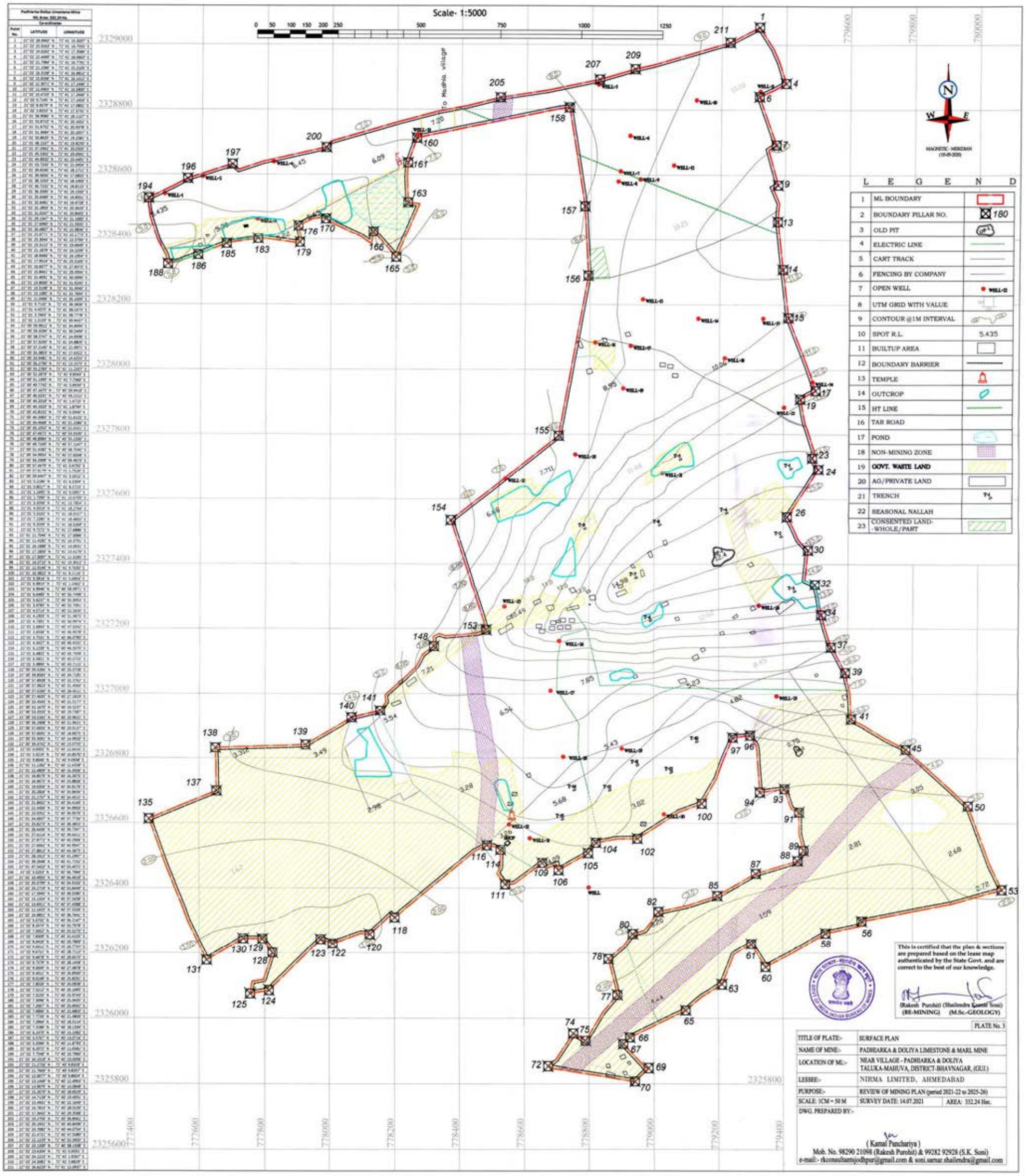


FIG NO. C2-2: GEOLOGICAL PLAN

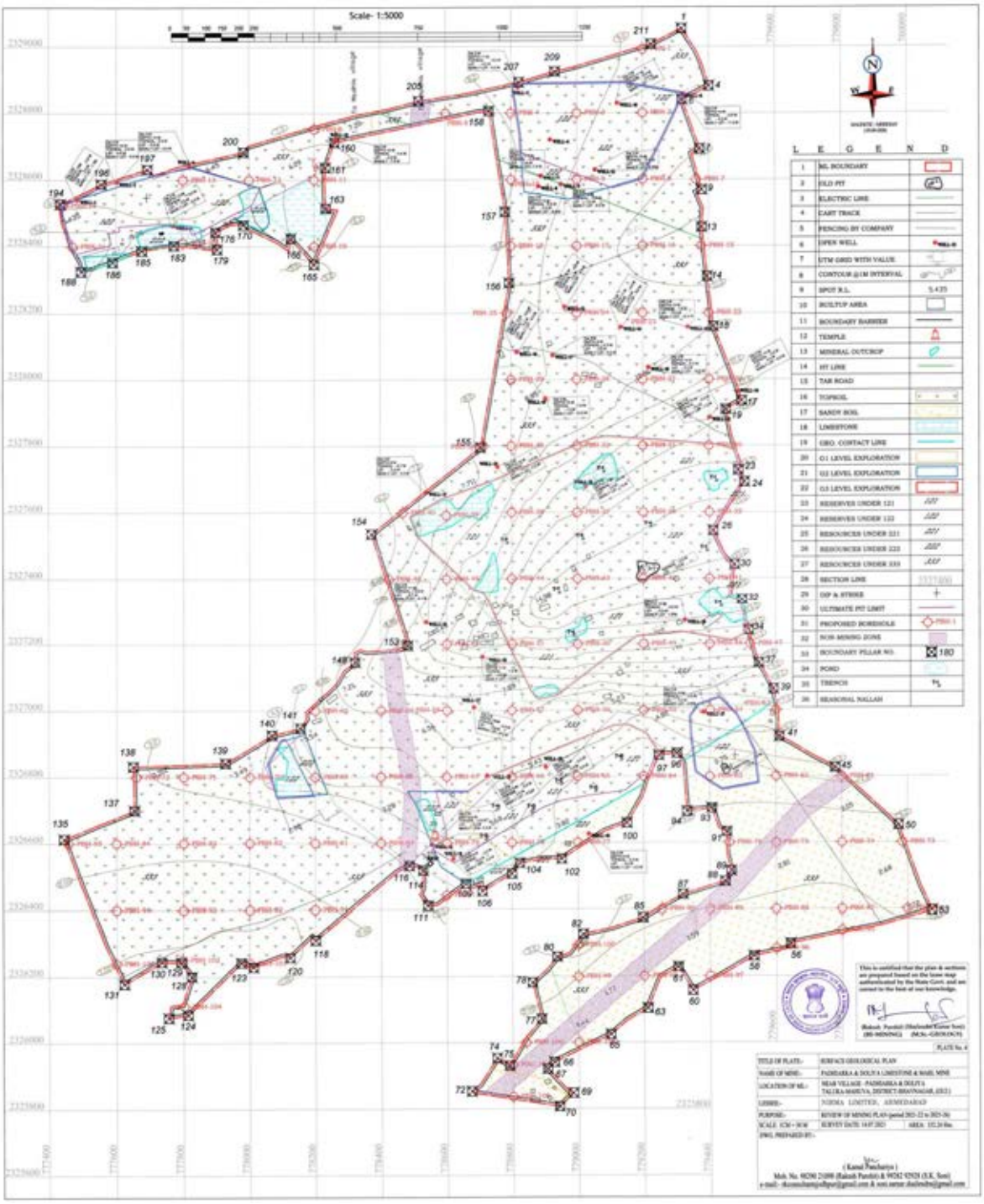
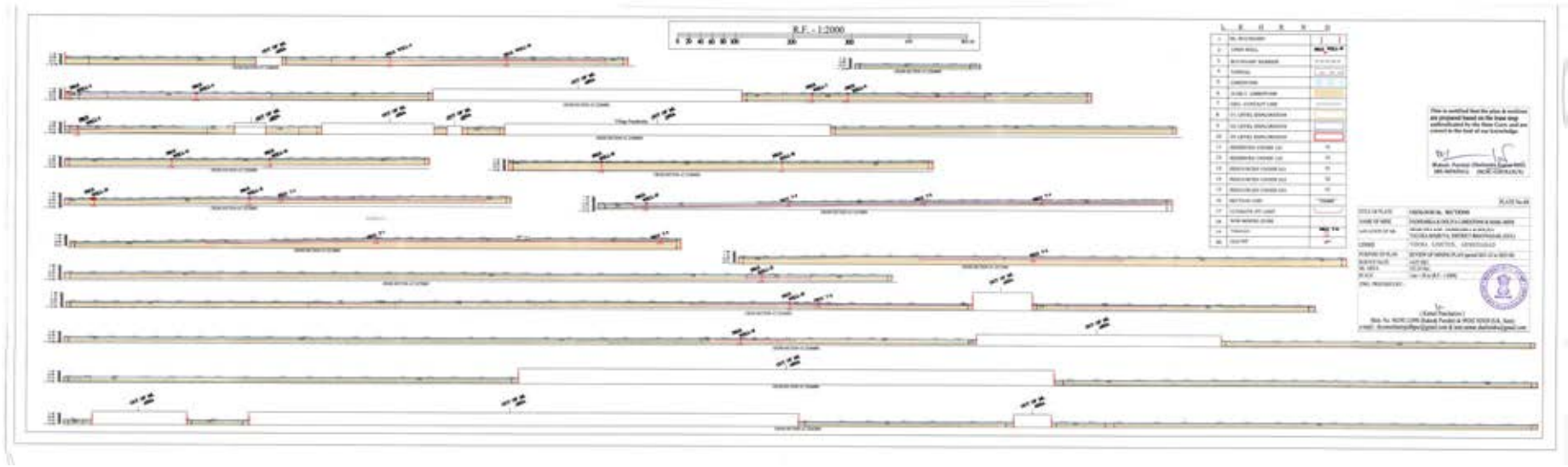


FIG NO. C2-3: GEOLOGICAL SECTIONS OF ML



Looking at the trenches, open dug wells as well as older excavations in the ML area, the area comes under various geological axis i.e. G1, G2 & G3 based on the interval under the provision of Minerals (Evidence of Mineral Contents) Rules, 2015. Being sedimentary occurrence, the mineral also categorized bedded Stratiform and tabular deposits of irregular habit.

2.2.2 Year wise future programme of exploration

It is proposed to carry out exploration by core boreholes in order to bring the ML area within G1 stage. The deposit is of sedimentary origin and simple in nature, therefore boreholes are kept at an interval of 200m grid pattern. A total of 108 BH are proposed upto a level of +1.0 m RL each. The depth of BH shall initially be kept upto 10.0 m wherever possible. Initially the BH drilling shall be at about 400 m interval (as shown in **Table No. C2-2**). If quality of limestone potentiality proves, then further BH shall be carried out closely at 200 m interval (as shown in **Table No. C2-2**). All the BH proposed to be drilled shall be vertical. The exploration is proposed to be carried out in five years of working. The programme is given in **Table No. C2-2**.

TABLE NO. C2-2: PROGRAMME OF FUTURE EXPLORATION

Year	No. of boreholes (DTH)	Grid interval	Total Meterage	No. of Pits, dimensions and volume	No. of Trenches, dimensions
2021-22 to 2025-26	PBH- 2 to 6, 15-21, 30-34, 41-46	400m vertical, 200m horizontal	Till level +1.0mRL	-	-
	PBH- 1, 7-11, 22-29, 35-40, 47-52, 61-72	200m or below	Till level +1.0mRL	-	-
	PBH-53-60, 73-85, 97-99, 101-103, 108	400m vertical, 200m horizontal	Till level +1.0mRL	-	-
	PBH-86-94, 104-107	200m or below	Till level +1.0mRL	-	-

Source: Table A1.7 of Review of Mining Plan with Progressive Mine Closure Plan approved on 05.08.2021

Location of boreholes shown is in **Fig No. C2-2** on the Geological plan.

2.3 RESERVES ESTIMATION

Earlier estimation of resources/ reserves was carried out based on the limited data i.e. limited number of open dug wells over a huge area. In due course of time, part area deletion took place along with more finding of trenches, old pits, outcrops and open dug wells so re-estimation is felt necessary in accordance with MEMC Rules'2015.

The re-estimation of resources/ reserves has been carried out by cross-sectional area method considering the existence of trenches, old pits, outcrops and open dug wells.

For estimation of geological resources, the depth encountered in each open dug well has been considered. The entire limestone irrespective of grades, have been considered as usable limestone for manufacture of quality Ordinary Portland Cement (OPC). Thus the cut off limit has been set as prescribed by CCOM Circular (>34% CaO and <5% of MgO) during estimation of limestone resources/reserves. The ultimate pit limit has been restricted up to level +1.0m AMSL. The overall tonnage factor of mineral is considered as 1.92.

Reserves/resources estimation depending upon nature of exploration is placed under different categories given in subsequent paragraphs.

2.3.1 Geological Resources/Reserves

2.3.1.1 Inferred resources (G3 level axis)

The first estimate of grade and amount of limestone in a deposit has been calculated purely based on data available and supplemented by surface features i.e. widely spaced open dug wells, etc. Such an estimate is based on assumed surface continuity and width of the bed on geological evidences.

2.3.1.2 Indicated resources (G2 level axis)

The phase of resources estimation is carried out partly on geological grounds as collected by open dug wells. The grade and tonnage of the ore body has been calculated on geological grounds based on widely spaced dug wells and pits at or within 400 m interval.

2.3.1.3 Measured resources (G1 level axis)

The resources/ reserves estimated of proved mineralized zone by gathering information of trenches, old pits placed and outcrops placed conforming to the type of deposit explored. In case, the trenches, old pits and outcrops which are falling within the command length of 200 m on either side of the trenches and old excavation and upto depth of the limestone/ Marly Limestone encountered has been classified as measured category of resources.

Area covered under various axis are as follows:-

1. G3 level axis: 189.52 ha
2. G2 level axis: 101.02 ha
3. G1 level axis: 41.70 ha

Based on the above norms and assumptions a Geological reserves considering 10% loss of 28.177 million tonnes has been estimated in the Lease area is given in below in **Table No. C2-3**.

TABLE NO. C2-3: SUMMARIZED GEOLOGICAL RESERVE OF LIMESTONE

Level of exploration	Geological Reserves (million tonnes)	
	Limestone	Marly Limestone
G1 - Detailed exploration	5.109	3.369
G2 - General Exploration	2.197	0.730
G3 – Prospecting	11.973	4.799

Source: page 52 of Review of Mining plan with Progressive Mine Closure Plan approved on 05.08.2021

2.3.2 Mineable reserves

Total mineable reserve is 10.707 Million Tonne. The ROM quality of mineral is quite good CaO >43% of mineable reserves under UNFC code 121 & 122. This quality is an average of mineral limestone based on open dug wells falling in the area. The mineable reserves are in accordance with threshold value issued by IBM i.e. CaO >34% & MgO <5%. The entire mineable reserves under UNFC 121 & 122 shall be made usable. Summary of reserves as per UNFC as on 01.04.2021 is given in **Table No. C2-4**.

TABLE NO. C2-4: UNFC CLASSIFICATION OF RESERVES

	UNFC Code	Quantity of Limestone (million tonnes)			Avg. Grade	
		Limestone	Marly limestone	Total	LST (CaO%)	Marly LST (CaO%)
A. Total Mineral Reserve						
Proved Mineral Reserve	111	-	-	-	-	-
Probable mineral Reserve	121	4.966	3.244	8.21	48.33	39.51
	122	1.872	0.625	2.497	47.65	38.36
B. Total Remaining Resources						
Feasibility mineral Resource	211	-	-	-	-	-
Pre-feasibility mineral resource	221	0.143	0.125	0.268	48.33	39.51
	222	0.325	0.105	0.430	47.65	38.36
Measured mineral resource	331	-	-	-	-	-
Indicated mineral resource	332	-	-	-	-	-
Inferred mineral resource	333	11.973	4.799	16.772	46.29	39.54
Reconnaissance mineral resource	334	-	-	-	-	-
Total Reserves + Resources		**19.279**	**8.898**	**28.177**	-	-

Source: Table A1.11 of Review of Mining plan with Progressive Mine Closure Plan approved on 05.08.2021

Summary of reserves and life is as follows:

- Total mineable reserve is 10.707 million tonne
- Next five years production target: 1.66 million tonne
- Remaining mineable reserves: 9.047 million tonne
- At the production rate of 1.50 million TPA,
- Total life of mine is 5+ 6.05 = 11.05 say 11 years considering next five years.
- Life of mine may be increased subject to conversions of resources under 333 category into category of reserves 111.

2.4 QUALITY PARAMETERS

The limestone is of the best quality and is followed by Marly Limestone/ Marl down the quality parameter. The quality of limestone is high grade, the Marly Limestone is cement to marginal/ low grade in terms of the CaO content of these litho-units.

The desired cement grade limestone can be obtained by exploiting Marly Limestone independently or by blending all these litho-units in suitable proportions. The anticipated Run-of-Mine (RoM) quality of different types of limestone, in the area, is given in **Table No. C2-5**.

TABLE NO. C2-5: ANTICIPATED ROM QUALITY OF DIFFERENT LIMESTONE

Constituents	Limestone	Marly Limestone/ Marl
LOI	38.31	31.94-34.49
SiO_2%	8.07	14.25-18.26
Al_2O_3%	2.03	3.20-4.58
Fe_2O_3%	1.80	2.88-3.85
CaO%	47.98	39.10-42.84
MgO%	0.53	0.69-0.77
K_2O	0.02	0.04
Na_2O	0.16	0.27-0.34
Cl	0.01	0.01
SO_2	0.02	0.02

Source: Table A1.5 of Review of Mining Plan with Progressive Mine Closure Plan approved on 05.08.2021

Expected RoM quality, considering the above all limestone grades in the same proportion is given in **Table No. C2-6**.

TABLE NO. C2-6: EXPECTED RUN OF MINE QUALITY (%)

SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	LOI	Na_2O	K_2O	SO_2	Cl
12.60	2.92	2.60	44.20	0.69	35.51	0.24	0.03	0.02	0.02

Source: Table A1.6 of Review of Mining Plan with Progressive Mine Closure Plan Approved on 05.08.2021

The limestone produced from all ML areas will be used, mixed in a certain ratio to maintain the required quality of limestone to raw mill. During mining, adequate care is to be taken to remove clay capping as reject at the mine itself so that there is no contamination of limestone quality. Major portion of soil cover varying in thickness. Therefore, in order to win the limestone in the top bench, the capping of topsoil will have to be removed.

The ROM quality of mineral is quite good about CaO>43% of mineable reserves under UNFC code 121 & 122. The mineable reserves are in accordance with threshold value issued by IBM i.e. CaO>34% & MgO<5%. The entire mineable reserves under UNFC 121 & 122 shall be made usable. Proper blending of limestone reserves containing CaO>45% and CaO<45% & above IBM threshold of CaO will be utilized by proper blending for cement manufacturing. The limestone containing CaO >48% is of high quality found in the ML area along with Cement Grade Limestone which can be usable in boiler of Power Plant for de-sulfurization process and can also for manufacturing of Soda Ash in company's own Soda Ash plant in Gujarat for captive purpose. During development phase, practically somewhere and sometimes all the grades are not feasible to mine out in required proportionate. In such a situation, until mine is fully developed, limestone digging should have weighted average equally in terms of desired CaO% without blending of all grades. The weighted average shows the quality, nearly the desired one to be sent directly to the proposed plant for clinker production/soda ash plant.

2.5 MINING

It is a virgin area, therefore mine working is yet to be started after getting various clearances/ approvals as applicable.

2.5.1 Proposed method of mining

The Padhiarka and Doliya deposit will be worked out by fully mechanized open cast method using Continuous Surface Miner (CSM) with combination of excavator/ loader and dumpers. Conventional method i.e. drilling and blasting shall be proposed for handling of limestone as well for 50% of total handling.

Surface miner is environment friendly machine and is used in order to avoid blasting as far as possible.

The cutting depth of surface miner is 250-300 mm and product size generated after cutting and milling in the required range. The loading is proposed to be carried out by hydraulic excavator and pay loader for lifting sized limestone and transportation shall be done by means of dumper/tippers of 25 tonnes capacity. The destination of mined out limestone is proposed clinkerization unit with crushing unit for crushed material only. Ex-surface miner material needs no further crushing.

The face shall be oriented in east-west direction. The bench height is proposed 6.0 m. Due to absence of waste, no handling of waste is required as pre-production development except top soil removal and preparation of haul/ mine road. Soil shall be removed first in order to remove the Limestone. Benches of 6 m height and working width 12-15 m (as per MMR) maintaining working bench slope of 80-850 in limestone.

Use of surface miner is eco-friendly mining operation specifically in area near road, habitation and boundary areas. The salient features of surface miner are safe and steady operation, minimum dust generation and low noise. It strips the strata in slices of 25-30 cm thick and wide 2.0m-2.2 m.

Topsoil is loose material, therefore it will require pay loader for loading in dumper/ tipper. Entire ROM limestone is proposed to be fed to the proposed cement plant directly for further process. Initially, limestone may be stacked temporarily depending upon plant demand. The excavation and loading is proposed to be carried out by Surface Miner and by occasionally drilling/ blasting, hydraulic excavator, loader, dumpers.

Company will explore the possibility of reducing the mining with drilling & blasting by using ripper-dozer combination to eliminate the drilling & blasting for limestone use in cement plant.

For our soda ash plant, Company needs sized limestone, i.e. 25-100 mm for which drilling & blasting is essential to break in-situ limestone rock for required size. However, Company shall also explore the possibility to deploy rock breaker to eliminate the drilling & blasting. Rock breaker can be installed in excavator by replacing it bucket and can be used as per the requirement.

Pay loader of capacity 5.76 cum shall be used for loading of fragmented rock mass of mineral and transported to the proposed cement plant/Soda Ash Plant at Kalatalav, Bhavnagar Crusher is required for material fragmented by drilling and blasting for cement plant and crushing of the blasted material will take place at the proposed cement Plant. Crusher is proposed in proposed cement plant in the vicinity of ML area. For use in Soda ash plant, excavated limestone mineral (ROM) shall be sent directly to the soda Ash Plant located at Kalatalav,

Bhavnagar where further breaking of limestone into required size will be done before the feed.

Mine office with all necessary facilities shall be in nearby mine of the same company. Based on the similar deposit working mine, the bench geometry has been designed. The upper sandy material is loose whereas limestone is semi-solid.

The Broad parameters of mining operation will be as below:

Number of working days	300 days/year
Working shift/day	2 shifts of 8 hours each
No. of benches	1
Height	6.0 m (max.)
Width	For working bench 12-15 m for closing (conceptual) bench Optimum
Bench slope	80-85^0
Ultimate Pit slope	~ 45^0
Gradient of ramp	1 in 16

The production is being proposed Nil for year 2021-22 and 2022-23, 0.01 million tonne for 2023-24, 0.15 million tonne for 2024-25 and 1.50 million tonne in 2025-26.

2.6 TENTATIVE YEARWISE DEVELOPMENT PROGRAMME

The mining operations shall be with opencast method fully mechanized means with surface miner and drilling& blasting/Ripper – Dozer / Rock breaker. The bench height of 6.0m (Max.) and sloping bench at about 80-85 degree and working bench width 12-15 m shall be maintained. The mine working is proposed to be worked in 2 shifts of 8.0 hr each.

2.6.1 Tentative Development programme for FY 2021-22

In this year, only pre-development and pre-production work shall be there. Other than this, greenbelt shall be developed in routine.

The haulage roads will be as shown in the plan for future use. Greenbelt/ plantation is proposed to be covered in 1.00 ha within the road barrier followed by barbed fencing for safety of plants. Fencing shall have length of about 1392 m all around the greenbelt/ plantation for safety. Tentative excavation for this year is shown in **Fig No. C2-4**.

2.6.2 Tentative Development programme for FY 2022-23

In this year also, only pre-development and pre-production work shall be there. Other than this, greenbelt shall be developed in routine. The haulage roads will be as shown in the plan for future use. Greenbelt/ plantation is proposed to be covered in 1.00 ha within the road barrier followed by barbed fencing for safety of plants. Fencing shall have length of about 1385 m all around the greenbelt/ plantation for safety. Tentative excavation for this year is shown in **Fig No. C2-5**.

2.6.3 Tentative Development programme for FY 2023-24

In this year, development work as well as production of limestone shall be there. New bench shall be created for working towards NW/W. Total developmental and production level shall be from 14 m AMSL to 13.5 m AMSL in a single bench. Upper parts shall be common for both i.e. developmental as well as production. Soil removal is envisaged. Limestone working shall be from 14.0 m AMSL to 13.5 m AMSL and from 13.5m AMSL to 10.5 m AMSL. Ramp shall be created to the lower benches of gradient 1 in 16 for safe movement in fresh area. The proposed direction of working is towards NW.

Mineral to be produced shall be about 0.010 million tonnes. As it is under developing stage, quality of limestone produced may be slightly lower than desired. Quality attention is required. During this year, no mineral stacking is required as entire ROM is proposed to be sent to plant for further processing. Greenbelt/ plantation is proposed to cover an area of 1.0 ha within the road barrier followed by barbed fencing for safety of plants. Fencing shall have length of about 1691 m all around the greenbelt/ plantation for safety. In order to check spread of soil due to rain, retaining wall around the stack is proposed of length of 203 m. Tentative excavation for this year is shown in **Fig No. C2-6.**

2.6.4 Tentative Development programme for FY 2024-25

In this year, development work as well as production of limestone shall be there. Already advanced bench shall be extended further for working towards all directions. Total developmental and production level shall be from 13.5 m AMSL to 10.5 m AMSL in a single bench. No soil removal is envisaged. The ramp shall be extended to the lower benches of gradient 1 in 16 for safe movement in fresh area.

Mineral to be produced shall be about 0.15 Million tonne of both the grades. As it is under developing stage, quality of limestone produced may be slightly lower than desired. Quality attention is required. During this year, no stacking is required as entire ROM is proposed to be sent to plant for further processing. Greenbelt/ plantation is proposed to cover an area of 1.0 ha within the road barrier followed by barbed fencing for safety of plants. Fencing shall have

length of about 1652 m all around the greenbelt/ plantation for safety. Tentative excavation for this year is shown in **Fig No. C2-7**.

2.6.5 Tentative Development programme for FY 2025-26

In this year, already advanced bench shall be extended further for working towards NW/W and south. Total developmental and production level shall be from 16 m AMSL to 14 m AMSL, 15 m AMSL to 11 m AMSL and 13 m AMSL to 10 m AMSL in a single bench. Soil removal is envisaged from level 14 m AMSL to 10.5 m AMSL. Limestone is from 13.5 m AMSL to 10.5 m AMSL. As such, a total of 117065 cum topsoil shall be removed which shall be disposed by means of stacking within earmarked area as discussed above. The stack shall temporary in nature. Also a little part of topsoil shall be spread within 7.5m boundary barrier for plantation purpose. Garland drain shall be constructed as and when required. The ramp shall be extended to the lower benches of gradient 1in16 for safe movement in fresh area.

Mineral to be produced shall be about 1.50 million tonne of both the grades. As it is under developing stage, quality of limestone produced may be slightly lower than desired. Quality attention is required. During this year, no stacking is required as entire ROM is proposed to be sent to plant for further processing. Greenbelt/ plantation is proposed to cover an area of 1.0 ha within the road barrier followed by barbed fencing for safety of plants. Fencing shall have length of about 650 m all around the greenbelt/ plantation for safety. In order to check spread of soil due to rain, retaining wall around the stack is proposed of length of 1760m. Tentative excavation for this year is shown in **Fig No. C2-8**.

2.6.6 Conceptual Mine planning up to end of life

Company is proposing to operate mines on the concept of utilization of mineral of all grades. Company is in the process of planning to extract the mineral up to +1.0/+2.0 m AMSL up to conceptual stage i.e. end of mine life as per known mineral reserves so far. The conceptual plan has been discussed for a period of 11 years from now onwards which is well before end of lease period. Proposed exploration may change the conceptual scenario drastically further as the lessee have already proposed exploration programme to bring entire area within G1 level as per provision of MEMC Rules, 2015 during next five years. Consequently significant conversion will be observed in reserves under UNFC 111 category to sustainable mine life at ultimate limestone production target of 1.50 million TPA.

2.7 DRILLING & BLASTING

Drilling/ blasting will be carried out for almost half of the proposed production. Multi-row drilling and V-pattern drill holes shall be practiced for deep hole drilling and blasting. Deep hole blasting shall be carried out after getting legal

permission from competent authority. Utmost efforts shall be taken towards proper fragmentation in order to minimize blasting cost and risk.

The drilling shall be done with crawler mounted wagon drill fitted with DTH hammer. The diameter of the hole drilled shall not be more than 4". Since the proposed height of the benches is 6m, depth of the drill holes shall be kept 6.6 m (about 10% extra taken as sub grade drilling).

Spacing and burden shall be 4.0 m and 3.0 m respectively in order to avoid fragmentation of over size material. Inclination of the drill holes shall be along the slope of the bench. If required, rock breaker shall be engaged to avoid secondary blasting. Charging operations shall commence after completion of all drill holes. The cord relays of different delays shall be used to restrict the charge per delay.

An Explosive Magazine under Explosive Rules 2008 for the storage and use of explosives is provided and maintained in nearby lease hold area in Gujarda mine which shall be common for all mines. The blasting parameters are given in **Table No. C2-7**.

TABLE NO. C2-7: BLASTING PARAMETERS FOR LIMESTONE

Item	Limestone bench
Bench height (m)	6
Hole depth (m)	6.6
Diameter of hole (mm)	110
Burden (m)	3.0
Spacing (m)	4
Volume (m^3)	72
Inclination of hole	5° to 10° from vertical
Bulk density (gm/cc)	1.92
Explosive efficiency (T/Kg)	8.0

FIG NO. C2-4: TENTATIVE EXCAVATION PLAN AT THE END OF 2021-22

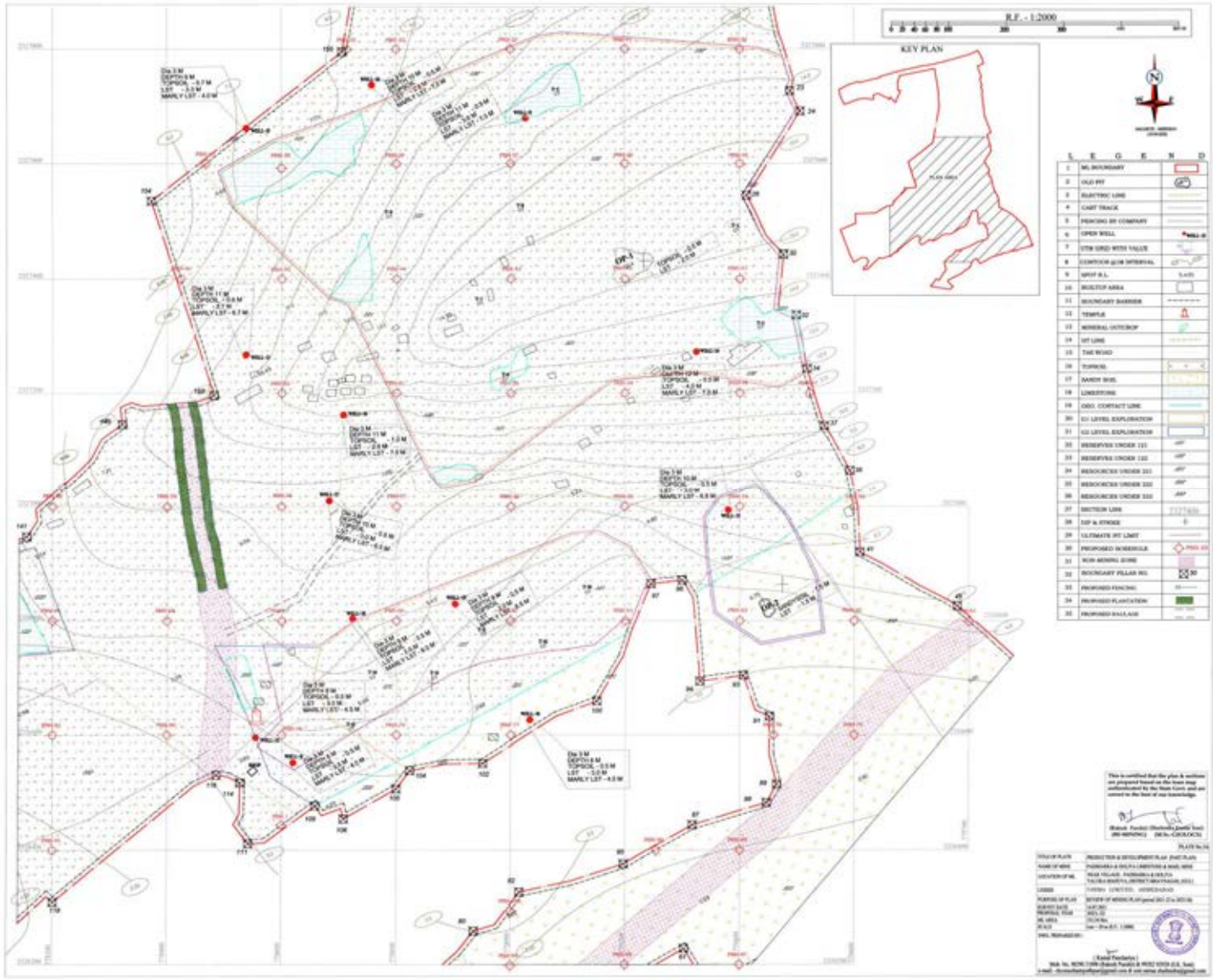


FIG NO. C2-5: TENTATIVE EXCAVATION PLAN AT THE END OF 2022-23

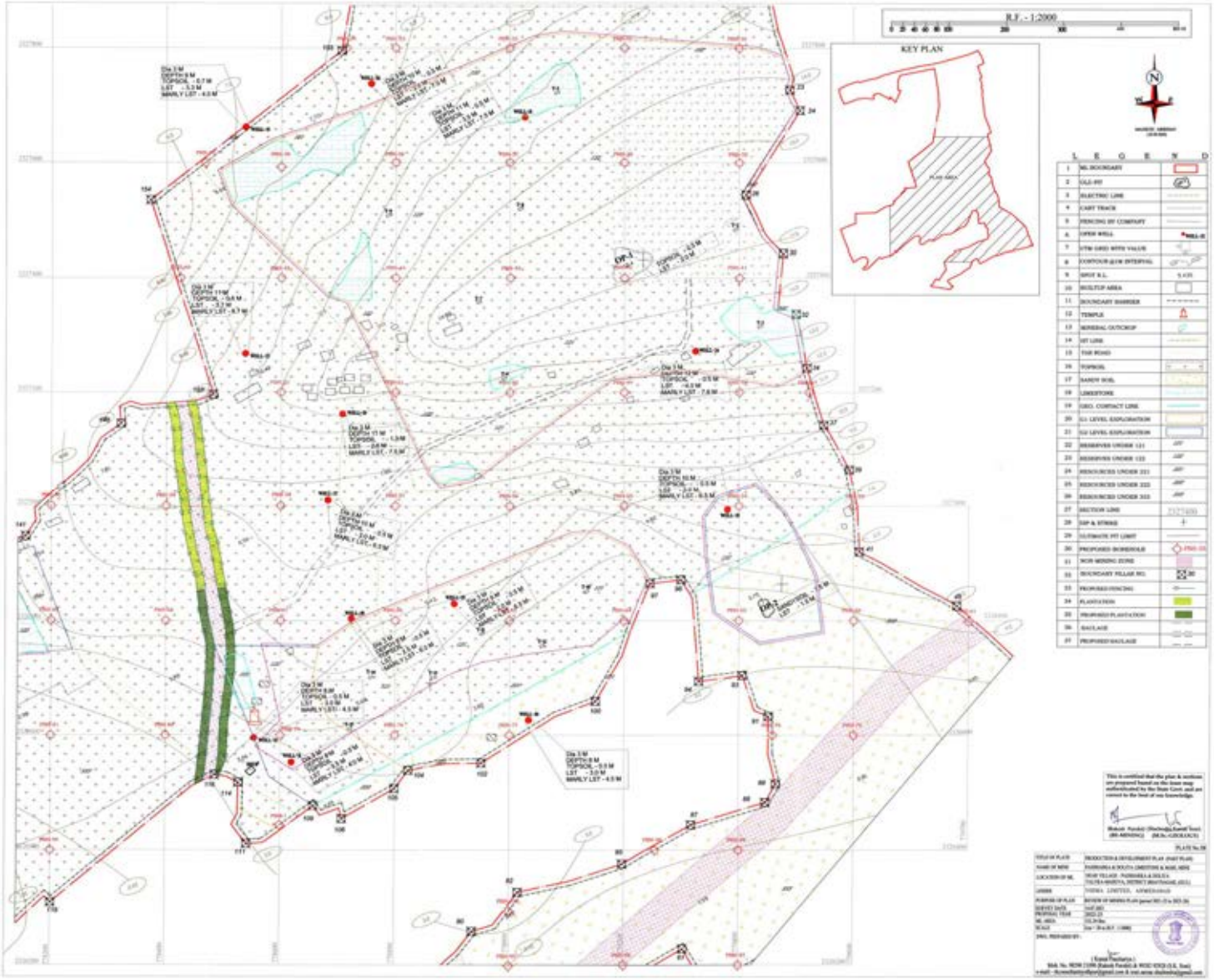


FIG NO. C2-6: TENTATIVE EXCAVATION PLAN AT THE END OF 2023-24

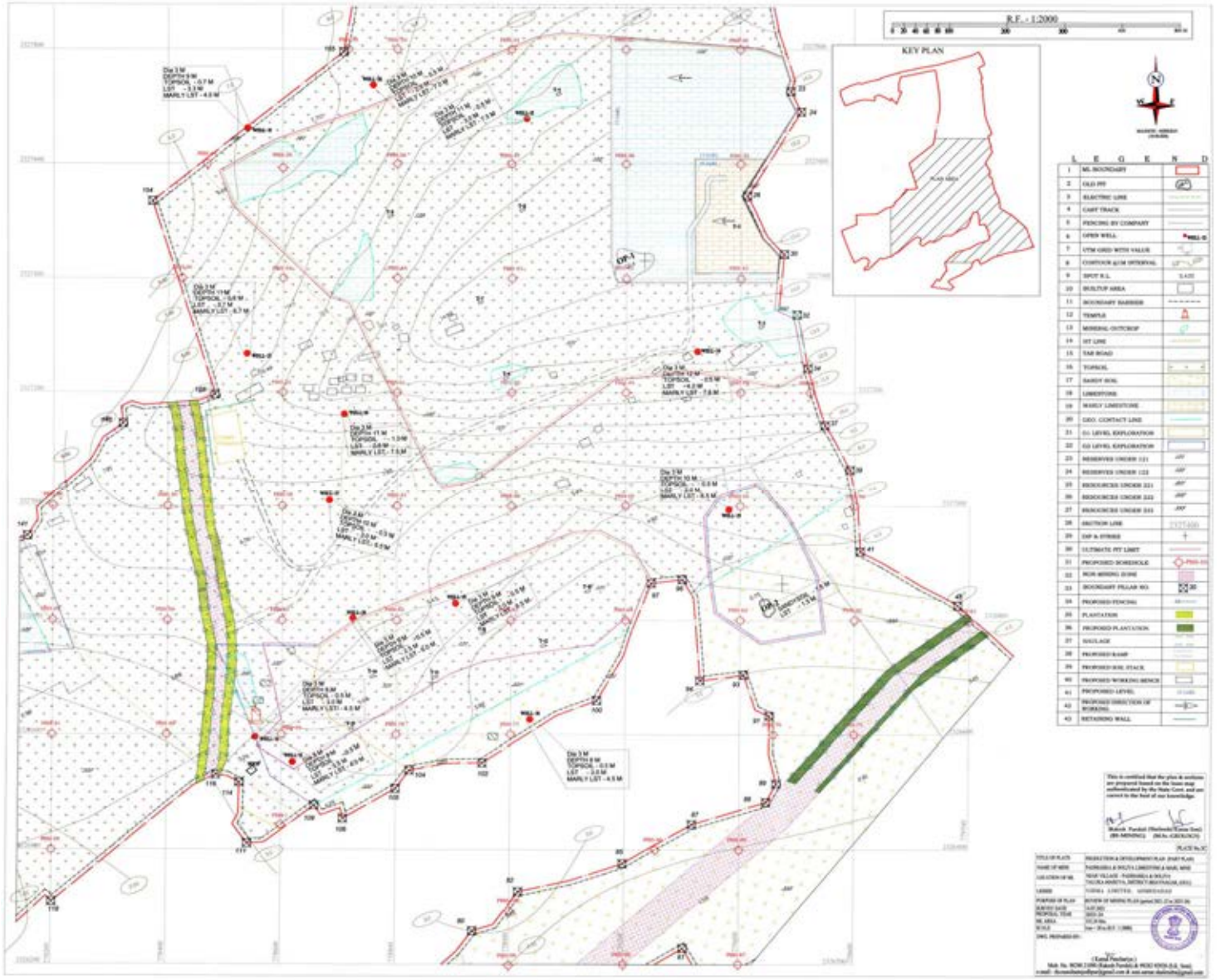


FIG NO. C2-7: TENTATIVE EXCAVATION PLAN AT THE END OF 2024-25

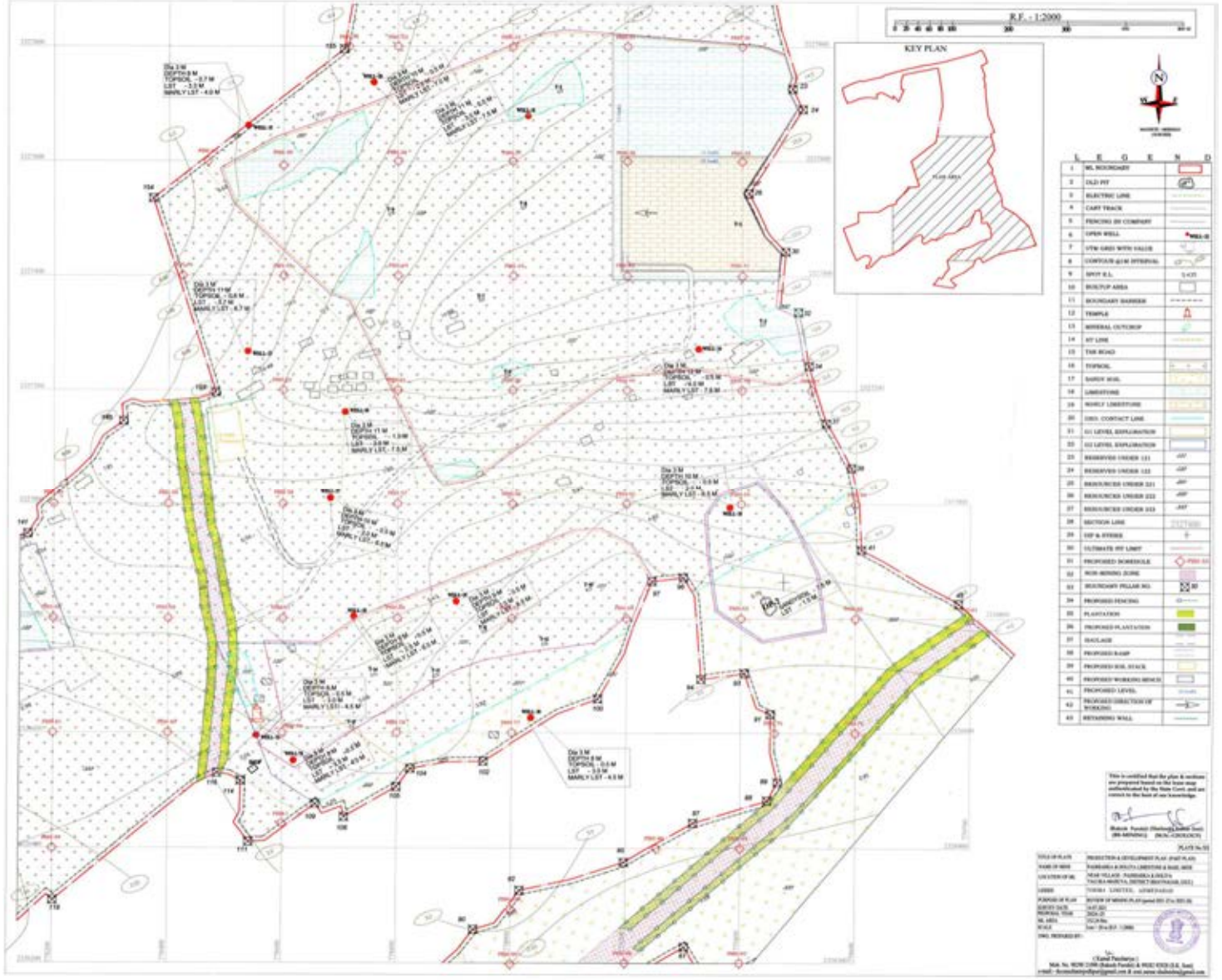
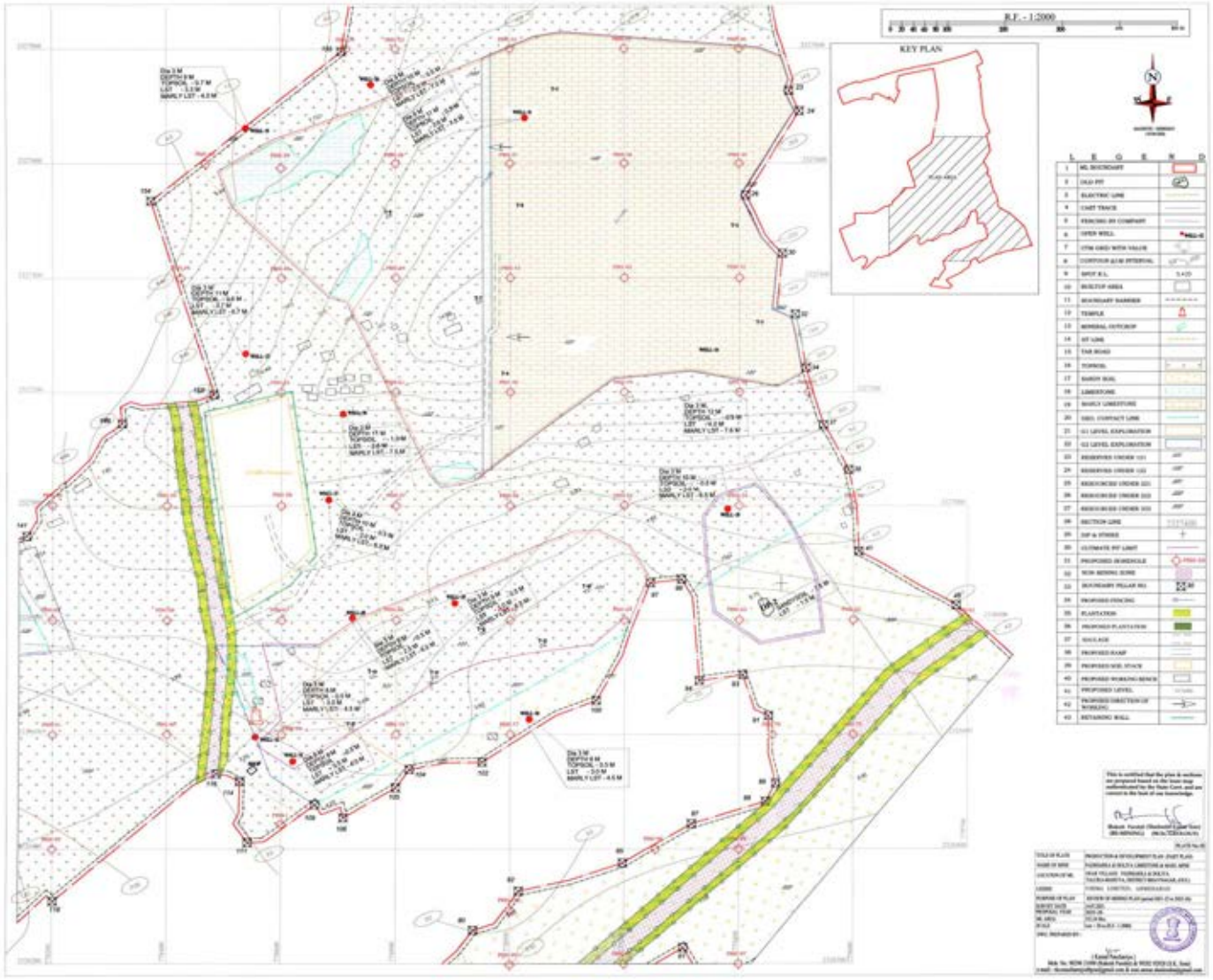


FIG NO. C2-8: TENTATIVE EXCAVATION PLAN AT THE END OF 2025-26



Vibration study will be carried out after commencement of mining operation to suggest the measures to mitigate the adverse effect, if any, and to carry out safe and smooth blasting operation.

2.7.1 Transportation

From the mine faces, the limestone will be transported by dumpers (25 tonne) to the earmarked sites temporarily and ultimately to the crusher site. Blasted material may require crusher for proper fragmentation to meet feed size. Crushing of the blasted material will take place at the proposed cement Plant otherwise for soda ash plant use, excavated limestone mineral (ROM) shall be sent to the soda Ash Plant at Kalatalav, Bhavnagar where the further breaking into required size will be done before the feed. For cement plant, no crushing is required for ex-surface miner material as ex-surface miner will be within the required/ desired feed size.

The movement of trucks will be on internal roads and parallel to the highway and crossing of highway will be done at selected location(s) only.

Limestone will be excavated by combination of surface miner-dumper and excavator-dumper. Blasted rock will be loaded by hydraulic excavators (2.0 m^3) into the dump trucks (capacity 25 tonnes) for onward dispatch to the crusher.

2.8 PRODUCTION

The expected excavation plan for the next 5 years is given in **Table No. C2-8**.

TABLE NO. C2-8: QUANTUM OF SOIL, WASTE ROCK AND LIMESTONE PRODUCTION (CUM)

Year	Pit No.	Total Tentative Excav-ation	Top Soil	OB/ SB/ IB	ROM		Mineral reject	Ore:OB
					Ore	Mineral reject		(cum: cum)
2021-22	--	nil	nil	nil	nil	nil	nil	Not applicable
2022-23		nil	nil	nil	nil	nil	nil	
2023-24	New pit (Pit-1)	15295	10057	nil	5238	nil	nil	1:0.00
2024-25		78138	0	nil	78138	nil	nil	1:0.00
2025-26		898337	117065	nil	781272	nil	nil	1:0.00
Total	**-**	**991769**	**127122**	**nil**	**864648**	**nil**	**nil**	**1:0.00**

Source: Table A2.2 of Review of mining Plan with progressive mine closure plan approved on 05.08.2021

The life of the mine anticipated is 11 years. The expected excavation during next 5 year plan period is given in **Table No. C2-9**.

TABLE NO. C2-9: EXCAVATION DURING FIRST PLAN PERIOD (MILLION TONNE)

Year	ROM	Usable/ Saleable
2021-22	nil	nil
2022-23	nil	nil
2023-24	0.010	.0.010
2024-25	0.15	0.15
2025-26	1.5	1.5
Total	**1.66**	**1.66**

Source: Table A2.3 of review of mining plan with progressive mine closure plan approved on 05.08.2021

Phase wise tentative working programme for the mine life is given in **Table No. C2-10**.

TABLE NO. C2-10: PHASE WISE WORKING PROGRAMME FOR MINE LIFE

Sl. No.	Phase	Duration In years	Proposed production (million tonne)	Proposed Excavation Area(ha)
1.	From FY 2021-22 to 2025-26 (Plan period)	5	1.66	32.25
2.	From FY 2026-27 to 2031-32 (end of mine life)	6	9.04	67.75
	Total	**11**	**10.707**	**100.61**

Source: Table A2.13 of review of mining Plan with progressive mine closure plan approved on 05.08.2021

2.9 LIST OF MINING EQUIPMENT

Like any other industry, the proper selection of heavy earth moving machinery in an opencast mine plays an important role in its overall success. Type of equipment, suitable for a specified job & its capacity, depend entirely on the size of the project, material to be handled, site conditions, availability of equipment, comparative price etc. Mechanized mining operation is envisaged for production of Limestone and removal of topsoil.

The list of mining equipment required are given in **Table No. C2-11**.

TABLE NO. C2-11: LIST OF OTHER MISCELLANEOUS MINING EQUIPMENT

Sl. No.	Description	Nos.	Size/Capacity	Make	Motive Power	H.P
1.	Surface Miner	1	Drum width 2500 mm	Wirtgen	Diesel Engine	950
2.	Front End Loader	1	5.76 cubic meter	Komastu	Diesel Engine	315
3.	Shovel/excavator with rock breaker	2	6 cubic meter	L&T	Diesel Engine	420
4.	Dumpers	13	25 tonne	MAN	Diesel Engine	120
5.	Riper-Dozer	1	D-8L	CAT	Diesel Engine	250
6.	Drill machine	2	15 m/hr	ICM260	Diesel Engine	215
7.	Water Tankers/ Sprinklers	1	20000 liters	TATA	Diesel Engine	120

Source: Table A2.9 of Review of Mining Plan with progressive Mine Closure Plan approved on 05.08.2021

The following auxiliary operations shall also be carried out:

(i) Cleaning, levelling and dozing of debris from bench floors and haulage roads.

(ii) Formation of soil stack.

(iii) Water spraying for dust suppression on roads.

(iv) Explosive transport.

(v) Over size boulder breaking after primary blasting.

(vi) Repair and maintenance of equipment at site.

(vii) Stores, food services to employees, First aid services etc.

(viii) Men and material transport (welfare facilities).

List of equipments required to carry above operations is given in **Table No. C2-12**.

TABLE NO. C2-12: LIST OF MACHINERY/ EQUIPMENT REQUIRED FOR SITE SERVICES

Sl. No.	Machineries	No.	Make	Motive Power	H.P.
1.	Diesel tanker (5000 l cap.) (Truck mounted) (common for all mines)	1	TATA/ Ashok Ley	Diesel Engine	120
2.	Mobile service van and	1	TATA/ Ashok Ley	Diesel Engine	120

Sl. No.	Machineries	No.	Make	Motive Power	H.P.
	garage equipment (common for all mines)				
3.	Diesel Jeeps	1	Mahindra	Diesel Engine	45 to 60
4.	Ambulance van (common for all mines)	1	Mahindra/ TATA	Diesel Engine	45 to 60
5.	Explosive van (common for all mines)	1	Mahindra	Diesel Engine	45 to 60

Source: Table A2.10 of Review of Mining Plan with progressive Mine Closure Plan approved on 05.08.2021

2.10 SITE SERVICES AND INFRASTRUCTURES

The following site services will be provided for the smooth operation of the mine.

A. First aid room

A First Aid Room will be constructed at the proposed mine with the equipment as specified in the Second Schedule of Mines rules. A qualified and experienced person will be in-charge of the First Aid Room for attending to persons during any accident. In addition, First Aid boxes containing the equipment as specified in the third Schedule of the Mines ruled will be provided at plant work shop, which will be used also for maintenance of mining equipments.

B. Canteen / rest shelter

Canteen will be provided near mines office premises for the employees to take food and rest. The canteen will be well equipped and shall provide services at subsidized rates. In addition to this, washing places will also be provided in the canteen. Suitable steps will be taken to maintain the canteen in a clean and hygienic condition. It will be common to all the three mines.

C. Drinking water

In order to cater to the needs of the drinking water, sufficient; water will be made available to the mines workmen. A number of outlets for water will be provided at the mines office, canteen (proposed in nearby area) and steps will be taken to ensure that water is always available during the working hours. One mobile water tanker will be provided for water spraying and supply of the water in case of any off site work.

D. Urinal & lavatory

Sufficient number of urinals and lavatories will be provided at mines.

E. Adequate lighting arrangement

Adequate lighting arrangements (including portable lighting towers) will be made at quarry face, haulage roads, and stacks as per the statutory requirement.

F. Other facilities

The necessary Mines office for managerial staff will be provided in the lease area.

G. Group Vocational Training Centre

Vocational training centre common for all the 3 mines will be provided.

Machine required for mining and allied activities shall be hired and their maintenance shall be within the scope of contractor. Therefore no workshop shall be there. The First-Aid Station shall there inside ML area with necessary facilities for imparting first-aid to the injured. Temporary rest shelters shall be constructed in the mine site. Canteen facilities shall be maintained for the benefit of field staff and workers in the mines.

2.11 FUEL AND STORAGE OF EXPLOSIVES

As per Mining Plan approved on 05.08.2021, diesel for mine machinery will be required at the rate of 208 Litre per hour. Generally Diesel will be drawn from nearby HSD pump. Explosive will be stored in the proposed magazine approved by Chief controller of explosives and transported through approved explosive van.

2.12 POWER REQUIREMENT

100 KW from Gujarat State Electricity Board / Captive Power Plant located at Cement Plant near Padhiyarka.

2.13 WATER REQUIREMENT

Total water requirement for the mines will be 41 KLD and water balance diagram is given in **Fig No. C2-9**. The source of water will be:

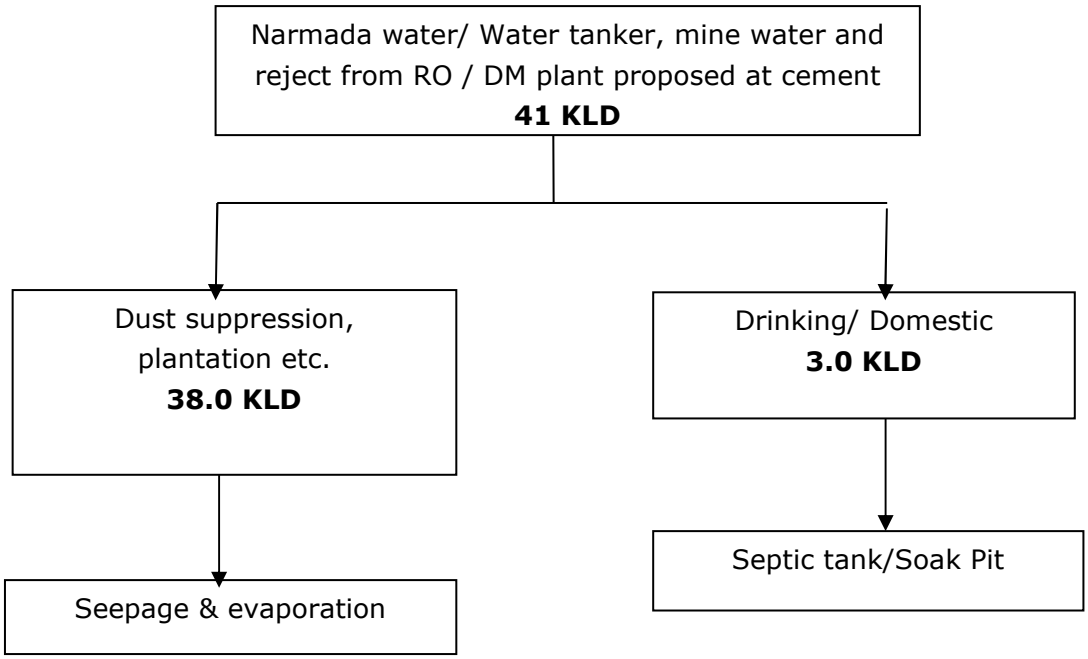
For drinking water	:	Narmada water pipeline/ Water tanker
For Dust Suppression & Plantation	:	Reject water of RO /DM plant (proposed at Cement plant) & mine water

The water requirement has been calculated on the basis shown in **Table No. C2-13**.

TABLE NO. C2-13: WATER REQUIREMENT

Purpose	Avg. Requirement
Mining (Dust suppression and plantation)	38.0 KLD
Drinking & Domestic	3.0 KLD
Total	**41 KLD**

FIG NO. C2-9: WATER BALANCE DIAGRAM (KLD)



2.14 EMPLOYMENT POTENTIAL

Persons required will be of both technical and non-technical background. There shall be two shift operation per day and six days working per week. There will be one Head (Mines) who will be common for all the three adjacent mines of Nirma.

Managerial, supervisory technical and other staff required for the operation of mine is given in **Table No. C2-14**.

TABLE NO. C2-14: MANPOWER DETAILS

Sl. No.	Manpower	Numbers
1.	Mines Manager	1
2.	Asst. Mine Manager	1
3.	Geologist	1
4.	Mining Engineer	2
5.	Mines Foreman	2
6.	Mining Mate	2
7.	Surveyor	1. (Common for all the three mine)
	Total	**9**
8.	Highly Skilled (officers and staff)	9
9.	Skilled	35
10.	Semi-skilled	6
11.	Unskilled	5
	Total	**55**

CHAPTER 3
DESCRIPTION OF THE ENVIRONMENT

3.1 GENERAL

For the purpose of assessing impacts of any development project, the baseline status of environmental factors in the project area and its surrounding is to be established.

3.1.1 Sources of environmental data

The baseline information with respect to micro-meteorological data, ambient air quality, water quality, noise levels, soil quality and traffic density have been collected by NABL accredited and MOEF&CC recognised M/s Min Mec R&D Laboratory, New Delhi (NABL certificate no. TC-6337 valid upto 16.03.2024 and MoEF&CC Notification no. SO 3744(E) at Sl. No. 97 valid upto 16.10.2024). The long term meteorological data recorded at the nearest IMD station, Bhavnagar (100 km, NE) was taken from Climatological Normals (1991-2020) issued by Office of The Additional Director General of Meteorology (Research), IMD, Pune. Apart from these, secondary data have been collected from Registrar of Census 2011, Central Ground Water Board/ Authority, Survey of India Open Series Map, satellite images from Google Earth, information from Forest Department, etc.

Micro-meteorological data was recorded at the site using an automatic weather monitoring station. The generation of primary data as well as collection of secondary data and information from the site and its surroundings was carried out during summer season from 1st March 2021 to 2nd June 2021, in anticipation of applying for fresh ToR. The data was generated in line with Terms of Reference from Ministry of Environment, Forest & Climate Change vide letter no. J-11015/154/2017.IA-II(M) dated 3rd January, 2017. The same has been extended vide letter no. F.No. J-11015/154/2016-IA-II (M) dated 16.03.2020 by MoEF&CC. Further, in view of the nation wide lockdown due to COVID19 pandemic and obstructions triggered by it, MoEF&CC had issued a notification vide S.O. 221(E) dated 18th January 2021 and accordingly the validity of ToR may be considered upto 12.11.2022. However, the company applied for fresh Terms of Reference and has received the same vide letter no. J-11015/154/2016-IA. II(M) dated 28.11.2022.

3.1.2 Study area

For the description of baseline environmental scenario, the lease area has been considered as the "core zone". The 10 km radius around the proposed project forms the "buffer zone" i.e. the anticipated area of impact. The core zone and the buffer zone together have been termed as "study area". The core zone falls within Padhiarka and Doliya, under Mahuva Taluka of District Bhavnagar,

Gujarat. Study area covers sub-districts Rajula of District Amreli and Mahuva sub-district of District Bhavnagar. The study area is shown in **Fig No. C3-1**.

3.2 TOPOGRAPHY AND DRAINAGE

3.2.1 Topography

Core Zone: The limestone mine is located in villages Padhiarka and Doliya. The lease area is characterized by flat topography with minor undulations. The area comprises of surface soil /Dry alluvium, Marl / Milliolite Limestone,etc. Middle eastern part is comparatively elevated from upper, west central and lower parts. No hilly terrain is seen in and around the area of mining lease. Slight slope can be seen from centre to NW and SW towards Arabian Sea. The elevation varies from 1 to 15.31 m above mean sea level (amsl). Few electric lines are passing through the ML area for supplying power to the various open dug wells/ tubewells and few of them are through National Highway NH-8E. Outcrops and few old pits with shallow depth can be seen at various locations.

Buffer Zone: In **Fig No. C3-1**, one can see that the topography of the study area is generally plain with minor undulations. The general altitude of buffer zone area varies between 0 m AMSL to 58 m AMSL. The general physiographic gradient is in south towards Arabian sea.

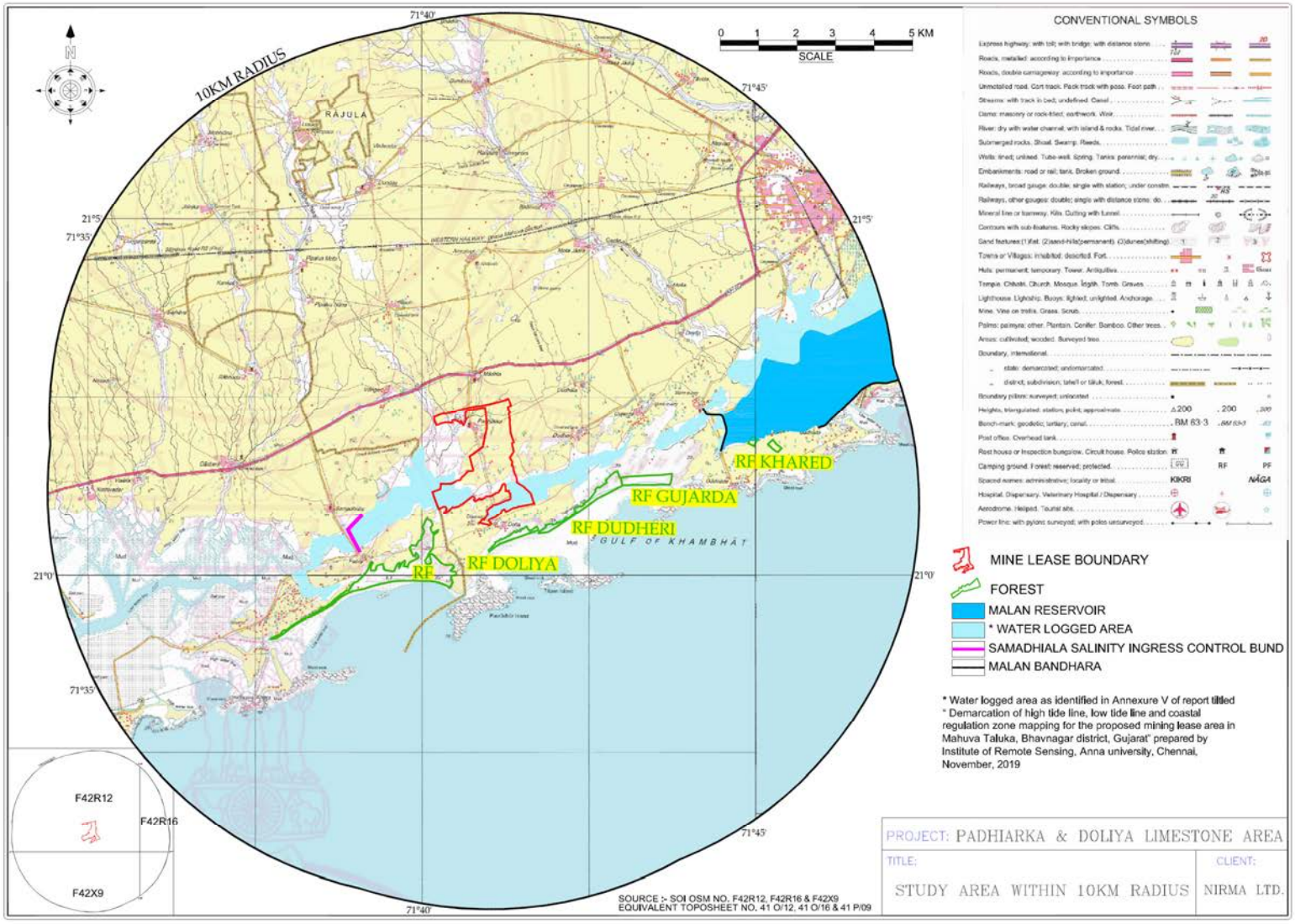
3.2.2 Drainage

***Core zone*:** Rainwater flows as per natural slopes in the nearby fields of the area. Few small seasonal streams can be seen originating within the ML area. These streams ultimately dissipate into the vast saline plain that is seen in the south-western part of the area.

There are few second order streams, passing close to each other, through the lease area near Padhiarka village while one second order stream is passing near Doliya village. All streams ultimately lead to Samadhiala salinity ingress control bund, which overflows into the sea. Water logged area are present in southern part of the ML. The drainage pattern is dendritic in nature. These are shown in **Fig No. C3-1**. There is seasonal water tank near Padhiarka village, within mine lease area.

***Buffer zone*:** In the study area, there exist some surface water bodies. The drainage pattern is almost dendritic in nature with general flow direction from north to south. The storm water flows through these rivers and finally drains out to sea.

FIG NO. C3-1: TOPOGRAPHY AND DRAINAGE MAP IN 10 KM RADIUS



There is a bund near Samdhiyala village for prevention of the saline water ingress in the western/ south-western side of the project area and the water from the seasonal streams is partly flowing into its catchment and ultimately into the harvesting pond i.e. Samadhiala salinity ingress control bund. Water logging occur in the adjoining areas as well. List of rivers/nala present in 10 km radius of mine is given in **Table No. C3-1**.

TABLE NO. C3-1: LIST OF WATER BODIES IN 10 KM RADIUS OF MINE

Sl. No.	Water Body	Distance (km), Direction
1.	Arabian Sea Coast	0.5 km, S from HTL
2.	Bhambhali River	3.6 km, W
3.	Malan River	9.0 km, ENE
4.	Garasawo River	4.5 km, ENE
5.	Samadhiala salinity ingress control bund	2.3 km, WSW
6.	Malan Bandhara	5.1 Km, E

3.3 CLIMATE AND METEOROLOGY

3.3.1 Climate

The climate of the district is arid with large annual variations in rainfall and moderate humidity. The area experiences extreme climate conditions. January is the coldest month, with the temperature falling to 14.0°C. May is the hottest month of the year, when the maximum ambient temperature reaches 39.8°C. As per the Climatological table for Bhavnagar Meteorological station, the average annual rainfall (1991 to 2020) in the area is 718.0 mm. The period from June to September accounts for more than 95.5 % of total annual rainfall.

3.3.2 Long-term meteorology

The nearest meteorological station of IMD is at Bhavnagar which is approximately 100 km to the North East of the project area. The following meteorological parameters for the period 1991-2020 for Bhavnagar station have been taken from "Climatological Normals 1991-2020" issued by Office of the Additional Director General of Meteorology (Research) India Meteorological Department. The data in respect of various parameters are briefly discussed in the following paragraphs.

Temperature, Relative Humidity and Rainfall

Temperature

The monthly average of daily maximum and minimum temperatures for the period 1991 to 2020 have been furnished in **Table No. C3-2** visualized in **Fig No. C3-2.** The mean of monthly minimum temperature recorded at IMD station Bhavnagar ranges from 14.0°C in January to 27.5°C in June. The mean of monthly maximum temperature ranges from 27.9°C in January to 39.8°C in May.

Rainfall

The average monthly rainfall for the period 1991 to 2020 at IMD station Bhavnagar is given in **Table C3-2** and the monthly average values of rainfall is shown in **Fig No. C3-3**. The average annual rainfall was recorded as 718.0 mm.

Relative Humidity

The average monthly relative humidity data has been studied at IMD station, Bhavnagar for the period 1991 - 2020 and is given in **Table No. C3-2** and shown in **Fig No. C3-4**. The relative humidity at 08:30 hrs ranges between 46% in March to 83% in August, while the relative humidity at 17:30 hrs varies from 23% in March to 72% in August.

TABLE NO. C3-2: MONTHLY AVERAGE MAXIMUM AND MINIMUM TEMPERATURE (°C), RELATIVE HUMIDITY (%) AND RAINFALL (MM) AT IMD STATION, BHAVNAGAR (1991-2020)

Month	Mean Temperature (°C)		Relative Humidity (%)		Mean Total Rainfall (mm)
	Minimum	Maximum	At 08:30 hrs	At 17:30 hrs	
Jan	14.0	27.9	59	36	1.8
Feb	16.4	30.7	53	28	0.0
Mar	20.9	35.1	46	23	0.9
Apr	24.6	38.2	48	27	1.7
May	26.9	39.8	61	39	2.2
Jun	27.5	37.4	72	54	141.6
Jul	26.2	33.5	81	70	239.0
Aug	25.2	32.4	83	72	163.6
Sep	24.7	33.3	81	65	142.2
Oct	23.2	35.0	66	41	20.9
Nov	19.1	32.5	58	36	2.9
Dec	15.3	29.2	60	38	1.1
Annual Average	**22.0**	**33.8**	**64**	**44**	**Total = 718.0**

Source: Climatological Normal (1991 - 2020)

FIG NO. C3-2: MONTHLY AVERAGE MAX. & MIN TEMPERATURE (°C) AT IMD STATION, BHAVNAGAR (1991-2020)

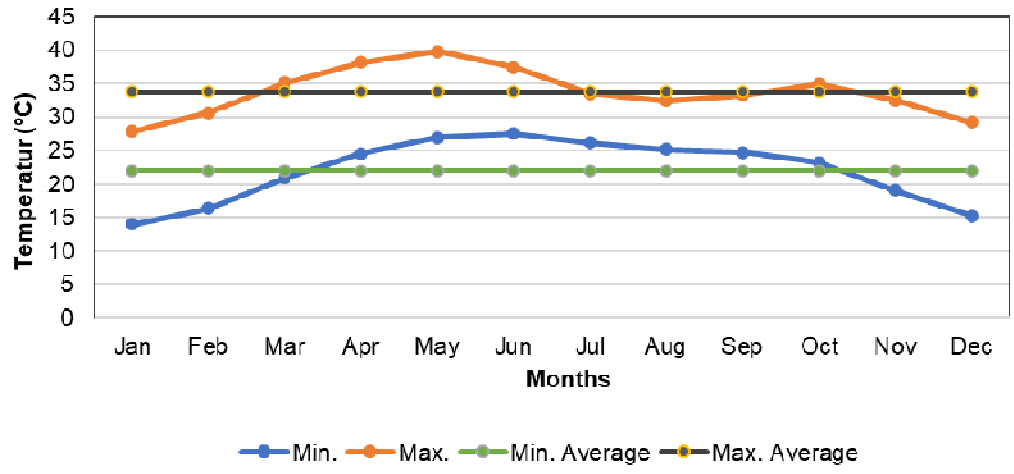


FIG NO. C3-3: MONTHLY AVERAGE RELATIVE HUMIDITY (%) AT IMD STATION, BHAVNAGAR (1991-2020)

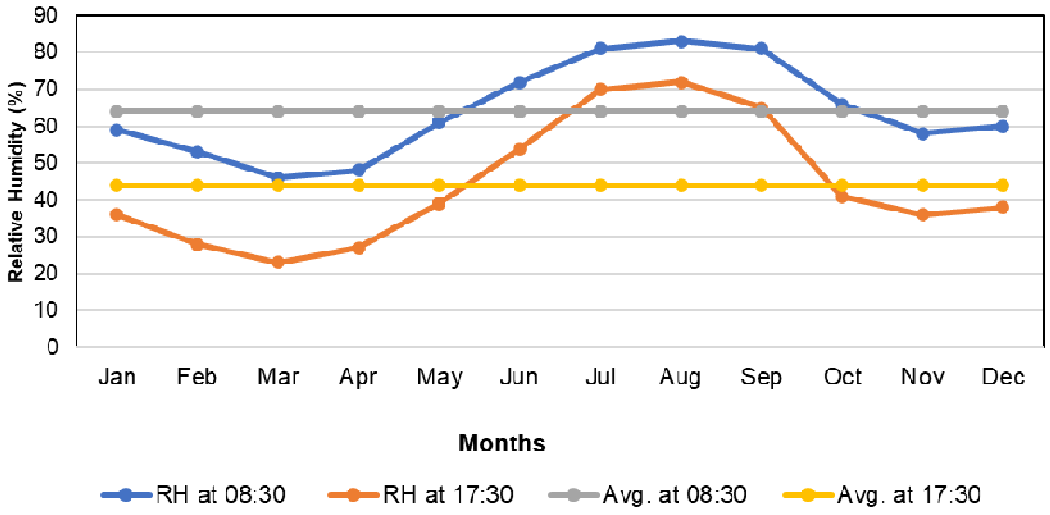
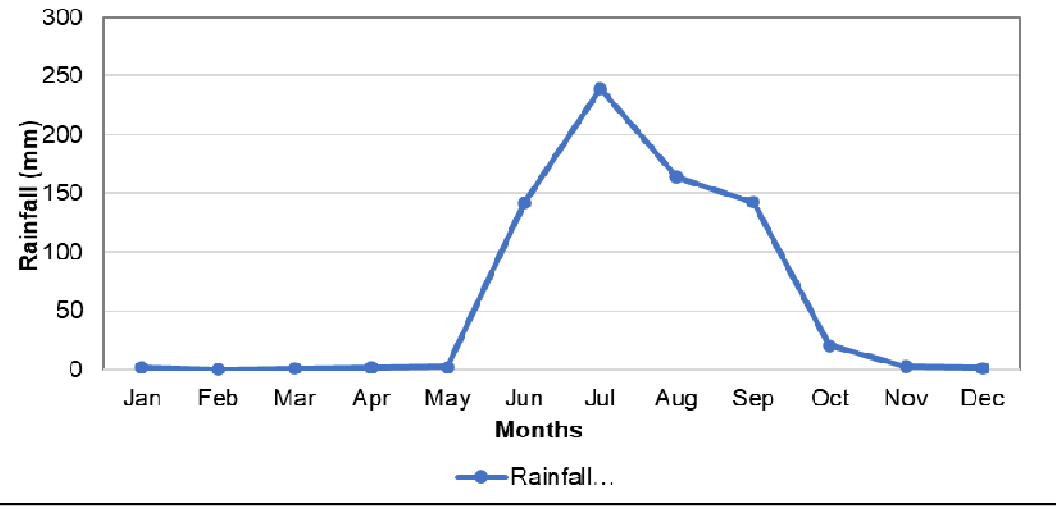


FIG NO. C3-4: MONTHLY AVERAGE RAINFALL (MM) AT IMD STATION, BHAVNAGAR (1991-2020)



Wind speed and wind rose

The nearest station in similar climatological condition is Bhavnagar where wind speed and direction data is recorded. The windrose diagram for the period from 1991 to 2020, has been prepared based on the data available for IMD Bhavnagar, are presented in **Fig No. C3-5** and **Fig No. C3-6** for 8.30 hrs and 17.30 hrs respectively. The morning windrose diagram given in **Fig C3-5**, shows that wind flows predominantly from the directions north-west and west in the months of October to March and from north west, west and south-west in the months of April to September. The evening windrose diagram given in **Fig C3-6** shows that wind is predominantly flowing from north-east, east and south-east except in October-March and from south west, south-east and south from April to June and south west, south and west from July to October

FIG NO. C3-5: WINDROSE DIAGRAM AT IMD STATION BHAVNAGAR AT 8:30 HRS

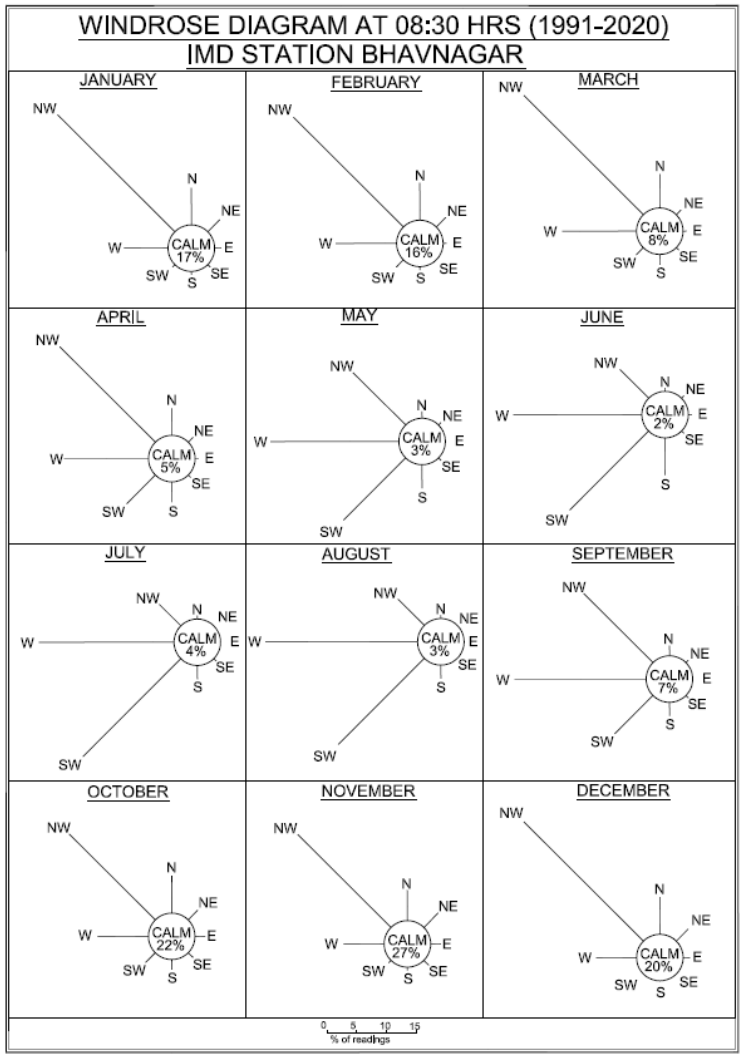
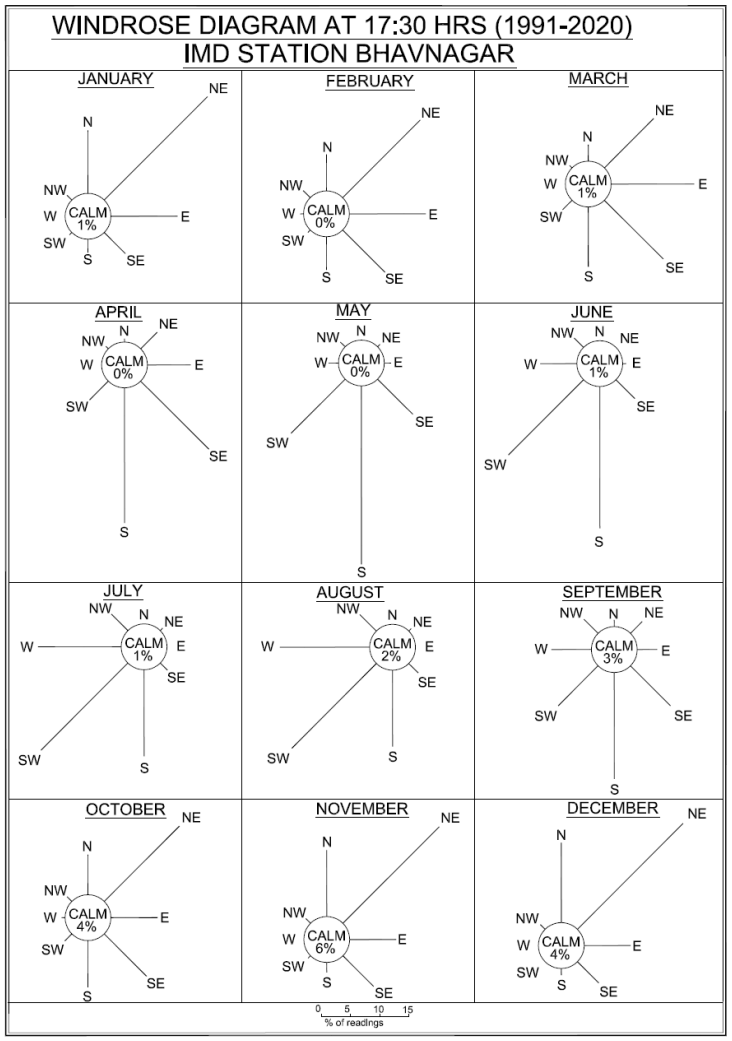


FIG NO. C3-6: WINDROSE DIAGRAM AT IMD STATION BHAVNAGAR AT 17.30 HRS



3.3.3 Micro-meteorology

The micro-meteorological data of the study area have been recorded by Min Mec R&D Laboratory, New Delhi with an Automatic Weather Station for the summer season from 1st March 2021 to 2nd June, 2021 as due to TAUKTAI cyclone, equipment was shut down for safety reason on 17/05/2021 at 4 PM and restarted on 19/05/2021at 10 AM. Therefore, for a complete period of three months data were recorded till 2nd June 2021 instead of 31st May 2021. The daily average of the monitored micro-meteorological data is given in **Annexure IV** and summarized in **Table No. C3-3**. The various parameters are discussed in subsequent paragraphs.

TABLE NO. C3-3: SUMMARY OF MONITORED MICRO-METEOROLOGICAL DATA, 1ST MARCH - 2ND JUNE, 2021

Parameter	Maximum	Minimum	Mean
Temperature (°C)	42.63	20.00	30.25
Relative Humidity (%)	78.10	38.80	56.00
Wind speed (km/h)	28.52	0.00	13.07
Wind direction	South (18.08% Readings)		

The above table shows that temperature was recorded as a minimum of 20.00°C and maximum of 42.63°C, relative humidity as a minimum of 38.80% and maximum of 78.10% during the monitoring period. There was no rainfall during the monitoring period exceot for approximately 24 hours continuously during the passage of Cyclone Taukte from evening of 17th May 2021 to evening of 18th May 2021. The gusting winds peaked upto 80 kmph and 12 hour rainfall was 161 mm upto 6 pm of 18th May 2021. The wind speed varies between 0 to 28.52 km/hr and the predominant wind direction was observed from S with 18.08% of occurrences. The wind frequency table is given in **Table No. C3-4** and the corresponding wind rose diagram is shown in **Fig No. C3-7**.

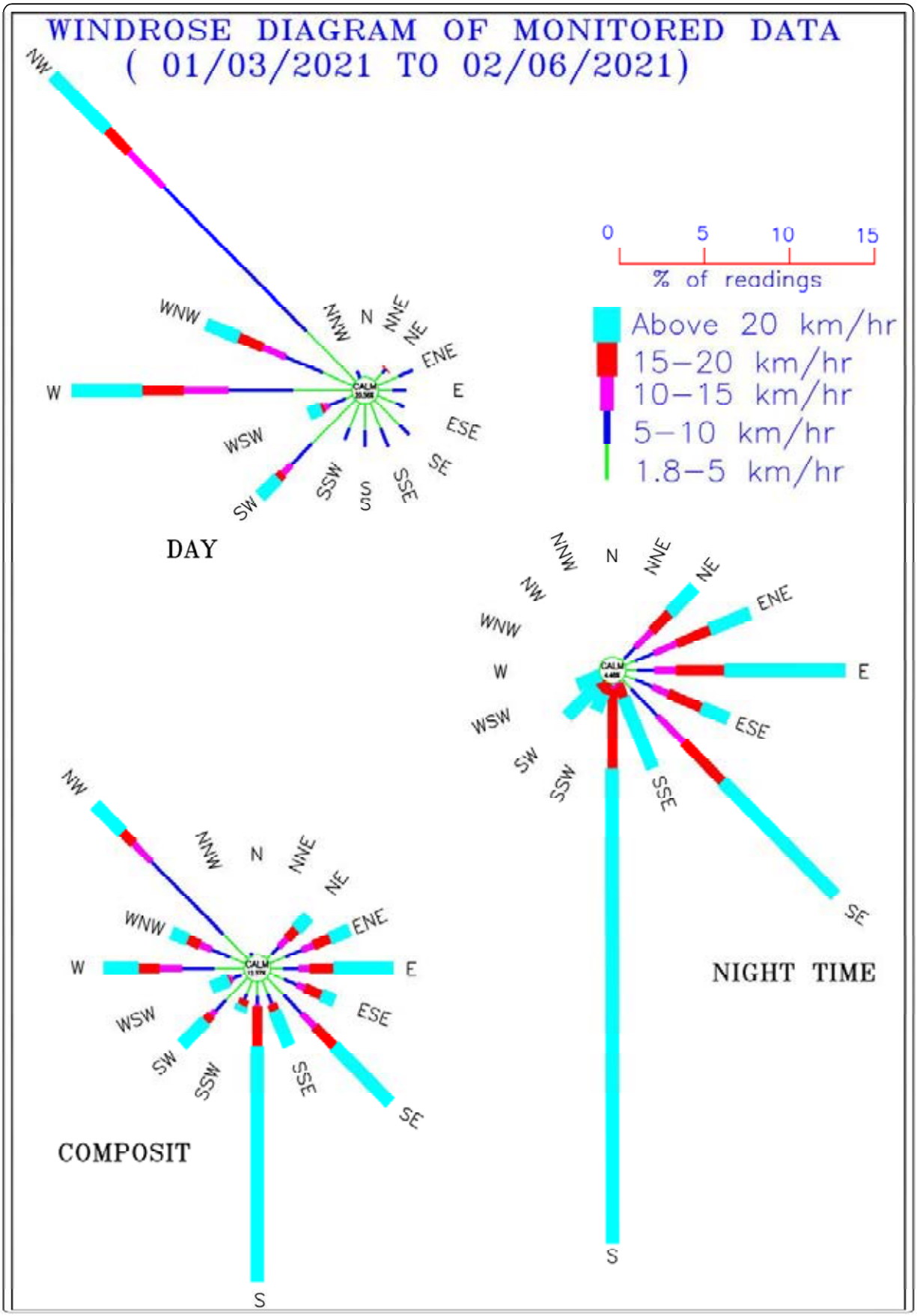
TABLE NO. C3-4: WIND FREQUENCY OF MONITORED DATA AT SITE (01/03/2021-02/06/2021)

Wind direction from	% of readings in different ranges of wind speed (km/hr)							
	Calm	1.8-5	5-10	10-15	15-20	>20	Total	Ex-calm
	DAY (6 hrs to 17 hrs)							
E	1.27	0.82	0.82	0.00	0.00	0.00	2.91	1.64
ENE	0.54	1.36	0.91	0.00	0.00	0.00	2.81	2.27
NE	4.35	0.63	0.27	0.00	0.09	0.00	5.34	0.99
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.45	0.00	0.00	0.00	0.45	0.45
NW	2.08	4.08	11.87	2.90	1.81	4.53	27.27	25.19
WNW	1.18	1.90	2.36	1.45	1.54	2.08	10.51	9.33
W	1.90	3.44	3.80	2.63	2.45	4.17	18.39	16.49
WSW	0.27	0.45	1.09	0.27	0.18	0.82	3.08	2.81

Wind direction	% of readings in different ranges of wind speed (km/hr)							
	Calm	**1.8-5**	**5-10**	**10-15**	**15-20**	**>20**	**Total**	**Ex-calm**
SW	5.25	3.62	1.72	0.72	0.36	1.54	13.21	7.96
SSW	0.82	1.63	0.72	0.00	0.00	0.00	3.17	2.35
S	0.82	1.54	1.00	0.00	0.00	0.00	3.36	2.54
SSE	1.18	1.63	1.18	0.00	0.00	0.00	3.99	2.81
SE	0.54	2.08	0.82	0.00	0.00	0.00	3.44	2.90
ESE	0.36	1.18	0.54	0.00	0.00	0.00	2.08	1.72
Total	**20.56**	**24.36**	**27.55**	**7.97**	**6.43**	**13.14**	**100.00**	**79.45**
from	**NIGHT (18 hrs to 5 hrs)**							
E	1.19	0.64	1.01	1.28	2.84	7.14	14.10	12.91
ENE	0.64	0.64	1.19	1.47	2.11	2.56	8.61	7.97
NE	0.27	0.18	0.92	1.37	1.47	2.11	6.32	6.05
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WNW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WSW	0.18	0.00	0.00	0.00	0.00	1.47	1.65	1.47
SW	0.09	0.00	0.00	0.00	0.55	2.47	3.11	3.02
SSW	0.18	0.00	0.00	0.00	0.64	1.10	1.92	1.74
S	0.37	0.09	0.00	0.18	4.67	27.66	32.97	32.60
SSE	0.18	0.00	0.00	0.09	0.82	4.49	5.58	5.40
SE	0.92	0.73	2.20	2.20	3.21	9.43	18.69	17.77
ESE	0.46	0.64	1.10	1.01	2.11	1.74	7.06	6.60
Total	**4.48**	**2.92**	**6.42**	**7.60**	**18.42**	**60.17**	**100.00**	**95.53**
	COMPOSITE							
E	1.23	0.73	0.91	0.64	1.41	3.55	8.47	7.24
ENE	0.59	1.00	1.05	0.73	1.05	1.28	5.70	5.11
NE	2.32	0.41	0.59	0.68	0.77	1.05	5.82	3.50
NNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NNW	0.00	0.00	0.23	0.00	0.00	0.00	0.23	0.23
NW	1.05	2.05	5.97	1.46	0.91	2.28	13.72	12.67
WNW	0.59	0.96	1.18	0.73	0.77	1.05	5.28	4.69
W	0.96	1.73	1.91	1.32	1.23	2.09	9.24	8.28
WSW	0.23	0.23	0.55	0.14	0.09	1.14	2.38	2.15
SW	2.69	1.82	0.87	0.36	0.46	2.00	8.20	5.51
SSW	0.50	0.82	0.36	0.00	0.32	0.55	2.55	2.05
S	0.59	0.82	0.50	0.09	2.32	13.75	18.07	17.48
SSE	0.68	0.82	0.59	0.05	0.41	2.23	4.78	4.10
SE	0.73	1.41	1.50	1.09	1.59	4.69	11.01	10.28
ESE	0.41	0.91	0.82	0.50	1.05	0.87	4.56	4.15
Total	**12.57**	**13.71**	**17.03**	**7.79**	**12.38**	**36.53**	**100.00**	**87.44**

Note: Calm is cut off at wind speed <1.8 km/hr as per CPCB

FIG NO. C3-7: WINDROSE DIAGRAM OF MONITORED DATA



3.4 AMBIENT AIR QUALITY

3.4.1 Ambient air sampling

The ambient air quality survey was conducted during summer season from 1st March, 2021 to 2nd June, 2021.

3.4.2 Location of ambient air sampling stations

The air sampling stations were established in and around the core and buffer zone to study the present ambient air quality. It may be noted that there are two other mines also proposed by Nirma Ltd. in the vicinity of Padhiarka & Doliya Limestone mine i.e. (1) Vangar & Madhiya Limestone Mine in North and (2) Gujarda, Dudheri & Dudhala Limestone mine which is adjacent to it in East direction. EIA/ EMP is also being prepared for the other two mines together. Thus, to study the baseline environment condition, air quality stations were established giving due consideration to all three mines in core zone and buffer zone on the basis of predominant directions, location of habitation, sensitive receptors, industrial activity, etc. A study of the composite wind frequency in **Table No. C3-4** shows that the first three predominant wind direction are from South, North-West & South-east. A map of the study area showing the locations of these sampling station, as mentioned in **Table No. C3-5** is presented in **Fig No. C3-8**.

3.4.3 Sampling schedule and air quality parameters

The study was carried out for 3 months with a frequency of twice a week at each site. 24-hour average samples for PM_{10}, $PM_{2.5}$, SO_2 and NO_2 were collected from each station. Heavy metals (Ni, Pb, and Ni) & silica were analysed from sample of Core Zone of all three mines. These samples were analyzed in laboratory by adopting the methods specified in National Ambient Air Quality Standards. The following air pollution parameters were monitored during the sampling periods.

- Fine Particulate matter ($PM_{2.5}$)
- Respirable Particulate matter (PM_{10})
- Sulphur dioxide (SO_2)
- Oxides of nitrogen (NO_2)
- Heavy Metals (Pb, As & Ni)
- Silica (SiO_2)

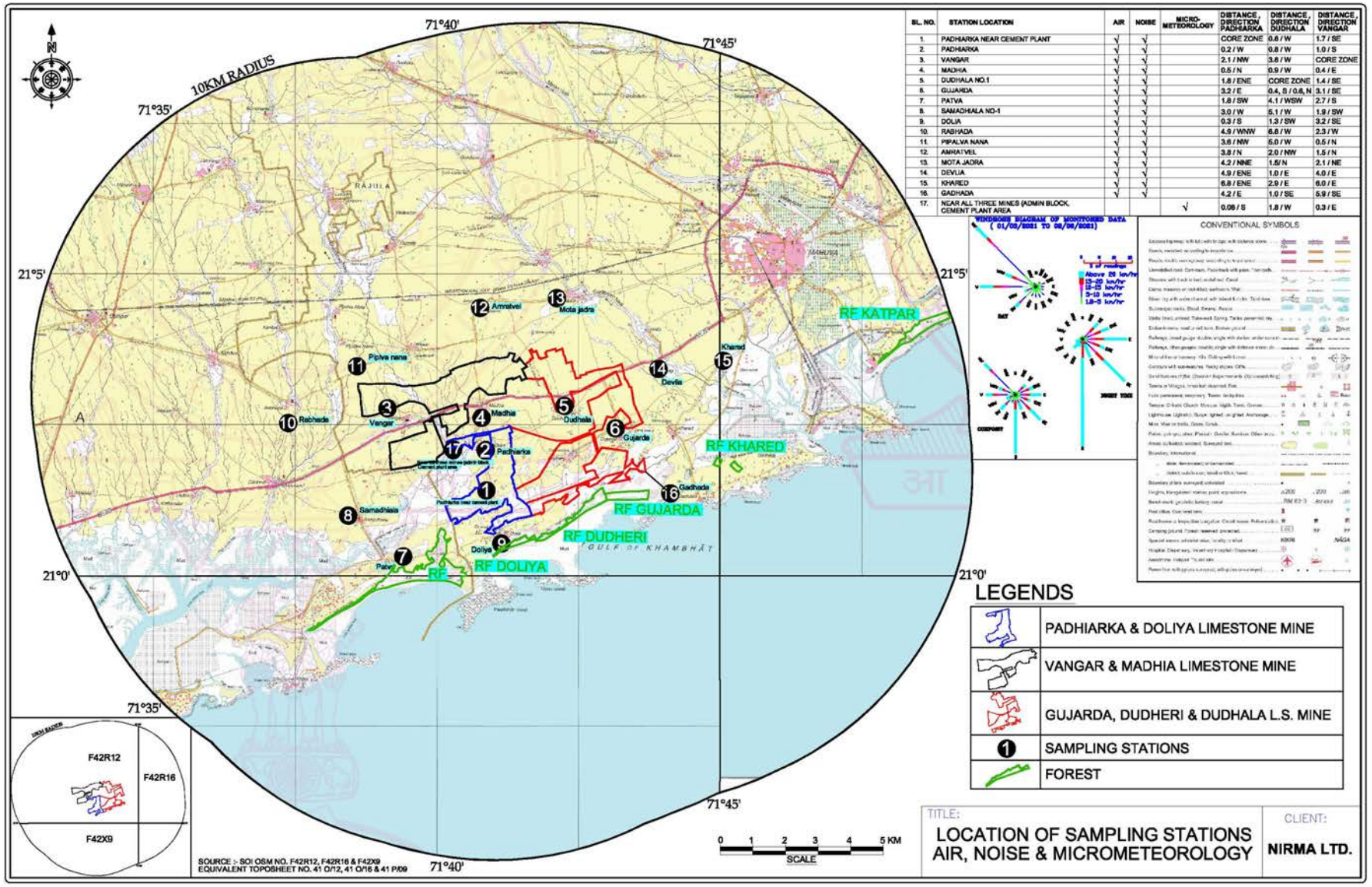
The sampling and testing of ambient air quality parameters was carried out as per relevant Parts of IS: 5182 and CPCB guidelines. The brief details of testing procedure adopted are given in **Table No. C3-6**.

TABLE NO. C3-5: LOCATION OF AIR SAMPLING STATIONS

Station code	Location of ambient air monitoring stations	Padhiarka & Doliya Limestone Mine		Gujarda, Dudheri & Dudhala Limestone Mine		Vangar & Madhiya Limestone Mine	
		Distance (km) & Direction from project site	Justification of station selection	Distance (km) & Direction from project site	Justification of station selection	Distance (km) & Direction from project site	Justification of station selection
1	Near Cement Plant, Padhiarka	Core Zone	Within the mine lease area to establish pre-mining air quality condition	0.8, W	3rd predominant upwind direction & nearer habitation in West	1.17, SE	1st predominant upwind direction
2	Padhiarka	0.2, W	Adjacent habitation and falling on 1st predominant downwind direction	0.8, W	3rd predominant upwind direction	1.0, S	1st predominant upwind direction
3	Vangar	2.1, NW	Second Predominant upwind	3.8, W	2nd predominant upwind direction	Core Zone	Within the mine lease area to establish pre-mining air quality condition
4	Madhiya	0.5, N	First Predominant Downwind	0.9, W	2nd predominant upwind direction	0.4, E	1st predominant upwind direction, 2nd predominant downwind direction and habitation surrounded by all three mines.
5	Dudhala No.1	1.8, ENE	Crosswind	Core Zone	Within the mine lease area to establish pre-mining air quality and habitation in 1st predominant downwind direction w.r.t. south part of ML	1.4, SE	2nd predominant downwind direction
6	Gujarda	3.2, E	3rd predominant downwind direction	0.4, S w.r.t. Upper half portion of ML	1st predominant upwind & downwind direction as the habitation is	3.1, SE	2nd predominant downwind direction

Station code	Location of ambient air monitoring stations	Padhiarka & Doliya Limestone Mine		Gujarda, Dudheri & Dudhala Limestone Mine		Vangar & Madhiya Limestone Mine	
		Distance (km) & Direction from project site	Justification of station selection	Distance (km) & Direction from project site	Justification of station selection	Distance (km) & Direction from project site	Justification of station selection
				0.6, N w.r.t. lower SE corner of ML	surrounded by ML.		
7	Patva	1.8, SW	Crosswind	4.1, WSW	Crosswind	2.7, S	1st predominant upwind direction
8	Samadhiyala No. 1	3.0, W	3rd predominant upwind direction	5.1, W	3rd predominant upwind direction	1.9,SW	Crosswind direction
9	Doliya	0.3, S	1st predominant upwind direction & nearest village in south	1.3, SW	Crosswind	3.2, SE	1st predominant upwind direction
10	Rabhda	4.9, WNW	2nd predominant upwind direction	6.8, W	3rd predominant upwind direction	2.3, W	Crosswind direction
11	Nana Pipalva	3.6, NW	2nd predominant upwind direction	5.0, W	2nd predominant upwind direction	0.5, N	1st predominant downwind direction at NW corner of the mine
12	Amrutvel	3.8, N	1st predominant downwind direction	2.0, NW	2nd predominant upwind direction	1.5, N	1st predominant downwind direction
13	Mota Jadra	4.2, NNE	Crosswind	1.5, N	1st predominant downwind direction	2.1, NE	Crosswind direction
14	Devalia	4.9, ENE	3rd predominant downwind direction	1.0, E	3rd predominant downwind direction	4.0, E	3rd predominant downwind direction
15	Khared	6.8, ENE	Crosswind	2.9, E	3rd predominant downwind direction	6.0, E	3rd predominant downwind direction
16	Gadhada	4.2, E	2nd predominant downwind direction	6.4, SE	2nd predominant downwind direction	5.9, SE	2nd predominant downwind direction

FIG NO. C3-8: LOCATION OF AIR & NOISE SAMPLING STATIONS (INTEGRATED MAP FOR 3 MINES)



SL. NO.	STATION LOCATION	AIR	NOISE	MICRO-METEOROLOGY	DISTANCE, DIRECTION PADHIARKA	DISTANCE, DIRECTION DUDHALA	DISTANCE, DIRECTION VANGAR
1.	PADHIARKA NEAR CEMENT PLANT	√	√		CORE ZONE	0.8 / W	1.7 / SE
2.	PADHIARKA	√	√		0.2 / W	0.8 / W	1.0 / S
3.	VANGAR	√	√		2.1 / NW	3.8 / W	CORE ZONE
4.	MADHIA	√	√		0.5 / N	0.9 / W	0.4 / E
5.	DUDHALA NO.1	√	√		1.8 / ENE	CORE ZONE	1.4 / SE
6.	GUJARDA	√	√		3.2 / E	0.4, S / 0.6, N	3.1 / SE
7.	PATVA	√	√		1.8 / SW	4.1 / WSW	2.7 / S
8.	SAMADHALA NO-1	√	√		3.0 / W	5.1 / W	1.9 / SW
9.	DOLIA	√	√		0.3 / S	1.3 / SW	3.2 / SE
10.	RABHADA	√	√		4.9 / WNW	6.8 / W	2.3 / W
11.	PIPALVA NANA	√	√		3.6 / NW	5.0 / W	0.5 / N
12.	AMRATVEL	√	√		3.8 / N	2.0 / NW	1.5 / N
13.	MOTA JADRA	√	√		4.2 / NNE	1.5/ N	2.1 / NE
14.	DEVLIA	√	√		4.9 / ENE	1.0 / E	4.0 / E
15.	KHARED	√	√		6.8 / ENE	2.9 / E	6.0 / E
16.	GADHADA	√	√		4.2 / E	1.0 / SE	5.9 / SE
17.	NEAR ALL THREE MINES (ADMIN BLOCK, CEMENT PLANT AREA			√	0.08 / S	1.8 / W	0.3 / E

3.4.4 Methodology

Respirable Particulate Matter (PM_{10})

The sampling of ambient air was performed with Respirable Dust Sampler which is primarily a High Volume Sampler fitted with a cyclone separator for pre-separation of particles larger than 10 micron diameter. Air exiting from the separator is drawn at a measured rate through the separator followed by a pre-weighed glass fibre sheet of 20 cm x 25 cm sizes (Whatman, EPM-2000 or equivalent). The RPM concentrations are determined gravimetrically from the average airflow rate, sampling period and the mass of particulate matter collected over the GF filter surface.

Fine Particulate matter ($PM_{2.5}$)

The sampling of ambient air was performed with the fine particulate sampler for particle less than 2.5 microns diameter. The $PM_{2.5}$ concentration are determined gravimetrically from the average air flow rate, sampling period and the mass of the particulate matter collected over the PTFE filter surface.

Sulphur dioxide (SO_2)

The sampling of ambient air for evaluating SO_2 concentrations was performed with a Multigas Sampler, using the vacuum created by the Respirable Dust Sampler for drawing the air samples through the impingers. Air is drawn at a measured and controlled rate of 300 ml/min through a solution of potassium tetrachloromercurate.

After completion of sampling, the used absorbing reagent is treated with dilute solutions of sulfamic acid, formaldehyde and para rosaniline hydrochloride. The absorbance of the intensely coloured para rosaniline methyl sulphonic acid is measured and the amount of SO_2 in the sample is computed from graphs prepared with standard solutions. The ambient SO_2 concentrations are computed from the amount of SO_2 collected and the volume of air sampled.

Oxides of Nitrogen (NO_2)

The sampling of ambient air for evaluating NO_2 concentrations was performed with a Multigas Sampler, using the vacuum created by the Respirable Dust Sampler for drawing the air samples through the impingers. Air is drawn at a measured and controlled rate of about 300 ml/minute through an orifice-tipped impinger containing solutions of sodium hydroxide and sodium arsenite. After completion of the sampling, an aliquot of the used absorbing solution is treated with solutions of H_2O_2, sulphanilamide and NEDA.

The nitrite ion present in the impinger is calculated from the absorbance of the resulting solution and from the graphs prepared with standard solutions. The ambient NO_2 concentrations were computed from the total nitrite ion present in

the impingers, overall efficiency of the impinger and the procedure, and the volume of air sampled.

Lead, Nickel and Arsenic

The sampling of ambient air for evaluating lead, nickel and arsenic is done by collection of the particulate matter on glass fibre filter (EPM 2000 or equivalent) using PM_{10} sampler. Filter paper is divided in two equal parts. Half portion of filter paper is used for the measurement of lead, nickel and arsenic. The sample is extracted by hot plate procedure and the digested sample is analysed using ICP. The concentration is calculated using calibration graph.

The various procedures for determining the various air quality parameters are summarised in **Table No. C3-6**.

TABLE NO. C3-6: PROCEDURE FOR DETERMINING VARIOUS AIR QUALITY PARAMETERS

Parameters	Testing Procedure
PM_{10}	IS:5182 (Part 23) using respirable dust sampler (RDS), gravimeteric analysis
$PM_{2.5}$	Adapted from CPCB guidelines using fine particulate sampler, gravimeteric analysis
SO_2	Absorption in Sodium Tetra Chloro-mercurate followed by Colorimetric estimation using P-Rosaniline hydrochloride and Formaldehyde (IS:5182 (Part 2):2001)
NO_2	Absorption in dil. NaOH and then estimated colorimetrically with sulphanilamide, NEDA and Hydrogen Peroxide (IS:5182 (Part 6): 2006)
Arsenic, Nickel, Lead	Collection on filter paper using respirable dust sampler followed by digestion and ICP analysis (IS 3025 (Part 2))
Silica	APHA 4500-SiO_2 Digestion followed by analysis

The summarised results of the air quality studies are given in **Table No. C3-7** and the details are given in the form of **Annexure V** and National Ambient Air Quality Standard (NAAQS) is given in **Annexure VI.**

TABLE NO. C3-7: SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS (MARCH - MAY 2021)

Code	Pollutants→	24 hours average concentrations (µg/m³)											
		PM_{10}			$PM_{2.5}$			SO_2			NO_2		
	Locations of sampling station↓	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
1	Near Cement Plant, Padhiarka (core zone)	38.2	64.8	54	14.6	32.6	24.3	3.2	5.7	4.8	4.4	7.8	6.3
2	Padhiarka	33.1	61	50	16.3	34.5	22.9	3.2	6.8	5.3	5.3	10.9	8.4

Code	Pollutants→	24 hours average concentrations (µg/m³)											
		PM_{10}			$PM_{2.5}$			SO_2			NO_2		
	Locations of sampling station↓	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
3	Vangar	40.8	68.8	59.2	21.7	37.4	27.8	4.8	7.7	5.8	4.9	10.5	8.4
4	Madhiya	42.6	71.1	60.7	17.5	40	28.5	5.3	10.2	8	6.5	14.5	10.9
5	Dudhala No.1	40.9	66.3	58.1	22.1	35.5	28	3.7	6.8	5.3	5.3	9.7	8.2
6	Gujarda	37.2	68	58.9	18.4	36.6	28.3	3.2	6.8	5.4	3.6	7.8	6.3
7	Patva	34.6	59.8	49.8	16.3	32.1	24.5	3.7	6.8	5.4	4.9	8.1	6.9
8	Samadhiyala No. 1	34	63.4	53.7	17.5	36	26.6	2.7	6.8	5	4.9	8.9	7.3
9	Doliya	35	59.4	51.8	14.1	32.5	25.8	4.8	7.7	6.7	6.1	10.9	8.8
10	Rabhada	34.2	57.5	48.5	15.8	30	22.9	3.2	7.2	5.4	4.9	8.5	6.9
11	Nana Pipalva	37.3	59.2	50.7	15.9	29.1	23.8	3.7	7.2	5.5	4.5	8.5	6.8
12	Amrutvel	38.3	61.9	55.4	19.6	33.7	26.6	3.7	8.2	6	5.7	9.7	8.1
13	Mota Jadra	38.3	59.8	53.1	16.6	32.1	24.6	4.3	7.5	5.8	4.9	9.3	7.5
14	Devalia	35.3	64.7	52.7	18	34.3	25.3	4.1	7.2	5.5	4	8.1	6.7
15	Khared	39.8	62.5	52.4	16.3	31.2	23.9	3.7	7.2	5.7	3.6	8.1	6.6
16	Gadhada	27.6	48.6	41.2	11.2	25.9	20.2	3.2	6.8	5.1	3.6	7.4	6.1
	Standards as per NAAQS 2009	**100**			**60**			**80**			**80**		

Source: Test report no. MMA/06-2021/68 dated 18.06.2021 by Min Mec R&D Laboratory, New Delhi.

TABLE NO. C3-7 (Contd.)

Code	Location	24 hours average concentrations			
		Pb (µg/m³)	As (ng/m³)	Ni (ng/m³)	Silica (µg/m³)
1.	Near Cement Plant, Padhiarka (core zone)	BDL	BDL	BDL	1.1
3.	Vangar	BDL	BDL	BDL	0.9
5.	Dudhala No.1	BDL	BDL	BDL	1.2
	Permissible Limits, NAAQS 2009	1.0 (24 hrs)	06 (annual)	20 (annual)	-

Source: Test report no. MMA/06-2021/69 & 70 dated 18.06.2021 by Min Mec R&D Laboratory, New Delhi

Note: BDL (Below Detection Limit) of Pb<0.07µg/m³ ; As<0.4 ng/m³; Ni<0.6 ng/m³

The results from **Table No. C3-7** show that the concentration of PM_{10} range from 27.6 to 71.1 µg/m³, while that of $PM_{2.5}$ ranges from 11.2 to 40.0 µg/m³. The concentration of SO_2 is found between 2.7 to 10.2 µg/m³ and NO_2 concentration ranges from 3.6 to 14.5 µg/m³. Heavy metals i.e. Pb, Ni and As have been found below detectable limits. All the parameters are within the prescribed limits as per National Ambient Air Quality Standards (NAAQS) given in **Annexure VI**.

Concentarion of Silica in the PM_{10} sample of core zone are found as 1.1 µg/m³, 0.9 µg/m³ and 1.2 µg/m³ in sample collected from Near Cement Plant, Padhiarka, Vangar and Dudhala No.1, respectively.

3.5 WATER RESOURCES

M/s Ground Water & Mineral Investigation Consultancy Centre (P) Ltd., Jaipur has prepared "Report on hydrogeological & hydrological studies of core and buffer zone of Padhiarka & Doliya limestone mine and impact of mining on water regime near village Padhiarka, taluka Mahuva, district Bhavnagar, Gujarat" in January 2022. The report has assessed the hydrogeological conditions with special reference to impact of mining on water regime in and around its proposed limestone mine, Taluka – Mahuva, District Bhavnagar, Gujarat covering 10 km radius buffer area around proposed mining lease.

3.5.1 Surface water

In the study area, there exist some rivulets namely Malan, Garasawo, Bhambhali, etc. The distance of Gulf of Khambhat (Arabian sea) is 0.5 km from mines in the south of the study area. The drainage pattern is dendritic in nature with general flow direction from north to south.

The storm water flows through these rivers and finally drains out to sea. There is a Salinity Ingress bund near Samadhiala village for prevention of the saline water ingress in the western/ south-western side of the project area and the water from the seasonal streams is partly flowing into its catchment and ultimately into the harvesting pond i.e. Samadhiala salinity ingress control bund. Some of these streams ultimately dissipate into the vast saline plain/ Samdhiyala salinity ingress control bund that is seen in the south-western part of the area.

3.5.2 Ground water

Ground water is the only source of water for irrigation as well as for drinking purpose in the study area.

3.5.2.1 Core zone

Depth to Water level in the area ranges between (-) 2.5 m to (-) 0.5 m AMSL. The average seasonal fluctuation at average rainfall is about 2 m as reported. Groundwater flow direction is from North West to south West.

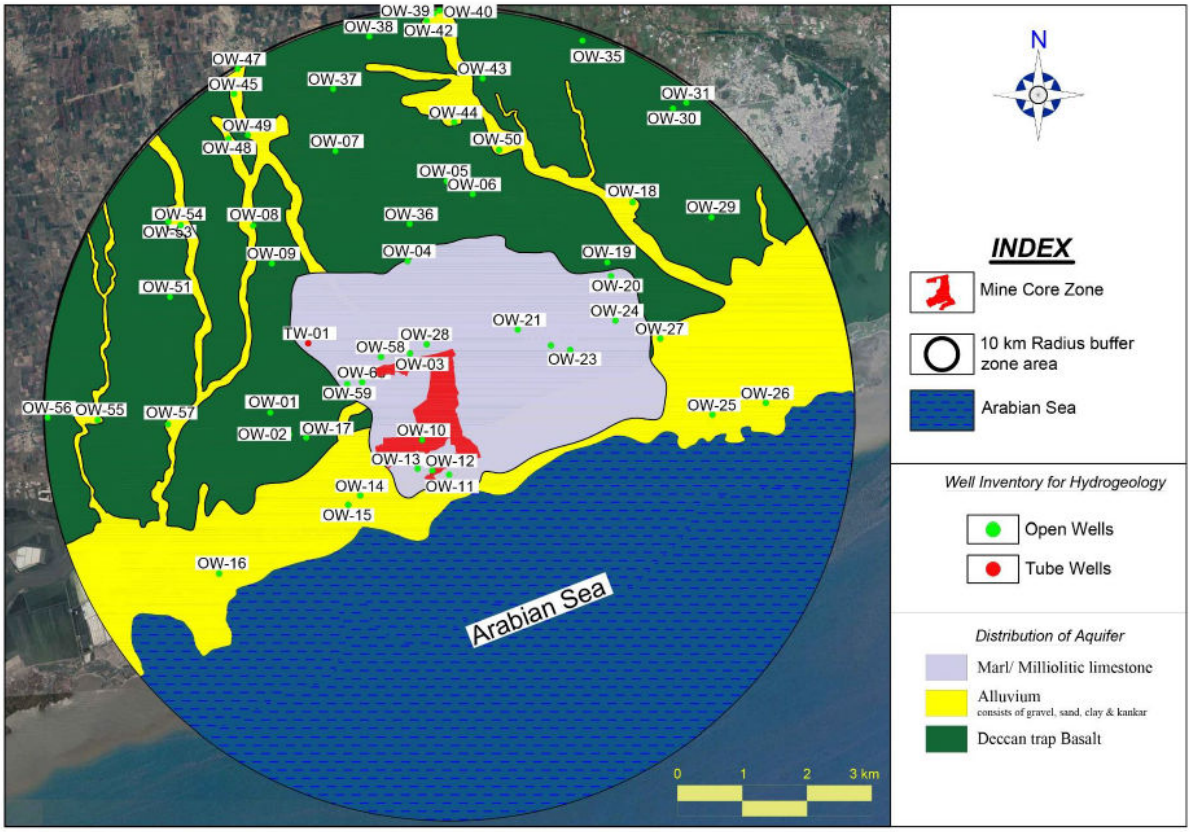
3.5.2.2 Buffer zone

Hydrogeology: The area is mainly covered by coastal sediments of Recent time comprising gravel, sand, clay & kankar; whereas, the limestone bearing formations are of Quaternary era. The deposits are sedimentary in nature. This limestone is generally overlain by recent coastal sediments. The Deccan traps of Cretaceous-Eocene age form the basement. The area consists of three aquifers viz: alluvium starts from the surface up to 12 m depth. It mainly consists of gravel, sand, clay & kankar. The other aquifers of the areas are discontinuously occupied by Marl/ Milliolite limestone followed by Deccan trap

up to 60 meters below ground level. The ground water in Marl/ Milliolite limestone occurs in unconfined condition whereas in Deccan trap, it occurs in both unconfined and semi confined conditions.

Groundwater occurs under water table and semi confined conditions. Dug and dug cum bore well are common structures used for groundwater extraction. The aquifer map of the study area has been prepared and shown in Fig C3-8A. The map shows that deccan trap basalt is the dominant aquifer of the study area with significant portions of limestone as well as alluvium.

Fig C3-8A : Map showing distribution of Aquifer in study area



Source: Fig 6 of "Report on hydrogeological & hydrological studies of core and buffer zone of Padhiarka & Doliya limestone mine and impact of mining on water regime near village Padhiarka, taluka Mahuva, district Bhavnagar, Gujarat" in January 2022, by M/s Ground Water & Mineral Investigation Consultancy Centre (P) Ltd., Jaipur

The yield of wells in alluvium aquifers generally ranges between 10 and 820 m^3/day.[1]

[1] Source : https://cgwb.gov.in/District_Profile/Gujarat/Bhavnagar.pdf accessed 25.07.2023

The yield of water from wells and tube wells in the investigated area varies from 2 cum/day to 672 cum/day for aquifer tapping down to 60 m depth. Open wells yield quantity of water with yield of 2 cum to 360 cum/day from depths ranging from 8 m to 30 m. However tube wells may yield water as high as 672 cum/day.

The qualitative aspects of ground water shows that salinity ingression from sea has taken place up to over 3 km from Arabian sea reaching center of buffer zone. As per report i.e. Hydrogeological & Hydrological studies of core and buffer zone of Padhiarka & Doliya Limestone Mine and impact of mining on water regime near village Padhiarka,Taluka-Mahuva, district Bhavnagar,Gujarat of January 2022 prepared by Ground Water & Mineral Investigation Consultancy Centre Pvt. Ltd. the ground water level of area in pre-monsoon varies from 3.65 m (at Doliya) to 25.55 m bgl (at Amrutvel) and the average seasonal fluctuation at average rainfall is about 2 m as reported in the field as seen in **Table No. C3-8**. The ground water flow direction is towards south in general.

TABLE NO. C3-8: HYDROGEOLOGICAL WELL INVENTORY IN THE BUFFER ZONE OF PADHIARAKA & DOLIYA LIME STONE MINE

Type of well	Village Name	Location	Depth (In m)	Collar Elevation (In m AMSL)	Water Level (In mbgl)	Water Level (In amsl)	Yield m^3/day	Quality	Aquifer
OW-1	Samadhiyala No-1	21° 1'30.98"N 71°38'25.11"E	14	15	13.85	1.15	-	Brackish	Deccan trap Basalt
OW-2	Samdhiyala No.-1	21° 1'11.23"N 71°38'35.90"E	-	10	6.9	3.1	-	Saline	Deccan trap Basalt
OW-4	Madhiya	21° 3'30.43"N 71°40'37.42"E	28	19	16.3	2.7	77	-	Marl/ Milliolitic limestone
OW-5	Amrutvel	21° 4'37.17"N 71°40'57.01"E	27.3	36	25.55	10.45	15	Fresh	Deccan trap Basalt
OW-6	Amrutvel	21° 4'24.48"N 71°41'32.85"E	-	30	21.8	8.2	6	Fresh	Deccan trap Basalt
OW-7	Dundas	21° 4'58.47"N 71°39'34.67"E	-	33	16.7	16.3	-	Fresh	Deccan trap Basalt
OW-8	Mota Pipalva	21° 4'1.26"N 71°38'10.84"E	26	24	19.81	4.19	12	Fresh	Alluvium
OW-9	Nana Pipalva	21° 3'28.38"N 71°38'40.85"E	-	22	21.5	0.5	-	Brackish	Deccan trap Basalt
OW-11	Doliya	21° 0'39.95"N 71°41'12.16"E	8.5	6	7	-1	2	Fresh	Marl/ Milliolitic limestone
OW-12	Doliya	21° 0'44.49"N 71°40'44.37"E	10	3	4.35	-1.35	112	Brackish	Marl/ Milliolitic limestone
OW-13	Doliya	21° 0'43.94"N 71°40'42.40"E	11	3	3.65	-0.65	40	Fresh	Marl/ Milliolitic limestone
OW-14	Patva	21° 0'23.71"N 71°39'56.68"E	25	16	12.65	3.35	64	Brackish	Alluvium
OW-15	Patva	21° 0'17.57"N 71°39'32.40"E	28	15	10.89	4.11	128	Saline	Alluvium
OW-16	Khera	20°59'22.72"N 71°37'42.08"E	16	6	5.8	0.2	104	Brackish	Alluvium
OW-17	Samadhiyala No-1	21° 1'11.25"N 71°38'55.38"E	-	10	6.95	3.05	96	Saline	Deccan trap Basalt

Type of well	Village Name	Location	Depth (In m)	Collar Elevation (In m AMSL)	Water Level (In mbgl)	Water Level (In amsl)	Yield m^3/day	Quality	Aquifer
OW-18	Maliya	21° 4'19.12"N 71°43'36.02"E	15	15	11.85	3.15	-	Saline	Alluvium
OW-19	Devaliya	21° 3'28.34"N 71°43'27.52"E	-	12	8.5	3.5	-	Brackish	Deccan trap Basalt
OW-20	Devaliya	21° 3'21.60"N 71°43'17.55"E	25	13	9.85	3.15	144	Saline	Marl/ Milliolitic limestone
OW-21	Dudhala No.1	21° 2'35.11"N 71°42'11.72"E	25	12	11.1	0.9	144	Brackish	Marl/ Milliolitic limestone
OW-22	Dudhala No.1	21° 2'24.92"N 71°42'25.77"E	28	12	12.2	-0.2	-	Saline	Marl/ Milliolitic limestone
OW-23	Gujarda	21° 2'19.74"N 71°42'55.56"E	25	13	11.95	1.05	-	Brackish	Marl/ Milliolitic limestone
OW-24	Gujarda	21° 2'42.55"N 71°43'35.27"E	-	10	6.92	3.08	168	Brackish	Marl/ Milliolitic limestone
OW-25	Gadhada	21° 1'28.08"N 71°44'57.78"E	-	16	12.5	3.5	70	Fresh	Alluvium
OW-26	Gadhada	21° 1'37.49"N 71°45'43.70"E	12.85	14	9.7	4.3	40	Fresh	Alluvium
OW-27	Khared	21° 2'29.52"N 71°44'13.13"E	-	8	4.3	3.7	-	Fresh	Alluvium
OW-28	Madhiya	21° 2'25.20"N 71°40'39.49"E	19	8	8.55	-0.55	-	Saline	Marl/ Milliolitic limestone
OW-29	Mahuva	21° 4'5.89"N 71°44'45.75"E	-	11	10.5	0.5	64	Brackish	Deccan trap Basalt
OW-30	Mahuva	21° 5'36.54"N 71°44'35.96"E	23	21	15.95	5.05	-	Fresh	Deccan trap Basalt
OW-31	Mahuva	21° 5'31.99"N 71°44'24.76"E	25	21	17.2	3.8	128	Fresh	Deccan trap Basalt
OW-35	Taveda	21° 6'26.74"N 71°43'6.45"E	27	31	22.32	8.68	48	Fresh	Deccan trap Basalt
OW-36	Amrutvel	21° 4'0.25"N 71°40'38.42"E	26	29	25.15	3.85	-	Fresh	Deccan trap Basalt
OW-37	Dundas	21° 5'48.29"N 71°39'33.41"E	23	42	16.5	25.5	4	Fresh	Deccan trap Basalt
OW-38	Visavadar	21° 6'30.40"N 71°40'4.20"E	22	41	14.3	26.7	84	Fresh	Deccan trap Basalt
OW-39	Gundarani	21° 6'54.59"N 71°41'12.16"E	-	37	15.05	21.95	48	Fresh	Alluvium
OW-40	Gundarani	21° 6'55.19"N 71°41'11.88"E	-	37	16.7	20.3	-	Fresh	Alluvium
OW-41	Gundarani	21° 7'6.85"N 71°41'36.98"E	18	40	17	23	40	Fresh	Deccan trap Basalt
OW-42	Gundarani	21° 6'44.07"N 71°40'54.42"E	-	35	13.4	21.6	148	Fresh	Deccan trap Basalt
OW-43	Haripara	21° 5'54.92"N 71°41'29.07"E	26	32	17.04	14.96	288	Fresh	Deccan trap Basalt
OW-44	Bhanvad	21° 5'21.94"N 71°41'16.47"E	-	29	10.82	18.18	-	Fresh	Deccan trap Basalt
OW-45	Lusadi	21° 5'44.28"N 71°38'7.19"E	-	42	22.85	19.15	50	Fresh	Alluvium
OW-47	Lusadi	21° 6'3.50"N 71°38'10.71"E	31	44	21.95	22.05	5	Brackish	Alluvium
OW-48	Zinzka	21° 5'11.31"N	-	34	20.3	13.7	96	Fresh	Alluvium

Type of well	Village Name	Location	Depth (In m)	Collar Elevation (In m AMSL)	Water Level (In mbgl)	Water Level (In amsl)	Yield m^3/day	Quality	Aquifer
		71°38'20.19"E							
OW-49	Zinzka	21° 5'8.30"N 71°38'4.04"E	23	37	21.7	15.3	128	Fresh	Alluvium
OW-50	Bhanvad	21° 5'2.36"N 71°41'41.63"E	24.75	27	15.25	11.75	144	Fresh	Deccan trap Basalt
OW-51	Rabhada	21° 3'3.27"N 71°36'58.66"E	20	20	17.9	2.1	104	Fresh	Deccan trap Basalt
OW-53	Kankot	21° 4'2.66"N 71°37'8.89"E	28	30	25.05	4.95	20	Fresh	Alluvium
OW-54	Kankot	21° 4'2.61"N 71°37'10.22"E	30	30	25.4	4.6	8	Fresh	Alluvium
OW-55	Visaliya	21° 1'23.47"N 71°35'56.81"E	15.25	10	6.1	3.9	96	Brackish	Alluvium
OW-56	Visaliya	21° 1'26.39"N 71°35'28.70"E	18.3	12	8.1	3.9	192	Fresh	Deccan trap Basalt
OW-57	Datardi	21° 1'21.27"N 71°36'57.70"E	18.54	11	6.75	4.25	360	Fresh	Alluvium
OW-59	Vangar	21° 1'53.25"N 71°39'57.33"E	27.45	5	5.31	-0.31	84	Brackish	Marl/ Milliolitic limestone
OW-60	Vangar	21° 1'51.88"N 71°39'45.80"E	24.4	9	9.58	-0.58	-	No pump	Marl/ Milliolitic limestone
TW-1	Vangar	21° 2'24.74"N 71°39'12.27"E	60	20	24.38	-4.38	672	Fresh	Marl/ Milliolitic limestone

Source: Hydrogeological& Hydrological studies of core and buffer zone of Padhiarka & Doliya Limestone Mine and impact of mining on water regime near village Padhiarika,Taluka-Mahuva, district Bhavnagar,Gujarat of January– 2022 prepared by Ground Water & Mineral Investigation Consultancy Centre Pvt. Ltd.

3.5.3 Ground water resource

The rainfall is the only source for recharge to groundwater storage over the area. The groundwater resource potential and the utilization for the study area has been worked out by CGWB, Ahmedabad, GOI in their "Ground Water Brochure, Bhavnagar District, 2013" as per the methodology of GWRE 2011 (Ground Water Resource Estimation). The stage of ground water development for Mahuva Taluka, where the project falls is as follows:

- Available Ground Water Recharge = 141.18 MCM/ Year
- Existing Gross Ground Water Draft for all uses = 85.66 MCM / Year
- Stage of Ground Water Development = 63.87%
- Category = Safe

In fact it may be noted that as per CGWB, the stage of ground water development at year 2011, for all the talukas of the Bhavnagar district computed range from 40.74 % to 69.72 % and all units of assessment (talukas) have been categorized as Safe, based on the stages of ground water development and the long-term trend of pre and post monsoon ground water levels. The average for the district is 64.06%.

3.5.3.1 Annual ground water resource in study area

The groundwater resource potential and the utilization for the study area has been worked out as per the methodology suggested by Groundwater Estimation Committee (GEC-2015) which has been briefly discussed in following paragraphs.

The monsoon rainfall (June-September) as per long term IMD Bhavnagar records from 1991-2020 works out as 686.4. The annual rainfall is 718.0 mm. The non monsoon rainfall works out to be 31.6 mm, which is 4.4 % of the annual rainfall. As per the GEC report, the recharge from rainfall during the non-monsoon season may be estimated provided the normal rainfall in the non-monsoon season is greater than 10% of the normal annual rainfall. Hence, the recharge is being estimated for monsoon season only since non-monsoon rainfall is less than 10%. The entire study area is suitable for groundwater recharge. The recharge works out as under.

A. By rainfall infiltration method

Total study area (as per Census 2011)	-	414.93 km^2
Area suitable for ground water recharge as per Census 2011 (all areas except Area under `Non-Agricultural Uses)	-	230.8 km^2
Annual Rainfall (IMD Bhavnagar)1991-2020, as per Climatological Normals)	-	718 mm
Rainfall infiltration index (avg.) as per Table 8, GEC-2017 recommendation- weighted average for coastal alluvium (west coast) (8%-12%; ~27% land area), Limestone miliolitic (5-7%; ~20% land area), Basalt (12-14%; ~53% land area)	-	~10.79%
Annual groundwater recharge	-	**17.881 MCM**

B. By water table fluctuation method

Total study area (as per Census 2011)	-	414.93 km^2
Area suitable for ground water recharge (as per Census 2011)	-	230.8 km^2
Average seasonal change of water table (average as per Water level Fluctuation data taken from field data)	-	2 m
Specific yield as per GEC-2017 recommendation- weighted average for coastal alluvium (west coast) (8%-12%; ~27% land area), Limestone miliolitic (1-3%; ~20% land area), Basalt (1-3%; ~53% land area)	-	~4.2%
Monsoon groundwater recharge	-	**19.203 MCM**

The difference between the two expressed as a percentage of the rainfall infiltration method is 7.4%, thus, the rainfall recharge for normal monsoon is to be taken as equal to the value estimated by the water table fluctuation method as per the recommendations on ground water resource estimation methodology. Thus, 19.203 MCM per annum is the estimated annual ground water recharge.

C. Return flow from surface irrigation

Total irrigated area (as per Census 2011)	-	4360.36 Ha.
Surface water irrigated area (as per Census 2011)	-	565.9 Ha.
Applied water / Ha.	-	0.5 m/Ha.
Total applied water	-	2.83 MCM
Return seepage, Average 30%	-	0.849 MCM

D. Recharge due to perennial and seasonal fresh water bodies/ water logged areas

Area of reservoir/ lake	-	796 Ha.
Area of water logged area	-	1043 Ha.
Norms for Recharge due to Tanks & Ponds (Section 5.14.5 of Report of GEC 2015)	-	1.4 mm/day
Annual recharge due to fresh water bodies (12 months for lakes and 6 months for water logged)	-	4.33 MCM

Thus, annual ground water recharge.

19.203+0.849+4.33= 24.382 MCM

E. Ground Water Use

There are four major consumer of ground water in the area (i) Domestic (ii) Irrigation (iii) Livestock and (iv) industries/mines.

E.1 Domestic

Total population as per Census 2011	-	116055
Decadal growth rate (Census 2001-2011 for Bhavnagar District)	-	16.63 %
Present population (2022) estimated on basis of decadal growth rate	-	141455
Population dependent on Ground water (57.2%)	-	81895
Per capita domestic need	-	70 LPD
Total annual ground water use	-	2.092 MCM

E.2 Irrigation

As per Census 2011, the total irrigated area was 4360.36 ha out of which 565.9 ha was irrigated by surface water and 3794.46 ha is irrigated by ground water. Annual net ground water withdrawal after seepage has been calculated as 13.281 MCM.

E.3 Livestock

The water consumption for livestock has been empirically considered as 5% of human consumption, which comes to 0.105 MCM.

E.4 Industries

There are no working mines or industries present 10 km radius using ground water.

E.5 Annual ground water use

2.092 MCM + 0.105 MCM + 13.281 MCM = 15.478 MCM

F. Ground water balance

Sl. No.	Particulars	Million Cubic Meter (MCM)
1.	Total annual replenish-able recharge • By rainfall infiltration factor method (million m^3/year) • By groundwater table fluctuation method (million m^3/year)	 17.881 19.203
2.	Estimated annual ground water recharge including return seepage and recharge (million m^3/year)	24.382
3.	Estimate Annual draft (million m^3/year)	15.478
4.	Net annual ground water availability (million m^3/year)	8.904
5.	Stage of ground water development in %	63.48
6.	Category as per GEC	Safe

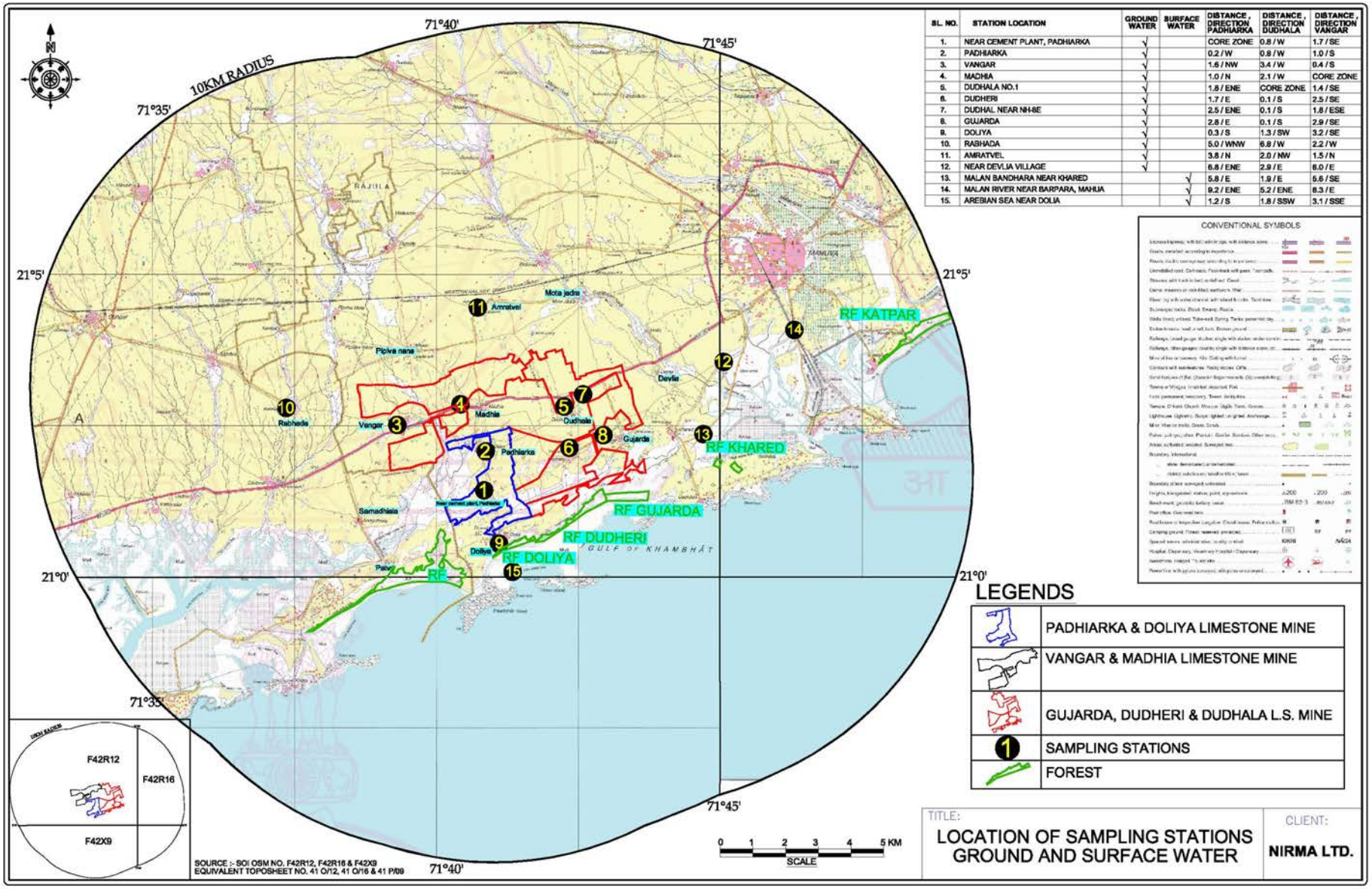
It can be seen that the stage of ground water development in the study area (63.48 %) is comparable with the stage of development calculated by CGWA for Mahuva taluka (63.87%).

3.5.4 Water quality

To evaluate the physico-chemical characteristics of the water resources existing in the study area, water samples from surface and ground water sources were collected during the summer season (March to May 2021).

To assess the water quality of the area 15 water sample were collected and analyzed in the laboratory. Water samples from 12 ground water sources and 3 surface water sources were characterized. The details of water monitoring stations are shown in **Fig No. C3-9** and given in **Table No. C3-9**.

FIG NO. C3-9: LOCATION OF WATER SAMPLING STATIONS



SL. NO.	STATION LOCATION	GROUND WATER	SURFACE WATER	DISTANCE, DIRECTION PADHIARKA	DISTANCE, DIRECTION DUDHALA	DISTANCE, DIRECTION VANGAR
1.	NEAR CEMENT PLANT, PADHIARKA	√		CORE ZONE	0.8 / W	1.7 / SE
2.	PADHIARKA	√		0.2 / W	0.8 / W	1.0 / S
3.	VANGAR	√		1.6 / NW	3.4 / W	0.4 / S
4.	MADHIA	√		1.0 / N	2.1 / W	CORE ZONE
5.	DUDHALA NO.1	√		1.8 / ENE	CORE ZONE	1.4 / SE
6.	DUDHERI	√		1.7 / E	0.1 / S	2.5 / SE
7.	DUDHAL NEAR NH-8E	√		2.5 / ENE	0.1 / S	1.8 / ESE
8.	GUJARDA	√		2.8 / E	0.1 / S	2.9 / SE
9.	DOLIYA	√		0.3 / S	1.3 / SW	3.2 / SE
10.	RABHADA	√		5.0 / WNW	6.8 / W	2.2 / W
11.	AMRATVEL	√		3.8 / N	2.0 / NW	1.5 / N
12.	NEAR DEVLIA VILLAGE	√		6.8 / ENE	2.9 / E	6.0 / E
13.	MALAN BANDHARA NEAR KHARED		√	5.8 / E	1.9 / E	5.6 / SE
14.	MALAN RIVER NEAR BARPARA, MAHUA		√	9.2 / ENE	5.2 / ENE	8.3 / E
15.	AREBIAN SEA NEAR DOLIA		√	1.2 / S	1.8 / SSW	3.1 / SSE

CONVENTIONAL SYMBOLS

LEGENDS

- PADHIARKA & DOLIYA LIMESTONE MINE
- VANGAR & MADHIA LIMESTONE MINE
- GUJARDA, DUDHERI & DUDHALA L.S. MINE
- SAMPLING STATIONS
- FOREST

TITLE: LOCATION OF SAMPLING STATIONS GROUND AND SURFACE WATER

CLIENT: NIRMA LTD.

TABLE NO. C3-9: LOCATION OF WATER SAMPLING STATIONS

Station code	Location of sampling stations	Water Source	Distance from project site (km)	Direction from project site
1.	Near Cement Plant, Padhiarka	Ground water	Core zone	-
2.	Padhiarka	Ground water	0.2	W
3.	Vangar	Ground water	1.6	NW
4.	Madhiya	Ground water	1.0	N
5.	Dudhala no. 1	Ground water	1.8	ENE
6.	Dudheri	Ground water	1.7	E
7.	Dudhala near NH-8E	Ground water	2.5	ENE
8.	Gujarda	Ground water	2.8	E
9.	Doliya	Ground water	0.3	S
10.	Rabhada	Ground water	5.0	WNW
11.	Amratvel	Ground water	3.8	N
12.	Near Devlia	Ground water	6.8	ENE
13.	Malan Bandhara near Khared	Surface water	5.8	E
14.	Malan River Near Barpara, Mahua	Surface water	9.2	ENE
15.	Arabian Sea Near Dolia	Surface water	1.2	S

The physico-chemical characteristics of ground and surface water samples have been presented in **Annexure VII**. To facilitate comparison with drinking water standards, characteristics for drinking water as per IS 10500: 2012, has been included in the **Annexure VIII**.

The analysis results of water quality of the study area is summarised in **Table No. C3-10** and given in detail in **Annexure VII**.

TABLE NO. C3-10: WATER TEST RESULTS

Parameters	Desirable limit IS 10500: 2012	Permissible Limit IS 10500: 2012	Ground Water Range	Surface Water Range
Turbidity, NTU	1	5	BDL- 3.56	5.346 - 7.099
pH value	6.5-8.5	No relaxation	7.0 - 7.9	7.3 - 7.8
Specific conductance, µS/cm	-	-	1032 - 13265	1752 - 25481
Total Dissolved Solids, mg/l	500	2000	602 - 9360	1018 - 16050
Total Suspended Solids, mg/l	-	-	8 - 718	18 - 760
Total hardness (as $CaCO_3$), mg/l	200	600	280 - 3880	360 - 8300
Alkalinity, mg/l	200	600	100 -1150	275 - 500

Parameters	Desirable limit IS 10500: 2012	Permissible Limit IS 10500: 2012	Ground Water Range	Surface Water Range
Sulphate, mg/l	200	400	21 - 270	54 - 2303
Phosphorous as P, mg/l	-	-	-	0.010 - 1.417
Chloride as Cl, mg/l	250	1000	129 - 5062	437 - 7345
Nitrate as NO_3, mg /l	45	No relaxation	BDL - 29.90	0.38 - 3.00
Dissolved Oxygen, mg/l	-	-	-	5.8 - 6.3
Calcium as Ca, mg/l	75	200	32 - 745	40 - 1571
Biochemical Oxygen Demand (BOD), mg/l	-	-	-	15 - 180
Sodium as Na, mg/l	-	-	77 - 1655	220 - 2044
Potassium as K, mg/l, mg/l	-	-	5 - 38	16 - 390
Magnesium as Mg, mg/l	30	100	38 - 494	62 -1051
Iron as Fe, mg/l	1.0	No relaxation	BDL - 0.10	0.14 - 3.31
Fluoride as F, mg/l	1.0	1.5	0.24 - 1.25	0.35 - 1.26
Chemical Oxygen Demand (COD), mg/l	-	-	-	36 - 410
Silver as Ag, mg/l	0.1	No relaxation	BDL - 0.071	0.010 - 0.056
Barium as Ba, mg/l	0.7	No relaxation	BDL- 0.553	BDL - 0.037
Cadmium as Cd, mg/l	0.003	No relaxation	BDL	BDL
Chromium as Cr, mg/l	0.1	No relaxation	BDL	BDL
Copper as Cu, mg/l	0.05	1.5	BDL - 0.015	BDL
Manganese as Mn, mg/l	0.1	0.3	BDL- 0.050	BDL - 0.041
Nickel as Ni, mg/l	0.02	No relaxation	BDL	BDL
Selenium as Se, mg/l	0.01	No relaxation	BDL	BDL
Arsenic as As, mg/l	0.01	No relaxation	BDL	BDL
Zinc as Zn, mg/l	5	15	BDL- 1.698	BDL - 0.138
Acidity mg/l	-	-	7.5 - 50 at pH 8.3	17.5 - 52.5 at pH 8.3
Hexavalent Chromium, mg/l	-	-	BDL	BDL
Total Coliform (MPN/100 ml)	-	-	-	21 - 140
E.Coli	-	-	-	Present

Source: Test report no. MMW/06-2021/63 dated 18.06.2021 & MMW/06-2021/64 dated 18.06.2021 by Min Mec R&D Laboratory, New Delhi.

Note: BDL (Below Detection Limit) of Cr<0.01, Cd<0.002, Cu<0.01, Mn<0.01, Ni<0.01, Se<0.01, As<0.01, Zn<0.01 and Cr6+<0.01mg/l

Observation

The analysis results of ground water & surface water quality in the study area are summarised in **Table No. C3-10** and given in detail in **Annexure VII.**

Ground water

- The total dissolved solids is exceeding the desirable limits and permissible limits at all sample locations.
- Total hardness is exceeding desirable limits at all stations and permissible limits at all except Vangar, Dhudhala, Rabdha, Amrutvel & near Devlia village.
- Alkalinity is within desirable limit at Dudhia village, near NH-8E and Doliya village. At the rest of the locations, it is exceeding the limit. Alkalinity is within permissible limits at Madhiya, Gujarda, Rabadha and near Devlia village and at remaining locations it was found to be exceeding.
- Sulphate is within desirable limits except at Padhiarka near cement plant and Dudheri village. It is found within permissible limits at all locations.
- Chloride is exceeding desirable limits at all locations except at Amrutvel village. It is found within permissible limits at Dudhala, Gujarda, Rabdha, Amrutvel and near Devlia village. At rest of the locations it is exceeding the permissible limits.
- Calcium was found within desirable limits at 4 locations that are Dudhala, Rabdha, Amrutvel and near Devila village. Remaining locations were found with exceeding limits. 5 locations were found that were exceeding permissible limits of calcium in water. These locations are Padhiarka near cement plant, Padhiarka village, Dudheri, Dudhala, Gujarda village.
- Magnesium is exceeding desirable limits at all locations. Its is exceeding permissible limits at 5 locations that are Padhiarka near cement plant, Padhiarka village, Dudheri, Dudhala and Doliya village.
- Fluoride is exceeding desired limits at 6 locations that are Padhiarka near cement plant, Vangar, Madhiya, Gujarda, Amrutvel and near Devila village. It is found to be within permissible limits at all locations.

Surface water

- Turbidity is exceeding both desirable and permissible limits. Total Dissolved Solids are found exceeding desirable limit and one location exceeds permissible limits.
- Alkalinity is exceeding the desirable limits at all stations but it is within permissible limits.
- Sulphate is exceeding both desirable & permissible limit at Doliya village near Arabian Sea. It is within the limits at remaining two locations.

- Total Hardness, Chloride, Calcium, Magnesium is exceeding desirable limits at all locations and it is exceeding permissible limits at one location that is Doliya village near Arabian Sea.

3.6 LAND ENVIRONMENT

3.6.1 Land use in core zone

Total Mine lease area is 332.24 ha. There is no reserve forest land present within core zone. Out of 332.24 ha ML area, Government land is 133.0154 ha and agricultural land is 199.2246 ha of total ML area of Padhiarka and Doliya Villages of Mahuva Taluka, Bhavnagar Dist. The mine lease land ownership is tabulated in **Table No. C3-11**. The Khasra plan or land ownership map of the proposed ML area is given in **Fig No. C3-10**.

TABLE NO. C3-11: PRE-OPERATIONAL LAND OWNERSHIP IN CORE ZONE (IN HA)

Village	Forest Land	Govt. Land	Private Land	Total Area
Padhiarka	Nil	16.6955	123.5182	140.2137
Doliya	Nil	116.3199	75.7064	192.0263
Total	**Nil**	**133.0154**	**199.2246**	**332.24**

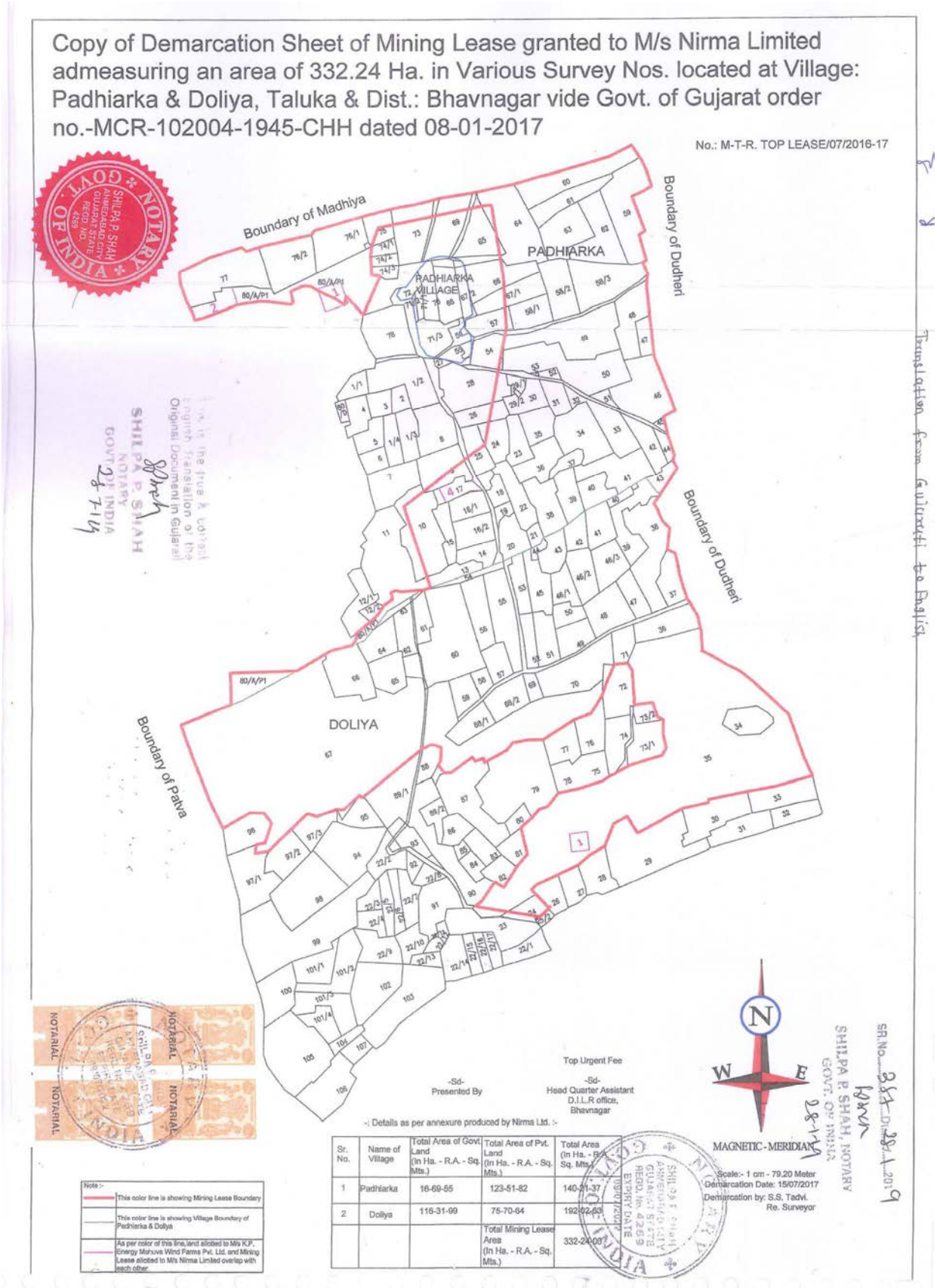
3.6.2 Land use in buffer zone

The study area falls in 2 districts namely Amreli and Bhavnagar of Gujarat. There are 40 inhabited villages in the buffer zone of the study area. Land use pattern as per Census 2011 is given in **Annexure IX.** The number of villages falling in different talukas and the corresponding areas are given in **Table No. C3-12**. Land use break up of study area is based on the village records and sourced from the Census of India 2011 data. The land use classification used in the census land use data is different from the classification used in satellite imagery interpretation. The Satellite Imagery is sourced through QGIS (Image captured by spacecraft SENTINAL- 2A) the on 12.05.2021. So these two data are incomparable due to their different land use classification and date of data collection.

TABLE NO. C3-12: DISTRICTS/TALUKA WISE VILLAGES IN BUFFER ZONE

District	Taluka	No. of villages	Area (ha.)
Amreli	Rajula	14	10108.66
Bhavnagar	Mahuva	26	15134.31
Gulf of Khambat			16250.00
Total		**40**	**41492.97**

FIG NO. C3-10: KHASRA PLAN

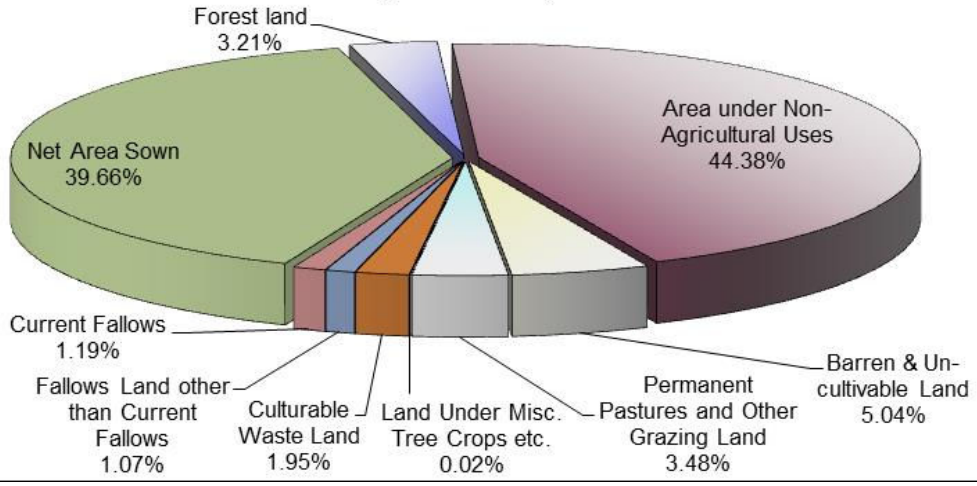


Detailed break up of land use pattern in study area is given in **Annexure IX** and summarised in **Table No. C3-13** and given in **Fig No. C3-11**.

TABLE NO. C3-13: LAND USE DETAILS OF STUDY AREA (10 KM RADIUS) BASED ON CENSUS 2011

Land use	Area (ha.)	% of total land area
Forest Land	1331.11	3.21
Area under Non-Agricultural Uses	18413.27	44.38
Barren & Un-cultivable Land	2091.64	5.04
Permanent Pastures and Other Grazing Land	1444.21	3.48
Land Under Misc. Tree Crops etc.	6.98	0.02
Culturable Waste Land	808.49	1.95
Fallows Land other than Current Fallows	443.75	1.07
Current Fallows	495.36	1.19
Net Area Sown	16458.16	39.66
Total	**41492.97**	**100**

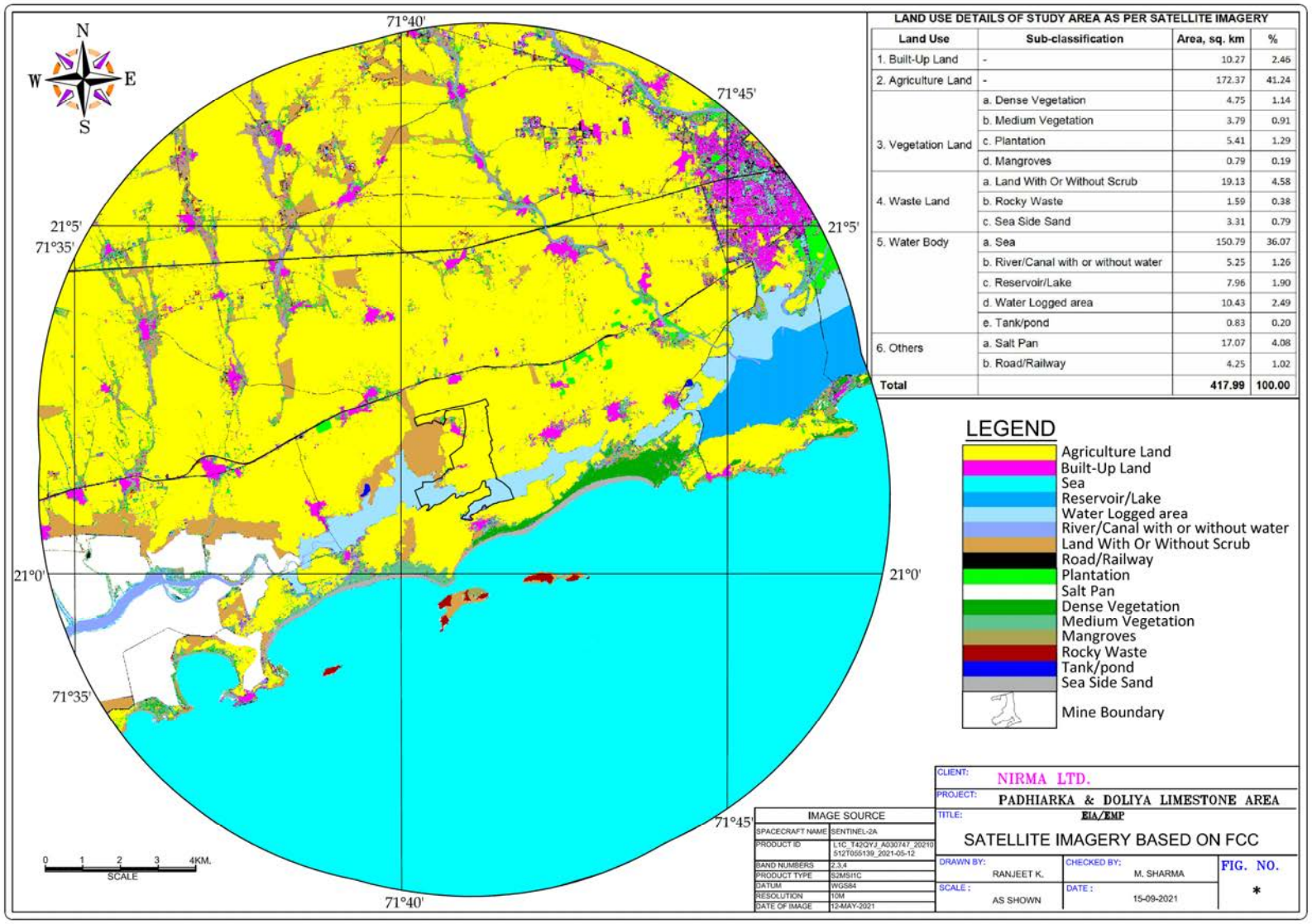
FIG NO. C3-11: LAND USE PATTERN IN THE STUDY AREA (CENSUS 2011)



A perusal of **Fig No. C3-11** shows that the area under non-agricultural use accounts for a major portion (44.38%) followed by net sown area (39.66%). Forest land in the study area is 3.21%.

The land use of the study area has been interpreted using recent satellite imagery can be seen in **Fig No. C3-12**. The satellite imagery is of May 2021, summer season, hence, the water logged areas of Bandharas are low. The extent of water logged has been studied by Anna University, Chennai and that extent has been superimposed upon the SOI open series map and given earlier in **Fig No. C3-1**.

FIG NO. C3-12: MAP SHOWING SATELLITE IMAGERY INTERPRETATION FOR 10 KM RADIUS



LAND USE DETAILS OF STUDY AREA AS PER SATELLITE IMAGERY

Land Use	Sub-classification	Area, sq. km	%
1. Built-Up Land	-	10.27	2.46
2. Agriculture Land	-	172.37	41.24
3. Vegetation Land	a. Dense Vegetation	4.75	1.14
	b. Medium Vegetation	3.79	0.91
	c. Plantation	5.41	1.29
	d. Mangroves	0.79	0.19
4. Waste Land	a. Land With Or Without Scrub	19.13	4.58
	b. Rocky Waste	1.59	0.38
	c. Sea Side Sand	3.31	0.79
5. Water Body	a. Sea	150.79	36.07
	b. River/Canal with or without water	5.25	1.26
	c. Reservoir/Lake	7.96	1.90
	d. Water Logged area	10.43	2.49
	e. Tank/pond	0.83	0.20
6. Others	a. Salt Pan	17.07	4.08
	b. Road/Railway	4.25	1.02
Total		**417.99**	**100.00**

3.7 SOIL CHARACTERISTICS

As per "Ground Water Brochure, Bhavnagar District" by CGWB Ahmedabad (2013), the soils of Bhavnagar district may be broadly classified into following categories:

i) Medium black soils.

ii) Alluvial soils.

iii) Alkaline soils.

Medium black soils are wide spread and are found in all the talukas of the district. They are more productive and are rich in lime, magnesium and alumina and poor in phosphorous, nitrogen and organic matters. They can retain considerable moisture and are much suitable for agriculture.

Alluvial soils are found along the Shetrunji River covering parts of Gariyadhar and Palitana taluka. Soils in this area are less productive as they are saline. Alkaline soils are found in the parts of Gariyadhar taluk. They consist of both productive and non productive soils. To establish the baseline characteristics with respect to soil quality in the study area, characterization of soil sample from the area was performed during the monitoring season.

3.7.1 Soil Sampling Location

One soil sample from core zone and 11 soil samples from buffer zone were collected and analysed in Min Mec R&D Laboratory. Details of soil sampling station is given in **Table No. C3-14** and shown in **Fig No. C3-13**. The soil test report is given in **Annexure XV.**

TABLE NO. C3-14: LOCATION OF SOIL SAMPLING STATIONS

Location Code	Location	Distance (km)	Direction
1.	Near Cement Plant, Padhiarka	Core zone	-
2.	Padhiarka	0.2	W
3.	Vangar	1.6	NW
4.	Madhiya	1.0	N
5.	Dudhala no. 1	1.8	ENE
6.	Dudheri	1.7	E
7.	Dudhala near NH-8E	2.5	ENE
8.	Gujarda	2.8	E
9.	Doliya	0.3	S

Location Code	Location	Distance (km)	Direction
10.	Rabhada	5.0	WNW
11.	Amratvel	3.8	N
12.	Near Devlia	6.8	ENE

3.7.2 Methodology

Soil samples were collected by digging a pit of 15, 30 & 45 cm depth at the appropriate location with the help of a spade and a 'Khurpi'. The excavated soil from each location was mixed thoroughly and about 1 kg of mixed sample was collected by 'Cone & Quartering method'. The sample was packed in a polyethylene bag, sealed and brought to the laboratory.

After drawing sample for measurement of moisture content, the remaining sample was air dried for few days. For chemical characteristics, air-dried sample was ground in an agate mortar with the help of a wooden hammer and passed through a 2-mm (10-mesh) sieve. The coarser materials were rejected and the sieved material was sampled by the standard 'cone and quartering' method. Characterization of soil sample was performed by adopting methods prescribed under relevant parts of IS:2720, "Indian Standard Methods of Test for Soils".

3.7.3 Observation

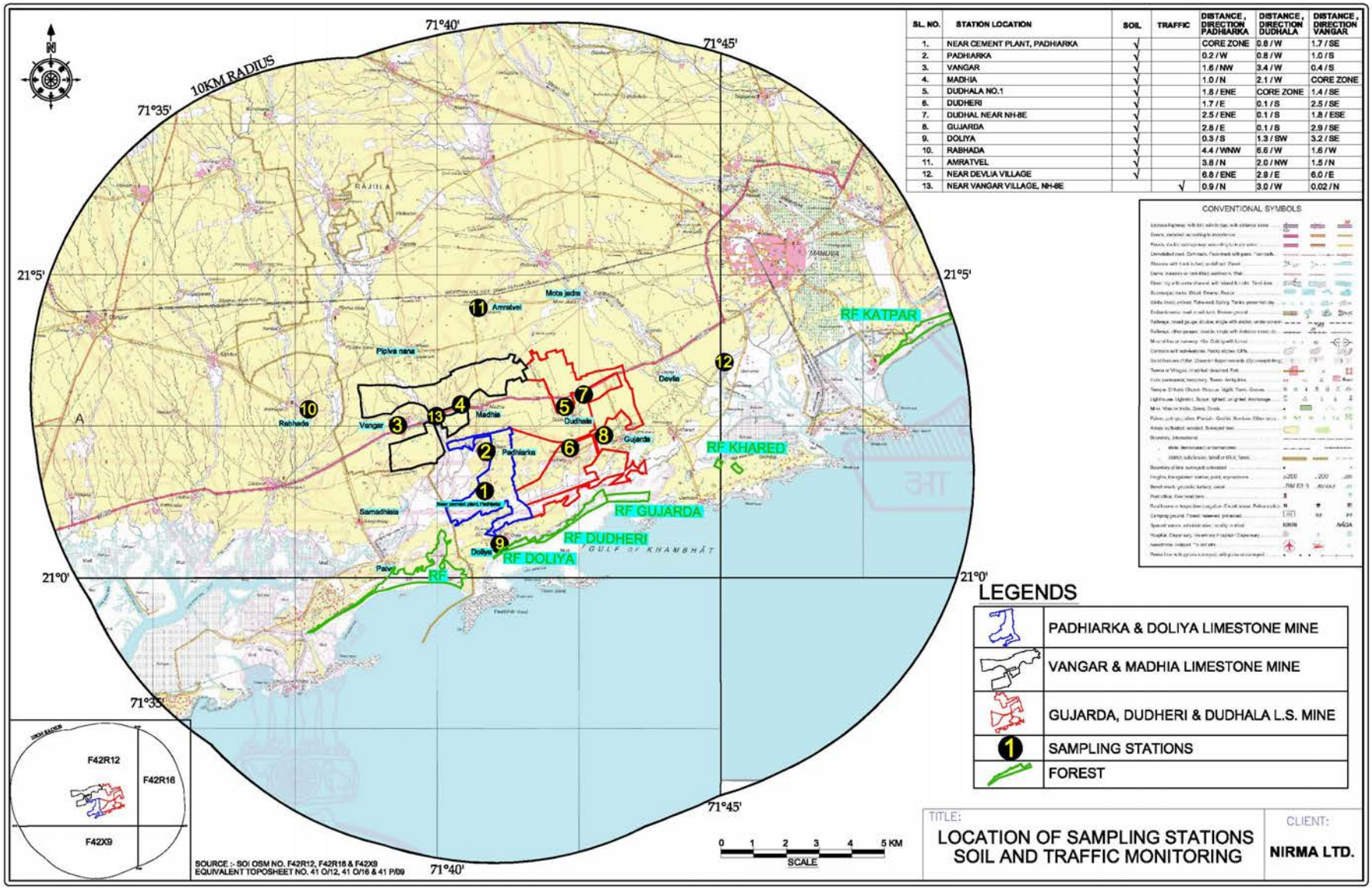
The analysis results of soil quality of the study area is summarised in **Table No. C3-15** and given in detail in **Annexure XV**.

TABLE NO. C3-15: SOIL ANALYSIS RESULT

Parameters	Unit	Result range
Textural Classification		Fine - Medium Grained
pH		7.7 - 8.2
E.C.	mS/cm	0.190 - 1.739
CaCO3	% by mass	2.5 - 40.5
Specific Gravity		1.86 - 3.56
Moisture	% by mass	11.024 - 33.82
Organic Carbon	% by mass	0.22 - 2.24
Organic Matter	% by mass	0.50 - 5.02
Available Phosphorous	mg/kg	0.16 - 0.97
Nitrate-Nitrogen	mg/kg	0.01 - 12.57
Sodium	kg/ha	378.6 - 2044.0
Potassium	kg/ha	157.0 - 845.0
Calcium^{2+}	me/100gm soil	11.6 - 23.9
Magnesium^{2+}	me/100gm soil	2.1 - 21.5
Colour	-	Blackish

Source: Test Report no. MMS/06-21/65 & MMS/06-21/66 dated 18.06.2021 by Min Mec R&D Laboratory, Delhi.

FIG NO. C3-13: LOCATION OF SOIL SAMPLING STATIONS & TRAFFIC CENSUS



SL. NO.	STATION LOCATION	SOIL	TRAFFIC	DISTANCE, DIRECTION PADHIARKA	DISTANCE, DIRECTION DUDHALA	DISTANCE, DIRECTION VANGAR
1.	NEAR CEMENT PLANT, PADHIARKA	√		CORE ZONE	0.8 / W	1.7 / SE
2.	PADHIARKA	√		0.2 / W	0.8 / W	1.0 / S
3.	VANGAR	√		1.6 / NW	3.4 / W	0.4 / S
4.	MADHIA	√		1.0 / N	2.1 / W	CORE ZONE
5.	DUDHALA NO.1	√		1.8 / ENE	CORE ZONE	1.4 / SE
6.	DUDHERI	√		1.7 / E	0.1 / S	2.5 / SE
7.	DUDHAL NEAR NH-8E	√		2.5 / ENE	0.1 / S	1.8 / ESE
8.	GUJARDA	√		2.8 / E	0.1 / S	2.9 / SE
9.	DOLIYA	√		0.3 / S	1.3 / SW	3.2 / SE
10.	RABHADA	√		4.4 / WNW	6.6 / W	1.6 / W
11.	AMRATVEL	√		3.8 / N	2.0 / NW	1.5 / N
12.	NEAR DEVLIA VILLAGE	√		6.8 / ENE	2.9 / E	6.0 / E
13.	NEAR VANGAR VILLAGE, NH-8E		√	0.9 / N	3.0 / W	0.02 / N

The pH of soils is mildly alkaline in the Amrutvel, Vangar and Rabhda Village and Moderately alkaline at other locations. The electrical conductivity varies from 0.190 to 1.739 mS/cm in study area. Soil is normal at all locations except for one location at Vangar village where EC reaches 1.739 mS/cm and found to be critical for germination. The soils have organic carbon varying from 0.22 to 2.24 which shows that soil is rich in organic carbon at 4 locations that are Madhiya, Dudhala, Dudhala near NH-8E & Amrutvel village. Optimum at Dudheri & near Devlia village. At rest of the locations the soil is found deficient in organic carbon content. The colour of the soil was blackish at all 12 locations.

3.8 NOISE LEVEL

Ambient noise levels were also measured at sixteen locations in and around the site using a sound level meter along with filter. The locations are given in **Table No. C3-16** along with results and shown in **Fig C3-8** above. During studies it was found that the noise level was well within the limits. The observations made during the study have been presented in **Annexure X.** The noise levels around the site are given in **Table No. C3-16**.

TABLE NO. C3-16: AMBIENT NOISE LEVELS IN THE STUDY AREA (IN Leq dB(A))

Station code	Name of Monitoring Station	Distance (Km) and direction from project	Category of area	Permissible levels as per AAQS for Noise, Leq dB(A)		Observed Noise Levels, Leq dB(A)	
				Day	Night	Day	Night
1.	Near Cement Plant, Padhiarka	Core Zone	Residential	55	45	47.57	40.09
2.	Padhiarka	0.2, W	Residential	55	45	52.46	42.89
3.	Vangar	2.1, NW	Residential	55	45	48.95	41.42
4.	Madhiya	0.5, N	Residential	55	45	50.11	39.93
5.	Dudhala No.1	1.8, ENE`	Residential	55	45	50.34	40.96
6.	Gujarda	3.2, E	Residential	55	45	48.20	40.11
7.	Patva	1.8, SW	Residential	55	45	48.65	41.35
8.	Samadhiyala No. 1	3.0, W	Residential	55	45	49.85	39.42
9.	Doliya	0.3, S	Residential	55	45	50.51	39.36
10.	Rabhada	4.9, WNW	Residential	55	45	50.72	41.76
11.	Nana Pipalva	3.6, NW	Residential	55	45	48.96	41.62
12.	Amrutvel	3.8, N	Residential	55	45	51.86	40.75
13.	Mota Jadra	4.2, NNE	Residential	55	45	49.97	40.27
14.	Devalia	4.9, ENE	Residential	55	45	48.69	40.01
15.	Khared	6.8, ENE	Residential	55	45	50.07	40.89
16.	Gadhada	4.2, E	Residential	55	45	51.83	40.40

Source: Test Report no. MMN/06-21/67 dated 18.06.2021 by Min Mec R&D Laboratory, Delhi

The noise levels were measured at sixteen stations located near residential area, which varied between 47.57 to 52.46 dB(A) during day time and 39.36 to 42.89 dB(A) during night time. Noise level in the area are found within the limit as specified for residential area.

3.9 TRAFFIC VOLUME SURVEY

The traffic volume survey was conducted on Bhavnagar to Una Road (NH-8E/51) Near Vangar Village. The location of station is shown in **Fig No. C3-13** above. The monitoring was performed on 27-28/05/2021 for 24 hours by visual observation and counting of vehicles under different categories viz. cycles, Motor Cycles & Scooters, light motor vehicle (L.M.V.) and heavy motor vehicles (H.M.V.) i.e. buses & trucks, Animal drawn vehicles and others. The details are given in **Annexure XII** and summarised in **Table No. C3-17**.

TABLE NO. C3-17: TRAFFIC VOLUME SURVEY

Date	Cycles	Two/ Three wheelers	LMV	Bus	Trucks	Animal Drawn Vehicles	Others	Total
Equivalency factor	0.5	0.5	1	3	3	8	4.5	
Bhavnagar to Una Road: NH-8E/51 (Near Vangar Village)	65	3045	1872	164	1334	15	298	**6793**
Equivalent PCUs	32.5	1522.5	1872	492	4002	120	1341	**9382**

It is observed that the traffic volume of Heavy Motor Vehicles is highest followed by Light Motor Vehicles and two/three wheelers. Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day.

3.10 ECOLOGY

A strategic balance between physical and biological environment is vital for human survival. Abiotic factors as air, water, soil, climate needs to be maintained for having a vibrant atmosphere. Imparity in any aspect of sustainable environment can lead to long term damages to the environment. A delicate balance needs to be built between the developmental vision and the temperament to conserve the environment at the same time.

This necessitates the need for having a thorough survey of floral and faunal species and the current status of flora and fauna of the region constitutes a vital part of this overall study.

3.10.1 Forest

The reserve forests in the study area are as follows and shown in **Fig No. C3-2** earlier:

- RF near Patva (0.4 km, SW)
- RF near Dudheri village (0.6 km, SSE)

- RF near Gujarada village (2.3 km, E)
- RF near Doliya village (0.4 km, S)
- RF near Khared village (5.8 km, E)

As per Census 2011, 1331.11 Ha land is under forest cover which is only 3.21% of the total study area. No National Park, Wildlife Sanctuary, Ramsar sites, corridor etc exists within the ML area and also within 10 km radius of ML area. Nearest National Park & Wildlife Sanctuary is the GIR National Park, GIR Wildlife Sanctuary & Mithyala Wildlife Sanctuary located at a nearest distance of 79 km, 47.6 km and 46.7 km respectively. The Principal Chief conservator of Forest, Gujarat State, Gandhi Nagar has authenticated that no national parks, sancturies, biosphere reserves, wildlife corridor etc. fall in study area. (Copy of map given in **Annexure XIV**).

The area of Amreli District belong to the sub group Type 5A "Tropical Dry Deciduous Forests" and that of Bhavnagar District Type 6A "Northern Tropical Thorn Forest", as per the revised classification of forest types of India by Champion and Seth. Depending mainly upon the topography, edaphic factors and past treatments given to the area, composition of the crop varies considerably. Local variations in the altitude do not influence the distribution of various species.

3.10.2 Flora

The absence of floral diversity is due to high salinity in the study area, only few salinity resistant species were recorded namely, *Prosopis julifiora, Aloe barbadensis, Salvadora persica, Moringa oleifera* and *Zizyphus sp* The reasons for the loss of biodiversity richness as well as density can also be traced to biotic pressures such as expansion of agricultural usage of land and forests, urbanization, industrial and developmental projects that destroy or usurp natural habitats, over exploitation of natural resources, over grazing and above all, pollution. Man-made alterations of the habitats also produced an imbalance that upset the ecosystem and the age old interrelationships. Loss of vegetational cover, green house effect, erosion and loss of top soil too contributed to habitat destruction.

Core Zone: The core zone is virgin land where mining is proposed to be carried out. The natural vegetation in the core area includes trees, shrubs, herbs etc. List of flora in core zone is given in **Annexure XIII** and the same has been authenticated by the Forest Department**.**

Buffer zone: Various types of plant species and cropping pattern are discussed below:

Cropping pattern: Total agricultural land of the area is not sown since it is dependent on the rainwater. The tube well/open well is the major source followed by seasonal streams of irrigation for agriculture. There are three

seasonal crop seasons in area viz. Kharif, Rabi and summer. The main food crops of the district are Bajra, Wheat, Onion and Maize. The main non-food crops are Cotton, Groundnut, Til and Fodder. Pulses are also grown in the study area. Cropping pattern is shown in **Table C3-18**.

TABLE C3-18: AREA UNDER MAJOR FIELD CROP AND HORTICULTURE IN BHAVNAGAR DISTRICT

Sl.	Particulars	Total Area (in '000 Ha)			
		Kharif	Rabi	Summer	Total
	Major Field Crop Cultivated				
1.	Cotton	306.2	-	-	306.2
2.	Groundnut	102.7	-	22.5	125.2
3.	Bajra	44.4	-	3.5	47.9
4.	Wheat	-	33.9	-	33.9
5.	Pulses	7.0	3.0		10.0
	Horticulture Crops - Fruits				
1.	Mango	5.5			
2.	Citrus	5.4			
3.	Sapota (Chiku)	2.7			
4.	Banana	1.8			
5.	Others	6.2			
	Horticulture Crops - Vegetables				
1.	Onion	32.3			
2.	Garlic	0.6			
	Medicinal and Aromatic Crops (Amla)				
1.	Cumin	5.6			
	Plantation Crops				
1.	Coconut	3.8			
	Fodder crops				
1.	Sorghum	21.8			
2.	Maize	1.6			
3.	Lucerne	0.7			
4.	Total fodder crop area	24.1			
5.	Grazing land	61.1			

(Source: Table 1.7 of Agriculture Contingency Plan for District Bhavnagar available at http://www.jau.in/attachments/AgriConti/Bhavnagar.pdf accessed 28.07.2023)

Plantation on roads: Plantation of species on the roadside are Azardirachta indica, Cocos nucifera, Dalbergia sissoo, Mangifera indica, Tamarindus indica, Cassia auriculata, Zizyphus nummularia etc. apart from natural vegetation of Prosopis juliflora.

Vegetation in the Hamlets: The species composition near the hamlets is different from those found in the natural environmental conditions. The vegetation structure surrounding the hamlets reflects a typical character of habitation. The trees in the settlement area are catering to the needs of local population such as fodder, fuel-wood, fruit, and timber and for religious purposes. Some of the common species found in the hamlets comprise *Mangifera indica, Syzygium cumini, Terminalia bellerica, Ficus religiosa etc.*

Medicinal plant species: The study area is also endowed with several medicinal plants. Many medicinal plants are found in the study area which is used by the people of villages for their daily use and minor ailments. The common medicinal plants of the region are *Azadirachta indica, Cassia fistula, Ficus benghalensis, Ficus racemosa, Ficus religiosa, Mangifera indica, Ocimum sanctum, Syzigium cuminii, Terminalia catappa, Zizyphus mauritiana etc.*

Fuel wood plant species: Villagers collect dry leaves, stems and log to fulfill their daily need for fuel wood requirement. *Acacia nilotica* (Babool), *Syzygium cumini (*Jamun*), Mangifera indica* (Mango*)* etc. are the species, used for fuel wood.

Gulf of Khambat: The coastal mudflat areas of Arabian sea present at a distance of 0.5 km, S from HTL are predominantly covered by *Avicennia marina.* Higher density of Avicennia may cause reduction in plant growth due to competition for limited resources *Besides this,* species of *Suaeda Kandella candel and Rhizophora mucronata* were also reported. Mangrove in the Gulf of Khambhat has suffered severe degradation over a span of time. As per report on "Demarcation of High Tide Line, Low Tide Line and Coastal Regulation Zone Mapping for the proposed Mining Lease area in Mahuva Taluka, Dist Bhavnagar, Gujarat" by Institute of Remote Sensing, Chennai mangrove areas have been identified and 50 m buffer have been drawn from the proposed mining area.

The detailed list of flora found in the study area is given in **Annexure XIII.**

3.10.2.1 Primary survey

Phyto-sociological study

To understand the attribute of communities, a phyto-sociological study of vegetation was conducted all through, wherever small patches of *Acacia nilotica* growth were present. The sites were selected on the basis of vegetation component and their importance for project view point. An attempt has been

made to study only for tree flora because herbaceous flora was not identifiable. A list of flora for trees, shrubs and herbaceous plant species are listed separately in **Annexure XIII.**

At each selected site random vegetation sampling was done with the help of 10 m X 10 m quadrate size. Presence and absence of species, number of individual species and basal area of each plant species in each quadrate was recorded. Frequencies and densities were calculated following Curtis and Mc. Intosh (1951) method. Species diversity index was estimated using Shannon-Weiner index (1963).

Shanon Weiner diversity Index was calculated by following formula:

$$\overline{H} = -\sum Pi \, Log \, Pi$$

Where : $\overline{H}$ = Shanon Weiner diversity index

Pi = ni/N where ni is number or biomass or IVI of individual species and N is the total number or biomass or IVI of all individuals.

In the present study IVI (Importance Value Index) has been taken into consideration for evaluation of diversity index. IVI gives total performance of individual species at a particular site. IVI is the total of relative frequency (RF), relative density (RD) and relative dominance (RDO). Since IVI includes many of the attributes at a time, therefore consideration of IVI was preferred on number for evaluation of Shannon-Weiner diversity index. This diversity index includes both richness of species and apportionment of species at any particular site. Higher the value of index more is the stability of that community. Thus Shannon-Weiner diversity index is an indication of goodness of community.

Phyto- sociological study of tree layer vegetation was conducted at various sites; however more emphasis was given on study around the proposed project site. The parameters such as frequency, density, abundance, relative frequency, relative density, relative dominance and IVI were evaluated at each forest stand. Shanon-Weiner diversity index was also calculated for each studied stand. A general description of forest stands, where classified forest is not present, has also been covered in following paragraphs:

Reserved or Protected forests are usually identified from the toposheet, which is restricted in this case. Therefore, Census 2011 data has been used to know the total area of forests in the study area. 0.55% revenue forest is present within the study area. However, there is no forest land in the core zone as per the revenue records. The vegetation is observed in the study area is with low diversity index. According to revised classification of forest type by Champion & Seth, it is Tropical Dry Thorn Forest ($6/E_3$). The vegetation is like *Prosopis*

juliflora, Acacia leucophlea, Acacia nilotica etc. The study area has scrub like vegetation of *Prosopis juliflora, Zizyphus nummularia* etc.

Canopy density (Canopy area of trees/Total ground cover area) of the forested area is very low. The value is never exceeding 0.2. General canopy density is below 0.1. Tree heights vary from 1.5 to 4.5 m. Canopy diameter of tree species varies from 1.0 to 3.6 m. The forest stands are dominated mostly by a leguminous tree species of *Acacia nilotica*. Overall forest areas are characterised by low species diversity.

Number of total plant species is limited to five or six only. All the stands are dominated by either *Acacia nilotica* or *Acacia leucophloea*. A detailed vegetation study was done for the following sites.

There are four analytical sites i.e. Doliya, Padhiarka, Dundas and Dudheri. Tree flora vegetation analysis results are shown in **Table No. C3-19** to **C3-22**.

TABLE NO. C3-19: TREE FLORA AT DOLIYA

Name of species	F	D	AB	RF	RD	RDO	IVI
Acacia nilotica	60.00	1.20	2.00	18.75	19.67	24.18	62.60
Cocos nucifera	20.00	0.80	4.00	6.25	13.11	28.66	48.02
Acaica leucophloea	50.00	1.40	2.80	15.63	22.95	3.13	41.71
Dalbergia sissoo	20.00	0.30	1.50	6.25	4.92	9.70	20.87
Ficus religiosa	20.00	0.20	1.00	6.25	3.28	7.53	17.06
Zizyphus mauritiana	30.00	0.30	1.00	9.38	4.92	2.18	16.47

Diversity Index = 0.86

TABLE NO. C3-20: TREE FLORA AT PADHIARKA

Name of species	F	D	AB	RF	RD	RDO	IVI
Acacia nilotica	70.00	1.30	1.86	22.58	18.31	33.00	73.89
Acacia leucophloea	50.00	1.90	3.80	16.13	26.76	9.12	52.01
Azadirachata indica	50.00	0.50	1.00	16.13	7.04	21.60	44.77
Ficus racemosa	20.00	0.20	1.00	6.45	2.82	11.10	20.36
Zizyphus mauritiana	30.00	0.40	1.33	9.68	5.63	3.25	18.56
Prosopis juliflora	20.00	0.30	1.50	6.45	4.23	4.66	15.34

Diversity Index = 0.77

TABLE NO. C3-21: TREE FLORA AT DUNDAS

Name of species	F	D	AB	RF	RD	RDO	IVI
Acacia nilotica	90.00	1.30	1.44	28.13	20.31	39.25	87.68
Azadirachta indica	40.00	0.40	1.00	12.50	6.25	12.80	31.55
Zizyphus mauritiana	40.00	0.40	1.00	12.50	6.25	3.77	22.52
Ficus benghalensis	20.00	0.20	1.00	6.25	3.13	11.05	20.43
Mangifera indica	20.00	0.20	1.00	6.25	3.13	7.54	16.92

Diversity index = 0.75

TABLE NO. C3-22: TREE FLORA AT DUDHERI

Name of species	F	D	AB	RF	RD	RDO	IVI
Acacia nilotica	50.00	0.90	1.80	17.24	13.04	22.80	53.08
Acacia leucophloea	40.00	1.20	3.00	13.79	17.39	4.02	35.20
Zizyphus mauritiana	40.00	0.60	1.50	13.79	8.70	7.38	29.87
Mangifera indica	20.00	0.30	1.50	6.90	4.35	14.13	25.37
Cassia fistula	20.00	0.40	2.00	6.90	5.80	9.53	22.22
Syzygium cumini	20.00	0.30	1.50	6.90	4.35	9.04	20.29
Ficus recemosa	20.00	0.20	1.00	6.90	2.90	7.44	17.24
Albizzia lebbeck	20.00	0.30	1.50	6.90	4.35	5.47	16.71

Diversity index = 0.96

Note: F - Frequency D - Density
AB - Abundance RF - Relative Frequency
RD - Relative Density RDO - Relative Dominance
IVI - Importance Value Index

3.10.3 Fauna

Core and Buffer zone were taken into consideration while preparing a list of faunal species. Field survey (line transect method) and discussions with local people including compilation of data from online sources were used as a tool while conducting the faunal studies. Field visit was conducted in the early morning hours at 5 am (at dawn) and the second around 7 pm (at dusk). Dawn and dusk are the periods when the maximum movement of animal takes place. Normally best results are obtained at the dawn.

Core zone: Common avifauna found in the core zone includes house sparrow, house crow, blue rock pigeon, cattle egret, common myna, etc. and mammals such as hare, Bluebull, five stripped palm squirrel, mongoose jungle cat could be seen. Amongst reptiles, common garden lizard, common Indian krait was seen. List of fauna in core zone is given in **Annexure XIII.**

Buffer zone: A total of about 70 faunal species were recorded during the field survey, comprising 11 species of mammals, 06 species of Reptiles & 53 Avifaunal species.

The dominant mammalian faunal species observed in the study area was Bluebull besides five stripped palm squirrel, mongoose, etc. The common bird species i.e. avifauna recorded during the survey in the study area are House Sparrow, Painted stork, Indian Mayna, Pigeon and Parrot etc. The list of fauna is given in **Annexure XIII** and the same has been authenticated by the Forest Department.

The project site surroundings does not support any habitat for any group of wild animal except few animals such as mongoose and porcupine species, which are well adapted to desert areas.

Rare, Endangered and Vulnerable Faunal Species: In the study area, peafowl, Chinkara and Asiatic Lion are reported under Schedule -I of the Wildlife Protection Act, 1972 amended uptill 2019. On the basis of the fauna study findings & list of fauna authenticated by Forest Department, Wildlife Conservation Plan was prepared and submitted for approval. The same had been approved by the Forest Department on 20.12.2021. Approval letter & financial layout for conservation plan are given in **Annexure XXIII.** After the amendments vide Act 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.

Animal Husbandry: Animal husbandry occupies an important place in the rural economy of Bhavnagar and Amreli districts. It provides them with the draught power required for cultivation and an additional means of supplementing their income. To the farmer, cattle are a valuable form of wealth. The live-stock plays a vital role in the agricultural economy of the district, because it not only supplies milk, meat, manure, bones, hides and skins, hoofs and horns but also serves as draught cattle for drawing carts, ploughs and is also used for drawing water. The livestock in the district could be divided into three classes such as (1) Bovine comprising cattle and buffaloes, (2) Ovine comprising sheep and goats, and (3) Others like horses and ponies, pigs and poultry. Live-stock products in the district comprise milk, eggs, skins and hides, wool, manures, etc.

Fishery: Fishing is one of main occupation of people in the region. Mudskipper, clupeids, mullets and catfish are the main fish catch of the Gulf. Mudskippers (*Boleopthalmus dussumieri*) form an important fishery in the intertidal mudflats all over the coast. Coastal areas of Bhavnagar district harbors wide range of ichthyofaunal diversity and diverse fisheries resources. The fishermen in this area use wide range of fishing methods and gears, which evolved traditionally and being adept extensively in Bhavnagar coastline. Livelihood of these fishermen is almost entirely depends on mudskipper fishing and they employ three types of fishing methods to catch them i.e. direct catch through digging the burrow, stick traps around mudskipper holes, and by nylon net. Fishing by using nylon net is the most commonly used method compared to others.

Migratory birds : Due to the presence of water bodies in the study area, migratory birds, especially water birds are frequently observed. Some of these as listed in **Annexure XIII** are greater flamingo (*Phoenicopterus roseus*), Black-headed Ibis (*Threskiornis melanocephalus*), Blue tailed bee-eater (*Merops phillppinus*), Black winged stilt (*Himantopus Himantopus*), Common hoppoe (*Upupa epops*), Rosy starling (*Pastor roseus*), Western yellow wagtail (*Motacilla flava*), cattle egret (*Bubulcus Ibis*), little egret (*Egretta garzetta*) etc.

Marine animals : Marine animals reported from Gulf of Khambat in Bhavnagar district includes molluscs (Lyrodus, Dicyathifer, etc.), crustaceans (Metapograpsus, Nanosesarma etc.) and prokaryotes (Bacillus, pseudomonas, Moraxella etc.). Besides this fishes are also found. These include mainly Bombay duck, mullet, catfish, hilsa, shrimp, etc. Species of marine turtles such as green sea turtles and olive ridley nest in large numbers on Piram Island located at a distance of 92 km aerially, north east from the mine site. The species was previously documented in the Gulf of Khambhat. Deputy Conservator of Forests, Bhavnagar has provided details vide letter dated 27.01.2023 that turtle rearing/breeding site is located at a distance of about 70 km away from project site at Hathab, Taluka: Bhavnagar. There is no turtle area in 10 km area from our lease area (refer **Annexure XXV**). Also as per report on "Demarcation of High Tide Line, Low Tide Line and Coastal Regulation Zone Mapping for the proposed Mining Lease area in Mahuva Taluka, Dist Bhavnagar, Gujarat" by Institute of Remote Sensing, Chennai turtle breeding sites are not in the vicinity of proposed site. Whale is reported in coastal talukas of Junagadh District and not in Bhavnagar.

Bruhad Gir concept: Government of Gujarat was pursuing lion conservation in Greater Gir Region adopted as a Brihad Gir concept. The region includes Gir National Park, Gir Wildlife Sanctuary, Paniya Wildlife Sanctuary, Mithiyala Wildlife Sanctuary, Girnar Wildlife Sanctuary, Coastal area in the region and Grass lands in Savarkundla, Liliya and Gariadhar talukas of Amreli districts and Mahuva and Palithana talukas of Bhavnagar district. There was great enthusiasm among the local people to support this initiative[2].

As per the latest resolution [3] by Forest and Environment Department, Gandhinagar which provides for the protection of lion and other wild animals in the Gir Sactuary, National Park and revenue areas around its border, to reduce the friction between wildlife animals and people, to create awareness of wildlife protection among farmers and people and to cooperate in conservation, for this, in around 300 revenue villages around Jungadh, Amreli and Bhavnagar district of Bruhad Gir, which are particularly frequented by lions, Wildlife Friends have been sanctioned.

In line with the spirit of the State Government and local people for conservation of Lions and other wild animals, the Company has prepared and got approved conservation plans from the forest department.

[2] Minutes of the 12th Meeting of the Standing Committee of National Board for Wildlife (NBWL) convened on 18th August, 2008 accessed at https://parivesh.nic.in/writereaddata/Order%20and%20Release/12th_Minutes_Standing_Committee.pdf

[3] https://forests.gujarat.gov.in/government-resolutions.htm

3.11 SOCIO-ECONOMIC CONDITIONS

3.11.1 Demographic details of core zone

Although, the main habitation of villages are outside the ML area, few house/hutments can be seen in the core zone. During mining, these house/hutments will get disturbed during mining.

The core zone is comprising of land of two villages- Doliya and Padhiarka. Core zone is having 59.96% private land, 40.03% government land and no forest land is involved. The social impact in the core zone will be directly related to the area that will be acquired. When the area to be acquired has households, then displacement, resettlement and rehabilitation will occur while when only land is being acquired then the livelihood of the persons dependent on that land will get affected. These affected persons may also have dependency on common community resources. It may be noted that land will be required for the pit area of 100.61 ha only as per the approved mining plan. In view of this, the baseline of the core zone comprises of following:

Within the private land in conceptual pits, as per latest survey carried out. there are 35 houses/hutment in land of Padhiarka (08 nos.) & land of Doliya villages (27 nos.). There will be direct purchase or leasing of private land, with the willing consent of the private land owners. The number of plots (khasras) and their land owners are summarised in **Table No. C3-23**.

TABLE NO. C3-23: SUMMARY OF PROJECT AFFECTED FAMILIES

Village Name	Total Mine Lease Area*, ha.	At Intial Stage**					
		Only Land losers			Homestead losers	Landlosers	Total
		Area, ha	No. Plots under pit area	No. of Land owners			
Padhiarka	140.21	50.99	58	297	08	297	305
Doliya	192.03	49.62	73	351	27	351	378
Total	**332.24**	**100.61**	**131**	**648**	**35**	**648**	**683**

Note*: Mine life – upto lease period after exploration in entire lease area

**Area requirement based on conceptual plan of Review of Mining Plan

3.11.2 Demographic details of buffer zone

The demographic profile of the study area as per the Census data of 2011 is given in **Annexure XVI** and summarised in **Table No. C3-24.** The present population for 2023 based on the decadal growth rate of 2001-2011 (i.e. 16.63%) has also been estimated and given in **Table No. C3-24**.

TABLE NO. C3-24: DEMOGRAPHIC PROFILE OF STUDY AREA

Description	As per Census 2011		Projected for 2023
	Total	Percentage	
No. of Households	19551		23830
Total population	116055	100.00	141455

Description	As per Census 2011		Projected for 2023
	Total	Percentage	
Male population	59328	51.12	72313
Female population	56727	48.88	69142
Schedule Castes	4055	3.49	4942
Schedule tribes	48	0.04	59
Total Literate	65705	56.62	80085
Female Literate	26398	22.75	32176
Male Literate	39307	33.87	47910

From the available demographic information, it is observed that the family size within the study area is about 6 per family. The SC population is about 3.49% of the total population, while ST population constitutes almost 0.04%. Female population is lower than male population and there are 956 females per 1000 males. The overall literacy level is average (56.62%), out of which 22.75% are females and 33.87% are males. Literacy level and SC/ST pie diagram are shown in **Fig No. C3-14** and **Fig No. C3-15** respectively.

FIG NO. C3-14: LITERACY LEVEL IN THE STUDY AREA (CENSUS 2011)

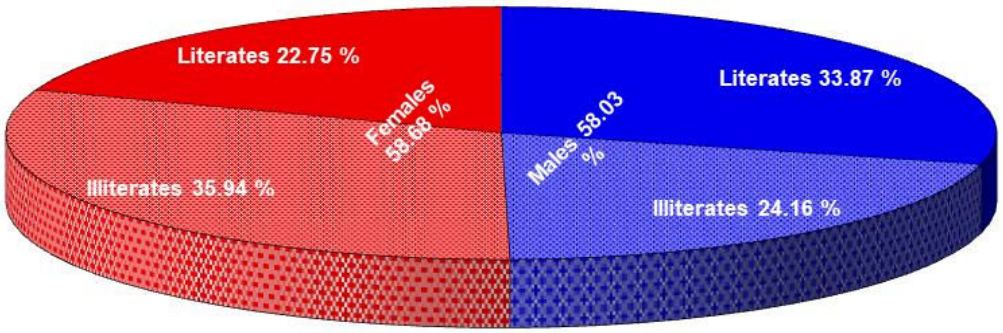
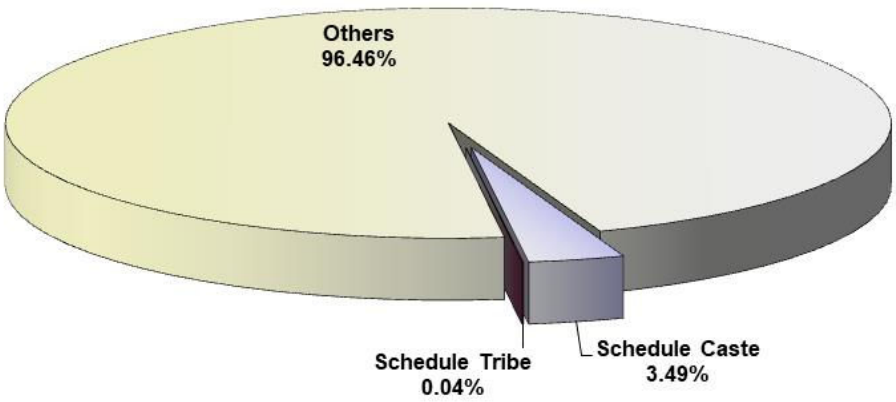


FIG NO. C3-15: BREAK UP OF SC & ST IN THE STUDY AREA (CENSUS 2011)



3.11.3 Employment & occupation

Employment pattern and occupation are the two main indicators of the economic profile and the same for the individual villages of the study area, based on 2011 Census data are presented in **Annexure XVII**. Pie diagrams showing employment pattern and occupation are depicted in **Fig No. C3-16**, **C3-17** and **C3.18** respectively. A summary of employment pattern and occupation for the study area is presented in **Table No. C3-25.** The present working and non working population for 2023 based on the decadal growth rate of 2001-2011 (i.e. 16.63%) has also been estimated and given in **Table No. C3-25**.

TABLE NO. C3-25: SUMMARY OF EMPLOYMENT AND OCCUPATION IN STUDY AREA

Description	As per Census 2011		Projected for 2023
	Total	%	
Total workers	46517	40.08	56698
Main workers	39762	34.26	48464
Marginal workers	6756	5.82	8235
Non workers	69537	59.92	84756
Break up of Main workers			
Cultivators	6038	15.19	7359
Agricultural Labourers	18005	45.28	21946
Household industries	430	1.08	524
Other workers	15289	38.45	18635
Break up of Marginal workers			
Cultivators	1160	17.17	1414
Agricultural Labourers	3932	58.20	4793
Household industries	142	2.10	173
Other workers	1521	22.51	1854

FIG NO. C3-16: EMPLOYMENT PATTERN IN THE STUDY AREA (CENSUS 2011)

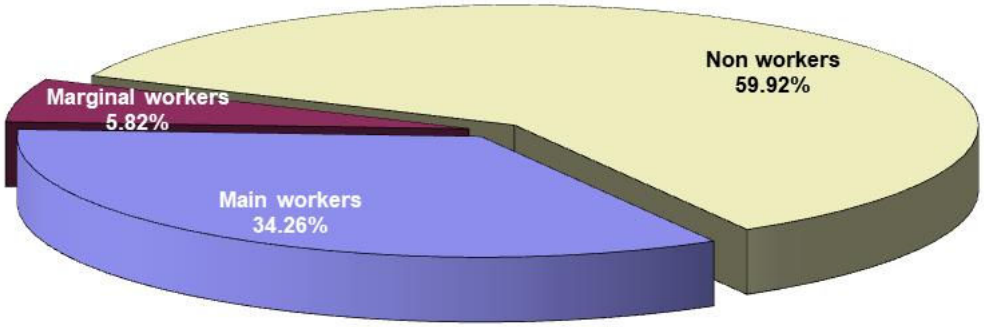


FIG NO. C3-17: BREAK UP OF MAIN WORKERS IN THE STUDY AREA (CENSUS 2011)

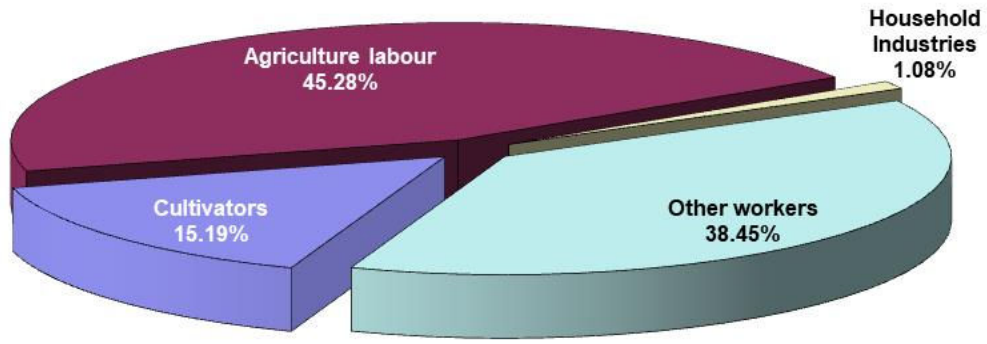
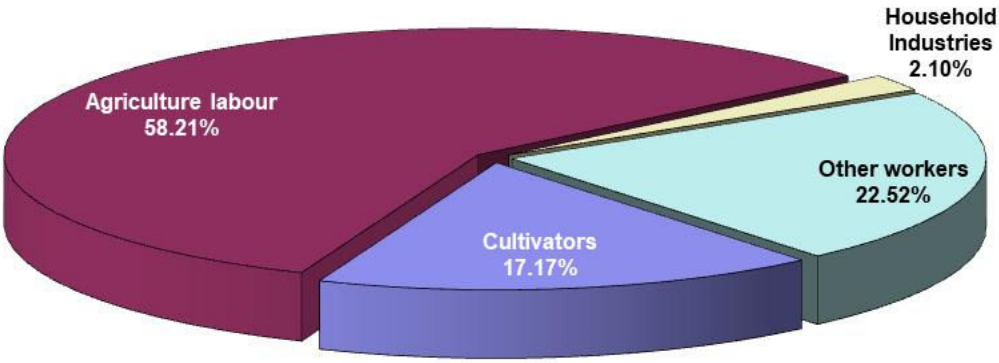


FIG NO. C3-18: BREAK UP OF MARGINAL WORKERS IN THE STUDY AREA (CENSUS 2011)



3.12 AMENITIES

The details of amenities available in the individual villages are given in **Annexure XVIII**. A summary of the same is given in **Table No. C3-26**. The present situation with respect to various amenities has been assessed in the need based assessment study given in Section 8.4 of Chapter 8.

TABLE NO. C3-26: AMENITIES AVAILABLE IN VILLAGES AND TOWNS WITHIN THE STUDY AREA (AS PER CENSUS 2011)

Education	Villages	49 Primary school, 3 Secondary school and 1 Sr. Sec. School
	Towns	6 Govt. Primary School, 7 Private Primary School, 2 Govt. Secondary School, 1 Private Secondary School, 1 Govt. Senior Secondary School,1 Private Senior Secondary School
Medical and health care	Villages	2 Primary Health Centre, 10 Primary Health Sub-Centre, 2 Mobile Health Clinic, 1 Non Govt. Med. facilities Out Patient
	Towns	9 Non-Government Out-Patient, 2 Non-Government in and Out Patient, and 17 Non-Government Medicine Shop, 6 Non-Government Charitable-Hospital/Nursing Home
Power Supply	Villages	39 Power Supply for Domestic Use (nos.), 39 Power Supply for Agriculture use (nos.) and 39 Power Supply For All Users (nos.)
	Towns	6291 Electricity-Domestic Connection (nos.), 259 Electricity-Industrial Connection (nos.), 1921 Electricity-Commercial Connection (nos.), 1181 Electricity-Road Lighting Connection (nos.) and 8 Electricity-Others Connection(nos.)
Water supply and Sanitation	Villages	31 Tap Water Untreated, 3 Covered Well, 22 Uncovered Well, 30 Hand Pump, 11 Tube Wells/Borehole, 12 River/Canal and 5 Tank/Pond/Lake.
	Towns	3527 Latrines-Flush/Pour Flush (Nos.), 1811.847 Capacity Source-1 (KL) and 3 Latrines-Others.
Banks and Commercial Societies	Villages	1 Commercial bank, 1 Co-operative bank, 28 Agricultural Credit Societies, 37 Self-Help Group (SHG), 27 Public Distribution System (PDS), 1 Regular market, 1 Weekly Haat, 1 Agricultural Marketing Society, 39 Nutritional Centre-Anganwadi Centre, 39 Nutritional Centre-Others, 31 ASHA and 3 Community Centre with/without

		TV)
	Towns	3 Nationalised Bank (Nos.), 1 PrivateCommercial bank, 1 Co-operative Bank (Nos.), and 8 Non-Agricultural Credit Society (Nos.)
Transport and Approaches	Villages	39 Public Bus Service, 5 Private Bus Service, 2 Railway station, 11 Auto/Modified Autos, 7 Vans, 22 Tractors, 13 Cycle-pulled Rickshaws (machine driven) and 27 Carts Driven by Animals Approach to villages -10 Nos. of Villages connected to National Highways, 4 Nos. to State highways, 10 Major District Road, 30 Other District Road, 37 Black Topped (pucca) Road, 34 Gravel (kuchha) Roads, 10 Water Bounded Macadam, 32 All Weather Road and 39 Foot Path
	Towns	25.9 Pucca Road Length (in kms.) and 11.4 Kutcha Road Length (in kms.)
Sports and Entertainment	Villages	1 Public Reading Room, 39 Daily Newspaper Supply, 39 Assembly Polling Station and 39 Birth and Death Registration Office
	Towns	1 Private-Cinema Theatre and 1 Private-Auditorium/Community Hall
Communication System	Villages	13 Sub Post Office, 39 Village PIN code, 31 Telephone (landline), 18 Public Call Office/ Mobile PCO, 39 Mobile phone coverage and 39 Internet Cafes/Common Service Centre
	Towns	Most of the people in the town have internet in their mobile phones.

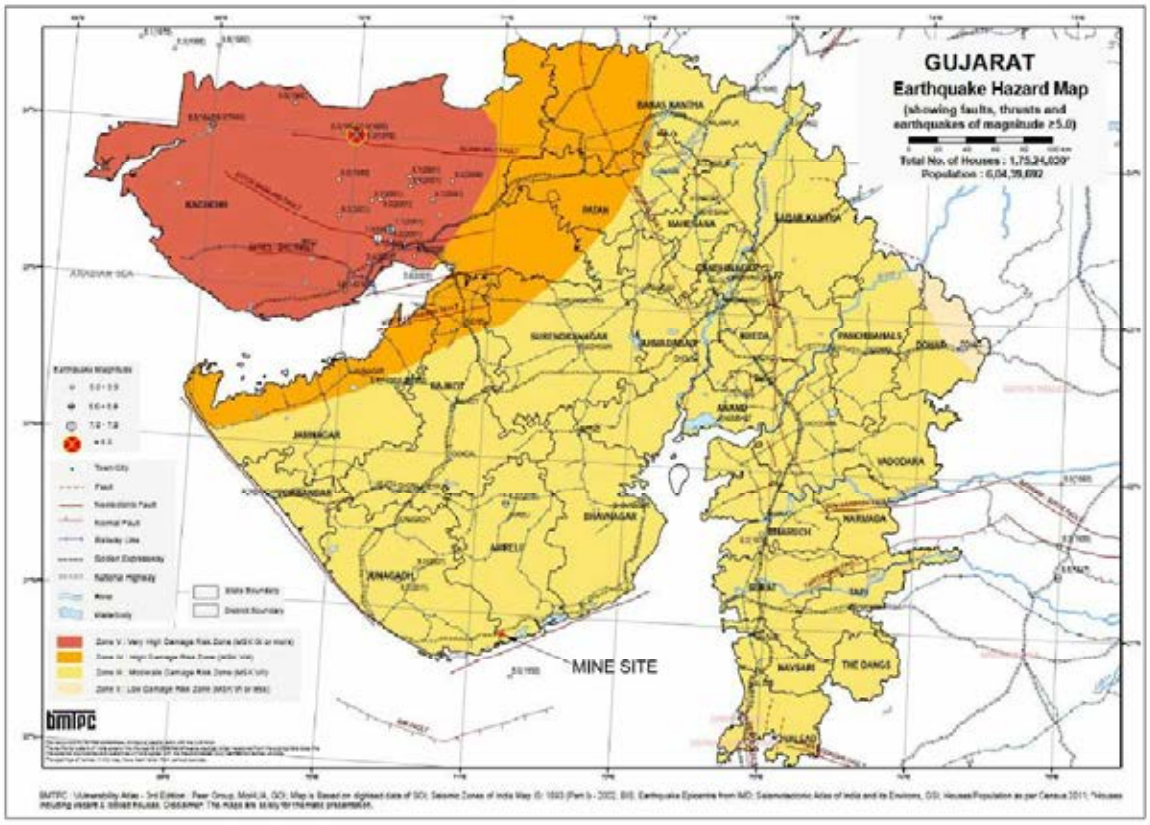
3.12.1 Health Issues

Diabetes, hypertension, fever and dysentery/ diarhoea are the common diseases prevalent in the project-impacted villages. There are many government and private hospitals available in the area. Medical facilities are available in villages of the study area, where the people can have medical check-ups. Almost all facilities are available in hospitals and private clinics.

3.13 SEISMICITY

The proposed project site of Padhiarka & Doliya Limestone Mine falls in Zone III of the seismic zoning map of India prepared under the auspices of Bureau of Indian Standards (BIS Code: IS 1893 : Part-I : 2002). Thus, the seismic zone factor is 0.24 as per the BIS. The Earthquake Hazard Map of Gujarat is shown here in **Fig No. C3-19.**

FIG NO. C3-19: EARTHQUAKE HAZARD MAP



3.14 INDUSTRIES OR POLLUTED AREAS AROUND THE PROJECT AREA

There exist no major industries, except some salt pans i.e. salt manufacturing industries, cotton gin mills and few wind mills, in the study area. The proposed industries/mines are as follows:

1. 1.91 MTPA cement plant of M/s Nirma Ltd. (proposed)
2. 2.6 MTPA Gujarda, Dudheri and Dudhala limestone mine of M/s Nirma Ltd. (proposed)
3. 1.6 MTPA Vangar-Madhiya limestone mine of M/s Nirma Ltd. (proposed)

There are no critically or severely polluted areas within 10 km radius of the project. The nearest critically polluted area is Gujarat Industrial Development Corporation, Chitra, Bhavnagar present at a distance of 89 km, NE.

3.15 PLACES OF TOURIST/ RELIGIOUS/ HISTORICAL INTEREST/ NATIONAL PARK/ SANCTUARY

There is no such place within core zone or in the study area of tourist, or historical importance or National Park/Sanctuary. Few small temples are present in buffer zone and local people visits there for worship

3.16 CRZ, COASTAL FEATURES, MANGROVES, ETC.

The high tide line, low tide line and the CRZ line have been demarcated by Institute of Remote Sensing, Anna University, Chennai. Copy of the CRZ map along with the report is enclosed as **Annexure XIX.** The ecologically sensitive areas such as sand dunes and Turtle breeding sites are not in the vicinity of the mine. However, Mangrove areas have been identified and 50 m buffer also have been drawn which are away from the proposed mining area as shown in **Annexure XIX**.

CHAPTER 4
ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION MEASURES

4.1 GENERAL ASPECTS

The environmental baseline scenario as detailed in Chapter 3 and the proposed mining and its associated activities as described in Chapter 2, are used to assess the likely impact and its extent on various environmental parameters in this chapter. The parameters, which are relevant within the context and are likely to be affected, are as listed below:

- Topography and drainage
- Climatic conditions
- Air quality
- Water resources
- Water quality
- Land use
- Solid Waste
- Noise levels and ground vibration
- Traffic
- Ecology
- Socio-economic
- Occupational Health and Safety

The Environmental Management Plan has been developed with a view to minimize adverse impacts. In each of the areas of impact, measures have to be taken to mitigate adverse impacts and where these are beneficial in nature such impacts are to be enhanced/ augmented so that the overall adverse impacts are reduced to as low a level as possible.

4.2 TOPOGRAPHY AND DRAINAGE

4.2.1 Impact and management on topography

Core zone: The mining lease area is characterized by flat topography with minor undulations. As per Approved Review of Mining Plan for reduced area, the maximum elevation in the ML area is 15.31 m above mean sea level (AMSL) and minimum is 1.0 m AMSL. Outcrops and two old pits with shallow depth can be seen at various locations. At the end of life of mine, out of total 332.34 ha. ML area, 100.61 Ha. of land shall be excavated, 227.93 Ha shall remain undisturbed. 1.95 ha of water pond shall also not be disturbed while rest of area shall be used for infrastructure, road. The maximum depth of working as per presently approved review of mine plan will be +1.0m AMSL.

This impact will be of permanent in nature and will not be reversed, as there is insufficient material for backfilling to restore the land upto its original level. However shallow depth mined out area shall be backfilled and utilized for agricultural/plantation use as the case maybe and rest of mined out area shall be converted into water reservoir. Another activity affecting the topography will

be construction of various buildings and infrastructures, which will be removed on abandoning the mine except some, which are useful for the surrounding villages.

At the end of life of mine, 26.52 ha. of land shall be backfilled and converted into agricultural land/utilize and/or for plantation work. Pits and voids will be generated after completion of mining process at the conceptual stage. The shallower pits where the limestone will get exhausted can be reclaimed. Mostly voids will be left, which will be utilised for storing the rain water which will help in recharging the ground water table. The sweet water so collected can be used by villagers for agriculture and cattle rearing.

Buffer zone: The deposit forms part of the coastal belt of Saurashtra in Gujarat State and exhibits slightly undulated topography. The general elevation of the study area ranges from 0-58 m AMSL. The area of the deposit presents as area of low relief covered by agricultural fields. The mining activity will not affect the topography outside of the project area, all the activities will be carried out within the project area.

4.2.2 Impact on drainage and its management

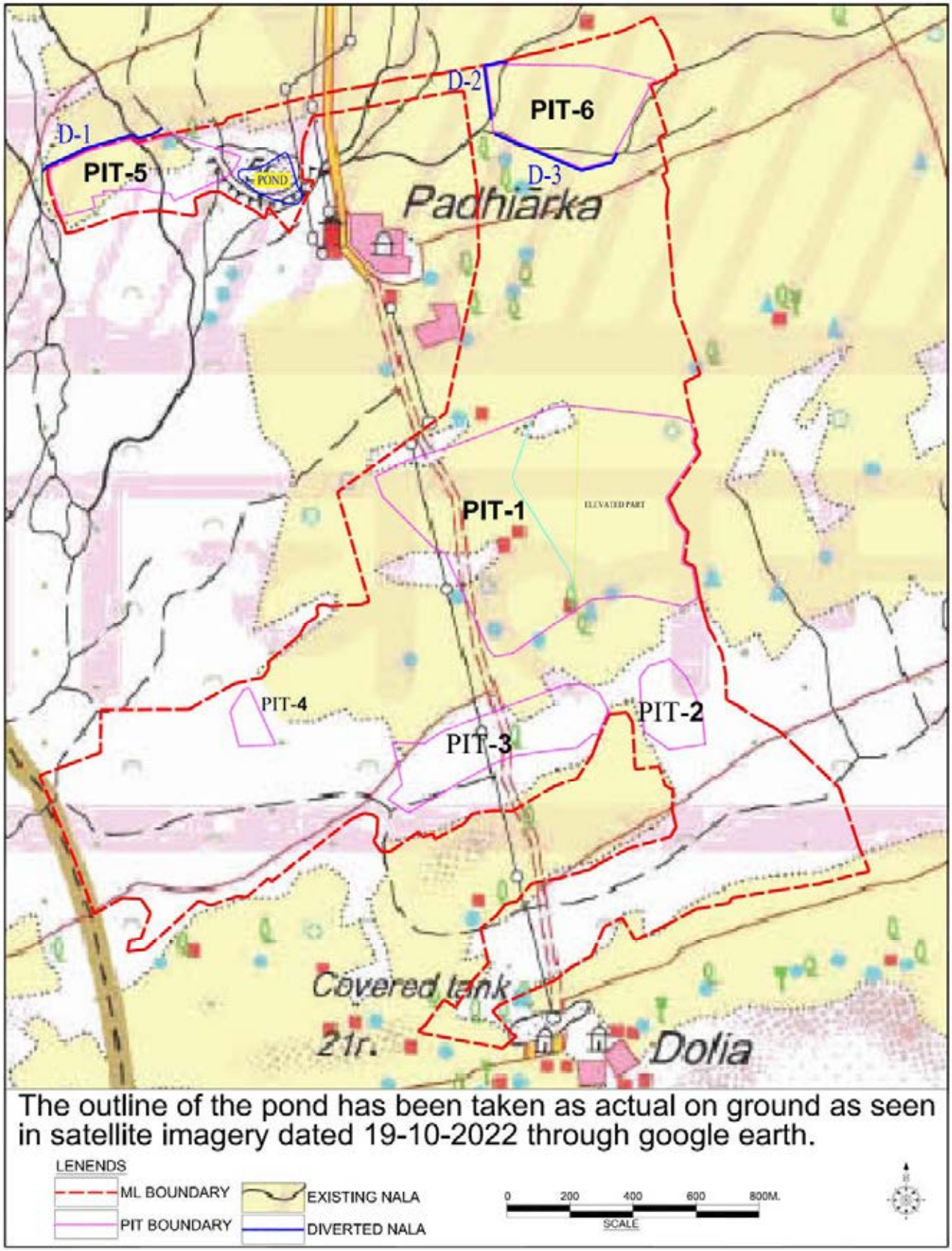
Core zone: The drainage has been discussed in section 3.2.2 of Chapter 3 earlier. There are few second order streams, passing close to each other, through the lease area near Padhiarka village while one second order stream is passing near Doliya village. All streams ultimately lead to Samadhiyala salinity ingress control bund, which overflows into the sea. The drainage pattern is dendritic in nature.

There will be disturbances to the seasonal streams within mine lease as follows:

- Due to excavation in proposed pit no. 5 in north west corner of lease, 476 m length of second order drain will get disturbed. However, to ensure uninterrupted evacuation of water from upstream of the pit location to downstream of the pit location, in view of the natural slope and topography, a diversion water channel (D1 as seen in **Fig No. C4-1**) to nearby nala. Its shall be of 418 m length. It will ensure that the volume of water flowing from upstream to downstream shall remain unaffected. This measure is also necessary to protect mine pit from inundation.

- Due to excavation in proposed pit no. 6 in north east corner of lease area, 439 m length of second order drain will get disturbed. However, to ensure uninterrupted evacuation of water from upstream of the pit location to downstream of the pit location, two garland drain/diverted water channels of 247 m (D2) and 434 m (D3) length shall be built along the pit boundary.

FIG NO. C4-1: PROPOSED DIVERSION CHANNELS



- Due to excavation in pit no. 3 in south west corner of the lease area, a part of first order stream will get excavated. The immediate catchment of the same stream will also get excavated as part of pit. Hence, no additional measures are proposed except garland drains around pit boundary.

On all other pits, garland drains will be provided as mitigation measures. The garland drains/ diverted water channel will be designed to accommodate the anticipated rain water. The garland drains on the downstream sides can be further optimised according to the topography of the lease. Hence, detailed designing can result in minor alteration of layout of garland drains. The seasonal water tank near Padhiarka village, within mine lease area will not be disturbed due to mining activities.

Water from the garland drain/diverted water channels will flow to the salinity control bund i.e. Samadhiyala bund, to ensure better runoff harvesting and collection. Company will deepen the salinity control bund area to improve the water storage capacity after consultation with Irrigation Department. Three canals will be constructed to enhance smooth flow of incoming water towards Samdhiayala salinity ingress control bund As per suggestion/ consultation with Irrigation Department, the Company will deepen the suggested landside upstream of salinity ingress control bund to improve the water storage. Additionally, the water from the garland drains will flow to the salinity control bund, ensuring better runoff harvesting and collection. Since limestone is non-toxic in nature and the settlement of any suspended solids will occur due to control measures, thus the runoff will be prevented from contamination.

Buffer zone: No impact is envisaged on the drainage pattern of the buffer zone as the entire activity of mining and related services shall be undertaken within the mine lease area.

The catchment area of Samadhiyala water shed is 4795 ha and the excavated area at the end of life of Padhiyarka and Doliya Mine shall be 100.61 Ha. However, monsoon runoff volume may marginally reduce due to excavated pit areas.

4.3 CLIMATE

4.3.1 Impact on climate

The climatic conditions including temperature variations, wind direction and speed, rainfall and humidity are governed by regional factors and the monsoons. As such, mining and other allied activities will not tend to influence the climate.

During the construction and development phase, the activities will be restricted to construction of roads, buildings, layouts of stock piles and dumps, fuel

storages, etc. Thus, no effect on climate and meteorology of area is expected due to the construction activities. However, carbon dioxide (green house gas) contributing fossil fuel in the form of diesel will be used to operate DG sets, trucks, dumpers and other heavy earth moving machinery, which will be a necessity. Hence, although no effect on meteorology of area is anticipated due to operation activities, there will be contribution in global warming due to carbon dioxide emissions. Hence, mitigation measures to minimize carbon dioxide will have to be taken.

4.3.2 Mitigation measures

The operations are to be carried out in a limited area on the surface. As a result no large scale climatological impacts are anticipated. Development of greenbelt, afforestation and rehabilitation work in the project area will contribute in a positive manner towards mitigation of greenhouse gases. Global warming is a global concern and hence, the company will be undertaking all possible measures to minimize the CO_2 emissions. These include regular maintenance of all fossil fuel based machinery and equipment and ensuring their emissions remain within limits at all times.

4.4 AMBIENT AIR QUALITY

Any surface mining, including opencast mining has always been a dusty business. Sources of particulate matter in open cast mine is due to excavation, transportation, handling, loading and hauling operation. Dust generation due to mining operation occurs within the mine pit, from over haul roads as well as dumping areas. At the same time, gaseous pollutants like hydrocarbons, NO_2, CO, CO_2, SO_2, etc. are also generated from the vehicle exhaust and, due to blasting.

Operations that will cause increase in pollution load in air within the area are:

- Operation of diesel based equipment and vehicles.
- Removal of vegetation and soil from excavation, infrastructure and dumping areas.
- Handling of mineral and waste material.
- Transportation of mineral & waste material.
- Dumping activities.
- Drilling and blasting.
- Sulphur dioxide, oxides of nitrogen, etc. will be generated due to exhaust from fossil fuel based machines and vehicles as well as due to blasting.

The specific issues pertaining to various mining activities are as follows:

1) **Material handling** by heavy equipment will release large amounts of dust if no action is taken for suppressing it at source, while the immediate effects will be poor visibility but intake of dust through inhalation and oral route can have health impacts at the secondary stage.

2) **Blasting operation** will result in the generation of dust and fumes. There will be generation of fly rocks, which can be controlled by management measures. Blasting operations will generate noise and cause ground vibrations. However, the noise duration will last for few moments, hence, will not pose problem in case blasting is conducted during day time when back ground noise levels are higher than night. The ground vibrations are anticipated to cause negative impact if the charge per delay is not rationalised.

3) **Transport vehicles** will generate dust and gaseous emission while plying on haul roads. The loading and dumper transport operations are anticipated to add to air pollution in core zone if appropriate control measures like spraying of water are not adopted.

4.4.1 Impact on air environment

(a) From Padhiarka & Doliya Limestone Mine

For estimating the increase in the air pollutants level, air quality prediction modelling has been carried out in two part as follows:

(i) Due to mining and associated activity and transportation on haul roads, for which ISCST3 model has been used.
(ii) Due to road transportation of limestone by road to cement plant, for which CALINE 4 model has been used.

The above are discussed in subsequent paragraphs:

(i) ISCST 3 Model

ISCST3 is a steady-state Gaussian plume model which can be used to assess pollutant concentrations from a wide variety of sources associated with an industrial complex. This model can account for the following: settling and dry deposition of particles; downwash; point, area, line, and volume sources; plume rise as a function of downwind distance; separation of point sources; and limited terrain adjustment. ISCST3 operates in short-term mode.

Model Input Data:

Fugitive emission from mining operation & material handling: For the modeling purpose, the total fugitive particulates (suspended particulate matter i.e. SPM) has been estimated based on the following assumptions:

i. Annually 300 working days with two shift (8 hourly) has been considered as per approved Mining Plan.

ii. Mine working stage has been identified during which maximum production level, material handling, dumping is anticipated i.e. Development year 2025-26.

iii. Thereafter, TSPM have been calculated for each sources (area, line, etc.) based on the emission factor recommended for each type of location/source in EPA document AP-42, chapter-11, Sub- Section 11.9, Table-11.9-4.

iv. Further, effectiveness of control measures has also been taken into consideration for each location/ sources as per section 5.3 of National Pollutant Inventory Emission Estimation Technique Manual for Fugitive Emissions, Australia, 2012. which says 50-99% emissions can be controlled at source itself after applying suggested control measures.

v. **Normative scenario:** Production considered 1.5 MTPA in a year. Overburden/ soil considered 117065 cum/ annum and 12 hours operation

vi. **Peak scenario :** 20% daily over production (peak) have been considered to cover production losses which may incurred due to unwanted circumstances like lock down, natural hazardous, temporary shutdown due to legal issue etc. The mine operation time has also been considered 20% extra from 12 hours of actual operational hours. This situation will be the worst case situation during which impact will be more. In normal production scenario, impact will always be lower than that of peak.

vii. **Cumulative scenario :** cumulative impact assessment for peak scenario has been carried out considering activities in all the three proposed mining leases including the transport scenario of the mines in the study area for the following capacities of each mine considered for prediction of air quality modeling:

- Padhiarka & Doliya Limestone Mine : 1.5 MTPA
- Gujarda, Dudheri & Dudhala Limestone Mine : 2.7 MTPA
- Vangar & Madhiya Limestone Mine : 1.6 MTPA

Thus, considering the above assumptions, total fugitive particulates (SPM) has been estimated and proportions of that has been considered as PM10 and PM2.5. SO_2 and NO_2 from blasting and machinery operation have also been modelled.

The assumptions, input data and other details are given in **Annexure XX** along with GLC isopleth maps and the top 10 results are summarized in **Table No. C4-1** for PM_{10}, $PM_{2.5}$, SO_2 and NO_2.

TABLE NO. C4-1: PREDICTED INCREMENTAL GROUND LEVEL CONCENTRATION BY ISCST3 MODEL (µg/m³) WITH AND WITHOUT CONTROL MEASURES

Rank	With Control Measures		Without Control Measures		X (UTM)	Y (UTM)	Distance from ML
	Peak	Normative	Peak	Normative			
	PM_{10}						
1	7.29332	7.29332	29.02242	29.02242	778649.00	2328044	100
2	6.21713	6.21713	24.78469	24.78469	778390.90	2328386	AQ2,160
3	5.6545	5.6545	22.53108	22.53108	778588.70	2328387	100
4	4.38029	4.38029	17.49582	17.49582	778661.10	2329267	400
5	4.3601	4.3601	17.39331	17.39331	778696.10	2329172	300
6	4.12863	4.12863	16.45798	16.45798	778347.70	2328900	100
7	4.10492	4.10492	16.31456	16.31456	778500.30	2329444	AQ4,608
8	3.79255	3.79255	15.05894	15.05894	778409.30	2329921	200
9	3.59198	3.59198	14.2809	14.2809	778340.80	2329751	300
10	3.3492	3.3492	12.89058	12.89058	778908.90	2329125	200
	$PM_{2.5}$						
1	4.19366	4.19366	16.6879	16.6879	778649.00	2328044	100
2	3.57485	3.57485	14.2512	14.2512	778390.90	2328386	AQ2,160
3	3.25134	3.25134	12.95537	12.95537	778588.70	2328387	100
4	2.51867	2.51867	10.0601	10.0601	778661.10	2329267	400
5	2.50706	2.50706	10.00116	10.00116	778696.10	2329172	300
6	2.37396	2.37396	9.46334	9.46334	778347.70	2328900	100
7	2.36033	2.36033	9.38087	9.38087	778500.30	2329444	AQ4,608
8	2.18072	2.18072	8.65889	8.65889	778409.30	2329921	200
9	2.06539	2.06539	8.21152	8.21152	778340.80	2329751	300
10	1.92579	1.92579	7.41208	7.41208	778908.90	2329125	200
	SO_2						
1	0.01925	0.01925	0.01925	0.01925	778908.90	2329125	200
2	0.01677	0.01677	0.01677	0.01677	778646.30	2327549	AQ1, core zone
3	0.01618	0.01618	0.01618	0.01618	778908.90	2329125	200
4	0.01448	0.01448	0.01448	0.01448	779250.60	2329754	300
5	0.01398	0.01398	0.01398	0.01398	778646.30	2327549	AQ1, core zone
6	0.01278	0.01278	0.01278	0.01278	778882.90	2331207	100
7	0.01254	0.01254	0.01254	0.01254	778889.20	2331407	300
8	0.01221	0.01221	0.01221	0.01221	779250.60	2329754	300
9	0.01118	0.01118	0.01118	0.01118	778646.30	2327549	AQ1, core zone
10	0.01111	0.01111	0.01111	0.01111	778837.30	2331950	800

Rank	With Control Measures		Without Control Measures		X (UTM)	Y (UTM)	Distance from ML
	Peak	Normative	Peak	Normative			
	NO_2						
1	0.69602	0.69602	0.69602	0.69602	778908.90	2329125	200
2	0.5838	0.5838	0.5838	0.5838	778908.90	2329125	200
3	0.54105	0.54105	0.54105	0.54105	779250.60	2329754	300
4	0.46442	0.46442	0.46442	0.46442	778882.90	2331207	100
5	0.45726	0.45726	0.45726	0.45726	778889.20	2331407	300
6	0.45455	0.45455	0.45455	0.45455	779250.60	2329754	300
7	0.39928	0.39928	0.39928	0.39928	778837.30	2331950	800
8	0.38922	0.38922	0.38922	0.38922	778882.90	2331207	100
9	0.38328	0.38328	0.38328	0.38328	778889.20	2331407	300
10	0.33645	0.33645	0.33645	0.33645	778837.30	2331950	800

A perusal of above table shows that the maximum incremental values with control measures will be 7.29 µg/m^3 for PM_{10}, 4.19 µg/m^3 $PM_{2.5}$, 0.019 µg/m^3 SO_2 and 0.69 µg/m^3 NO_2, respectively are anticipated at a distance of 100 m from the mining lease boundary. The GLC values for PM_{10} & $PM_{2.5}$ for the peak and normative capacity are same since with increase in 20% production of limestone in the mine; the 20% of working hours of mine has also been increased from 12 hrs to 14.4 hrs. Per hour emissions per unit area remain the same for both peak and normative scenario.

A perusal of above table shows that the maximum incremental values with control measures shall be 7.29 µg/m^3 for PM_{10}, 4.19 µg/m^3 $PM_{2.5}$, 0.019 µg/m^3 SO_2 and 0.69 µg/m^3 NO_2, respectively at a distance of 100 m from the mining lease boundary.

Control measures proposed are as follows:

Sl.	Activity/ control measures	Effectiveness of controlling
1	Water sprinkling & green belt along road	75%
2	Rock breaker/ ripper dozer instead of drilling blasting	50%
3	Sprinkling on top soil dump, mineral stock yard and while loading/ unloading	70%

(ii) CALINE 4 Modeling for impact due to road transportation

Total material to be evacuated by road through 25 T dumpers is estimated to be 1.5 MTPA. Considering 20% extra production (peak) as discussed in assumptions part earlier, There will be daily movement of 480 numbers of

dumpers (to & fro) per day from Padhiarka & Doliya Mine to cement plant at Padiarka & Soda Ash Plant at Bhavnagar. Air quality prediction modeling for road has been done using CALINE 4 model. The emission (incremental GLC) from the dumpers has been calculated and detailed in **Annexure XX**. Summary of maximum GLC due to transportation, with and without control measures, are tabulated in **Table No. C4-2** and GLCs at various air quality locations are given in **Table No. C4-3**.

TABLE NO. C4-2: CALCULATED MAXIMUM GROUND LEVEL CONCENTRATION (µg/m^3) FROM ROAD (MINE EXIT TO CEMENT PLANT)

Parameters	Maximum GLC		Receptor No.	Section	Distance from road
Without control measures					
	Peak	**Normative**			
PM_{10}	3.37	3.37	98	S7	50
$PM_{2.5}$	0.82	0.82	98	S7	50
SO_2	0.10	0.10	98	S7	50
NO_2	0.67	0.67	98	S7	50
With control measures					
	Peak	**Normative**			
PM_{10}	1.02	1.02	98	S7	50
$PM_{2.5}$	0.25	0.25	98	S7	50
SO_2	0.10	0.10	98	S7	50
NO_2	0.67	0.67	98	S7	50

Note: Same GLC shall be applicable for normative production since same hourly truck movement has been considered for normative production but for lesser hours. CALINE4 model gives the same GLC output for same hourly vehicle movement.

The control measures considered are sprinkling, green belt and maintenance of roads, which is likely to reduce the dust generation due to wheels by 30 %.

The existing air quality values along with the anticipated incremental GLC values due to mining operation and transportation, at the air quality monitoring stations is given in **Table No. C4-3**.

(b) Cumulative impact from all the three mines

There are two more mines adjacent to the proposed lease. These will have a cumulative impact. Accordingly, cumulative impact has been predicted through air quality modeling. The assumptions, input data and other details are given in **Annexure XXI** along with GLC isopleth maps for cumulative impact. The existing air quality values along with the anticipated cumulative incremental GLC values at the air quality monitoring stations is given in **Table No. C4-4**.

TABLE NO. C4-3: ANTICIPATED PEAK INCREMENTAL GLC VALUES DUE TO PADHIARKA & DOLIYA LIMESTONE MINE AT THE AIR QUALITY MONITORING STATIONS (µg/m³)

Station code	Sampling Station	PM_{10}				$PM_{2.5}$				SO_2				NO_2			
		Maximum observed value	Incremental		Total	Maximum observed value	Incremental		Total	Maximum observed value	Incremental		Total	Maximum observed value	Incremental		Total
			From mining activity	From Road transport ation			From mining activity	From Road transport ation			From mining activity	From Road transport ation			From mining activity	From Road transport ation	
1.	Near Cement Plant, Padhiyarka (core zone)	64.8	2.650	0.060	67.510	32.6	1.524	0.010	34.134	5.7	0.000	0.000	5.700	7.8	0.000	0.000	7.800
2.	Padhiarka	61	6.217	0.030	67.247	34.5	3.575	0.010	38.085	6.8	0.000	0.000	6.800	10.9	0.000	0.000	10.900
3.	Vangar	68.8	0.529	-	69.329	37.4	0.304	-	37.704	7.7	0.002	-	7.702	10.5	0.046	-	10.546
4.	Madhiya	71.1	4.105	-	75.205	40	2.360	-	42.360	10.2	0.000	-	10.200	14.5	0.000	-	14.500
5.	Dudhala No.1	66.3	0.909	-	67.209	35.5	0.523	-	36.023	6.8	0.003	-	6.803	9.7	0.093	-	9.793
6.	Gujarda	68	0.566	-	68.566	36.6	0.326	-	36.926	6.8	0.002	-	6.802	7.8	0.048	-	7.848
7.	Patva	59.8	0.696	-	60.496	32.1	0.400	-	32.500	6.8	0.002	-	6.802	8.1	0.054	-	8.154
8.	Samadhiyala No. 1	63.4	0.407	-	63.807	36	0.234	-	36.234	6.8	0.001	-	6.801	8.9	0.037	-	8.937
9.	Doliya	59.4	0.199	-	59.599	32.5	0.114	-	32.614	7.7	0.000	-	7.700	10.9	0.002	-	10.902
10.	Rabhda	57.5	0.389	-	57.889	30	0.223	-	30.223	7.2	0.001	-	7.201	8.5	0.036	-	8.536
11.	Nana Pipalva	59.2	0.393	-	59.593	29.1	0.226	-	29.326	7.2	0.001	-	7.201	8.5	0.041	-	8.541
12.	Amrutvel	61.9	2.327	-	64.227	33.7	1.338	-	35.038	8.2	0.000	-	8.200	9.7	0.000	-	9.700
13.	Mota Jadra	59.8	0.558	-	60.358	32.1	0.321	-	32.421	7.5	0.002	-	7.502	9.3	0.055	-	9.355
14.	Devalia	64.7	0.451	-	65.151	34.3	0.259	-	34.559	7.2	0.001	-	7.201	8.1	0.042	-	8.142
15.	Khared	62.5	0.354	-	62.854	31.2	0.204	-	31.404	7.2	0.001	-	7.201	8.1	0.033	-	8.133
16.	Gadhada	48.6	0.510	-	49.110	25.9	0.293	-	26.193	6.8	0.001	-	6.801	7.4	0.042	-	7.442
	Maximum	**71.1**	**6.21713**		**75.20492**	**40**	**3.57485**		**42.360**	**10.2**	**0.0031**		**10.2**	**14.5**	**0.0934**		**14.5**
	NAAQS 2009				**100**				**60**				**80**				**80**

Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

TABLE NO. C4-4: ANTICIPATED CUMULATIVE PEAK INCREMENTAL GLC VALUES DUE TO ALL THE THREE MINE AT THE AIR QUALITY MONITORING STATIONS (µg/m³)

Station code	Sampling Station	PM_{10}				$PM_{2.5}$				SO_2				NO_2			
		Maximum observed value	Incremental		Total	Maximum observed value	Incremental		Total	Maximum observed value	Incremental		Total	Maximum observed value	Incremental		Total
			From mining activity	From Road transportation			From mining activity	From Road transportation			From mining activity	From Road transportation			From mining activity	From Road transportation	
1.	Near Cement Plant, Padhiyarka (core zone)	64.8	2.748	0.060	67.608	32.6	1.580	0.010	34.190	5.7	0.032	0.000	5.732	7.8	0.218	0.000	8.018
2.	Padhiarka	61	6.435	0.030	67.465	34.5	3.700	0.010	38.210	6.8	0.012	0.000	6.812	10.9	0.146	0.000	11.046
3.	Vangar	68.8	1.086	-	69.886	37.4	0.624	-	38.024	7.7	0.004	-	7.704	10.5	0.098	-	10.598
4.	Madhiya	71.1	4.560	0.000	75.660	40	2.622	0.000	42.622	10.2	0.010	0.000	10.210	14.5	0.107	0.000	14.607
5.	Dudhala No.1	66.3	1.774	0.000	68.074	35.5	1.020	0.000	36.520	6.8	0.007	0.000	6.807	9.7	0.189	0.000	9.889
6.	Gujarda	68	1.096	-	69.096	36.6	0.630	-	37.230	6.8	0.007	-	6.807	7.8	0.152	-	7.952
7.	Patva	59.8	0.721	-	60.521	32.1	0.414	-	32.514	6.8	0.003	-	6.803	8.1	0.065	-	8.165
8.	Samadhiyala No. 1	63.4	0.585	-	63.985	36	0.336	-	36.336	6.8	0.003	-	6.803	8.9	0.060	-	8.960
9.	Doliya	59.4	0.199	-	59.599	32.5	0.114	-	32.614	7.7	0.000	-	7.700	10.9	0.002	-	10.902
10.	Rabhda	57.5	0.537	-	58.037	30	0.309	-	30.309	7.2	0.002	-	7.202	8.5	0.053	-	8.553
11.	Nana Pipalva	59.2	1.328	-	60.528	29.1	0.763	-	29.863	7.2	0.005	-	7.205	8.5	0.116	-	8.616
12.	Amrutvel	61.9	4.930	-	66.830	33.7	2.835	-	36.535	8.2	0.007	-	8.207	9.7	0.143	-	9.843
13.	Mota Jadra	59.8	1.731	-	61.531	32.1	0.996	-	33.096	7.5	0.023	-	7.523	9.3	0.239	-	9.539
14.	Devalia	64.7	1.218	-	65.918	34.3	0.700	-	35.000	7.2	0.006	-	7.206	8.1	0.129	-	8.229
15.	Khared	62.5	0.944	-	63.444	31.2	0.543	-	31.743	7.2	0.005	-	7.205	8.1	0.101	-	8.201
16.	Gadhada	48.6	0.892	-	49.492	25.9	0.513	-	26.413	6.8	0.004	-	6.804	7.4	0.097	-	7.497
	Maximum	**71.1**	**6.435**		**75.66**	**40**	**3.7**		**42.622**	**10.2**	**0.032**		**10.21**	**14.5**	**0.239**		**14.607**
	NAAQS 2009				**100**				**60**				**80**				**80**

Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

It can be seen from **Table No. C4-3 & Table No. C4-4** that after addition of the incremental GLC's to the existing air quality, the concentration of pollutants would increase, but still they would remain within the prescribed standards at all the sampling stations as per applicable standards.

4.4.2 Air pollution control measures

Dust particles which are normally generated due to mining operation and transportation deteriorate the ambient air quality. Control measures are, therefore, proposed to be taken during mining operation, loading and transportation. The processes in the project, the potential sources of emission along with control measures have been given in **Table No. C4-5.**

TABLE NO. C4-5: FLOW-CHART INDICATING THE SPECIFIC AREAS GENERATING FUGITIVE EMISSIONS AND CONTROL MEASURES THROUGHOUT THE MINE

Sl. No.	Activities & flow	Impact	Mitigation & Management Measures
1	Drilling & Blasting	• Dust generation during drilling • Fly rock and fugitive dust during blasting	• Dust generation mitigated by wet drilling. • Fly rock and dust emission will be reduced by adopting control blasting techniques such as precise and accurate timing delay, optimum oxygen balance in explosives, etc. • Dust generation will be mitigated by water spraying before and after blasting.
2	• Excavation of mineral ↓ • Internal movement of HEMM and vehicles within project boundary ↓ Temporary stacking of limestone ↓ Transport of limestone	PM_{10}, $PM_{2.5}$, SO_2, NO_2 Emission due to • operation of surface Miner, • loading of dumpers (fugitive dust) • movement of dumpers on haul roads (dust & gases) • operation of other fossil fuel based equipment/ machinery	• Maintenance of HEMM, transport vehicles like dumpers/ tippers and all other vehicles • Dust suppression system like water sprinkling to minimize fugitive dust at o haul roads, o loading and unloading points o Transportation roads to minimize fugitive dust. • Automatic water sprinkler system will be installed at road and where SPM are likely to be high constantly to suppress fugitive dust. • Water sprinkling on other portions

Sl. No.	Activities & flow	Impact	Mitigation & Management Measures
			of the haul road within mine (where automatic spinklers not installed), two to four times a day according to season. • Overloading of dumpers will not be permitted • Plantation in peripheral greenbelt (7.5m), along the sides of haul roads and other vacant areas. • Reclamation of dump & backfill with plantation, agroforestry and agriculture • Dust mask will be provided to the workers, engaged at dust generating sources such as excavation, loading etc.
3	Transportation of limestone	Fugitive dust emission due to movement on roads and Pm, So_2 and No_2 from exhaust of dumpers	• Production and delivery planning would be such that the minimum stock will present in the stock yards. • Dust suppression system at truck/tippers loading point. • Overloading not permitted • Spillage not permitted • The trucks shall be covered with tarpaulin. • PUC check for all vehicles mandatory • Use of pucca roads outside mining lease • Maintenance of road by state government.

The mine management will adopt number of measures to control dust generation and minimise gaseous emission. These measures are as follows:

1. The emission of dust will be restricted by the use of dust suppressing systems such as fixed or mobile water spraying system at fugitive sources (working faces & loading point), haul roads, stock yards and wherever required.

2. Mobile sprinkling system will be used on haul roads to achieve 95% dust suppression with a frequency of 1 time/shift in winters and 2 times/ shift in summers.

3. Automatic water sprinkler system i.e. fixed sprinklers (Whirling) will be installed along main haulage road and where SPM are likely to be high constantly to suppress the dust. The efficiency of the static sprinklers shall be more than 95% in suppressing dust. They shall be operating every 4 hours interval in summers and 8 hour interval in winter. They will be centrally controlled through automatic, pre-set timers.

4. Transport vehicles will be maintained periodically as per the manufacturers' norms and maintained spill proof. They will be covered during transportation of mineral. No overloading shall be permitted. All heavy and light vehicles shall be well maintained and will have their "Pollution Under Control" (PUC) certificates.

5. Tree plantation will be carried out along the mine periphery (7.5 m), quarry area, along the sides of haul roads and other vacant area.

6. Reclamation of dump and later backfill with soil and then plantation, agroforestry and agriculture.

7. Dust masks will be provided as safety measure to the workers, engaged at dust generation points like excavation site, loading/unloading points etc.

8. Water spraying during any construction activities in infrastructure area, on excavated areas or during any dismantling or rehabilitation of structures.

9. The generation of gaseous emissions, such as NO_2, SO_2 & CO is a function of the engines of the equipment and machinery as well as fuel used (which have fixed sulphur content) will be kept within norms with periodic maintenance.Regular maintenance schedule will be adopted as per manufacturer's specification

10. The mine ambient air quality will be regularly monitored and tested to detect the presence of any pollutants above prescribed limits and appropriate measures will be adopted if required.

11. Control of maximum height of fall off material during loading by shovels into dumpers.

12. Dust extractors shall be used at drill machine.

13. The impact during blasting will be reduced by following the control measures given below:

    - Pre-wetting of blast site

- Multi-row drilling and V-pattern drill holes shall be practiced for deep hole drilling and blasting. Deep hole blasting shall be carried out after getting legal permission from competent authority.
- Spacing and burden shall be 4.0m and 3.0m respectively in order to avoid fragmentation of over size material.
- Inclination of the drill holes shall be along the slope of the bench. If required, rock breaker shall be engaged to avoid secondary blasting.
- The cord relays of different delays shall be used to restrict the charge per delay.
- Non-electric down-the-hole detonators (NONEL) shall be practiced. This enables holes to blast from bottom to top and with this technique the hole is blasted separately by providing delays in each hole.
- Controlled blasting shall be practised by competent persons. Column shall be stemmed and it would not be less than the burden.

Since the proposed activities are not expected to generate sizeable gaseous emissions such as NO_X, SO_2 & CO, there is no need for any special measures.

4.5 WATER ENVIRONMENT

The generic activities that are usually carried out in a mine along with their impacts are listed in **Table No. C4-6**. The anticipated impacts due to this project are also discussed in the same table.

TABLE NO. C4-6: POTENTIAL IMPACT OF MINING ON WATER ENVIRONMENT

Sl. No.	Impacts of mining activities	Significance	Anticipated in this project	Context of proposed project
1.	Mine in immediate catchment area of Arabian Sea	Impact on water regime due to disturbance of catchment, channels and water bodies	Yes	Arabian Sea Coast is about 0.5 km from High Tide Line from proposed Mine Lease area.
2.	Rainfall & contour of mining area	The contour decides the runoff pattern of catchment area. Also indicates erosion potential. All have significant impact on water resources.	Yes	Garland drains for interception of run off are proposed. Rain water harvesting shall also be carried out.
3.	Overburden quality and characteristics of waste	High risk of water pollution, if it contains toxic metal or is acidic.	No	So far, no waste in the form of OB/ IB/ SB is available in the ML area as per known geology
4.	Surface water source	Impact on surface water due to water	Yes	Water requirement shall be fulfilled from Narmada Water

Sl. No.	Impacts of mining activities	Significance	Anticipated in this project	Context of proposed project
		drawl for mining		Pipeline and mine water etc. Pumped out water will be treated and used.
5.	Ground water sources	(a) If mines have significant impact on ground water resources (b) If natural perennial springs are located in the project area, the impact is likely to be high.	(a) No (b) No	(a) The working shall be kept above mean sea level i.e. up to +1.0 m AMSL. Proposed working shall also be well above ground water table. for first five years. (b) Natural perennial springs are not there in the mining lease area
6.	Discharge of mine drainage water	Composition of mine drainage water and volume is considered to estimate the degree of probable contamination in receiving water body.	Yes	Mine seepage is not anticipated as the mine workings will be above the water table for the first five years. However, the rain water falling in the mine pits is proposed to be stored in lower parts of pits. The water shall be used for plantation and dust suppression purposes. Excess water mostly during monsoon will be pumped towards Bandhara through natural drains after settlement of solids for recharge of surrounding open wells.
7.	Discharge of sewage from offices etc.	The sewage discharge from services has significant impact on water quality.	Yes	Sewage will be generated from mine offices, rest shelters and toilets. The sewage will treated in septic tank & soak pit and no sewage will be discharged outside ML.

Note: The above table has been adapted from Annexure 10 of EIA guidance manual for mining of minerals prepared by Administrative Staff College of India, Hyderabad.

4.5.1 Impact on water resources and quality

There is no perennial surface water body within the mine lease area and hence there will not be any impact on surface water body within mining lease. The water collected from the mine lease area through garland drains will be diverted towards the salinity ingress control bund i.e. Samdhiyala salinity ingress control bund, ensuring addition of runoff to its water collection area. The water requirement of mines for dust suppression and green belt development can also be met from the rain water accumulated in the mine pits after 5 years. Water required for mine and allied activities will be 41 KLD. 3.0 KLD Water will be used for drinking and domestic purposes from Narmada pipe

line. The Reject water of RO/DM plant (within proposed at Cement plant) will serve the water requirement for dust suppression and plantation of the mines.

At the end of conceptual period, out of 100.61 hectare of excavated area, 26.52 hectares of mined out area will be backfilled and converted into agricultural land and/ or to be utilized for plantation work as the case may be and the balance land of 74.09 hectares will remain to form a water storage ponds which will serve as recharge pits, water for plantation and as a source of water supply for public use. Water shall be received from rainfall during the year at the conceptual stage when deepest depth is achieved.

Few seasonal streams originate within the ML area and few streams originates outside the mine lease and passing through the ML Area. The drainage pattern is dendritic in nature. The storm water flows through these streams and finally drains out to sea. Some of streams may get affected due to excavation and the passage of water will be affected when the area is excavated. Therefore, garland drains have to be provided as mitigation measures. The garland drains/ diverted water channel will be designed to accommodate the anticipated rain water.

It is therefore apparent that there will be negligible impact of mining on the surface water regime. Whatever water gets collected in the mining pit either as direct rainfall falling in the pit will be collected in the sump and utilized for road spraying, green belt and for supplying to nearby villages.

There will not be any leaching of the heavy metals from limestone mine lease due to following reasons:

1) Heavy metals are soluble in low pH i.e. acidic water and limestone belts do not have such water.

2) The concentration of aluminium oxide and iron oxide is 2.92% and 2.96%, respectively which are too low to cause impact due to leaching.

3) Any limestone particles which will get carried away by rainwater will settle in the settling tank provided after the garland drains but before the release of rain water into the natural water body.

4) Furthermore, there shall neither be any dumps of waste or mineral, within mine lease. Therefore, when the rain water falls, it shall not have any dumps to leach metals from.

Intersection with mine workings

On account of mining by open cast mining method, a void is created which acts as storage tank. As the water table is not cutting in the mine, the ground water will not seep into pit. There are two sources of water accumulation in mine sump- one is monsoon rainfall and second one is mine seepage.

With respect to mine seepage, the following may be noted:

- No ground water will be encountered during planning stage i.e. in 5 years of working plan in neither pre monsoon nor post monsoon season in any of the pits.
- Ground water will also not intersect during mining at the end of mine life.
- Shallow depth pit shall be backfilled simultaneously after mining for limestone.
- Water accumulated in pit due to rainfall shall be utilized for greenbelt, dust suppression etc. If still the surplus water remains, the same will be utilized for irrigation by nearby farmers and recharge to ground water or discharge into salinity ingress bandhara, as feasible.

Site elevation and working Depths of Conceptual Pits have been taken from the approved Review of the Mining Plan. They have been compared with the ground water level given in report titled "Report on hydrogeological & hydrological studies of core and buffer zone of Padhiarka & Doliya limestone mine and impact of mining on water regime near village Padhiarika, taluka Mahuva, district Bhavnagar, Gujarat" by M/s Ground Water & Mineral Investigation Consultancy Centre (P) Ltd., Jaipur, January 2022. The comparison is given in **Table No. C4-7.**

TABLE NO. C4-7: SITE ELEVATION AND WORKING DEPTHS OF CONCEPTUAL PITS AS PER MINING PLAN AND ITS LIKELY INTERSECTION WITH GROUND WATER TABLE

Pit no.	Conceptual pit bottom level (in m AMSL)	Site Elevation (in m AMSL)		Ground water level		Pit area (in Ha.)
		Min.	Max.	Pre monsoon (In m AMSL)	Post monsoon (In m AMSL)	
1	2	7	13	-2.0	0	50.65
2	1	4	6	-2.0	0	4.28
3	1	5	6	-2.5	-0.5	19.76
4	1	4	4	-2.0	0	2.48
5	1	5	6	-1.0	1.0	11.27
6	3	8	10	-0.5	1.5	12.17

Source : Conceptual Plan of Review of MP with PMCP, approved on 05.08.2021

****Source : Table 25 of Hydrogeological & Hydrological studies of Core and Buffer zone of Padhiarka & Doliya Limestone Mine and impact of mining on water regime near village Padhiarka, Taluka Mahuva, District Bhavnagar, Gujarat.***

It may be noted from the above table that, as per planned mining, the ground water table may get touched in post monsoon in pit 5 when the proposed conceptual pit bottom level of +1.0 m AMSL is achieved. To avoid any

accidental intersection of ground water table, the Company has now decided to restrict mining depth to +2.0 m AMSL in pit 5.

In pit 3, the proposed pit bottom (+1.0 m AMSL) shall remain 0.50 m above the ground water table (-0.5 m AMSL). However, as a precaution, the 1 m difference shall be maintained and mine bottom shall be restricted to +2.0 m AMSL.

Impact on ground water

Ground water pollution can take place only if dumps and stock piles contain harmful chemical substances, which may leach and percolate to the ground water table, thus causing groundwater pollution. No adverse impact on ground water quality is anticipated on this account since no OB external dumps are there and neither will there be any leaching resulting in contamination. Meagre amount of sanitary waste, generated from various facilities will be treated properly through septic tanks and soak pits.

Furthermore, rainwater will accumulate through precipitation as well. The excess water mostly during monsoon shall be pumped out towards Bandhara through natural drains after settlement of solids.

M/s Ground Water & Mineral Investigation Consultancy Centre (P) Ltd., Jaipur has prepared "Report on hydrogeological & hydrological studies of core and buffer zone of Padhiarka & Doliya limestone mine and impact of mining on water regime near village Padhiarika, taluka Mahuva, district Bhavnagar, Gujarat" in January 2022. It has assessed the hydrogeological conditions with special reference to impact of mining on water regime in and around its proposed Padhiarka- Doliya limestone mine, Taluka – Mahuva, District Bhavnagar, Gujarat covering 10 km radius buffer area around proposed mining lease. As the mining (ultimate pit limit) is proposed up to (+)1/ (+)2 m amsl, the mining pit will not have mine seepage except direct rainfall as water level will not be intersected. Considering the annual rainfall of 718 mm over a pit area of 100.61 ha, the total direct rainfall accumulation can be 0.7 MCM. Assuming, 50% losses to seepage and evaporation 0.35 MCM per annum can be available for plantation and agriculture use.

4.5.2 Salinity ingress

As per the "Report on Hydrogeological & Hydrological Studies of Core and Buffer Zone of Padhiarka & Doliya Limestone Mines and Impact of Mining on Water Regime Near Village Padhiarka, Taluka-Mahuva, District Bhavnagar, Gujarat" by Ground Water & Mineral Investigation Consultancy Centre (P) Ltd, Jaipur in January 2022. The qualitative aspects of ground water shows that salinity ingression from sea has taken place up to over 3 km from Arabian sea reaching center of buffer zone including mines falling in core zone, due to natural and anthropogenic activities.

The following may be noted:

- The mine lease boundary shall always be beyond 500 m from the high tide line of the Arabian Sea, therefore, maintaining adequate buffer w.r.t. saline water. A letter dated 19.07.2023 (copy given in **Annexure XIX**) has been received from GCZMA with their recommendations stating "….the proposed project of mining at Padhiarka & Doliya mine lease (332.24 ha), District Bhavnagar is outside CRZ area. You are further, directed to ensure that no mining activity shall be carried out in CRZ area means outside proposed boundary. Further, you shall provide physical demarcation at the boundary of your proposed project towards seaside before starting any mining activity".

- The mine workings shall always remain minimum 1 m above the ground water table. Since, no interaction with ground water table shall occur, there will not be any seepage into mine pit attributable to the project.

Hence, the project will not contribute to salinity ingress. On the other hand, it will take measures to reduce salinity ingress.

In order to check further salinity ingression, large scale rainwater harvesting and artificial recharge measures are to be taken up in and around the core zone.

It is proposed that a hydrological network system may be established by sinking new piezometers in the area and these may be monitored for measuring the water levels quarterly and water samples may also be analyzed quarterly. This will help in knowing the hydraulic gradient of ground water flow towards the sea and any movement of interface towards the main land. Following measures will be observed to guard against seawater ingress if at all:

1. Rainwater harvesting measures will be taken by utilizing the surface runoff of the area by constructing check dams on streams at suitable locations in the upland area to maintain present water levels and present hydraulic gradient towards the sea.

2. At present core and buffer zones lie in safe category so there is no possibility of sea water ingress.

3. Hydrological network system will be established by constructing the piezometers in and around the lease and water quality to know the movement of fresh water / saline water interface.

4. After exhaustion of mineral, voids left will act as natural water harvesting structures.

5. Collected water will stand and gradually percolate into the sub surface water.

6. Positive pressure of fresh water on landward site will be created, this will push back the saline front, which may be at a lower elevation.

4.5.2.1 Mitigation - Storm water management

Measures for management of rainwater run off or storm water are briefly discussed below:

- Peripheral bunds will be erected on the outer edge before reclamation so that the soil is not carried away by storm water.
- A water gradient of about 1 in 100 will be kept at every bench towards inside of the bench to prevent formation of gullies in the bench slopes causing serious erosion.
- Stone pitching will be made at suitable location to regulate water flow and prevent soil erosion.
- Construction of garland drains around freshly excavated and dumped areas so that flow of water with loose material is prevented. The mine water will be passed through settling ponds prior to discharge.
- Any areas with loose debris within the lease hold will be planted.
- Check dams can be constructed on the first order streams, on stretched outside project area. These check dams will minimise solids from mining activities from washing into the larger rivers.
- Geotextiles or plantation will be used to stabilise the backfill to minimise soil erosion.

At the end of life of mine, void area will be converted into rain water recharge pond, Its most important purpose will be to serve as a source of water for the plantation on the backfilled area. It would also act as a water reservoir for improving the ground water recharge and be a source of attraction for fauna.

4.6 WATER QUALITY

There is no generation of effluents by mining or allied activities. However, the dewatering process may involve discharging excess water to the natural water courses in rainy season in case of heavy rains. The water will be pumped from the sump.

No chemical pollutants are expected to be generated from this mine, so there will be no discharge of toxic materials on the surface nor to the sub-surface water regime. The dewatering of rain water from the mine may carry higher loads of suspended solids. Some amount of oil/ grease is likely to be released from the maintenance workshop for equipment and vehicles washing.

Impact of rain water storage and of mine seepage on water quality (TDS): As the mining (ultimate pit limit) is proposed up to (+) 1/ (+) 2 m amsl, the mining pit will not have mine seepage till 11^{h} year i.e. end of mine life except direct rainfall as water level will not be intersected. Thus, it is not expected to be saline. Furthermore, mine pits will become abandoned as the minerals exhaust in them and they will act as water reservoirs. They will serve a similar function as a bandhara and aid in recharging rain water to the ground water. Considering the annual rainfall of 718 mm over a pit area of 100.61 ha, the total direct rainfall accumulation can be 0.7 MCM. Assuming, 50% losses to seepage and evaporation, then 0.35 MCM per annum fresh water can be available for plantation and agriculture use.

4.6.1 Control & conservation measures for surface and ground water resources and quality

Direct entry of rainwater into pit can be prevented by provision of garland drains around the pit area. Garland drain prevent the inflow of rainwater into pit. The water from the garland drains will be led to a settling tank. The water will be released in to natural streams/ contour leading to the salinity ingress control Bandhara, after passing through the settling tank. In order to ensure that water pollution does not occur, control measures to be adopted are:

- To prevent surface and ground water contamination by oil/grease, leak proof containers will be used for storage and transportation of waste oil/grease.

- At present no dewatering is envisaged since the water percolates in to the ground through natural seepage action. In case, dewatering operations have to be carried out in the future, the water pumped out from mine will be first collected in pond, settled and will be used for different activities of mining or released to the nearest nala. There will not be any discharge of turbid water to the natural watercourses.

- The mine pits shall serve as a natural rainwater harvesting structure. During operation, before exhaustion of the reserves, the rainwater flowing into the mine pit shall be allowed to stand till it seeps naturally into the ground. For such duration, the mine pit shall not be worked. After exhaustion of the reserves, the mine pit bottom shall have very low permeability and it shall serve as a shallow water body which will receive water from rain and will be available for use to local people and livestock. In order to ensure that accidents do not occur, the side slopes of the pit will be given a smooth slope and bunds constructed during operation shall remain.

- Mine water while pumping out (if required) during rainy season will carry some silt with it. This will be discharged into near by sump, to assist in

settling down of silt, and remaining clean water will be coursed in the near by ground.

Rainwater Harvesting (RWH)

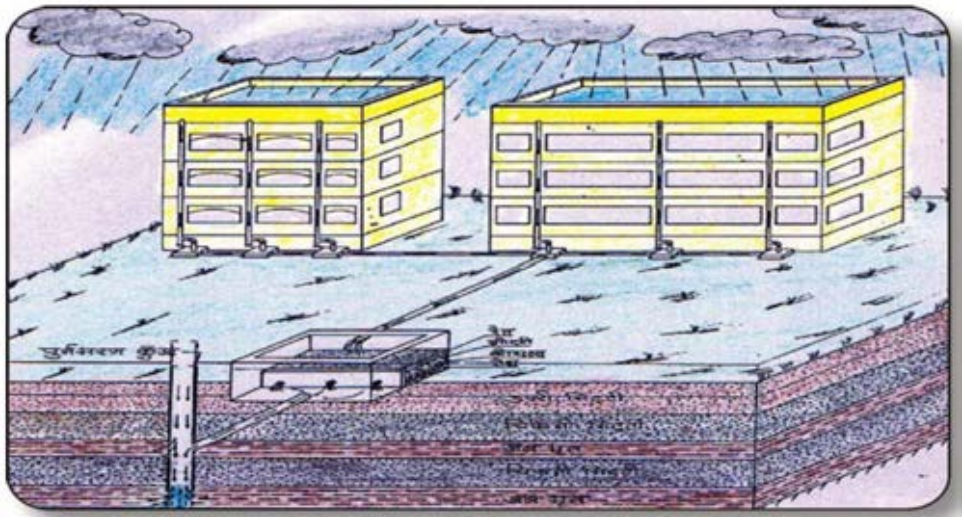
An additional rain water harvesting study has been conducted for mining complex comprising of Padhiarka & Doliya, Vangar & Madhiya and Gujarda, Dudheri & Dudhala Mines by Ground water & Mineral Investigation Consultancy Centre (P) Ltd.

To protect the mine workings from surface water flow during the rains, fresh garland drains shall be made before every monsoon at the periphery of active edges of quarry. Settlement tanks of adequate capacity shall be made on surface. The water accumulated in mine pits will be dewatered and used for greenbelt, dust suppression etc. If still water remains surplus, the same will be utilized for irrigation by nearby farmers and recharge to ground water as feasible.

Considering the annual rainfall of 718 mm (2011-2019) over a pit area of 100.61 ha, the total direct rainfall accumulation can be 0.72 MCM. Assuming, 50% losses to seepage and evaporation, then 0.36 MCM per annum fresh water can be available for plantation and agriculture use.

Rain water harvesting structures shall be provided for the office building and similar structures where from the roof top rain water can be directly recharged to the ground water through borewell. A typical rain water harvesting structure is given in **Fig No. C4-2**.

FIG NO. C4-2: TYPICAL ROOF TOP RAIN WATER HARVESTING STRUCTURE ON MINE OFFICE



Source: Rain Water Harvesting Techniques to Augment Ground Water by CGWB, Faridabad

The mine pit will serves as rainwater harvesting structure. The check dams proposed for arresting silt will also serve as rain water recharge structures. The water to be intercepted in mine pits will be dewatered and used for greenbelt, dust suppression. If still water remains surplus, the same will be utilized for irrigation by nearby farmers and recharge to ground water as feasible. Therefore, the quantity of water encountered during mining will also have positive impact on ground water regime and no external source of ground water will be required for mining activities.

De-silting schedule

1. Silt traps will be provided in garland canal at regular interval which will be de-silted at regular interval.

2. To reduce the load of silt in storm water at vulnerably location mitigation measures such as sprinkling, wet drilling for blasting and greenbelt development will be undertaken.

4.6.2 Management of generated waste water and runoff water

The following runoff water & wastewater management measures shall be followed:

1. Demarcation around the excavations, garland drain in the event of mine closure.

2. Parapet walls, wherever absolutely necessary will be provided.

3. Waste water generation will be only from the toilets, therefore, septic tank will be provided for treatment of waste water.

4. Leak proof containers will be used for storage and transportation of oil/grease and the area over which oil/grease is handled will be kept effectively impervious.

5. All top soil dumps will be provided with garland drains equipped with baffles to prevent wash offs from reaching the downstream natural channels.

4.7 NOISE LEVEL

4.7.1 Impact due to Noise

The proposed surface miners, HEMM and dumpers and trucks would be the major noise sources. Operation of machines & vehicles will continuously generate noise, which will have adverse impact on the ambient noise levels. However, the adverse impact is anticipated to be limited to the mining lease area and its immediate surroundings. The adverse impact can be more within the mining lease area, and may cause hearing loss and other related problems

to the workmen, if mitigation through protective measures are not taken. Impact due to noise is not anticipated there on the local people of nearest settlements i.e. population of Padhiarka and Doliya villages as it is away from mining lease boundary. The mitigation measures are discussed subsequently.

Noise propagation through mathematical model and impacts of noise with distance from source has been studied and brought out below.

As the equipment/ vehicles generate noise generally in the range of 100 dB (A) at source, it can be safely assumed that the ambient noise levels on any point of boundary line of lease are not higher than 100 dB(A). It has, also been assumed that the area within a distance of 3-5 m (say) from noise generating machines/ vehicles will be termed as point noise source to avoid complication in the absence of availability of exact location of various noise generating units, their arrangements and shapes. Taking an extreme case of two machines/ vehicles, each generating 100 dB (A), working at a point will add up to 103 dB(A) overall noise level. Such source noise level has been considered here for anticipating the impacts. Noise attenuation with distance in all directions over flat open bare ground is given by

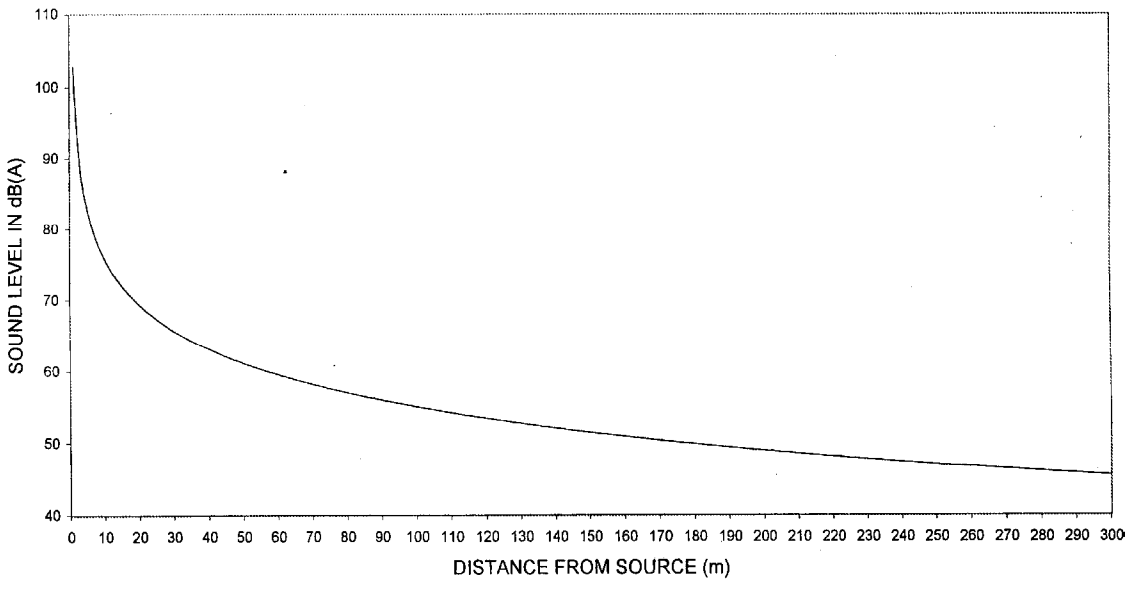
Sound level dB (A) = $Lw - 20 \log_{10} R - 8$

Where:

L_W = Sound level of source, dB (A) assumed 103 dB (A)
R = Source distance, m

The same has been plotted in **Fig No. C4-3** assuming source noise level as 103 dB (A).

FIG NO. C4-3: NOISE ATTENUATION WITH DISTANCE IN ALL DIRECTIONS OVER FLAT OPEN BARE GROUND (SOUND AT SOURCE = 103 DB(A))



A perusal of graph shows that the sound levels attenuate to values as shown in **Table No. C4-8**.

TABLE NO. C4-8: NOISE ATTENUATION WITH DISTANCE ON FLAT BARE GROUND WITHOUT AND WITH GREEN BELT COMBINED NOISE OF MORE THAN ONE SOURCE = 103 dB(A)

Distance from source (m)	Noise level reduced from 103 dB(A)	
	Without green belt, dB(A)	With green belt, dB(A)
20	70.0	68.5
60	60.0	55.5
100	56.0	49.0
150	52.0	41.0
180	50.0	33.0
300	45.0	<33.0

It means that after distance of about 300 m, the machine/ vehicle noise will merge into the background noise in the day time, even in the absence of a greenbelt. This noise level is same as the limit [45 dB (A)] prescribed by The Noise Pollution (Regulation and Control) Rules, 2000 at night time for residential areas. Due to plantation along the roads and periphery of lease, it will be possible to further lower the noise levels below the prescribed limits or to reduce the distance at which the noise attenuates to 45 dB(A).

Due to operation of heavy machines and vehicles during mining operation, ambient noise level is likely to increase leading to impact on the workforce. Impact on the workforce can affect the TLV of hearing of those deployed close to the machines and at the secondary stage to neuro problems. The activities, in case of no environmental management measures are taken, can cause severe impacts on the health of the workforce. Hence, the noise levels will regularly be measured near the operational machines and vehicles and will be kept to a minimum so that the noise level will be within the permissible limits for 8 hour exposure and the ambient air quality standards in respect of noise are given in **Annexure XI.**

The noise from mining and associated activities also disturbs animals/ birds living in the surroundings forcing them to change their habitation. The lease area has does not have any forest land. Therefore, no direct impact of noise is anticipated.

4.7.2 Noise pollution control measures

The following control measures will be adopted during operation phase to keep the ambient noise levels below permissible limits:

i. Green belt around the ML, Roads, mine infrastructures etc has been proposed.

ii. Regular preventive maintenance of machinery and the transport vehicles

iii. Contractor will be encouraged to deploy specially designed machinery with in-built mechanisms like silencers, mufflers and enclosures for noise generating parts and shock absorbing pads at the foundation of vibrating equipment.

iv. The operator's cabin would be safe guarded with proper enclosures to reduce the noise levels.

v. Noise pollution due to operation of machineries will be kept to the minimum by proper maintenance of the machineries and equipping them with noise abating devices.

vi. Provision of protective devices like ear muffs/ear plugs to those workers who cannot be isolated from the source of noise. There will be rotation of workers to limit exposure time.

4.8 GROUND VIBRATIONS- IMPACT AND MANAGEMENT

Ground vibration, fly rock, air blast, noise, dust and fumes are the deleterious effects of blasting on environment. The explosive energy sets up a seismic wave in the ground, which can cause significant damage to structures and disturbance to human occupants.

When an explosive charge is fired inside the blast hole, it is in converted into hot gases, which exert intense pressure on the blast hole walls. High intensity shock waves propagate radially in all directions and cause the rock particles to oscillate. This oscillation is felt as ground vibration. The proposed mining operations using deep hole drilling and blasting using delay detonators are bound to produce ground vibrations.

Blasting, in addition to easing the hard strata, generates ground vibrations and instantaneous noise. Ground vibration from mine blasting is expressed by amplitude, frequency and duration of blast. The variables, which influence ground vibrations, are controllable and non-controllable. The non-controllable variables include general surface terrain, type and depth of overburden. Similarly, the controllable variables include type of explosives, charge per delay, delay interval, direction of blast progression, burden, spacing and specific charge and coupling ratio.

Vibration may cause structural damages, which depend on periodical acceleration due to vibration. Air blasts can damage structurally unsound buildings and cause window shattering. Blasting is associated with fly rock hazard.

The vibrations by the mechanical effects act on existing rocks and subject them to tensile, compressive and shearing stresses, which spoil their mechanical characteristics with an immediate consequence. The vibrations are caused due to the permanent installation like crushers, screens, compressors, traffic and blasting. Among all these, blasting is the major source of vibration.

The ground vibrations can cause:

- Land instability: Distorts working faces of benches and downfalls of dumps;
- Cracks in buildings which are present in the mine premises and in the nearby villages; and
- Psychological discomfort-to human beings as well as to nearby fauna.

Blasting operations will generate noise and cause ground vibrations. However, the noise duration will last for few moments, hence, will not pose problem. The ground vibrations are anticipated to cause negative impact if the charge per delay is not rationalised.

In accordance with DGMS regulations, the lease area shall maintain a safety belt as per norms from blasting area. However, keeping in view the presence of villages nearby the mining lease adequate measures shall be followed during blasting.

The PPV results will have to be compared with the limiting values prescribed by DGMS, Dhanbad (Circular No. 7 dated 29 -08-1997) which are given in **Table No. C4-9**.

TABLE NO. C4-9: PERMISSIBLE PEAK PARTICLE VELOCITY (PPV) AT THE FOUNDATION LEVEL OF STRUCTURES IN MINING AREAS IN MM/SEC

Type of structure	Dominant excitation frequency Hz		
	<8 Hz	8-25 Hz	>25 Hz
A. Buildings/structures not belonging to owner			
Domestic houses /structures (Kuchha brick and cement)	5	10	15
Industrial buildings (RCC and framed structures)	10	20	25
Objects of historical importance and sensitive structures.	2	5	10

Type of structure	Dominant excitation frequency Hz		
	<8 Hz	**8-25 Hz**	**>25 Hz**
B. Building belonging to owner with limited span of life			
Domestic houses/structures (Kuchha brick and cement)	10	15	25
Industrial buildings (RCC and framed structures)	15	25	50

As the distance increases the PPV value is likely to reduce. The ground vibrations generated by blasting during the mining operations will be well within standards prescribed by DGMS by controlled blasting. Ground vibrations due to mining are not likely to affect the structures in the vicinity of mine lease area. If the ground vibrations remain within the above mentioned limits, there shall not be damage to any structures. However, detailed vibration study shall be carried out after commencement of mining operations.

4.8.1 Vibrations control measures

Mining will be carried out by surface miner as it is eco-friendly. It will be used in area near road, habitation and boundary area. In other mining area, mining will be carried out by conventional method i.e, drilling blasting. Mining with surface miner and drilling blasting will not lead to ground vibrations and fly rock. However ground vibration / air blast due to drilling blasting will be controlled / reduced by following protective measures:

- Multi-row drilling and V-pattern drill holes shall be practiced for deep hole drilling and blasting. Deep hole blasting shall be carried out after getting legal permission competent authority. Utmost efforts shall be taken towards proper fragmentation in order to minimize blasting cost and risk.

- The drilling shall be done with crawler mounted wagon drill fitted with DTH hammer. The diameter of the hole drilled shall not be more than 4”. Since the proposed height of the benches is 6m, depth of the drill holes shall be kept 6.6m (about 10% extra taken as sub grade drilling).

- Spacing and burden shall be 4.0 m and 3.0 m respectively in order to avoid fragmentation of over size material.

- Inclination of the drill holes shall be along the slope of the bench. If required, rock breaker shall be engaged to avoid secondary blasting.

- Charging operations shall commence after completion of all drill holes.

- The cord relays of different delays shall be used to restrict the charge per delay. Non-electric down-the-hole detonators (NONEL) shall be practiced.

This enables holes to blast from bottom to top and with this technique the hole is blasted separately by providing delays in each hole.

Advantages in this practice are as follows:

a) Ground vibration is reduced by providing separate delay timing to each hole to avoid instantaneous blasting

b) It helps breakage of rock boulders by collisions among themselves

c) It forms the muck pile in one direction only

d) It controls fly rocks as well as help in better fragmentation and also reduces back break.

4.8.2 Vibration abatement and fly rocks

Mining will be carried out by surface miner as it is eco-friendly mining operation in area near road, habitation and boundary area. In other mining area, mining will be carried out by conventional method i.e, drilling blasting. The blasting operations in the mine would be carried out by deep hole drilling and blasting using delay detonators, which reduce the ground vibrations. Further, the ground vibrations will be controlled by using modern shock tubes with delay non-electric detonators. The measures that are generally followed and currently proposed for abatement of ground vibration, air blasting and fly rocks are detailed below:

1. Controlled blasting shall be practised by competent persons.
2. Column shall be stemmed and it would not be less than the burden.
3. Boundaries of danger zone shall be marked by sign boards.
4. Signals by way of whistle, red flag, shall be given at the time of blasting.
5. Blasting time shall be fixed and its intimation shall be given to the adjoining villagers.
6. Portable shelter for protecting the shot firer shall be provided.
7. NONEL is to be introduced to control the flying rocks, reduce vibration and over pressure within the control/ permissible limit.
8. Blasting by NONEL will reduce dust becoming air borne hence will control pollution of ambient air.
9. No blasting shall be carried out within 300m of any surface structure of permanent nature, if any without prior permission of DGMS.
10. Blasting timing shall be during shift change.

11. Danger zone shall be marked with red flags and Sentries shall be posted at all access roads and entry points.
12. Man and machinery shall be removed to safe distance.
13. PPE shall be used during blasting.
14. Loose stone shall be removed from bench floor.
15. Bottom initiation and delay in each hole shall control the throw of the blast and also reduces the ground vibration and noise due to air blast over pressure.
16. Every blast shall be monitored for vibration with DGMS approved norms.

Processes or procedures for minimizing vibration from blasting are as follows:

1. Use of delay blasting to separate the explosives used in a blast into a number of individual detonations. If the interval between delay periods is at least eight milliseconds, the individual detonations can be treated as separate blasts and their vibration will not be cumulative.
2. Limit the weight of explosives per day period (more than eight milliseconds).
3. Use of less than the calculated safe weight of explosives for the first one or two periods in tight shots.
4. Use of only the amount of sub-grade drilling that is necessary to pull the bottom of the blast. As with boreholes that do not have adequate relief for the rock, much of the energy released by the explosives in the sub-drilled part of a borehole will go into the production of vibration.
5. When limiting the weight of explosives per delay to a relatively low amount, it may be necessary to modify the blast design.
    a. Use of decked explosives charged with a different delay in each charge.
    b. A millisecond delay blasting switch can be used to increase the number of delay periods.

4.9 TRAFFIC VOLUME

Impact

Air quality prediction modeling for road has been done and given in Section 4.4.1(ii) above. The transportation of mineral shall be done through internal haul road and a public road to the cement plant located adjacent to this mining lease area & Soda Ash plant at Bhavnagar through National Highway. Thus, there will be increase in traffic on public roads. However, the use of internal haul roads shall be maximized in order to eliminates any interaction or interference with public transport and humans on the public roads.

The impact due to movement on roads shall be dust generation and risk of accident, in absence of control measures. The impact if any can be controlled by taking mitigation measures as suggested in subsequent paragraphs.

Estimated manpower is 55 persons and maximum estimated four wheeler and two wheeler movement will be approximately 5 and 50, respectively. There will be daily movement of 480 numbers of dumpers (to & fro) per day or 1440 PCU/ day on the road in worst case situation from Padhiarka & Doliya Mine to cement plant at Padhiarka & Soda Ash Plant at Bhavnagar.

4.10 LAND USE

Prediction of environmental impact of the mining activity on land environment are based on the nature of activities, extent of area covered and associated aspects of environmental concern. Land degradation is inevitable during mining particularly in open cast mines, where the original soil ecosystem and structure are drastically destroyed within the core zone. The magnitude of impact on land and its mitigation measures are discussed in subsequent sections.

4.10.1 Land degradation and aesthetic environment

Total project area is 332.24 ha. Out of this, 100.61 ha land i.e. 32.09% will be disturbed by excavation till the end of life of mine. Existing land use pattern of core zone is given in **Table No. C4-10**. Land use at the end of plan period is given in **Table No. C4-11**.

TABLE NO. C4-10: EXISTING LAND USE PATTERN OF CORE ZONE (IN HA.) AS ON 01.04.2021

Sl. No.	Particulars	Private Land	Govt. Land	Total
1.	Pits & Quarries	0.28	0.07	0.35
2.	Ore/Soil/OB/waste dump	-	-	-
3.	Infrastructure, built-up area etc.	0.45	0.05	0.50
4.	Haul Road/ Cart track	1.30	0.20	1.50
5.	Existing Water Pond	-	1.95	1.95
6.	Undisturbed area	197.1946	130.7454	327.94
Total		**199.2246**	**133.0154**	**332.24**

Source: Table A8.1 of Review of approved Mining Plan with Progressive Mine Closure Plan

TABLE NO. C4-11: LAND USE PATTERN OF THE MINING LEASE AREA AT THE END OF PLAN PERIOD (31.03.2026) (HA)

Sl. No.	Particulars	Private Land	Govt. Land	Total
1.	Excavation	28.99	3.26	32.25
2.	Dump Soil Stack	4.31	-	4.31

Sl. No.	Particulars	Private Land	Govt. Land	Total
4.	Infrastructure, built up area etc.	0.95	0.05	1.00
5.	Haul Road/ Cart track	1.55	0.20	1.75
6.	Water Pond		1.95	1.95
7.	Others	163.4246	127.5554	290.98
Total occupied Area		**199.2246**	**133.0154**	**332.24**

Note: Area backfilled after 5 years: Nil
Plantation after 5 years: 5.0 ha
Source: Table A8.8 of Review of approved Mining Plan Progressive Mine Closure Plan

The land use pattern at the end of life of mine is tabulated in **Table No. C4-12**.

TABLE NO. C4-12: LAND USE PATTERN AT THE END OF LIFE OF MINE (HA.)

Sl. No.	Particulars	Private Land	Govt. Waste Land	Total
1	Excavation	79.28	21.33	100.61
2	Topsoil/ Sandy soil stack	nil	-	nil
3	Infrastructure including office/ built-up area	0.45	0.05	0.50
4	Car Track/Haul road	1.05	0.20	1.25
5	Water Pond		1.95	1.95
6	Undisturbed Area	118.4446	109.4854	227.93
7	Total occupied Area	199.2246	133.0154	332.24

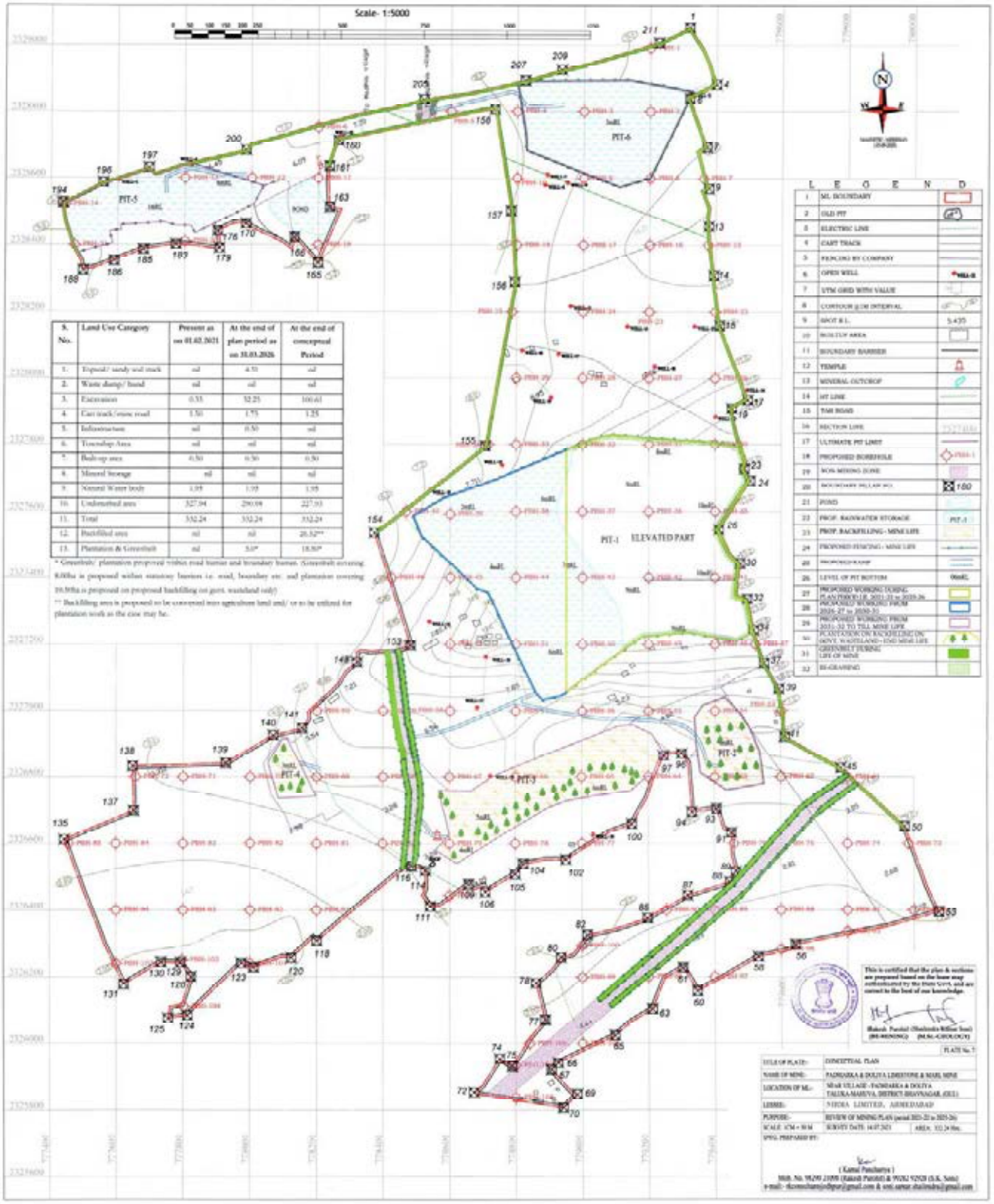
Note: Area reclaimed/rehabilitated by Nirma Ltd. - 26.52 ha.
Plantation/Greenbelt Area - 18.50 ha.

Source: Table A2.20 of Review of approved Mining Plan with Progressive Mine Closure Plan

Total Mine lease area is 332.24 ha. There is no reserve forest land within core zone. Out of total area, Government waste land includes 133.0154 ha (40.03%) and 199.2246 ha is private land (59.97%).

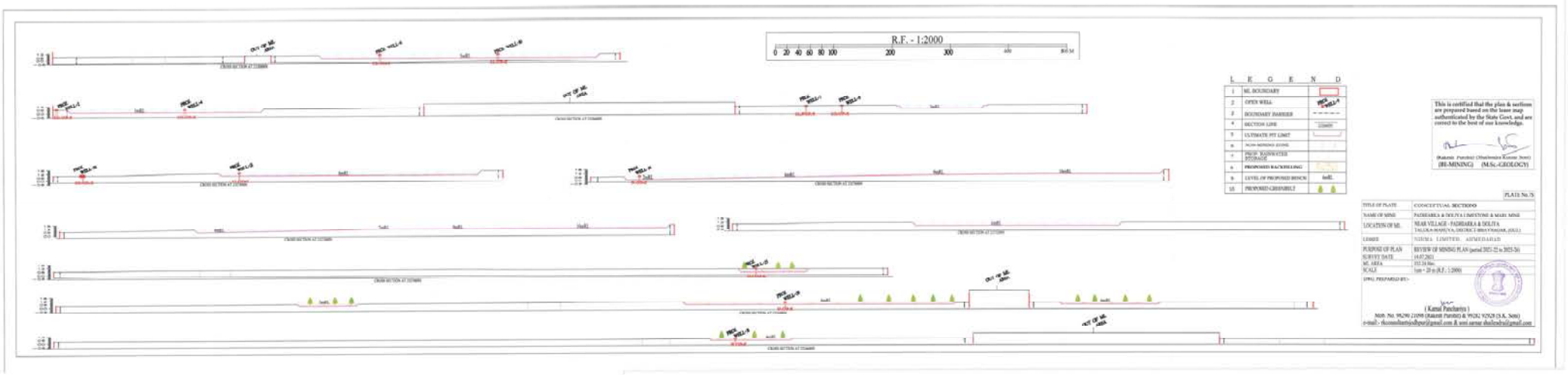
Out of total 332.24 ha. lease area, 100.61 ha will be excavated i.e. approx. 30.28% of the land. The disturbed area within ML will comprise excavated land, infrastructure, roads etc. Presently, the core zone is virgin and topography is flat with few undulations. The degradation of land is not likely to spread to any adjoining area and hence the buffer zone area is not affected. Conceptual plan and section is shown in **Fig No. C4-4** and **C4-5**.

FIG NO. C4-4: CONCEPTUAL PLAN



NOTE: After exploration as shown in approved review of mining plan,
Mineral bearing area of lease (332.24 ha) will be increased and put into use for mining.

FIG NO. C4-5: CONCEPTUAL SECTION



Land use pattern of the lease area is based on approved review of Mining plan. It can be seen that the maximum land is under agriculture or government land. The agricultural land over the mineral bearing areas will be affected due to the excavation. Since the depth of the mine will go up to + 1.0 m AMSL with no potential backfill material available to restore the levels, shallow depth mining pits of <4 m shall be backfilled with soil and shall be utilised for agriculture / plantation purpose in case of private land and plantation purpose in case of government land. Due to dearth of backfill material, further backfilling will not be possible.

Loss of agricultural and grazing land: There is no grazing land involved in the mining lease area. The private agricultural land likely to be directly affected for excavation will be 79.28 ha. and 21.33 ha government waste land. Out of total 100.61 ha excavated area (govt. & private), 26.52 ha will be backfilled and re-utilised for agriculture and/or plantation.

4.10.2 Land use management

Land degradation is one of the major adverse outcomes of opencast mining activities and any effort to control adverse impacts is considered incomplete when appropriate land reclamation strategy is not adopted. Since the land degradation in this mine will be partly in the form of excavated void and partly in the form of external dumps, the reclamation strategy must include a programme for the reclamation of the disturbed land. Therefore, the stage wise land use and reclamation has been prepared from the land use tables in Modified Mining Plan. The stage wise land use and reclamation can be seen in **Table No. C4-13**.

TABLE NO. C4-13: STAGE WISE LAND USE AND RECLAMATION AREA (HA.)

Sl. No.	Land Use Category	Present	At the end of plan period	At the end of mine life
1.	Mining pits –excavation	0.35	32.25	100.61
2.	Soil dump	0	4.31	0
3.	Mineral Stack	0	0	0
4.	Cart track/Mine Road	1.50	1.75	1.25
5.	Infrastructure, builtup area	0.50	1.00	0.50
6.	Water Pond	1.95	1.95	1.95
7.	Undisturbed area	327.94	290.98	227.93
	Total	**332.24**	**332.24**	**332.24**
	Backfilled area	**0**	**0**	**26.52****
	Plantation	**0**	**5.0***	**18.50***

Note:

* ***Greenbelt/ plantation proposed within road barrier and boundary barrier.***

** ***Backfilling area is proposed to be converted into agriculture land and/ or to be utilized for plantation work as the case may be.***

Source: Table A2.14 of Review of Mining Plan with Progressive Mine Closure Plan

TABLE NO. C4-14: POST MINING LAND USE OF CORE ZONE (HA)

Particulars	Private Land	Govt. Land	Total
a) Pits & Quarries	79.28	21.33	100.61
b) Soil stack/ dump	nil	nil	nil
c) Infrastructure including of office/ built-up area	0.45	0.05	0.50
d) Haul roads/ roads	1.05	0.20	1.25
e) Water Pond		1.95	1.95
f) Others			
(i) Govt. land		109.4854	109.4854
(ii) Private/Ag. land	118.4446		118.4446
Total occupied Area	**199.2246**	**133.0154**	**332.24**

Note: Area reclaimed/ rehabilitated by mine owner = 26.52 ha.
Area afforested by mine owner = 18.50 ha.

Source: Table A2.20 of Review of Mining Plan with Progressive Mine Closure Plan

The shallow pit of depth approximately around 4 m in the southern corner of the mine lease area will be backfilled. The area will be 26.52 Ha as shown in conceptual plan i**n Fig No. C4-4.** The backfilling is proposed from 7th year. Backfilled area shall be utilized for agriculture in case of private land and for plantation purpose in case of government land. Greenbelt/ plantation is proposed within road barrier and boundary barrier. Greenbelt covering 8.00 ha is proposed within statutory barriers i.e. road, boundary etc. and plantation covering 10.50 ha.

4.10.3 Mine closure plan

'Mine Closure Plan' is a whole-of-life exercise that begins at the start of a mine life and continues through to post-closure. A progressive mine closure plan for the proposed mine have been made and approved as part of Mining Plan. Salient points of mine closure plan are briefly discussed in subsequent paragraphs.

4.10.3.1 Management / decommissioning of infrastructure

The project will start soon so the infrastructure will be developed. However in case of any temporary discontinuance or dismantling or disposal of infrastructure will not be required at this stage & the infrastructure will be maintained in good working condition. The mining lease area will be a captive mine of the proposed cement plant in the vicinity. At the time of final closure of the mine the infrastructure can be alternatively utilized for ancillary activities

related to cement plant. Such as truck parking yard, training/educational institute, old aged home etc.

4.10.3.2Disposal of mining machinery

Most of the machinery used for mining activity will be hired on contract basis. Hence the machineries shall be carried by their operating contractors from the mine after completion of contract. Any machinery belonging to the company will be either shifted to other working mines or disposed off. The mining machinery available in the mine shall be utilized till exhaustion of limestone reserve from the mine. However, during this plan period of the Progressive Mine Closure Plan, no disposal of Mining Machinery is envisaged.

4.10.3.3Safety and security

The life of the mine operations is 11 years. Excavation of limestone in the area is proposed by opencast working, which involves fewer hazards than underground working. Sufficient qualified, experienced & competent staff shall be employed for carrying out mining operation in safe & systematic manner through regular inspection monitoring & controls.

There is no proposal for any abandonment due to unforeseen circumstance following safety measures shall be taken out for safety and security.

- Transportable mining machinery will be shifted to a safe and secure place.
- Top of the pit and all entrance to the working shall be blocked and fenced.
- Security guards shall be posted to prevent any unauthorized entry
- Danger warning boards shall be displayed.
- Regular inspection of the abandoned working shall be carried out to ensure compliance of above measures.

4.10.3.4Temporary discontinuance

In case of any temporary discontinuance due to any enforcing circumstances or court order etc., Necessary notices shall be sent to all such respective departments and concerned authorities of IBM and DGMS Officials. Care and maintenance during temporary discontinuance is covered under Chapter 7 of this EIA report.

4.10.3.5Economic repercussions of closure of mine and manpower retrenchment

This is a progressive mine closure plan for limestone mine for the period of next five years and during this period, no portion of the mine is proposed to close

and therefore, no economic repercussions of closure of mine and Manpower retrenchment is envisaged. However manpower retrenchment will be there after closure of Mine in 11th year and manpower shall be shifted to company's other ongoing projects.

4.10.3.6Time scheduling for abandonment

Mine closure operation is a continuous series of activities starting from day one of the initiation of mining project. Therefore, progressive mine closure plan will be a continuous process throughout the life of mine which will be reviewed periodically. This includes various land reclamation activities to be done continuously and sequentially during the entire life of the mine. The life of mine will be 11 years (approximately). Life of mine may be increased subject to conversions of resources under 333 category into category of reserves 111. At this time, it is not possible to furnish time schedule of abandonment, which is likely to be occur after 11 years. Moreover, there is no proposal of temporary abandonment during this progressive mine closure period ending.

4.11 SOLID WASTE – IMPACT AND MANAGEMENT

4.11.1 Impact

After the major impacts on land, air and water, mines also have a major impact due to generation of solid wastes. Production of solid waste can cause an impact on topography, land use and quality, air pollution, water contamination and visual aesthetics if proper management is not adopted.

Overburden

No waste in the form of OB/ IB/ SB is available in the ML area as per known geology.

Topsoil

Total quantity of topsoil removal is anticipated as about 0.50 million cum during mine life. The topsoil removed shall be disposed of by means of making a temporary stack at the prescribed sites. The location selected is outside the ultimate pit limit, which seems to be mineralized, shall be on temporary basis.

No mineral reject is proposed to be generated. Soil is non–toxic in nature and there is no harm from the same.

Other than topsoil, solid waste in the form of sludge created by mine water in settling pond, sludge from domestic waste water treatment facilities and municipal solid waste will be there. The generation of solid waste from various sources is given in **Table No. C4-15**.

TABLE NO. C4-15: SOLID WASTE GENERATION

Sl. No.	Description	Quantity
1	Topsoil (life of mine)	0.50 million Cum
2	OB	Nil
3	MSW	12.6 kg/day

127122 cum quantity of soil will be generated during plan period and overburden and mineral rejects will be nil.

Soil conservation

In the ML area, soil cover above limestone varies from 0.5 to 1.0 M. The soil will be carefully scrapped, collected manually and will be utilized for plantation purpose near mine boundary and safety barrier of the road simultaneously to the extent possible. The excess soil has been proposed for back filling for mined out pits having shallow depth. Since the area is water scarce area, therefore the major part of excavated pits will be used as water reservoir at the end of life, which will in turn be used for pisci- culture, irrigation and recharging the water table.

Management of solid waste

Soil removed during five years of plan period is proposed to be disposed off by means of making a temporary stack at the prescribed site. The location selected shall be outside the ultimate pit limit, which seems to be mineralized, shall be on temporary basis. So there will be no adverse impact on the space chose for the stacking purpose. Total quantity of soil removal is anticipated as about 0.50 million. cum during mine life.

The geometry of proposed top soil stack and easy access: -

Height : 6.5 m (max.) with making terraces at an interval of 5.0 m for safety aspect.

Ultimate stack slope : ~ 22^0

It is being anticipated that space for backfilling shall be matured in the year 2027-28 so temporary stacking of topsoil shall be kept for a period of maximum five/six years, hence stabilization is not proposed. Re-handling of stacked soil is envisaged for the period till mined out area gets matured for backfilling which is anticipated by year 2027-28 of working. The backfilling shall be started only after reaching ultimate level. In compliance of condition imposed in TOR, shallow depth pits are to be backfilled. Hence pits of <4 m deep shall be backfilled. This will lead to 26.52 ha area under backfilling which shall be utilized for agricultural/ plantation purpose. Retaining wall is proposed all around the stacking in order to check its spreading. Details of removal of soil and its disposal is given in **Table No. C4-16**.

Year wise soil & waste generation is given in **Table No. C4-17**.

TABLE NO. C4-16: REMOVAL OF SOIL AND ITS DISPOSAL

Year	Removal of soil (cum)	Means of disposal	Location	Area covered under stacking (ha)
FY 2021-22 to 2025-26 (Plan period)	127122	Temporary stacking at one location	Near open dug well-27	4.31
FY 2026-27 to 2031-32 (end of mine life)	372878	Simultaneously backfilling	Near open dug well-27	nil
Total	**500000**	**-**	**-**	**nil at the end of conceptual period**

Source: Table A2.15 of review of mining plan with progressive mine closure plan approved 05.08.2021

TABLE NO. C4-17: RE-HANDLING OF SOIL TOWARDS RECLAMATION AFTER THIS PLAN PERIOD

Year	Re-handling of soil (cum) for backfilling	Means of disposal	Location
2026-27	nil	-	As mentioned in above table
2027-28	40000	Backfilling	
2028-29	40000	Backfilling	
2029-30	47122	Backfilling	

Source: Table A2.16 of Review of Mining Plan with progressive mine closure plan

The void area is proposed to be utilized for accumulation of rainwater, which shall be very useful for the local in replenishment of ground water.

Reclamation

It is estimated that by the end of conceptual period of 11 years, entire estimated mineable limestone reserves is proposed to be exhausted. Looking towards availability of topsoil, backfilling of part area is envisaged. The voids can be used for storage of rainwater. The accumulated water shall be kept suitably fenced off all around, if required.

- Total voids area envisaged till conceptual period = 100.16 ha
- Total volume of void envisaged till conceptual period = 5.05 million cum
- Total topsoil removal envisaged till conceptual period = 0.50 million cum
- Total material available for backfilling envisaged till conceptual period after swelling = 0.50*1.3 = 0.65 million cum
- Total backfilling area envisaged till conceptual period = 26.52 ha

Balance void pit is proposed to be used for rainwater storage at the end of conceptual period. The backfilling programme is given in **Table No. C4-18**.

TABLE NO. C4-18: PROGRAMME OF BACKFILLING

Year	Soil to be utilized for tentative backfilling (cum)	Location	Cumulative Area to be backfilled (ha)
From FY 2021-22 to 2025-26 (Plan period)	No proposal	-	nil
From FY 2026-27 to 2030-31	500000 cum	Pit-2 to Pit-4 (southern side shallow depth pits)	26.52

Source: Table A2.17 of Review of Mining Plan with progressive mine closure plan

Following mitigation measures are proposed for the solid waste:

a. The top soil shall be used simultaneously for the plantation over backfill areas, in green belt and other areas. Some soil would be backfilled into mined out areas. However, the top soil and backfill quantity is too low to bring the level upto the ground level. The sludge shall be removed periodically from the septic tanks in the mining area would be organic in nature. The organic matter will be composted to be used as manure in afforestation/ greenbelt/ agroforestry/ agriculture.

b. The municipal solid waste comprises of (i) organic, (ii) inorganic or recyclable and (iii) non-biodegradable components. The waste shall be segregated at source and the organic component shall be composted at the designated site within the project area. The composted matter will be used as manure in plantation. The inorganic or recyclable wastes shall be sold to recycling vendors. The non biodegradable waste, which can be minimised to less than 10% of the total waste through practice of 3Rs, will be given to the municipal corporation for disposal in their designated land fill site.

4.12 ECOLOGY

No National Park, Wildlife Sanctuary, corridor etc exists within the ML area and also within 15 km radius of ML area. Nearest National Park & Wildlife Sanctuary is the Gir National Park, Gir Wildlife Sanctuary & Mithyala Wildlife Sanctuary located at a nearest distance of 79 km, 47.6 km and 46.7 km respectively. There is no Forest land in project area. There are 5 Reserve Forest located in the buffer area as given in section 3.10.1. Map showing forests, wildlife sanctuaries and National Park has been duly authenticated by DCF, Bhavnagar vide letter dated 09.11.2020 and is attached as **Annexure XIV**. Authenticated list of flora and fauna in core and buffer zone is given in **Annexure XIII.** The ecological sensitives areas like turtle breeding sites are not within 15 km radius of proposed site. Agricultural crops and fruit trees form a part of the commonly found flora in the study area.

Schedule I species i.e. Peafowl, Asiatic Lion and Chinkara are reported in the study area as per Wildlife Protection Act, 1972 amended uptill 2019. Accordingly, a Wildlife Conservation Plan had been prepared in consultation with state Forest Department & got approved from State Forest Department (PCCF) Government of Gujarat on 20.12.2021. Approval letter & financial layout for conservation plan are given in **Annexure XXIII.** After the amendments vide Act 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra. In view of this, the wildlife conservation efforts shall be enhanced in association with Forest and Wildlife Department, Government of Gujarat in due course.

4.12.1 Impact on ecology

Ecological impact from open cast mining result from generation of pollutants both in air and water. Further excavation of soil causes damage to its structure and composition.

During Construction: There is no major construction except mine office. The adverse impact of proposed mining activity will cause:

- Loss of vegetation by excavation and dumping thereby affecting the species for which such vegetation was the host.
- Movement of species away from mining lease area due to noise, vibration and light.

- Generation of dust due to movement of vehicles bringing in construction material

During operation: The impact on the terrestrial ecosystem due to operation of the proposed mining would mainly occur from deposition of air pollutants. Particulates, sulphur dioxide and oxides of nitrogen are major pollutants from traffic. These pollutants affect biotic and abiotic components of the ecosystem individually and synergistically.

Chronic and acute effects on plants and animals may be induced when the concentration of these pollutants exceeds threshold limits.

Impact due to particulates: The dust particles depending upon their size and weight settle down at varying distances on vegetation and soil surfaces in the prevailing and direction. The morning windrose diagram given in Fig C3.5 of Chapter 3, shows that wind flows predominantly from the directions north-west and west in the months of October to March and from north west, west and south-west in the months of April to September. The evening windrose diagram given in Fig C3-6 shows that wind is predominantly flowing from north-east, east and south-east except in October-March and from south west, south-east

and south from April to June and south west, south and west from July to October. Therefore, the pollutants will flow in these directions and settle according to the seasonal wind flow pattern.

Foliar deposition of dust may interrupt gaseous exchange through stomatal clogging, thereby affecting plant growth. The effects of air emissions on nearby vegetation and crop lands are not likely to be adverse as the pollutants concentration is expected to be well within the prescribed standards.

Impact due to sulphur dioxide: Chronic exposure to SO_2 causes injury characterized by yellowing of the leaf (Chlorosis). Scientific literatures reveal that low concentration of SO_2 over long period lead to intravenal chlorosis in high humidity. However at higher concentrations, SO_2 combines with moisture in the air to form aerosol which erodes cuticle and cell membrane, thus inviting easy entry of pathogens. It may alter the pH of the soil. Changes in pH of the soil may affect microflora and fauna of the soil. Acute injury is characterized by development of dry dead areas with an ivory to brown colour (necrosis). Taking a seasonal and annual average, the threshold for chronic plant injury has been estimated at approximately 130 $\mu g/m^3$ (A.J Dvorack and B G Lewis, 1978).

USEPA air quality criteria for SO_2 stipulates 0.2 ppm (524 $\mu g/m^3$) level when visible injury to sensitive vegetation in humid regions after 3 hours exposure is observed. In another case, level 0.5 ppm SO_2 level (1310 $\mu g/m^3$) for 1 hour exposure results in visible injury to sensitive vegetation in humid regions. At higher SO_2 concentration of 10 ppm (26214 $\mu g/m^3$), visible injury to vegetation in arid regions is observed. Such high ambient air concentration of sulphur dioxide, is not likely to occur in the area.

Impact due to nitrogen dioxide: USEPA air quality criteria for NO_2 stipulates 2 ppm (3760 $\mu g/m^3$) level when foliar injury to vegetation at 4 hours exposure is observed. At a lower NO_2 concentration of 0.25 ppm (470 $\mu g/m^3$) during the growing period, decrease of growth and yield. Such high ambient air concentration of nitrogen dioxide is unlikely in the study area.

The cumulative 24-hour average incremental GLC from the proposed limestone mine when added to the base line concentration of SO_2 and NO_2 observed in the study area would not be more than 10.2$\mu g/m^3$ and 14.5 $\mu g/m^3$, respectively which is well within the National Ambient Air Quality Standards. Therefore it can be seen that these values are much lower than the threshold limits for damage to terrestrial flora and as such, the impact on the terrestrial ecosystem would be marginal.

Impact due to mining: The general adverse impacts, usually due to operation of opencast mine are:

1. Dust emission from mine due to excavation and transportation, affects the effective photosynthesis by covering the plant/ tree leaves by thin dust

layer during dry months which however will be washed away in rainy months.

2. Disturbance to birds and animals due to bright light and unusual noise during operation activity.
3. There may be discharge of excess unutilised pumped out mine water into the nearest natural stream after settlement of suspended solids. As the streams are seasonal and the discharge will also be during monsoons, no major impact is envisaged on the surface water bodies and on the fresh water eco-system.
4. Loss of vegetation by excavation and dumping thereby affecting the species for which such vegetation was the host.

The effluents generated from the mine will be treated and reused after complying with prescribed standards. Therefore, these too are not anticipated to impact ecology. In fact the waste water, after treatment, will be used for watering the plantation. The impact on flora and fauna of the buffer zone will not be there as no mining activity will take place outside core area.

4.12.2 Management of ecology

Management of ecology comprises of mainly compensatory plantation program as well as plantation for rehabilitation which are detailed below:

4.12.2.1 Flora

(i) Green Belt: Plants act as natural sink for a variety of pollutants as well as replenish air with fresh oxygen. Therefore, establishment of greenbelt and plantation along various facilities and periphery is an important aspect of mitigation plan under ecology. The main consideration during development of green belt and plantation are as follows:

- Effective trapping of dust and emissions
- Noise absorption
- Balancing eco environment
- Waste water reuse
- Aesthetics
- fast growing, evergreen with large crown

As a single plant does not have all the qualities, a mixture of several varieties of plants has been chosen. The widths of the belt will be 7.5 m all along the boundary.

(ii) Plantation program of mine:

Plantation shall also be carried out along roadside and around administrative buildings, facilities and in vacant undisturbed areas as well. This will result in

increasing small sized fauna such as squirrels, hare, reptiles and birds in finding a favorable habitat.

Reclamation plantation: The other measures for management of ecology will comprise of mainly of plantation for rehabilitation. Once the simultaneous backfilling of mine void commences from 2027-28, the reclamation process over the backfilled area will also commence. Reclamation of top soil dump will also eventually take place.

Afforestation Programme: Company has a plan to plant saplings of trees and shrubs within the boundary barrier and road barrier. Plantation is proposed to be done at the rate of 1000 saplings covering an area of 1.0 ha per year. Sandy soil/ topsoil removed during mining is proposed to be used for plantation at pit slope.

Total area covered under plantation/greenbelt proposed is 18.50 ha at the end of mine life. The break up is as follows:

1.	At boundary barrier greenbelt	=	5.0 ha
2.	Within road barrier	=	3.0 ha
3.	Backfilled area (Govt. wasteland)	=	10.50 ha
	Total	**=**	**18.50 ha**

Besides this, proposed backfilling area shall be converted into agriculture land/ utilize for plantation work. By the end of this mining plan period, an area of 5.0 ha will be under greenbelt which shall increase aesthetic beauty of the area.

When the mine is exhausted completely, entire ML area will have six large water storage areas and big garden with trees and shrub, which will be beneficial of human population of Bhavnagar District. The relevant help for successful reclamation/ afforestation will be taken from experienced Forest Officials.

The trees recommended for plantation is given in **Table No. C4-19**.

TABLE NO. C4-19: SPECIES OF SAPLINGS PROPOSED

Sl. No.	Botanical Name	Local Name
1.	Acacia auriculiformis	Bangalibaval
2.	*Acacia catechu*	Khair
3.	*Acacia nilotica*	Deshi babul
4.	*Albezia lebbeck*	Siras
5.	*Azadirecta indica*	Neem
6.	*Bamboo spps.*	Vans
7.	*Cassia fistula*	Amaltas
8.	*Cassia seamea*	Kashod
9.	*Casuarina equisetifolia*	Saroo
10.	*Cordia sebestina*	Cordia
11.	*Dalbergia sissoo*	Shisam

Sl. No.	Botanical Name	Local Name
12.	*Delonix regia*	Gulmohar
13.	*Erythrina indica*	Pangaro
14.	*Ficus religiosa*	Pipal
15.	*Gmelina arbora*	Shavan
16.	*Jetropha spps.*	RatanJyot
17.	*Kigelia pinnata*	Kigelia
18.	*Padocarpus chinenses*	Teak
19.	*Parkinsonia spp.*	Rambaval
20.	*Peltoforum ferrungium*	Sonmohar
21.	*Pithecelobium dulse*	Gorasimli
22.	*Phyllanthus embelica*	Amla
23.	*Pongamia pinnata*	Karanj
24.	*Salvadora spps.*	Pillu
25.	*Samania saman*	Raintree
26.	*Sygium cumini*	Jambun
27.	*Tabubia spps.*	Tabubia
28.	*Terminalia cuttappa*	Almond
29.	*Thespecia populanee*	Portia tree
30.	*Cocos nuciphera*	Coconut
31.	*Sapota sps*	Chiku

Source: Table A2.18 of Reveiw of Mining Plan with progressive mine closure plan

Species selected will fulfil the following specific requirements of the areas:

- Availability of seeds;
- Tolerance to specific conditions or wide adaptability to eco-physiological conditions;
- Rapid growth;
- Capacity to endure water stress and climatic extremes after initial establishment;
- Differences in height, growth habits and bole shapes;
- Pleasing appearance;
- Capacity to selectively concentrate some materials from the surroundings;
- Providing shades;
- Large bio-mass and leaves number to provide fodder and fuel;
- Ability of fixing atmospheric Nitrogen; and
- Improving waste lands;

Environment and Reclamation Plan is given in **Fig No. C4-6** and **C4-7** respectively.

FIG NO. C4-6: ENVIRONMENT PLAN

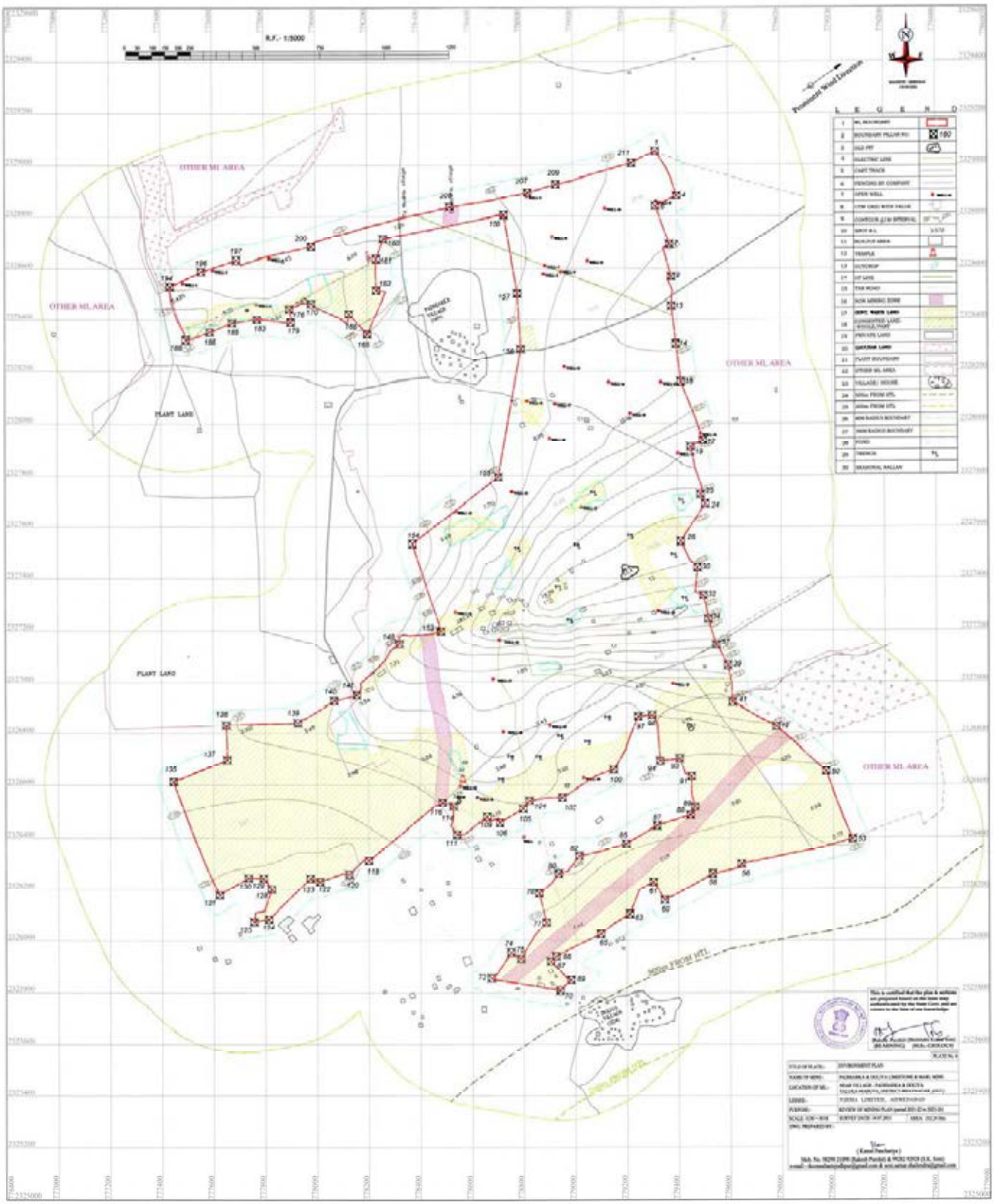
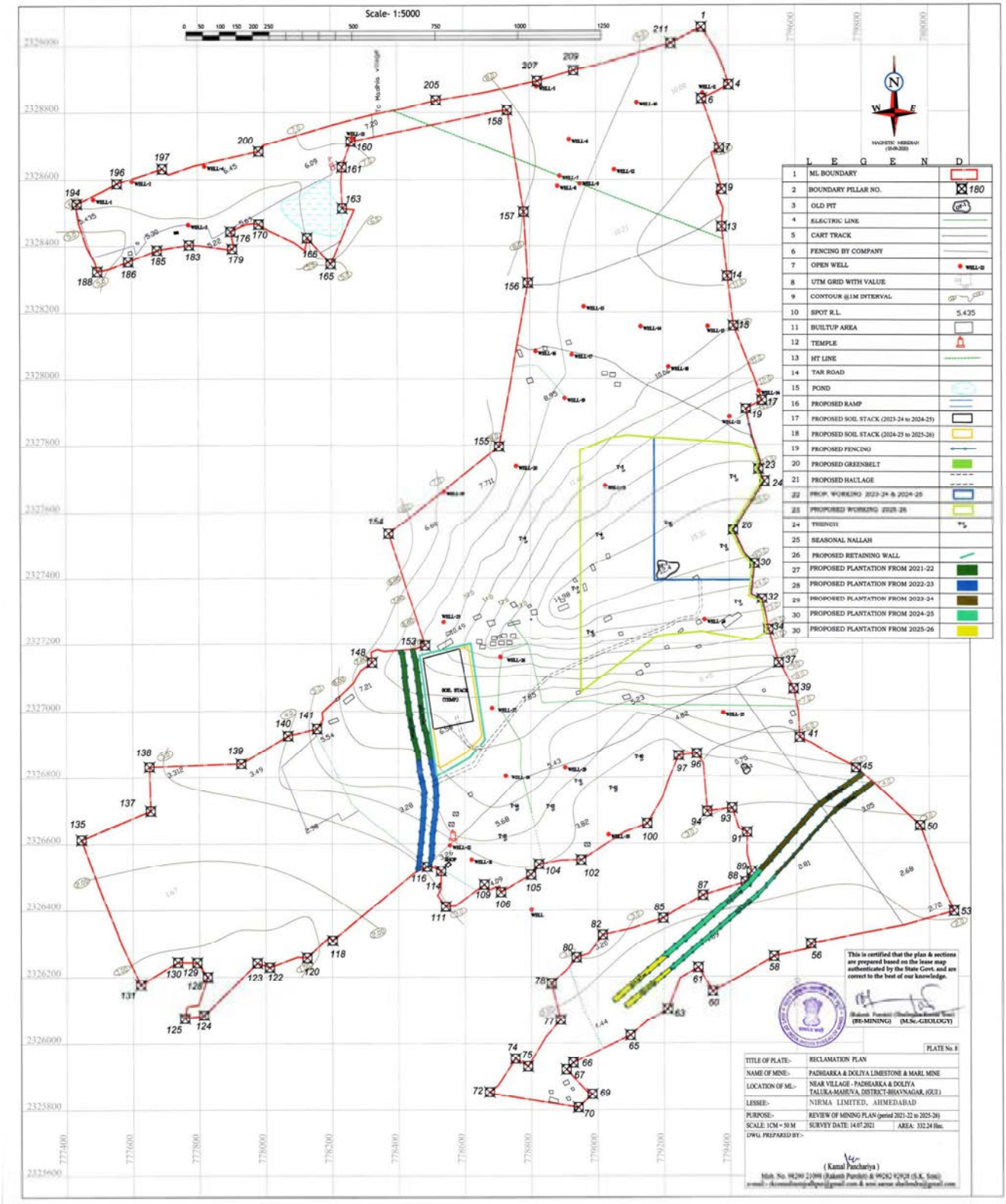


FIG NO. C4-7: RECLAMATION PLAN



The afforested area has to be protected from cattle menace, soil erosion, plant diseases etc. Plants will be protected from diseases by application of proper pesticides. Soil working, manuring etc. will be done whenever necessary. Plants will be protected from cattle menace by proper watch and ward or fencing. Damaged plants will be replaced with new one. Summary of protective measures to be adopted for protection of environment during mine life is given in **Table No. C4-20**.

TABLE NO. C4-20: SUMMARY OF PROTECTIVE MEASURES

Items	**Proposed Protective Measures**					
	2021-22	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**Total**
Stack management	Temporarily creation of stacking of topsoil so no proposal of stabilization is required for planting saplings.					
Retaining wall	None	none	203 m around soil stack	none	1760 m around soil stack	1963 m
Plantation	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Afforestation to be done	1.0 ha	1.0 ha	1.0 ha	1.0ha	1.0 ha	5.0 ha
No. of saplings planted	1000	1000	1000	1000	1000	5000
Fencing (m) for protection of plantation	1392	1385	1691	1652	650	6770

Source: Table A2.19 of Review of Mining Plan with progressive mine closure plan

4.12.2.2 Fauna

Some of the precautionary and improvement measures will be taken for protection of fauna are as follows:

- The roads leading to and from the mine have and shall have caution boards warning drivers to slow down for animal crossings, if any develop in the future.
- The drivers shall be sensitized not to hit stray animals on the road.
- The emissions from the mines shall always be kept within the norms so that surrounding environment will always be clean and comfortable for humans, wildlife and vegetation.
- Care shall be taken that no food or degradable waste is openly disposed. This could attract wild animals near to human habitation and create man-animal conflict. Hence, disposal of wastes shall always be on the designated and protected place.
- While carrying out social welfare activities, awareness about the variety of faunal species, their status of endangerment and behavior will be spread through posters/ seminars/workshops or discussions to sensitize the villagers. By gaining correct scientific information, the villagers will be in a better position to protect themselves from animals and in return will not

harm them also. Such situation reduces, man-animal conflict, which usually arise due to myths and fear or hatred of animals.

- Water sprinklers and fire hydrants of adequate specification will be provisioned at strategic locations to deal with any emergency.
- Waste water from domestic sources (toilets/ canteens/ baths/ kitchens) will not be released into the environment but treated in septic tank system. Thus, the flora and fauna shall not be exposed to any contaminants.

4.12.3 Wildlife Conservation plan

In the study area, peafowl, Chinkara and Asiatic Lion are reported under Schedule -I of the Wildlife Protection Act, 1972 amended uptill 2019. On the basis of the fauna study findings, financial layout for Wildlife Conservation Plan was prepared and submitted for approval. The same had been approved by the Forest Department on 20.12.2021. Approval letter is given in **Annexure XXIII**. After the amendments vide Act 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra. Mitigation measures as suggested in conservation plan shall be followed. These are summarized as follows:

1. Captive breeding:- Captive breeding or ex-situ conservation shall be carried to save species from extinction where conservation in the wild is impossible.

2. Reintroduction and translocations:- Re-introductions of captive bred populations can occur to replenish wild populations of an endangered species, to create new populations or to restore a species after it has become extinct in the wild.

3. Habitat protection:- Minimization of loss and destruction of habitat can be achieved through purchasing land of conservation importance, setting aside land or gazetting it as a national park or other protected area, and passing legislation preventing landowners from undertaking damaging land use practices, or paying them not to undertake those activities.

4. Avoid plastic products:- Many fauna mistake plastic waste for food and try to consume it and can cause digestion complications to the birds and even death. By disposing waste properly in covered bins and avoiding plastics, there is less likely a chance that this will lead to death of Faunal species. Thus, all employees and visitors will be made aware through posters at public places within M L area to throw plastic waste in dustbin only.

5. Recycle:- Recycle reduces litter and saves resources. All employees and visitors will be made aware through posters at public places within M L area to recycle, reuse and reduce solid waste generation.

6. Avoid Chemicals:- Many faunal species predate on smaller rodents and animals, grains and cereals to sustain themselves. However, these food sources for birds get tampered by using chemicals for pest control. This can kill a bird or have toxic effects on their health and that of their growing embryos, including deformation or suppressed immune systems. Natural pest control measures ensure that this does not happen. Company will ensure that chemicals based insecticides and weedicides are not used for maintenance of green belt and plantation.

7. Reducing carbon footprint:- There is rise in the number of parasites in the wild. Their increase can be traced to the rising global temperatures that make for shorter winters with higher average temperatures. To combat this, we should reduce greenhouse gas emissions. For this purpose, fossil fuel consumption shall be reduced by providing Solar photovoltaic system to replace coal based electricity and diesel generator sets. Hence, company shall install solar photovoltaic system.

8. Slow down on the road:- A number of faunal deaths occur when they run into vehicles while crossing road. It is possible to avoid hit if more individuals slowed down while driving. Hence speed bumps and speed limit boards shall be installed in and around Mine Lease area.

9. Plant native species:- Native species of plants provide a conducive environment for endangered species to breed and increase in population. The plants also host other types of animals and insects which form important ecosystems and increase the biodiversity of the region. Hence, company shall undertake plantation within the Lease area of native species.

10. Create small habitats:- Individuals can put up structures that act as small habitats within their compounds. These may include bird feeders and baths which act to attract species and serve to provide them with food, water and shelter. This increases the population of the species in the region and provides incentive for more birds to settle in order to breed with the other birds in the region. Company will run an awareness campaign and distribute bird houses, bird feeders, bird baths and informational literature in the surrounding areas.

11. Enjoy nature:- Being active in faunal watching and nature walks ensures that there is constant appreciation for natural beauty. This can be shared among people and continue to help raise awareness of the animal plight, thus, gathering help in any form that would go towards protecting/conserving animals in the region. The company will run outings to help employees, visitors

and local villagers learn to identify the common fauna of neighborhood, and teach local young people the value of wildlife.

12. Keep Your Distance:- Animals need space for feeding, nesting, and other daily activities. Approaching too closely may cause them to become nervous and deplete much-needed energy reserves. During the nesting season, it may even result in loss of eggs or young to predators. This awareness shall be spread through watching outings proposed in above point.

13. Save Bird campaign:- The festival of Utarayan is celebrated with lot of enthusiasm on 14th of January every year where kite flying is one of the most important event. The thread or manja used to fly the kites injures birds, severing their wings and proves fatal. "Save Bird Campaign" is an effort of the State Government to save injured birds while flying kite during the festival of Uttarayan. It is being undertaken in a coordinated manner under the umbrella of Forest Department. Many government departments/organisation like GEC, GEER foundation, GPCB, Fire Department, Police, Traffic wing etc. also provide helping hand in the campaign. Treating an injured bird is a professional job and is undertaken by experienced and competent hands. But even a common citizen can contribute just by spreading certain do's and don'ts. Hence the company will be an active propagator of the campaign to help save birds. (source: https://forests.gujarat.gov.in/save-birds.htm).

Budgetary provision has been made for wildlife management for three years for all the three mine leases. In first year, construction of water ponds and awareness programmes like posters, signboards, notices etc. shall be done. Monitoring of the area shall be done regularly by appointing one person from the project personnel. User agencies will deposit fund after approval of the budget from the office of Forest Conservator, Bhavnagar for various conservation measures. Expenditure deposited shall be Rs. 19.9 lakhsas per the budget approved by Chief Wildlife Warden, Gujarat State, Gandhinagar vide letter dated 20.12.2021 (copy given in **Annexure XXIII**).

Social welfare initiatives

The social welfare initiatives would focus on poverty alleviation, availability of environmental friendly fuels, awareness drives, plantation, protection of fields and similar such measures which will ensure that the people are not exploiting the forests to meet their requirements. When the pressure on forests and natural habitats of the animals reduces, then the animals are not forced to venture out to the villages.

Social Awareness camps

As mentioned above, these will be carried out for mine workers, drivers, labours, etc., proponent officials, technical and non technical staff, school

teachers and children in 10 km radius, local community, villagers and village heads, etc.

Interaction with state forest department

Interaction with state forest department would be carried out in choosing the plant species and sourcing the saplings for the greenbelt. The plantation has to be carried out in a manner that the greenbelt acts as a natural divide and at the same time there are no such trees which have the fruits and fodder for the animals that end up attracting them to the plant area. Even the plantation carried out in the villages under social welfare measures should comprise of trees planted in such a manner that the trees attractive to the fauna are away from habitation and those not attractive to the fauna are in the villages. The company will give logistic support in terms of provision of water during summer season, creation of watering holes, etc. as and when required by the forest department.

With the progressive growth of greenery, biological terrestrial environment will improve in due course of time. The generation of fugitive dust and airborne dust are controlled at source, settling of dust over the crop land or vegetation is also minimised over the surrounding buffer zone. The flora and fauna scenario is, in fact, anticipated to improve due to proposed development of green belts, afforestation and water bodies. Presence of water and food wastes during the day will attract birds and animals more towards the site.

There is no scheme of utilising surface water hence no negative impact on the aquatic environment. It may be noted that the rain water (sweet) usually drains to the sea as runoff, thereby, becomes saline and is thus wasted. Therefore, if the water collected from rains is collected in the pit, it will be recharged into ground, thereby benefiting the surrounding areas. There is no National Park/Sanctuary within core zone or in the study area.

Migratory birds:

As per the National Action Plan for Conservation of Migratory Birds and their habitats along Central Asian Flyway which includes six interrelated components i.e. species conservation, habitat conservation and sustainable management capacity development, communication and outreach, research and knowledge based development and internal cooperation. Company shall support the measures suggested in it in consultation with forest department which includes following[1]:

1. Compile lists of migratory birds being hunted, hunting seasons and trade patterns to ensure prohibition enforcement and project impacts of such hunting on flyway scale populations.

[1] Source: https://moef.gov.in/wp-content/uploads/2019/03/CAF_NAP_Final-with-CL.pdf accessed 28.07.2023

2. Carry out periodic disease surveillance of migratory birds and ensure strategic response to disease outbreaks.

3. Promote migratory bird conservation initiatives through local community participation, including citizen science groups.

4. Capacity development programmes such as trainings, education, awareness material etc. for the personnel from different government departments and other stakeholders site managers, to equip them with necessary skills for integrated wetland management.

5. Building a network of 'Student ambassadors' for enlisting support of communities for conservation of migratory birds and their habitats.

Minimising Man animal conflict

To minimise man animal conflict, the following precautions will be taken in the project:

- Chain link fence will be constructed around the working pit for safety of the project as well for ensuring that the wandering fauna do not enter the project and get themselves harmed in the process.
- To minimize man-animal conflict with foraging animals, the solid waste collection site shall be constructed to restrict its entry.
- To minimize conflict arising due to entry of any mammalian predators (such as lions) or stray chinkara/ nilgai, warning and information and contact numbers of forest department shall be displayed at prominent locations within and around the project. Employees as well as people in the villages will be made aware to stay calm, inform wildlife department and remain safe.
- Greenbelt along the boundary & roads shall act as buffer for the animals.

4.13 SOCIO-ECONOMIC CONDITIONS

4.13.1 Resettlement & Rehabilitation planning

Impact

As per Approved Review Mining Plan, Mine Lease area is 332.24 ha. The authenticated list of khasras falling in the mine lease area is given in **Annexure XXVI**. Out of total ML area, Govt. land is 133.0154 ha and private land is 199.2246 ha. Land will be required for quarry area of 100.61 ha. This quarry area has private land, government land including 08 houses/hutment in land of Padhiarka village and 27 houses/hutment in land of Doliya villages. The houses/hutment fall in the conceptual pits of the mine lease. The number of

plots (khasras) and their land owners were summarised in Table C3-21 earlier. Total of 683 project affected land losers will be there.

Mitigation

- The houses/hutments in land of Padhiarka & Doliya villages which are falling under the pit area will be compensated by mutual consensus.
- The land losers who will be giving their land for quarry area shall also be given land value/compensation.
- The compensation/land value shall be as per mutually agreed rates, terms and conditions and commensurate with the latest market conditions for the type of homestead and land.
- The company shall enter into written agreement with the homestead and land owners for the same.
- The present purchase rates shall be based on the circle rates notified by the State Government as follows:

Type of land	Land rate, Rs. Lakh/ ha	Land requirement, ha	Total compensation/land value, Rs. lakhs
Private	12.60	79.28	998.928
Government	On lease (mining lease)	21.33	-
Total	**-**	**100.61**	**998.928**

- Rates for the purchase of homestead as per mutually agreed rates, terms and conditions and commensurate with the latest market conditions for the type of homestead:

Type of homestead	Rate, Rs. / sq.m.	Approx. Homestead area**, sq.m.	Approx. Total compensation, Rs. lakhs
Pucca	5000	700	3500000
Semi pucca	2500	-	-
Kutcha	1000	-	-
Total	**-**	**700**	**3500000**

* part of 100.61 ha quarry area

** Company will consider homestead losers falling in proposed mine area on actual basis at the time of starting of mining activity.

- In addition to above, the registration cost of sale of the land and homesteads shall be borne by the Company. Assuming it to be 6% of the

entire costs of sale, the total resettlement budget works out to be Rs. 59.93 lakhs (6% of land value).

- In case a land owner, whose land has limestone resource of depth 4 m is desirous of only leasing the land for the duration of mining instead of perpetual sale, then the company will enter into a lease agreement for the pre-decided duration at a mutually agreed rent. The company will remove the top soil from the progressing face of the open cast pit and store it temporarily till it can be filled back on the exhausted portion of the open cast pit. After laying back the soil on the exhausted shallow pit (<4 m depth), the land will be returned back to the land owner. The company shall provide technical and monetary aid for 1 year to the farmer, after handing back, to rejuvenate the land for agriculture.
- Mode of payment shall be through cheques/ online transfer to bank account of land losers and homestead loser.
- The company shall be purchasing land directly from land owners at mutually agreed rates. Hence, agreement to lease/ sell shall be signed with land owners with the following timeline:

Sr. No.	Timeline for land requirement	Pvt. Land	Govt. land	Total
		Ina Ha		
1	Present			
1.1	Purchased	0	0	0
1.2	Consented	0.89	0	0.89
1.3	Leased	0	133.02	133.02
2	Future			
2.1	1st to 5th year mining	35.80	3.51	39.31
2.2	6th year to Conceptual stage -11th year	80.78	21.58	102.36
2.3	Minelife (up to lease period)	199.22	133.02	332.24

* one sample consent agreement is given in **Annexure XXIX**

4.13.2 Socio-economic impacts and management

The local population gets an opportunity to get employment within unskilled or skilled categories depending upon their eligibility within the company.

Communication facilities created by the project in the form of approach roads, telephones, post offices and amenities such as schools, hospitals, market centres etc. will benefit the local population, since such facilities are not available to them before the project.

The following activities are proposed with a budget as outlined in Chapter 9 for socio-economic benefits.

Education

Educational institutions will be provided financial assistance.

Medical care

1. A dispensary will be constructed and required doctors and other Para medical staff would be organised for better medical care. The dispensary will be equipped with required modern laboratory for conducting all basic tests. The medical facilities will be open to the nearby villagers of the area, which will enhance company's efforts for extending community health services.
2. Free medical facilities will be provided to local villagers both at mining dispensaries.
3. Contribution of funds for upgrading the existing health centers in the area.
4. Infrastructure Development
5. Provision of free drinking water facility in the nearby surrounding villages of the lease area will be created.
6. Improvement of irrigation facilities in the surrounding, villages of plant/mining area. Construction of water channels to prevent seepage of water, which will result in enhancement of agricultural production.

Religion, culture & other activities

Nirma Ltd. will encourage brotherhood, fraternity and religious feelings among villagers and will contribute towards celebration of local fairs, organization of religious functions and construction/repair of religious places.

Other social amenities like amusement parks, social activities of Panchayats, Mahila Mandals and Yuva Mandals and other social activities of importance will also be encouraged.

Employment opportunities

1. Provision of direct and in-direct employment to the persons meeting basic requirement from locals.
2. Create opportunities for indirect employment on account of new trucks, company's vehicles and hired vehicles.
3. Create opportunities for indirect employment through stockists and retailers in Gujarat.

4.14 OCCUPATIONAL HEALTH AND SAFETY

Occupational safety and health is very closely related to productivity and good employer-employee relationship. Issues related to occupational health and

safety will be regulated in "The Mines Rules, 1955" and will be followed accordingly. Occupational safety and health is another important factor in the mining area and following steps shall be taken.

4.14.1 Safety

During mining operations some of the safety precautions to be implemented are as follows:

- Erecting barbed wire fencing around the areas being excavated
- Erecting barbed wire fencing around the areas being dumped
- Fencing the surface reservoir to prevent falling of human or animal into the water
- Erecting bunds / toe walls around the surface dumps to prevent damage to property or injury to persons by rolling stones.
- Provision of personal protective equipment (PPE) to the workforce.
- Rotation of workers exposed to noisy premises.
- Periodic safety drills and celebrating the Mines Safety Week, Road Safety Week, World Environment Day, National Fire Service Week, Mines Environment & Mineral Conservation Week etc.
- Maintenance of dust control systems such as mobile and stationary sprinklers;
- Regular maintenance of equipments and machines;
- Regular checking and up keeping of break down or leakage;
- Audio visual dissemination of information on safety, embracing risks associated with their profession, safety regulation will be adopted meticulously
- Non-destructive testing of all equipment and machinery will be carried out at regular intervals.

After finishing the mining operations, all areas which are inaccessible and are dangerous will be fenced.

4.14.2 Health

The health of the workers may get affected due to following:

- Due to limestone mining, dust generation shall be there. The impact on the health will be on the employees working in the immediate vicinity. The impact of the same shall be irritation in eyes, breathlessness etc.
- The noise will be generated by Continuous Surface Miner, excavator dumpers/tippers etc.

- The person involved in blasting. He shall be working only during the day for the duration of the blasting which is restricted to approximately 2 hours a day. Blasting has the hazard of injuring the personal due to explosive catching fire, fly rocks damaging the vehicles or injuring a person.
- The other potential hazard is of the explosive van driver who also works only during day time and his working hours are input only for the transportation of explosive from the magazine to the blasting site and back. The hazard involved is that the explosive in the van can catch fire or explode leading to injury to vehicle and manpower.
- The third type of hazardous job is of the magazine in-charge who faces risk in case of any fire or explosion of magazine. He will work one shift only.
- Neither of the above workers are exposed to risks throughout their entire shift.

Good medical facilities are available in nearby areas. The workers shall be monitored for various aspects of health and several tests carried out. Medical examination shall be carried out as per DGMS Circular No. DGMS(Tech.)(S&T) Circular No. 05 of 2011 in continuation with the Form-'O' under rule 29F (2) and 29L for the report of Medical Examination under rule 29B of Mines Rules,1955.

All the machines, bench offices and yards will be provided with First Aid boxes with essential medicines and replenished whenever required. Company will sponsor First Aid training to the workmen. Periodical medical examination of workers by medical specialist shall be conducted, so that any adverse affect may be detected in its early stage. Besides this, monitoring the values of the different environment health related parameters shall be done, which may lead to occupational health hazards to the workmen and specifying various control measures.

Following measures will be taken to ensure good health of employees:

- ***Prevent heat stress:*** provision of drinking water at close distance, rehydration solution at standby, air conditioned cabins and rooms, wherever possible, ventilated and cool clothes, etc.
- ***Prevent noise exposure:*** provision of ear muffs, enclosed cabins on heavy earth moving machinery.
- ***Prevent injuries:*** Warning announcements/ signal and red flags before blasting, caution boards on roads and road crossings, fencing/ bunding around open pits, etc.
- Ergonomic support in the form of closed air conditioned cabins on the heavy earth moving machinery.

- A separate person will be designated to undertake administration of personal protective equipments.
- Although, a trained doctor will be in charge of the occupational health risk and centre, arrangement for referral facilities will be made available.
- Close surveillance of the factors in working environment and work practices, which may affect environment and workers health. Monitoring of the values of various factors which may lead to occupational health hazards.
- Periodical survey shall be conducted to see the impact on the health status of local people and to take remedial measures, wherever required.

The Company will have qualified mining engineers and mine managers. They will plan, supervise, control, manage and direct mining operations as per mining regulations. All safety norms shall be followed. Personal protective equipments will be issued to workers. A Safety, Health and Environment officer will also be appointed for effective implementation of safety rules and regulations.

Regular Safety Committee meetings will be held at the mines to review the status of implementation of statutes. Regular safety trainings will be conducted such as seminars on safety, training in other mines, etc. Safety posters and pamphlets in English, Hindi and Gujarati shall displayed and distributed to workers. Workers will be made aware about workplace exposure. Company shall put 100% efforts for a zero accident rate.

Fly rock and dust emission will be reduced by adopting control blasting techniques such as precise and accurate timing delay, optimum oxygen balance in explosives, etc.

Since the mine is not yet operation, there are no existing practices adopted for assessment of occupational health including the details of medical examination and facilities.

4.14.3 Public health

40 villages are present in study area i.e. 14 in Rajula Sub district of Amreli and 26 in Mahuva Sub district of Bhavnagar. Their impact on the health of the residents of the study area will be low or negligible since no mining activity will take place outside Lease area. An assessment of the impact on air, water, noise, traffic, blasting and ground vibrations due to mining and related activities has a potential to directly or indirectly impact public health as follows:

(1) Air quality: The increase in dust emissions due to mining activities are the primary impact. The impact will be felt acutely by the closest settlements. However, the air quality prediction modelling show that the resultant air quality after commencement of operation of the mine will be

well within the national ambient air quality standards, 2009. Furthermore, the use of surface miners and other air pollution control measures proposed will minimize the impact.

(2) Water: There is no proposal to withdraw any ground water or surface water from any nearby source. Thus, none of the villages nearby will be competing for the same water. Ground water intersection will also not occur till 11th year, after which the life of mine will be over and the pits will act as a source of rain water for ground water recharge and use in agriculture and plantation.

(3) Traffic: Limestone carrying dumper shall be moved to the company's proposed cement plant adjacent to this mining lease through the internal haul road & Soda ash plant located at Bhavnagar through National Highway. Thus it will not affect public traffic Further it should be ensure that all dumpers follow the necessary safety procedure for accident free operation.

(4) Blasting & ground vibrations: The DGMS norms shall be followed by the company during blasting to minimize the impact due to ground vibration. The advantage in this project is the use of surface miners to almost 50% of the volume, which reduces the consequences of blasting and ground vibration to half.

4.15 CONSERVATION OF NATURAL RESOURCES

4.15.1 Water

For conservation of a natural resource like water, its reuse is a major component of the environmental management plan. The salient points are as follows:

- Mine water will be collected in the pit and shall be utilized for plantation and dust suppression purposes. However, during monsoon mine sump water will be pumped towards surface reservoir through natural drains after settlement of solids for recharge of surrounding open wells. Run-off around reclamation area will be controlled by providing catch drains leading to a sedimentation lagoon
- Run-off from dump would be collected through a series of contour drains which would be connected to a water retention pond. The clear water from this pond will be discharged to the natural water course/bandhara.

4.15.2 Land

Land degradation is one of the major adverse outcomes of opencast mining activities and any effort to control adverse impact is considered incomplete

when appropriate lands reclamation strategy is not adopted. Therefore, necessary steps have been taken for the reclamation of the area. Reclamation programme shall be carried out simultaneously with excavation. At the end of mine life, total excavation area will be 100.61 ha and out of this, 26.52 ha. will be backfilled and converted for agriculture use / plantation. 18.50 ha. will be afforested. Rest of the excavated area shall remain as void which is proposed to be utilized for accumulation of rainwater, which shall be useful for the local in replenishment of ground water. Thus, conservation of land is achieved till mine closure.

4.15.3 Energy

Adequate steps will be taken for saving energy as follows:

- Systematic and regular maintenance of equipments will be done.
- Energy meter will be provided for main equipment and pollution control equipments to assess the performance of that equipment.
- Light sensing timer will be provided for all haul road & mines lighting for optimum utilization of electric energy.
- Solar lighting will be provided at as many public locations as possible such as road sides, infrastructure area, etc.

4.15.4 Raw material / minerals

There are no raw materials envisaged as this is a mining project. Fuel will be optimally utilised in vehicles and machinery. Mineral will be transported to the cement plant adjacent to mine & Soda ash plant located at Bhavnagar through covered dumpers to prevent any loss through spillage.

CHAPTER 5
ANALYSIS OF ALTERNATIVES

5.1 SITE ALTERNATIVES

M/s Nirma Ltd. has been allotted limestone Mine in villages Padhiarka and Doliya, Taluka Mahuva in District Bhavnagar (Gujarat) by the State Govt. for mineral limestone and marl over an area of 616.7254 ha vide letter no. MCR-102004-1945-CHH dated 15.02.2008 for a period of 30 years.

Accordingly, the order for grant of mining lease was issued by Industries and Mines Department, Govt. of Gujarat, Gandhinagar vide letter no. MCR-102004-1945-CHH dated 08.01.2017 in an area of 332.24 Ha for 50 years. Thereafter, the mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the applicant Nirma Ltd. for a period of 50 years under the provision of MMDR Amendment Act, 2015 and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017. Under provision of Minerals (other than Atomic Hydro Carbons Energy Minerals) Concession Rules, 2016, "Mine Development and Production Agreement' has been signed between State Govt. and proponent on 11.01.2017.

Mining is site specific and a mineral has to be mined at the place where it exists in economically feasible quality and quantity. Hence, no alternative site is under consideration.

The selected mine site has location advantage from transportation point of view. The mine is captive for the proposed cement plant of Nirma Ltd. and is having cement grade limestone overlying thin soil cover. In the lease area, high quality of Limestone CaO content >48% is found in upper strata which can be utilized in boiler of Power Plant for de-sulfurization process and can also for manufacturing of Soda Ash for captive purpose. Company is having Soda ash plant located at Kalatalav in Bhavnagar Dist. The selected site has the following advantages:

1. The area has been selected because the lease area has sufficient reserves of cement grade limestone to sustain the life of cement plant.
2. The Mining lease area is near Mahuva town and is easily approachable by road from Mahuva town at about 9.5 Km. towards NE. Mahuva is Tehsil Head Quarter in Bhavnagar district of Gujarat. Mahuva is about 85 km from District Head Quarter Bhavnagar. National Highway NH-51 (Bhavnagar to Una) is at a distance of 0.7 km towards N.
3. Proximity to plant for limestone transport.
4. There are no industries/ mines in the vicinity of the site, thus there is no cumulative pollution load.
5. Availability of labour from nearby villages.

5.2 TECHNOLOGY ALTERNATIVES

A number of mining techniques are in widespread use depending on the site-specific characteristics and the environmental and other constraints that may be imposed.

Among the techniques that could be considered are:

- The Choice of using open-cast or underground mining will depend largely on economic grounds based on the depth and concentration of minerals, however environmental impact may have an influence;

- Immediate progressive backfilling while mining is till under way is often not favoured for practical reasons, but could be considered in special cases;

- In some cases solution mining may be used instead of excavation. Decisions about which chemical agents to use. e.g. cyanide, will depend partly on environmental risks;

- In-situ heap leaching is often of lower impact than removal of ore for processing elsewhere. Available processes include chemical and biological leaching;

The limestone occurring in the area is almost just below meagre quantity of sand/ soil cover. Clear cut bands of limestone and marly limestone occur in ML area. As deposit occurs nearer to the surface, it is amenable to opencast working. Thus, the mining is proposed to be carried out by fully mechanized opencast method using Continuous Surface Miner (CSM) with combination of excavator/ loader and dumpers. Conventional method i.e. drilling and blasting shall be proposed for handling of limestone. Surface miner is environment friendly machine and is used in order to avoid blasting as far as possible.

The cutting depth of surface miner is 250-300 mm and product size generated after cutting and milling in the required range. The loading is proposed to be carried out by hydraulic excavator and pay loader for lifting sized limestone and transportation shall be done by means of dumper/tippers of 25 tonnes capacity. The destination of mined out limestone is proposed clinkerization unit with crushing unit for crushed material only. Ex-surface miner material needs no further crushing.

The face shall be oriented in east-west direction. The bench height is proposed 6.0 m. Due to absence of waste, no handling of waste is required as pre-production development except topsoil removal and preparation of haul/ mine road. Soil shall be removed first in order to remove limestone. Benches of 6 m height and working width 12-15 m (as per MMR) maintaining working bench slope of 80-85° in limestone shall be there. Soil is loose material so will require pay loader for loading in dumper/ tipper.

Using of surface miner is eco-friendly mining operation specifically in area near road, habitation and boundary areas. The salient features of surface miner are safe and steady operation, minimum dust generation and low noise. It strips the strata in slices of 25-30 cm thick and wide 2.0-2.2 m.

ROM limestone is proposed to be used for the proposed cement plant directly for further process. Initially, limestone may be stacked temporarily depending upon plant demand. The excavation and loading is proposed to be carried out by Surface Miner and by occasionally drilling/ blasting, hydraulic excavator, loader, dumpers. Pay loader of capacity 5.76 cum shall be used for loading of fragmented rock mass of mineral and transported to the proposed cement plant. Crusher is required for material fragmented by drilling and blasting. Crusher is proposed in proposed cement plant in the vicinity of ML area.

High grade limestone available in top layer of the mining lease area which can be used in Soda ash plant, shall be sent directly as ROM to the Soda ash plant located at Kalatalav near Bhavnagar through trucks / dumpers with the permission of the State Govt.

CHAPTER 6
ENVIRONMENTAL MONITORING PROGRAMME

6.1 INTRODUCTION

Success of any environmental management programme depends upon the efficiency of the organizational set up responsible for the implementation of the programme. Regular monitoring of various environmental parameters is also necessary to evaluate effectiveness of management programme so that necessary corrective measures can be taken, in case, there is some deviation in the proposed programme. Environmental quality parameters at work zone are also important for the occupational health and safety of the workers.

Nirma Ltd. shall be responsible for the environmental protection and will take appropriate preventive and curative measures to maintain environment. Nirma Ltd. will follow an effective environment management system at proposed limestone mine with regular water sprinkling for dust suppression, reclamation of mined out area by backfilling and afforestation, plantation around mine site, undisturbed area and roadside.

Required statutory consents/ permissions for the project will be obtained and will be renewed well within time. After grant of the various consents/ permissions, stipulated environmental monitoring will be carried out either by the company itself or through external agencies, monitoring outcomes analysed and corrective measures, if required will be undertaken.

6.2 PROPOSED SETUP

The project is new mine proposed for a targeted production of 1.5 MTPA of limestone. An environmental management and reporting system shall be put in place. Keeping the utility of monitoring results in the implementation of the environmental management programme in view, an organisational chart is proposed, headed by Vice President as shown in **Fig No. C6-1**. Due to the proximity of mine and the plant, and both being under the same management, a team consisting of required qualified personals and trained personnels will be looking after the environmental monitoring and management of mining and cement manufacturing.

1. Collecting water and air samples, work zone monitoring for air pollutants and noise level.
2. Analysis of the water and air samples.
3. Implementing the control and protective measures and monitoring the progress of implementation of environmental management programme.
4. Coordinating the environment related activities within the mine.

5. Green belt development/ plantation etc. and maintaining development of greenbelt around the mining site, the plantation of trees will not only help in the suppression of dust and pollutant but it will also enhance the aesthetic values.

6. Good housekeeping will improve the working conditions.

7. Regular cleaning of roads shall avoid accumulation of dust/ water.

8. Regular cleaning/ washing of shop floors.

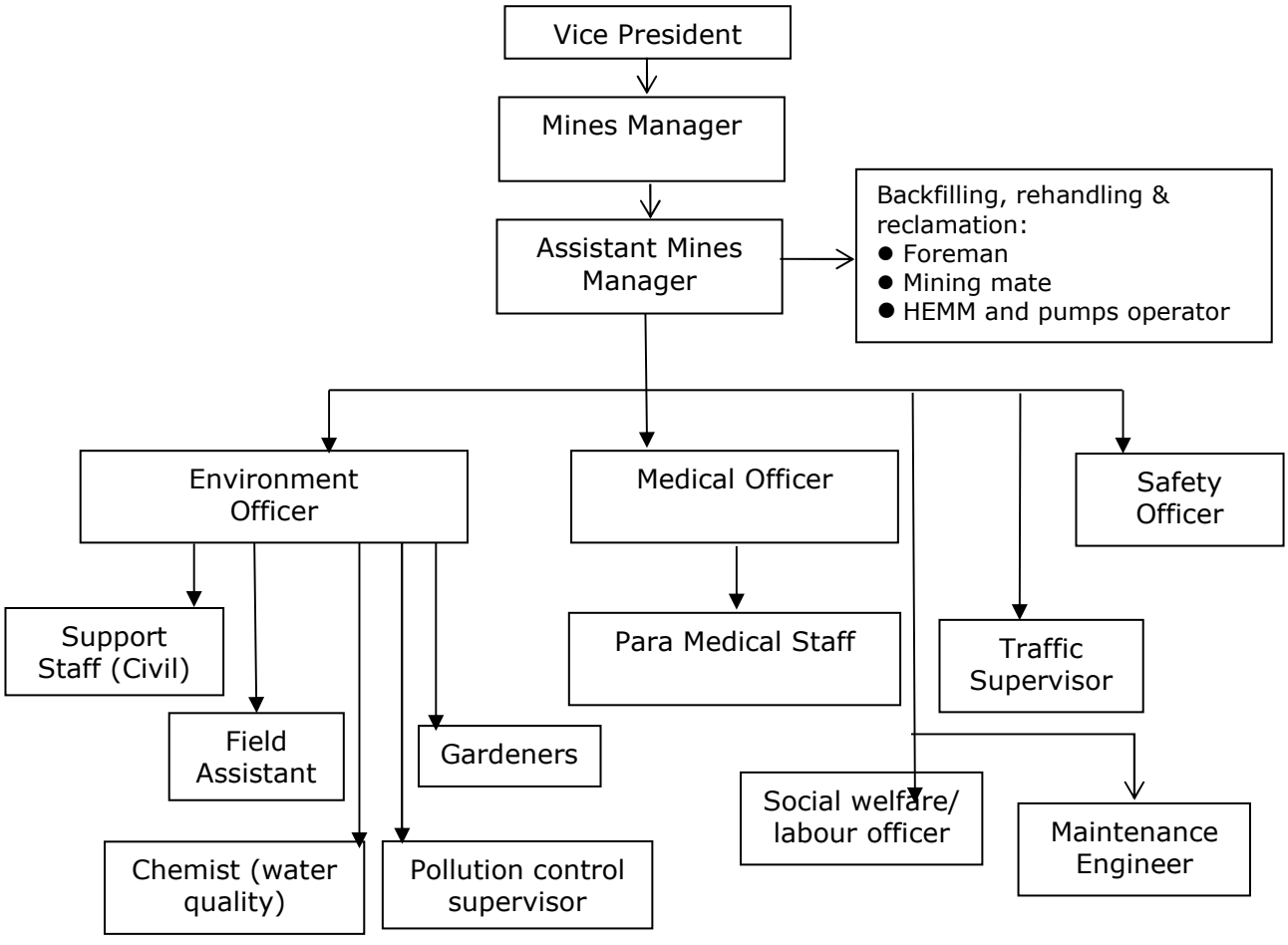
9. Avoiding un-necessary accumulation and dumping of waste and damaged equipment.

10. Maintaining hygienic condition in the canteen, drinking water sources and toilets.

11. Coordinating with outside agency for collection and analysis of water, soil, noise and air samples,

The monitoring for various parameters of air, water, noise, soil, etc. will be carried out either by the company itself or by recognised/ accredited third parties, as per the monitoring schedule.

FIG NO. C6-1: ORGANISATION CHART FOR IMPLEMENTATION OF POLLUTION CONTROL MEASURES



6.3 MONITORING SCHEDULE AND PARAMETERS

To evaluate the effectiveness of environmental management programme, regular monitoring of the important environmental parameters will be done.

Monitoring of various environmental parameters will be carried out on a regular basis to ascertain the following:

a. Pollution status within the plant and mining lease area (core & buffer zone)

b. Generate data for predictive or corrective purpose in respect of pollution

c. Effectiveness of pollution control measures and control facilities

d. To assess environmental impacts

e. To follow the trend of parameters which have been identified as critical.

Monitoring is as important as pollution control since the efficiency of the control measures can only be determined by monitoring. The schedule, duration and parameters to be monitored are shown in **Table No. C6-1**.

TABLE NO. C6-1: MONITORING SCHEDULE AND PARAMETERS

<table>
<tr><th>Sl. No.</th><th>Description of parameters</th><th>Location</th><th>Schedule and duration of monitoring</th></tr>
<tr><td>1.</td><td>Air Quality
Parameters:
$PM_{2.5}$, PM_{10}, SO_2, NO_2, CO and heavy metal</td><td>One sample within mine boundary and three in the vicinity of the project with at least two in the predominant wind direction at 500 m and 100 m from mine. Proposed 4 locations:
<table>
<tr><th>Sl</th><th>Name</th><th>Coordinates</th></tr>
<tr><td>1</td><td>Padhiarka Near Cement Plant</td><td>21°1'29.37"N 71°40'52.70"E</td></tr>
<tr><td>2</td><td>Madhia village</td><td>21°2'45.72"N 71°40'46.28"E</td></tr>
<tr><td>3</td><td>Vangar village</td><td>21°2'46.96"N 71°39'10.78"E</td></tr>
<tr><td>4</td><td>Nana Pipalva village</td><td>21°3'50.46"N 71°38'19.48"E</td></tr>
</table></td><td>One 24 hourly sample per day, quarterly.</td></tr>
<tr><td>2.</td><td>Micro-meteorology- Wind velocity and direction, Temperature, humidity and rainfall</td><td>Permanent station at adjacent cement plant at 21°1'29.37"N, 71°40'52.70"E</td><td>Continuous automatic monitoring</td></tr>
<tr><td>3.</td><td>Water Quality/effluents
Water quality of surface water and ground water as per IS : 10500, and mine discharge water samples will be compared</td><td>One mine sump water sample from the mine workings, three potable water samples from the nearest villages and three pond water samples as follows:</td><td>Water quality of surface water and ground water as per IS : 10500, and mine discharge water samples will be</td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Description of parameters</th><th>Location</th><th>Schedule and duration of monitoring</th></tr>
<tr><td></td><td>with MoEF&CC Schedule-VI standard.</td><td>
<table>
<tr><th>Sl</th><th>Name</th><th>Coordinates</th></tr>
<tr><td>1</td><td>Mine sump</td><td>21°1'36.05"N 71°40'56.97"E</td></tr>
<tr><td>2</td><td>Near Cement Plant, Padhiarka</td><td>21°1'30.68"N 71°40'52.38"E</td></tr>
<tr><td>3</td><td>Padhiarka Village(Near Padhiarka Doliya Road)</td><td>21°2'3.14"N 71°40'46.73"E</td></tr>
<tr><td>4</td><td>Vangar Village (Near Primary School)</td><td>21°2'34.81"N 71°39'29.30"E</td></tr>
<tr><td>5</td><td>Malan bandhara near Khared</td><td>21°2'20.87"N 71°44'42.04"E</td></tr>
<tr><td>6</td><td>Arabian Sea Near Doliya</td><td>21°0'24.22"N 71°41'10.75"E</td></tr>
<tr><td>7</td><td>Malan River Near Barpara, Mahuva</td><td>21°4'46.23"N 71°46'36.42"E</td></tr>
</table>
</td><td>compared with MoEF&CC Schedule-VI standard.
Once in three months (frequency to be checked with MoEF&CC Schedule-VI)</td></tr>
<tr><td></td><td>Ground water level</td><td>10 Locations
<table>
<tr><th>Sl.</th><th>Name</th><th>Coordinates</th></tr>
<tr><td>1</td><td>Samadhiyala No-1</td><td>21°1'30.98"N, 71°38'25.11"E</td></tr>
<tr><td>2</td><td>Samdhiyala No.-1</td><td>21°1'11.23"N, 71°38'35.90"E</td></tr>
<tr><td>3</td><td>Mota Pipalva</td><td>21°4'1.26"N, 71°38'10.84"E</td></tr>
<tr><td>4</td><td>Nana Pipalva</td><td>21°3'28.38"N 71°38'40.85"E</td></tr>
<tr><td>5</td><td>Doliya</td><td>21°0'39.95"N 71°41'12.16"E</td></tr>
<tr><td>6</td><td>Doliya</td><td>21°0'44.49"N 71°40'44.37"E</td></tr>
<tr><td>7</td><td>Doliya</td><td>21°0'43.94"N 71°40'42.40"E</td></tr>
<tr><td>8</td><td>Vangar</td><td>21°1'53.25"N 71°39'57.33"E</td></tr>
<tr><td>9</td><td>Vangar</td><td>21°1'51.88"N, 71°39'45.80"E</td></tr>
<tr><td>10</td><td>Vangar</td><td>21°2'24.74"N 71°39'12.27"E</td></tr>
</table>
</td><td></td></tr>
<tr><td>4.</td><td>Ambient noise level</td><td>Same locations as ambient air quality stations
4 locations
<table>
<tr><th>Sl.</th><th>Name</th><th>Coordinates</th></tr>
<tr><td>1</td><td>Padhiarka Near Cement Plant</td><td>21°1'29.37"N 71°40'52.70"E</td></tr>
<tr><td>2</td><td>Madhia village</td><td>21°2'45.72"N 71°40'46.28"E</td></tr>
<tr><td>3</td><td>Vangar village</td><td>21°2'46.96"N 71°39'10.78"E</td></tr>
<tr><td>4</td><td>Nana Pipalva village</td><td>21°3'50.46"N 71°38'19.48"E</td></tr>
</table>
</td><td>Once in every three months</td></tr>
</table>

<table>
<tr><th>Sl. No.</th><th>Description of parameters</th><th>Location</th><th>Schedule and duration of monitoring</th></tr>
<tr><td>5.</td><td>Inventory of flora (Tree plantation, survival etc.)</td><td>Green belt and plantation</td><td>Continue till the mine life and mine closure period including post mine closure monitoring period</td></tr>
<tr><td>6.</td><td>Soil quality:
Parameters: pH, conductivity, $CaCO_3$, specific gravity, moisture, sodium, potassium, textural classification, colour, organic carbon, organic matter, phosphorous, nitrate, calcium, magnesium</td><td>Green belt, Agricultural land of nearest village
4 locations
<table>
<tr><th>Sl.</th><th>Name</th><th>Coordinates</th></tr>
<tr><td>1</td><td>Near Cement Plant Padhiarka</td><td>21°1'30.36"N 71°40'53.93"E</td></tr>
<tr><td>2</td><td>Padhiarka Village(Near Padhiarka Doliya Road)</td><td>21°2'1.66"N 71°40'47.71"E</td></tr>
<tr><td>3</td><td>Doliya Village Near Primary school</td><td>21°0'41.12"N 71°41'8.28"E</td></tr>
<tr><td>4</td><td>Dudheri Village Near Dudheri Branch Post Office</td><td>21°2'1.29"N 71°42'10.51"E</td></tr>
</table></td><td>Once in three months</td></tr>
<tr><td>7.</td><td>Land reclamation</td><td>Within lease</td><td>Throughout life & till fulfillment of action plan of EMP and mine closure plan</td></tr>
<tr><td>8.</td><td>DG Stack</td><td>Two samples at DG stack exit
<table>
<tr><th>Sl.</th><th>Name</th><th>Coordinates</th></tr>
<tr><td>1</td><td>DG1</td><td>N21°01'10.73" E71°40'46.56"</td></tr>
</table></td><td>Once in 6 months</td></tr>
<tr><td>9.</td><td>DG Noise</td><td>Two samples at DG stack exit
<table>
<tr><th>Sl.</th><th>Name</th><th>Coordinates</th></tr>
<tr><td>1</td><td>DG1</td><td>N21°01'10.73" E71°40'46.56"</td></tr>
</table></td><td>Once in 6 months</td></tr>
</table>

Note: The above frequency can be increased as per directions from SPCB/ MOEFCC

The environmental monitoring activities will be recorded; hence, the following documents will be maintained for record, as applicable:

i) Log sheets of operation and maintenance of pollution control facilities/ equipment (dust suppression, water tanker).

ii) Instruction manual or guidelines for operation and maintenance of pollution control facilities/ equipment.

iii) Statutory records as per the environment related legislations such as Environment Protection Act & Rules, EIA Notification, Air (Prevention and Control of Pollution) Act, Water (Prevention and Control of Pollution) Act and others.

iv) Monthly and annual progress report.

v) Two times a year compliance report for Regional office, MoEF&CC.

vi) Annual Environmental Statement and compliance of Consent conditions for State Pollution Control Board.

6.4 BUDGETARY PROVISION FOR ENVIRONMENTAL MANAGEMENT

Capital cost estimated for EMP

Adequate budgetary provisions have been made by the Company for execution of environmental measurement plan. **Table No. C6-2** and **C6-3** give overall investment on the environmental safeguards and recurring expenditure for successful monitoring and implementation of control measures (including reclamation).

TABLE NO. C6-2: CAPITAL INVESTMENT FOR ENVIRONMENTAL PROTECTION IN LAKHS

Sl. No.	Particulars	No.	Total
I.	**Pollution control**		
1	Dust suppressor (surface miner)	1	10.00
2	Water sprayer (Stationary)	5	0.50
3	Water sprayer (Mobile)	1	8.00
4	Septic tanks / Soak Pits	6	0.60
5	Oil Water Separator (Workshop)	1	3.00
6	Garland drains, retaining wall, check dams	1	5.00
	Sub total		**27.10**
II.	**Pollution monitoring**		
1	Respirable dust sampler	2	1.60
	Sub total		**1.60**
III.	**Occupational health**		
1	Fire fighting equipment (Portable)	LS	0.50
2	Personal protective equipment (goggles, gloves, helmets, safety boots etc.)	60	0.60
	Sub total		**1.10**
IV.	**Miscellaneous**		
1	Environmental Studies, etc.	LS	10.00
	Sub total		**10.00**
	Grand total		**39.80**

Annual cost of monitoring and implementation of control measures is given in **Table No. C6-3**.

TABLE NO. C6-3: RECURRING COST FOR ENVIRONMENTAL PROTECTION

Sl. No.	Particulars	Rs. Lakh/annum
1	Pollution control	9.66
2	Pollution monitoring	3.88
3	Occupational health	0.65

Sl. No.	Particulars	Rs. Lakh/annum
4	Green belt	5.10
5	Reclamation	5.85
6	Others (Environmental studies, Rehabilitation, Realignment, Expert advice, fencing etc.)	6.03
	Overheads	0.30
TOTAL		**31.47**

Assumptions for cost calculation:

1. *300 working days with two shifts operation*
2. *Cost of diesel Rs 97.22/l and petrol Rs. 99.78/l*
3. *Cost of electricity Rs. 5.56/ unit*
4. *Life of mine 11 years*
5. *Manpower considered for cost estimation– 1 nos. Grade-I (salary - Rs 1,50,000/ month)- giving 10% of their time for pollution control (i.e. Assistant Mine manager). Grade-II (salary - Rs 50,000/ month)- 80% of Environment Officer and 60% of Safety Officer time to overall environment issues, 30% and 50% of the time of 1 nos. Foreman and 1 nos. Mining mate in Backfilling, rehandling and reclamation, and 100% of the time of 2 nos. i.e 1 Medical officer and 1 Dispensary staff in OHS and medical checkups in dispensary. Grade-III (salary - Rs 20,000/ month)-100% of the time of 1 no. chemist (water quality), 11 nos. various HEMM and pumps operator and 2 nos. Diploma engg from civil in monitoring, inspection etc., Grade- IV (salary - Rs 10,000/ month) 100% of total time of one Gardner for caring and inspection of green belt development and plantation on undisturbed area.*
6. *Debt: Equity ratio as part of total capital – 0*

The total investment on environmental improvement works is envisaged as Rs. 39.80 lakhs and recurring expenditure during the stage of production is Rs. 31.47 lakhs per year. Annual budget has earmarked for social welfare measures as given in **Table No. C8-1**.

Expenditure in Post mine closure & financial assurance

For Financial assurance, M/s Nirma Ltd. under Rule 27 of MCDR'2017, the area put to use for mining and allied activities will be 39.31 ha at the end of five years of Progressive Mine Closure Plan period i.e. 31.03.2026. It amounts to a sum of Rs.1,17,93,000/- (Rupees One crore, Seventeen Lakh Ninety three Thousand Only. The Mine Development and Production Agreement (MDPA) have been signed between the State Government and lessee. The lessee has deposited requisite an amount of Performance Security (Rs. 5,82,60,891/- Rupees Five Cr. Eighty-Two Lakh Sixty Thousand Eight Hundred Ninety-One Only) on 11.02.2022 in the form of Bank Guarantee vide Bank Guarantee No. 0415217BG0000040 with validity up to 10.02.2027.

CHAPTER 7
ADDITIONAL STUDIES: RISK ASSESSMENT, DISASTER MANAGEMENT PLAN & PUBLIC CONSULTATION

7.1 RISK ANALYSIS AND DISASTER MANAGEMENT PLAN

All types of industries face certain types of hazards which can disrupt normal activities abruptly and lead to disaster like fires, inundation, failure of machinery, explosion, to name a few. Similarly, limestone mines also have impending dangers or risk which need be addressed for which a disaster management plan has been formulated with an aim of taking precautionary steps to avert disaster and also to take such action after the disaster which limits the damage to the minimum. The entire mining operation will be done under the supervision of the Mines Manager having first class mines managers' certificate of competency and supported by a team of mining engineers, Environment and safety officers.

Nevertheless, the following natural/industrial problems may be encountered during the mining operation:

- Inundation of the mine pit due to excessive rains.
- Slope failures at the mine faces or at stacks.
- Accident due to blasting.
- Accident due to plying of heavy mining equipment.
- Sabotage in magazine area.

As per proposal made under the Review of Mining Plan, during proposed working, the area will be developed by means of Opencast mining operations with Surface Miner (occasionally deep hole drilling and blasting). Exploitation and transportation of mineral are to be carried out by Mechanized means. Bench height will be maintained up to 6.0 m. Maximum depth of working is +1.0/+2.0 m AMSL. No high risk accidents like landslides, subsidence flood etc. have been apprehended.

But possibility of accidental disaster is not ruled out. Therefore, all the statutory precautions should be taken for quick evacuation as per the Mines Act 1952, the Mines Rules 1955, Rule of MMR- 1961 and the Rules of MCDR-2017.

The mining operations will be carried under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS. DGMS have been issuing standing orders and circulars to be followed by the mine management in case of disaster if any.

In order to take care of the hazards/disasters, the followings will be strictly followed:

- Working of mines as per approved Review of Mining plan with Progressive Mine Closure Plan.
- All safety precautions and prevention of MMR 1961 will be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- Checking and regular maintenance of garland drainage and earthen bunds.
- Proper number of notice boards in English / Hindi and Gujarati will be placed warning: No unauthorized persons to trespass the area.
- Periodic checking of worthiness of fire fighting and first aid provision in the mining area.
- Training and refresher courses for all the employees.
- Cleaning of mining faces regularly.
- As a part of disaster management plan, a rescue team will be formed by imparting specialized training to select mining staff.

A check list depicting likely disaster events due to the mining activity is presented in **Table No. C7-1**.

TABLE NO. C7-1: CHECK LIST FOR LIKELY DISASTER IN OPENCAST MINES

Sl. No.	Activities	Human Risk		Ecological Risk		
		Severe	Non – severe	Land	Air	Water
1.	Extraction of mineral		✓	✓	✓	✓
2.	Removal of Soil and Storage		✓	✓	✓	✓
3.	Transportation of mineral on Haul Road	✓		✓	✓	
4.	Use of Machinery		✓	✓	✓	
5.	Drilling and Blasting	✓		✓	✓	

Although, the occurrence of a disaster is rare, still it is necessary to draw an action plan as a contingency measure as explained in subsequent sections.

7.1.1 Inundation

To guard against the danger from inundation in the mine from surface water including in-rush of water in rainy season, adequate number of pumps of required capacity and HP will be installed to pump out the rainwater continuously from mining area. A diesel generator will be provided for un-interrupted supply of power to the pumps in the event of failure of power. At the conceptual stage of mining, excavated mining pits will be left for rain water collection. However, whatever quantity of water gets collected from rains will be pumped out from the mine sump.

As the mining plan (ultimate pit limit) is proposed up to +1 /+2 m amsl. Water level in the area ranges between (-)0.5 m to (-)2.5 m AMSL. During next five years, mining shall be carried out up to 10.5 m AMSL. Thus, the mining pit will not have mine seepage atleast next 5 working year except direct rainfall as water level will not be intersected. After that, during conceptual period the mine seepage will occur during post-monsoon season only. Considering the annual rainfall of 718.0 mm over a pit area of 100.61 ha, the total direct rainfall accumulation can be 0.72 MCM. Assuming, 50% losses to seepage and evaporation 0.36 MCM per annum can be available for plantation and agriculture use.

To protect the mine workings from surface water flow during the rains, fresh garland drains shall be made before every monsoon at the periphery of active edges of quarry. Settling tanks of adequate capacity shall be made on surface. Mine water shall be pumped to it and after settlement and proper treatment, shall be discharged into nearest nala/Bandhara. The sump shall be made at one end of strike on the floor of the quarry and will be periodically cleaned. The working benches shall be graded suitably so that the entire water will flow down to the sump.

The water accumulated in mine pits will be dewatered and used for greenbelt, dust suppression and plant. If still water remains surplus, the same will be utilized for irrigation by nearby farmers and recharge to ground water as feasible. Therefore, the quantity of water encountered during mining will also have positive impact on ground water regime and no external source of ground water will be required for mining activities and water quality improvement is expected in ground water.

7.1.2 Slope failure

As the rock is hard compact and sides will be properly benched the chances of landslides are not there. There will be no tailing dam.

The rocks are blasted to win the mineral causing cracks and opening in natural binding. Such loose rocks may fall at any time causing damage to human life and machinery. The only remedy to the affect of such situation is to dress the

blasted part. All necessary precaution will be taken as per Reg. 115(1) of MMR 1961 to avoid any disaster.

Sliding of waste dump is an equally severe risk like quarry slope failure. But there is no overburden, so question of waste material handling and dumping does not arise.

7.1.3 Risk due to fire

No surface fire is involved in the mining operation. In case of forest, fire may result due to dry leaves and wood in vegetated part and result in a disaster. In the area under reference, there is no such situation and there is no danger of forest fire. No oil, grease, canvas or other inflammable material will be stored in mine except in a fire-proof receptacle.

Sufficient fire extinguishers will be installed in HEMM as well as at selected locations on surface like Electrical Sub-stations, Workshop, Garage, Diesel Depot, Stores, etc. Besides this, sufficient number of water hydrants with sufficient hose pipes will be made available in the permanent building such as office for fire fighting.

7.1.4 Possible dangers due to storage and handling of explosives

Mainly slurry explosives and ANFO will be used for blasting. Various types of explosives such as ANFO, slurry, emulsion etc. will be used for blasting. Since ANFO is cheaper and economical, it will be used as much as possible except in rainy season. Delay detonators or Nonel detonating fuse will be used since multi row system of firing will be carried out so as to reduce the ground vibration, noise, fly rock etc due to blasting.

In order to avoid fly rocks and other blasting hazards the secondary blasting is not recommended. However for secondary breakage of oversized boulders hydraulic rock breaker shall be utilized. Blasting parameters for limestone having 6 m average height.

Explosives will be stored in magazine approved by Controller of explosives. Licensed explosive van duly approved in writing by the Controller of explosives will be used for transporting explosives from magazine to the priming station or the site of blasting. The actual quantity of explosives in original cardboard packing will be transported just before the commencement of charging of holes. Fire extinguishers for petroleum fire & the other of CO_2 under pressure type for electric will be kept.

An Explosive Magazine under Explosive Rules 2008 for the storage and use of explosives is provided and maintained in nearby lease hold area in Gujarda mine which shall be common for all mines. Proper watch and guard will be kept, hence no danger from the magazine exists.

Precaution during firing

- The shots shall be fired by the Blaster only
- The shots shall be fired during the rest interval (12.00 noon to 1.00 pm)
- Danger zone falling within a radius of 500 m is marked. Guards are posted with red flags to all the directions to prevent approaching of any person & cattle.
- Warning through hooters to all concern within the danger zone is made.
- Blasting shelters, made of iron sheet of adequate strength are provided.
- In the event of misfire, the place will be marked with a red flag and dealing with misfire & reliving holes will be carried as per the procedure laid down as per Regulation 167 of MMR- 1961.

7.1.5 Explosion/ Storage of explosives in the magazine

An Explosive Magazine under Explosive Rules 2008 for the storage and use of explosives is provided and maintained in nearby lease hold area which shall be common for all mines. The capacity of the proposed explosive magazine is yet to be decided.

The explosive magazine will be designed in such a manner that normal chances of fire inside the magazine are ruled out. Still following precautions will be taken:

1. Controlled blasting shall be practiced by competent persons
2. Column shall be stemmed and it would not be less than the burden
3. Boundaries of danger zone shall be marked by sign boards
4. Signals by way of whistle, red flag, shall be given at the time of blasting
5. Blasting time shall be fixed and its intimation shall be given to the adjoining villagers.
6. Portable shelter for protecting the shot firer shall be provided
7. NONEL is to be introduced to control the flying rocks, reduce vibration and over pressure within the control/ permissible limit
8. Blasting by NONEL will reduce dust becoming air borne hence will control pollution of ambient air quality
9. No blasting shall be carried out within 300 m of any surface structure of permanent nature, if any without prior permission of DGMS
10. Blasting timing shall be during shift change.
11. Danger zone shall be marked with red flags and santries shall be posted at all access roads and entry points
12. Man and machinery shall be removed to safe distance
13. PPE shall be used during blasting

14. Loose stone shall be removed from bench floor
15. Bottom initiation and delay in each hole shall control the throw of the blast and also reduces the ground vibration and noise due to air blast over pressure.
16. Every blast shall be monitored for vibration/ AOP with DGMS approved norms

7.1.6 Accidents due to machineries / equipments

Most of the accidents occur during transportation by dumpers and trucks. The accidents due to other heavy vehicles are often attributable to mechanical failures, in which the human error factor cannot be ruled out. Mining machineries would be kept well maintained and in good running order. Regular monitoring of condition of equipment and its timely maintenance as per condition will be done. Wrong or careless operation of machines can also cause accidents, thus, only trained personnel shall be allowed to operate the machines. Unauthorized riding on moving vehicles should be prohibited and effectively enforced.

7.1.7 Accident due to cyclone

As the area is close to coast, there are chances of hitting of cyclone which may cause:

- Flash floods
- Damage to life and property
- Disruption of road & telecommunication facilities.
- Lightning

7.2 CARE AND MAINTENANCE DURING TEMPORARY DISCONTINUANCE

Mining lease is fresh grant. At the time of temporary discontinuance of mining operations, notice (as per Rule 28 of MCDR, 2017 & Reg. 6 of MMR, 1961) will be sent to IBM and Mines Safety authorities. Notice will be accompanied as per Rule 28 of MCDR, 2017, vide, Form No. E. All precautionary steps will be taken into account in respect of care and maintenance.

In case of any temporary discontinuance due to statutory requirement or any other unforeseen circumstance following measures for care and maintenance and monitoring of status shall be taken.

1. Notice of temporary discontinuance of mining operation shall be given in case the discontinuance exceed six days inform to the Concern Authorities i.e. IBM, DGMS and Geology & Mining Department official.
2. All the mining machinery shall be shifted to a safe place.

3. Entrance to the mines or part of the mines to be discontinued shall be fenced off and Security Guards shall be posted for the safety and to restrict any unauthorized entry in the area.
4. Competent persons shall inspect the area regularly.
5. Air, water and other environmental monitoring shall be carried out.
6. Care and upkeep of plantation done shall be carried out on regular basis.
7. Status of the working and status monitoring for re-opening of the mines shall be discussed in weekly meeting on last working day of the week.

In case of discontinuance due to any natural calamites mining operation will be restarted as early as possible after completing rescue work restoring safety and security repairs of roads. To meet any emergency a Disaster Management Plan will also be prepared widely circulated and training through rehearsals and mock drills shall be done.

7.3 DISASTER MANAGEMENT PLAN

The objective of the Disaster Management Plan is to make use of the combined resources of the mines and outside services to achieve the following:

- Effect the rescue and medical treatment of casualties.
- Safeguard other people.
- Minimize damage to property and the environment.
- Initially contain and ultimately bring the incidence under control.
- Identify any dead.
- Provide authoritative information to the News media.
- Secure the safe rehabilitation of affected area.

The mine will be a captive limestone mine located close to the cement plant equipped with following facilities:

1. Fire fighting station with fire fighting trucks and staff.
2. Well equipped hospital
3. Ambulance.
4. The lease with own facilities will be capable of handling any emergency however in case of need help of Administrative, Govt. Hospital and police from Mahuva town can be taken.

A senior most executive will be heading the emergency organization. He will work as site controller. Agent-Mines nominated by owner shall be overall responsible person. Mine Manager will work as incident controller to organize the team for controlling the incident with the person under his control.

7.3.1 Earthquake

The area falls in the seismic active zone-III which is moderate seismic zone hence following precautions shall be taken for earthquake: -

a. Before an Earthquake

1. All the civil construction is proposed to be carried out with design which will be able to withstand seismic activities.

2. Provision of fire extinguisher, first aid kit, a battery-powered radio, a flashlight and extra batteries at site.

3. Not to leave heavy objects on shelves.

4. Anchoring of heavy furniture, cupboards and appliances to the walls or floor.

b. During an Earthquake

1 Stay calm! If anybody is indoors, stay inside and if outside, stay outside.

2 If anybody indoors, to stand against a wall near the centre of the building, stand in a doorway, or crawl under heavy furniture (a desk or table). Stay away from windows and doors.

3 If anybody outdoors, stay in the open away from power lines or anything that might fall. Stay away from buildings (stuff might fall off the building or the building could fall on you).

4 Not to use matches, candles, or any flame.

5 If anybody is in a vehicle, stop the vehicle and stay inside the vehicle until the earthquake stops.

7.3.2 In Case of Fire at Mine

Sufficient fire extinguishers will be installed at selected locations on site. Besides, numbers of water hydrants with sufficient length of hosepipes will be made available at the surface for fire protection. Any person when notices any sign of fire shall immediately take steps to give warning by blowing the siren continuously and take steps to extinguish the fire by using appliances available near the site. To avoid any fire hazard all heavy earth moving equipment shall be provided with fire fighting equipment. Personnel shall be given proper training in fire fighting and mock rehearsals shall be conducted.

In the case of a major fire but without explosion risk (e.g. an oil storage tank), only houses close to the fire are likely to need evacuation, although a severe smoke hazard may require this to be reviewed periodically. But if the fire escalates it might be necessary to evacuate people nearby, but only if there is time; if insufficient time exists, people would be advised to stay indoors and shield themselves from the fire while measures are taken by those outside to douse fire.

7.3.3 Explosion & Accidents

To deal with accidents efficiently and quickly, steps shall be taken immediately through warning by suitable means and at the same time take necessary action for withdrawal of men from the site with information to the Mines Owner and other officials without any delay.

To avoid all these disasters at working place and to minimize their effects following precautions shall be taken and arrangement shall be made at the working place.

(i) Periodical maintenance of mine machineries.
(ii) The persons shall be trained properly to handle the situation.
(iii) Detailed warning system, implementation procedure, emergency control centre shall be maintained at the mine with names of trained persons.
(iv) Details and availability of heavy machinery, fire-fighting equipment shall be available at the site.
(v) Proper arrangements shall be made for treatment of injured person, if any.
(vi) All the safety equipment shall be available at the mine.

7.4 OFF-SITE EMERGENCY PLANNING

The complete mining operation will be carried under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines, granted by DGMS. Standing orders and circulars issued by DGMS shall be followed by the mine management in case of disaster, if any.

Communications: Identification of personnel involved, communication centre, call signs, network, list of telephone numbers.

Special Emergency Equipment: Details of availability and location of heavy lifting gear, bulldozers, specified fire-fighting equipment, fireboats.

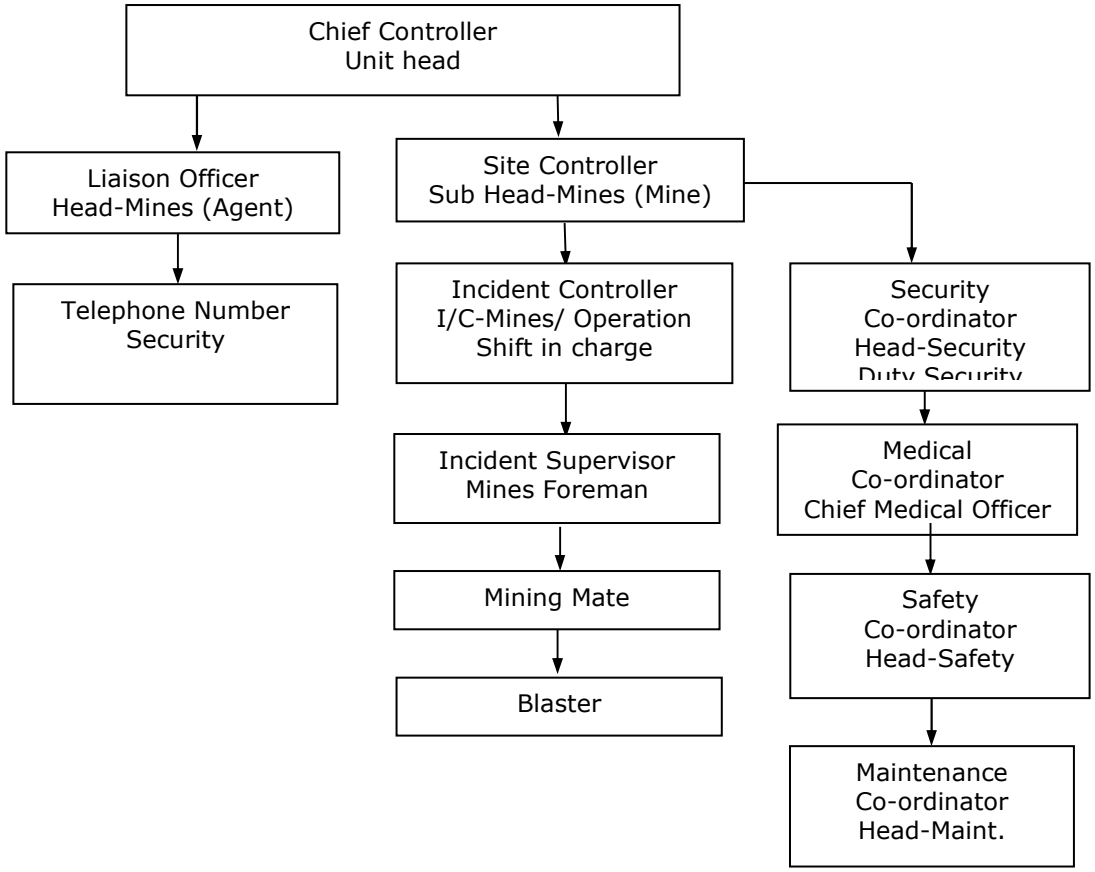
Voluntary Organizations: Details of organizers, telephone numbers, resources, etc.

Meteorological information: Arrangements for obtaining details of weather conditions prevailing at the time and weather forecasts will be made.

Humanitarian Arrangements: Transport, evacuation centres, emergency feeding, treatment of injured, first aid, ambulances, temporary mortuaries.

Details of Emergency Co-ordinating Officer: Name of Person, designation, their contact no. and address, etc.

FIG NO. C7-1: ORGANISATION CHART



Role of the Local Authority

Appointment of an Emergency Planning Officer (EPO) to carry out all this duty as part of the EPO's roles in preparing for a whole range of different emergencies within the local authority area. The EPO will need to obtain the information to provide the basis for the plan.

Role of the Police

Formal duties of the police during an emergency include protecting life and property and controlling traffic movements. The functions include controlling bystanders, evacuating the public, identifying the dead and dealing with casualties and informing relatives of dead or injured.

Role of the Fire Authorities

The control of a fire is normally the responsibility of the senior fire brigade officer who would take over the handling of the fire from the site incident controller on arrival at the site.

Role of the Health Authorities

Health authorities, including doctors, surgeons, hospitals, ambulances and so on, have a vital part to play following a major accident and they should form an integral part of any emergency plan.

Roles of the Government Safety Authority

The Inspectors of Director General of Mines Safety may want to satisfy themselves that the organization responsible for including the off-site plan has made adequate arrangements for handling emergencies of all types including major emergencies. In the event of an accident, local arrangements regarding the role of the factory inspector will apply. In the aftermath, factory inspectors may wish to ensure that the affected areas are rehabilitated safely.

To deal the above emergency, the following steps will be taken as per emergency plan.

1. Establishment of control rooms

a) Forward (site) control room

The site control room will be Shift Incharge Room, which has got the facilities of telephone wireless communication systems. 1 man will be made the Incharge of the site (forward) control room and who will give the updated information to all the appropriate authority and to the base control room.

b) Base Control Room

The Base Control Room will be in the security officer's room at the main gate (Works) where any information is to be given to the either local authority, local hospital, local police station or to District Magistrate.

2. Provision of infrastructure facilities

The Base Control Room will be informed about the emergency to the Stores Incharge & store Incharge will immediately on receipt of such information will keep open the store. A list of item (normally used for the Rescue Operation) will be made separately and store separately.

The Stores Incharge will ensure that all the items are always readily available. In addition to this the other infrastructure like Crane, Chain Pulley block, Pumps, Ropes etc. will also be arranged as per requirements. In case any of the items which are not available, the store Incharge will make necessary arrangement for its local purchase.

3. Duties & responsibilities of emergency personnel

a) Giving of warning

Duty of work person

Any work- person / machine operator who notices any abnormal situation in this mine like outbreak of fire in machinery or elsewhere, sudden inrush of

water, slope or bench movement etc., shall take immediate steps to give warning by fastest possible means to the nearest available mine official.

Duty of mine official

The mine official receiving the warning shall send warning by caster possible means to (a) Senior official (b) Manager (c) Mechanical Engineer (d) other part of mine (e) Time keeper & person incharge of sounding siren.

Duty of timekeeper

On receiving Information about the emergency, the Timekeeper and the person incharge of sounding siren shall be sire by a special code. The Timekeeper shall take steps to warn the emergency dealing squad like fire-fighting crew and also rescue team.

Duty of emergency crew & rescue personnel

On hearing the warning signal they should immediately collect at the site control room.

Duty of Manager

On receipt of information about emergency the manager shall send information to (a) Rescue station, if located nearby (b) DGMS (c) Senior officers of Management (d) District Magistrate (e) Police Station and also establish a control rooms with one Asstt. Manager - Incharge of the site control room with proper briefing.

b) Withdrawal of persons & machinery

Duty of mine officials

On receipt of warning of emergency, the mine officials shall forthwith withdraw all persons from their working places and the Mechanical Engineers with his crew/operators shall make arrangement to withdraw all machinery to a safe place. Withdrawal shall be in an orderly manner.

Restriction of employment

No person other than those duly authorised by Manager and Management shall enter in the mine for the purpose of dealing with emergency. Timekeeper shall record in his register the entry to and exit from the mine of any authorised person.

Dealing with emergency

All work of dealing with emergency shall be conducted strictly as per Instruction of the in the control room.

Duty of surveyor

He shall keep ready all plans required at the site control room. He shall prepare a team for undertaking any survey and in case of impending slope failure, monitor the ground movement. He shall keep a list of mines to be approached for voluntary rescue team or other resources.

Duty of welfare officer/ personnel officer

He shall report to the site control room. He shall arrange for accommodation for rescue teams. Organize canteen facilities, blood donation, identification of dead bodies etc.

Duty of medical officer

He shall report to the site control room, room, requisition series of doctors from the adjoining mines/ areas, be ready with medical staff to attend to the injured, inform central or district hospitals to receive serious cases, requisition ambulance from adjoining mine/hospitals, arrange for blood collection (list of blood donors shall be mentioned in each

Duty of security personnel

They shall report to the base control room, cordon off the entrance to the mine, maintain law and order and assist police and arrange for guarding the dead bodies till these are sent for post-mortem examination.

Duty of stores incharge

He shall check the materials on the emergency list, send the list to the control rooms, wait for instruction for procurement of more materials promptly, issue material on receipt of requisition slip by site control room.

Duty of maintenance engineer

They shall report to the site control room, carryout duties assigned to him, arrange mechanical crew for all the two shifts.

Duty of transport officer

He shall report to the both control rooms, keep all light and heavy vehicles ready if necessary requisition more vehicle from adjoining mines, organise transport of men and materials from other mines/places.

Duty of canteen manager

He shall report to both control rooms, arrange supply of tea, snacks, meals etc. for all involved personnel in emergency dealing work.

7.5 SUMMARY OF THE PROCEEDING OF PUBLIC CONSULTATION

Public Consultation is one of the important aspects of environmental impact assessment which is covered under MoEF&CC Notification on environmental clearance issued on 14th September 2006. The aspect of public consultation is followed as per said notification.

The Gujarat Pollution Control Board, Gandhinagar issued an advertisement in Gujarati Daily News Paper "Sandesh" and in English News Paper "Times of India" dated 26.03.2023 to conduct the public hearing in respect of M/s Nirma Limited's proposed Limestone Mining project Padhiyarka & Doliya (Mine Lease area: 332.24 Ha., 1.5 MTPA ROM) at village Padhiyarka & Doliya, Taluka: Mahuva, Dist. Bhavnagar on 28.04.2023 at 13:00 hrs. at the premises of Nirma Cement Plant Area, NH 8E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. Bhavnagar on the basis of the prepared draft EIA/EMP report, which included the terms of references prescribed by the Ministry of Environment, Forest & Climate Change.

Shri R.K. Mehta (IAS), District Collector and District Magistrate, Bhavnagar presided over and supervised the entire public hearing process, assisted by Shri A.J. Rathod, Regional Officer, Gujarat Pollution Control Board, Bhavnagar. The copy of information of public hearing published in local newspapers is given in **Annexure XXX.**

Public Hearing was done according to rules and regulations of EIA Notification 2006 and its amendments. During the course of Public Hearing, the guidelines for Covid-19 were duly followed. The summary of the proceedings of the public consultation and the actions taken or to be taken by the company are covered in this section. Various points were raised by the local people during the public hearing. The same have been replied to and the points requiring action from the Company have been clearly addressed and their execution outlined. 772 people attended the public hearing proceedings and about 21 people gave their views/suggestions/comments orally and 104 written queries/suggestions/ comments were received before and on the date of public hearing. On behalf of Nirma Ltd. Shri G. J Adroja, Vice President, welcomed all present in public hearing. Thereafter, Mrs. Khushali Oza, Environment Engineer, Environment Dept at Nirma Ltd gave brief description of the proposed project through a power point presentation in Gujarati language.

Public Hearing details of the proposed Padhiyarka & Doliya Limestone Mine, including list of attendees, proceedings/minutes of public hearing in English and Gujarati, points raised by the general public and commitments made by project proponent are given in **Annexure XXX.**

TABLE NO. C 7-2: STATEMENT OF MAIN ISSUES RAISED BY THE PUBLIC AND COMMENTS OF THE PROJECT PROPONENT

PART A : ORAL REPRESENTATIONS SPOKEN DURING PUBLIC HEARING (GIVEN IN ANNEXURE B OF PH MINUTES)

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
1.	**Name:** Shiyal Bharatbhai Naranbhai, **village:** Dudheri	Following issues were read out by him from his written submission given in Annexure C24 of PH minutes given in Annexure XXX of this EIA: (1) Pursuant to the order dated 18/03/2011 by Hon'ble Supreme Court, the Ministry of Forest and Environment, Government of India, New Delhi constituted expert committee of 9 (nine) members chaired by Prof. C. R. Babu and as per the Ministry of Environment and Forest Order No. L-11011/7/2008-A-II(1) constituted an expert committee of 7 (seven) members under the chairmanship of C. K. Varshney. Both these expert committees have given a report that the land in these mining lease area to be "Wet Land" (fertile). Copies of both the reports are enclosed herewith. (Annexure-1 and 2*) (2) Land of mining lease included Survey numbers of privately agricultural land owned by the farmers without their consent. Leases are executed by the District Collector, Geology & Mining Department, Bhavnagar and M/s. Nirma Limited, Ahmedabad for all the three mine leases in Sub Registrar Office, Mahuva. All the three lease deed has been registered as per document no. 56, 57 and 58 on 11.01.2017. Most of these lands are privately owned by farmers, where cultivation takes place. Farmers here do not want mining lease in their fertile	D24	The report of Professor C.R.Babu Committee and Professor C.K.Varshney Committee constituted by the Ministry of Environment and Forest, in which the land in this area was shown as wetland. This report has not been considered by the Hon'ble NGT vide Order dated 14/01/2015 and has dismissed the cancellation order of EC issued by Ministry of Environment and Forest, Government of India, New Delhi.Also, as per the latest Ramsar Convention site released in Nov' 22, the core zone and buffer zone of the proposed mining lease area are not covered as wetlands. A copy along with detail reply is enclosed at page D 24 of Annexure-(C2) of public hearing documents given in **Annexure XXX** of this report. (2) The State Government grants mining leases in limestone bearing areas with the prior approval of the Central Government through the Department of Industries and Mines. Mineral rights in all types of land are held by the Government. According to which the State Government has approved the mining lease. However, company will not acquire agricultural land for mining without consent of farmers. If the farmers want to sell/ give consent for their land for mining at market rates/commercial negotiation, the project proponent may,

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		land and do not want to give land for mining. The company cannot purchase the above land for mining lease. Not a single farmer wants to give his land without consent. All the farmers included in the lease have signed an affidavit to not sell their land for mining. Copies of affidavits made by farmers are enclosed herewith. (Annexure-3*) (3) Within radius of 5 km of the sanctioned mining lease area, there are three major reservoirs (Samdhiyala Dam, Malan Dam and Nikol Dam). The water of these reservoirs is used in the agriculture fields and ground water level remains good, so that agriculture area is richly irrigated. Farmers get three crops per year, so the farmers here have not agreed to give land for mining. Large number of native birds live in these water bodies, it is totally inappropriate to give environmental clearance to mining in the vicinity of such water bodies. Copies of Irrigation Department report detailing the three reservoirs and details of birds and photographs of reservoirs and agricultural crops are enclosed. (Annexure-4*) (4) The area surrounding the proposed mining lease land is declared as Reserve Forest (Brihadgir area) as per Government of Gujarat, Forest and Environment Department, Gandhinagar's Resolution no. WLP-117-57R-G.1 dated 18/05/2007. Forest Land is located at a distance of only two-three km from the mining		accordingly, purchase the land/take consent of the land owner for mining that land. Thus, mining will be done in that land only after getting the consent of the land owner. (3) Malan Bandhara and Samdhiyala Salinity ingress control bund are located within 10 km of the mining lease area and the mining lease is granted as per existing Acts and Rules. The water catchment area of Malan and Nikol Bandhara as well as the benefited areas are not included in the granted mining lease area. The purpose of the Samdhiyala Salinity Ingress Control Bund is to prevent the rising of salty sea water towards the land. It has been planned that where the rain water is collected, to increase the storage capacity of the bund and to facilitate the flow of water in the salinity control bund, three canals will be constructed around the cement plant. As per suggestion/advice of Irrigation Department, company will deepen the proposed land towards the Bandhara to increase water storage. No reservoir is located in any of the three mining lease areas. Apart from this, environment and all related rules and regulations will be followed during mining. (4) No "Bruhadgir Vistar" has been declared as Reserve Forest in resolution of the Department of Environment and Forest, Gandhinagar. Further, the Deputy Conservator of Forests (DCF) has

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		lease land and the area is currently inhabited and roamed by lions as well as Schedule-I animals. As proof of this, the observation information given by the Forest Office, Mahuva is enclosed herewith. (Annexure-5*) (5) Government waste lands of all these seven villages are included in the mining lease. In all these villages there is a reduction in gauchar land in proportion to the number of cattle according to the guidance of the Hon'ble Supreme Court. Therefore, the gram panchayats of the seven affected villages as well as the cattle owners are not agreeing to give government waste land for mining lease and under that it is inappropriate to give environmental clearance to the Company. For this Resolution passed by Gram Panchayat are enclosed herewith. (Annexure-6*) (6) The natural wall of limestone in this area is an advantage to us in the form of a belt during natural calamities, which protects the entire area. Moreover, since the area in question is located on the sea coast, the ingress of salinity is happening very fast. The situation will worsen, if the coastal belt is broken, as this natural barrier controls the salinity of the area. (7) The company has taken permission for its water requirement from Gujarat Water Infrastructure Limited, Gandhinagar since 4th June 2008, which is now 15 years long and		certified by its letter dated 09.11.2020 that "No National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant Reserve is present within 15 km of the mining lease area". A copy of DCF's letter covering the area of all three mines is attached herewith in reply enclosed as Annexure-D24 of public hearing documents given in **Annexure XXX** of this report. 5. Mining leases are granted by the Government after obtaining a land availability and recommendation report from the District Revenue Department for government land falling within the sanctioned mining lease areas. None of the mining lease areas fall within the Coastal Regulatory Zone (natural wall-buffer zone) and no excavation shall be carried out in this natural wall. Mining of limestone in the mining lease areas is planned to be carried out above the ground water level. Mining activities shall not in any way intersect the ground water. So there is no possibility of intrusion of sea water due to mining activities. In fact some of the pits from mining will be used as artificial recharge structures and this will improve the groundwater quality and prevent the intrusion of more salinity and reduce the increased salinity. The Company itself handed over the approved connection of Narmada Pipeline to GWIL vide letter dated 01.07.2011 for conservation of water source. A copy of the same is annexed herewith

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		since all the conditions of the permission given have been violated, the water permission is considered as canceled. The company has not taken fresh or revised approval and has misled the competent authority by giving wrong details by including old approval letters as available source of water in TOR in EIA/EMP report of the proposed project, which is also ineligible to grant environmental clearance approval to the company. Letter dated 04th June 2008 of GWILL is enclosed herewith. (Annexure-7*) (8) The proposed mining project falls in the same area, in which the Environmental Clearance for M/s Nirma Limited's Cement Plant Environmental Clearance (Approval) is canceled by Ministry of Environment & Forests, Government of India, New Delhi's letter no. J-11011/992/2007-IA||(1) dated 01.12.2011. For the same land and area, the same company now wants to take environmental clearance approval for the mining project In such circumstances, it is not at all appropriate to grant environmental clearance. In addition, the matter regarding cancellation of Environmental Clearances of said cement project is still pending in the Hon'ble Supreme Court, which is the same area and land for which environmental clearance is sought for the present mining lease. In this matter, the company has not mentioned anywhere in ToR of EIA/EMP for EC. A copy of cancellation of Environmental Clearance's letter is enclosed		in reply enclosed as Annexure-D24 (of public hearing documents given in **Annexure XXX** of this report). GWIL has not canceled the same. Once we receive environmental clearance, we will revive or re-apply the above GWIL permission. The land area of all the three mining leases and the land area of the cement plant are different. Also, the Hon'ble NGT vide its judgment dated 14.01.2015 has canceled the EC cancellation order of MoEF. Cement Plant Project is not included in present EIA Report of Mine, as both the EC applications are different. EIA Report has been preapred based on baseline data generation as per TOR issued by MoEF&CC. The State Government grants mining leases in limestone bearing areas as Mineral rights in all types of land are held by the Government. According to which the State Government has approved the mining lease. However, company will not acquire agricultural land for mining without consent of farmers. If the farmers want to sell/ give consent for their land for mining at market rates/commercial negotiation, the project proponent may, accordingly, purchase the land/take consent of the land owner for mining that land. Thus, mining will be done in that land only after getting the consent of the land owner.

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		herewith. (Annexure-8*) M/s. Nirma Limited have not mentioned true and correct information and has given interest-oriented information in the EIA/EMP report based on ToR for environmental clearance of the questioned mining lease project. So this is to inform you that, all of us farmers/labourers/herdsmen have been farming in this area for years, happily supporting our families and we are very happy and are proud of that. The people of this area are determined to do whatever, to ensure that limestone is not mined out on the said fertile land as it is our motherland, the environment of the entire area is maintained well and we all sustain our livelihoods through agriculture and animal husbandry. If mining is done on such a large scale on our fertile land, the fertility of the land as well as agriculture and animal husbandry of the entire area will be destroyed and the crop production capacity of our area will decrease. This will have bad consequences for us in the future such as shortage of food grains, vegetables, agricultural products and such a victual situation will arise that we shall be forced to migrate on a large scale, which will have very bad effects on our family & culture, which we will not accept at all. Nature has blessed us by creating a wall of limestone beneath the land to stop the salinity of the sea. In the coastal areas of Gir-Somnath and Porbandar districts where such natural wall has been excavated, people are suffering with		

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		terrible consequences today. The salinity of the sea has penetrated several kilometers in the coastal areas and has destroyed water tables and agricultural lands. Thus, the people of this area are determined not to allow mining here at any cost. In such circumstances, taking into consideration the above facts and issues, the livelihood and health of the farmers and farm laborers, entire people, for the survival of the animals, birds, creatures, it is requested to stop the mining project and not to grant the Environmental Clearance. Our above objections are requested to be taken into consideration as we seven villages strongly oppose the granting of environmental clearance for mining lease to M/s Nirma Limited. * references annexed in the written submission		
2	**Name:** Cholia Manish Jitubhai **Village:** Dudheri	1. Environment Action Plan is outlined. In all of them, it is said that water pollution, noise pollution, air pollution and land pollution will be controlled, which means that pollution will happen, right? That"s why it has to be controlled. 2. Often referred as Ramsar site is actually not here. Yes, it is true that there are only four Ramsar sites in Gujarat. If the pollution due to this project will be so much then there will not be any hope to comply UNESCO rules to	-	1. Pollution will be there when any project is constructed or operated. This is a mining project. Pollution Control Board has framed rules/limits for operation and Company will work within the limits and rules. Pollution will be minimized through control measures as suggested in EIA Report. 2. There is no Ramsar site in the study area of proposed mine. Asper the latest Ramsar Convention site released in Nov' 22, the core zone and buffer zone of the proposed mining

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		declare as Ramsar site in future. 3. Regarding the limestone stone, my note is that the limestone stone is mostly available from Kutch and it is also a desert area so it should be taken from there as well. Why is there an effort to destroy human life and extract stones from here? 4. If you don't see animals like elephants and tigers here, then you don't see humans here either? Lions are also found here. And if there is God's grace, those tigers and elephants will also be seen. 5. World Sparrow Day has just been celebrated for few days ago and we are proud to hear the chirping of sparrows. If network waves cause this much loss, how much loss would this distortion and noise cause? Also we see peacocks there. Development is necessary for the country's GDP but where to go after developing so much, then our humble request is that for us this is our world and let us be happy. Our earth is our mother.		lease area are not covered as wetlands. Company will work within the limits and rules. Pollution will be minimized through control measures as suggested in EIA Report. 3. Mineral is excavated where it is available. The State Government grants mining leases in limestone bearing areas with the prior approval of the Central Government through the Department of Industries and Mines. Mineral rights in all types of land are held by the Government. According to which the State Government has approved the mining lease. 4. The Principal Chief conservator of Forest, Gujarat State, Gandhi Nagar has certified by its letter dated 13.01.2022 that "No National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant Reserve is present within 10 km of the mining lease area". Wildlife Conservation Plan for 3 limestone mines have been prepared and approved by Principal Chief Conservator of Forest, Gandhinagar. Measures will be taken to protect wildlife as given in Conservation plan in consultation with Forest Department. Budget has been sanctioned for the same. 5. As told by the speaker, industrial development is necessary for the country's GDP. The proposed project will also increase the GDP of state and country. It will be ensured that company will take necessary measures for

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
				ecological protection including sparrows, peacock, etc. and public health. There is no life without industries, so if we keep everyone together and work in a way that causes the least damage to the environment, it is called sustainable development and the whole world runs on sustainable development principle.
2-A	Bharatbhai Naranbhai Shiyal Village- Dudheri	He told that company called our land as wasteland and we have the Babu Committee and Varshney Committee reports made by the Supreme Court. After that report, the environment certificate of the company was canceled in 2011 and now the case is in the Supreme Court. The canceled report in the Hon'ble National Green Tribunal has been challenged in the Supreme Court and the case is currently pending in the Supreme Court for the Environment Certificate.	-	The Environment Clearance granted by MoEF&CC has not been quashed by Hon'able Supreme Court. Hon'able NGT vide its judgement dated on 14.01.2015 has quashed the Environment Clearance cancellation order dated 1.12.2011 of MoEF&CC. Besides this, this hearing is for Mining and the project for which EC was canceled was for Cement Plant
3	**Name:** Mohanbhai Hamirbhai Makwana **Village:** Gujarda (President - Mahuva Taluka Rural Bharatiya Janata Party)	He read his representation dated 28/04/2023 verbatim which is enclosed as **Annexure – C46** in the minutes of PH given in **Annexure XXX** of EIA**.** Contents are same as given in serial no. 1 of this table.	D46	Points / questions raised by Mohanbhai Hamirbhai Makwanaa are same as raised by Bharatbhai Narayanbhai Shiyal (Sl. No. 1) Answers are given in reply of Serial No. 1 Moreover it was also informed that the MoEF&CC had canceled Cement Plant EC on the report given by Prof. Babu Committee and Prof. Vashaney Committee which was not accepted by Hon'ble NGT & Hon'ble NGT has set-aside/revived cement plant EC vide its judgement dated 14.01.2015. Hon'ble Supreme court has not given any stay on Hon'ble NGT order. So the environment clearance of the company is in the

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
				same condition as it was. As per The High Court order, Company has already returned 100 Ha. for Samdhiyala Bund and we have to undertake deepening when the plant come so that we can increase the storage capacity of rain water. Due to this the capacity of the bund will increase by 200%. Company is willing to give land for school at Dudheri village and contribution for the same. Letter regarding our commitment is already inwarded to Collector Sir on 24/02/2023.
3-A	Bharatbhai Naranbhai Shiyal Village: Dudheri	Bharatbhai Shiyal submitted that we are not aware that company has submitted the letter to the Collector on 24/02/2023. On 24/11/2022 we have requested Survey No 55 to build school for Dudheri village.	-	Survey no. 55 of Government land falls within the mining lease area. Company cannot give this land to build school. However, Company is ready to give land of any other survey number of Dudheri village to build school and the letter for that has been given to the Collector. Besides this, in past also, company has given land for Madhiya Govt. School as requested by Madhiya Villagers.
4	**Name:** Bhalya Vijaybhai Mansukhbhai **Village:** Dudheri (Deputy Sarpanch Dudheri Village)	About 650 people of our villagers are deprived from plots and all the waste land are given to mining. People of our village are requesting that they should give us plots but from where we should give plots, we don't have any other place. All the waste land have been given in mining lease on rent of 50 years. So we are unable to reply villagers. Officers of forest department and mining lease are also sitting here and I want to ask them whether the lions come here or not? And if yes, then why you have not considered in your studies?	-	Land allocation to landless people is under the purview of government and it does not cover under our purview. The State Government grants mining leases in limestone bearing areas. Mineral rights in all types of land are held by the Government. As per list of fauna authenticated by the Forest Department, Lion is reported in the study area. For the conservation of lion and other Schedule I species, Wildlife Conservation Plan has been prepared and got approved by PCCF, Gandhinagar. Conservation measures as suggested in the same shall be followed.

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
5	**Name:** Ravjibhai Waghjibhai Baraiya on behalf of Gita Ben Rameshbhai Makwana (President Mahuva Nagarpalika) **Village:** Padhiyarka	His written submission dated 28/04/2023 was read out verbatim by him (Refer Annexure C100 of PH Minutes given in Annexure XXX of this EIA). Points/ issues raised by him in written submission are same as given at Serial No. 1 of this table.	D100	Points / questions raised by him are same as raised by Bharatbhai Narayanbhai Shiyal (Sl. No. 1)/ Mahuva Bandhara Khetivadi Paryavaran Bachav Samiti. Answers are given in reply of Serial No. 1
6	**Name:** Makwana Jasubhai Veljibhai **Village:** Doliya	As you are talking about industrial development by GDP that is looking like cheating us. Within India, 60 percent of people are involved in agriculture and I am connected to agricultural scheme. - Gram Nirman Samaj at Devadia is functioning within all the villages of the Mahuva. I have been doing development work in Devadiya cluster for three years. I am directly associated with the farmers and I am also a farmer's son. This year has been declared as millet year by the Prime Minister. He is trying to ensure that people in foreign countries eat millet and farmers get good prices and grow millets in the sea shore area. This millet is not grown in other areas because Mahuva was considered as Kashmir of Saurashtra so why not now and why no effort is being made by the government? If all the land is mined, then the	-	Industrial development is necessary for the country's GDP. The proposed project will also increase the GDP of state and country. There is no life without industries, so if we keep everyone together and work in a way that causes the least damage to the environment, it is called sustainable development and the whole world runs on sustainable development principle. Agriculture and industralization alongwith mining will work simultaneously. There was only one project belonged to a Cement Plant in 2008. As far as three mining projects area concerned, company has submitted three separate ML applications for cement project in year 2004 and Government has granted three separate mining lease L.O.Is in 2008. In response to how far mining will take place, It

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		people of this area have to go to another place to feed themselves, then what is the future of the next generation? Three mining projects have been undertaken by the same company in seven villages of Mahuwa taluka. Entire mining area was continuous in 2008-10 and was considered as one area. But now it has been divided into three parts, what could be the reason for this? At present, sand is being dredged from the sea without the permission of the government. Vehicles carrying sea sand moves at night and this may harm lion. We completely boycott Mining. In response, it is argued that, if this mining takes place, how far into it should be mined? It is argued that in existing construction of Nirma Cement plant, you can see salty water and if you are mining here then sea water will intersect here. And also after Mining, all mining pit will also get filled with sea water and we cannot have farming here.		was replied that, as per the IBM approved Mining Plan, mining will be started from a minimum of one meter to maximum to 15 meters Further in response to question raised regarding intersection of water table, company replied that, ground water intersection will not take place due to mining. Saline water level has increased because of the excess withdrawal of water from the bore/well for farming. We can see an example of Ambuja cement where all mining pits are full of sweet water & farmers are farming sugarcane successfully. And also because of this, ground water table of sweet water has increased. In this project also rain water will be collected in the mining pit. So the level of fresh water will rise and salinity will decrease.
7	**Name:** Baraiya Punabhai Rambhai **Village:** Padiyarka	We don't want to do Mining under any circumstances.	-	Mining will be done in compliance with environmental and Mining laws/rules.
8	**Name:** Joliya Kasabhai **Village:** Doliya	1. My main issue is animal husbandry. My village has a population of 4102 and 3516 cattle breeders, that means 70 to 80 percent of the population is with animal husbandry. Our village goucher land was given for bund & now we have zero goucher. If waste land is given to	-	1. Care will be taken to ensure that farmers and livestock are not affected. 2. Agriculture, animal husbandry as well as industralization alongwith mining will work simultaneously.

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		a company for mining but the first right comes to the cattle breeder and then to all others. 2. All the traders have taken Millet from our village which has been sold up to Rs. 2500/20 Kg. The price of cotton was Rs.1500/20 Kg and the price of desi millet was Rs.2500/Kg. Similarly nutritious grains are grown within this mine area. While another business is vegetables and this nutritious food grain does not grow anywhere else and if this goucher is also going in mines then where should we go to graze our animals? The first right in waste land is that of the cattle breeder not of industries. That point is to be considered. Today our village is moving by animal husbandry to white revolution. That's why we don't want this mining in nearby villages.		
9	**Name:** Joliya Vikrambhai Arjanbhai **Village:** Dodiya	A total of 7,000 to 8,000 cattle of cattle breeder live in these seven villages and the State Government and the Central Government ask to increase the milk production capacity as these are goucher lands. Even though if the State Government has given land for the mining to Nirma Company but government has to give back to the Gram Panchayat for grazing and no mining should be done for any reason. The 7000 to 8000 cattle will starved due to mining. Every day we produced 10,000 liters milk which will be loss to us. Therefore we are totally against this Mining. At the same time, daily income of five thousand liters in the morning and evening time is being done in that	-	This is not a question related to the environment of the project. Your submission is related to land and this question can be decided only by the Government. No farmers will lose their land and care will be taken to ensure that livestock are not affected. Agriculture, animal husbandry as well as industralization along with mining will work simultaneously.

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		way, the total income of ten thousand liters of milk is being done daily, and then the current income is about 6 to 7 lakhs. This mining will result in loss of revenue. Therefore, we are totally against this Mining.		
10	**Name:** Khimjibhai Lakhabhai Baraiya **Village:** Padhiyarka	I want to say to the Collector sir that if the Government of India says that there is no goucher in any village, it is the Government's duty to give the goucher land allotted for bandhara scheme should not be changed to other purpose. Even though there are government rules, the government should tell for what purpose it has been changed. The government says that it is not fertile land. So what is the reason for telling such a lie? The soil here is fertile. But the company says that nothing is growing in this agriculture land and land is barren and saline. As they say, if you see here once, you will know how much vegetables are grown. You can eat vegetables, but you can"t eat cement? If you live by eating cement, then build a factory tomorrow. Whatever you write should be correct do not write wrong things.	-	The waste land for the project has been allotted by the Government for Mining. Care will be taken to ensure that farmer's land is not affected. Agriculture, animal husbandry as well as industralization alongwith mining will work simultaneously.
11	**Name:** Rameshbhai Khatabhai Gohil **Village:** Waghnagar	How much waste land will be left by Nirma Company for facilities like Primary, Secondary School, Anganwadi and Health Center?	-	All the three mines together have 280 hectares of Government waste land. Land allocation for facilities like Primary, Secondary School, Anganwadi and Health Center is under the purview of government and it does not cover under our scope.
12	**Name:** Chhaganbhai	Doliya is a village with a population of 7000. Our village is on coast line. Nature has given so many blessing to Doliya. If you want to eat	-	Mining will be done in compliance with environmental and health related laws/rules.

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
	Nanbhai Bhalia **Village:** Doliya	chemical free vegetables, come to Doliya. The reason why there was not been a single case in our village during the Corona period is the good environment and the preservation of the environment given by nature. All kinds of plants grow in Doliya village. Such a place will not be seen anywhere. We are satisfied with what God has given us so let us enjoy what God has given us.		
13	**Name:** Narsinhbhai Mohanbhai Joliya. **Village:** Doliya	Narsinhbhai has opposed of mining in this area.	-	Mining will be done in compliance with environmental and mining laws/rules.
14	**Name:** Samast Dudheri Samaj **Village:** Dudheri	The farmers sitting here have come after leaving their cattle starved. We don't need anything else. Collector sir, if there was a pit here, you would not be sitting here. Industry will build a wall on all sides. We don't want Nirma or even a single plant.	-	Mining will be done in compliance with environmental and mining laws/rules and care will be taken to ensure that livestock are not affected.
15	**Name:** Hamirbhai Shiyal on behalf of Vangar Shantuben Narsihbhai Chauhan (Katpar Zilla Panchayat Member)	He opposed mining. His written submission dated 28/04/2023 (Refer Annexure C44 of PH minutes given in Annexure XXX of this EIA report). Points/ issues raised by him in written submission are same as given at Serial No. 1 of this table.	D44	Points / questions raised by him are same as raised by Bharatbhai Narayanbhai Shiyal (Sl. No. 1)/ Mahuva Bandhara Khetivadi Paryavaran Bachav Samiti Answers are given in reply of Serial No. 1

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
16	**Name:** Bhalia Gopalbhai Jayantibhai	If you will do Mining then what will we do during rest of our life? If we talk with reference to Environment then the only Asiatic lion of World is found in our Gir forest and not anywhere else in World and chances of lions falling in the pits increases due to mining will be high so what about it ?	-	Company will work as per the conservation plan approved by the forest department. Mining will be done in compliance with Environmental and Mining Laws/Rules.
17	**Name:** Makwana Rajeshbhai **Village:** Dudheri	Airborne particulates generated during mining enter the respiratory track and damage the lungs, due to which many diseases are caused like Malaria, Typhoid, Dengue and Diarrhea-Vomiting etc. Mention the advantages & disadvantages of health due to mining.	-	Company will carry out the following : 1. Water sprinkling on haul roads, working faces, etc. 2. Provision of adequate PPEs 3. Initial and regular health checkup 4. Regular ambient air monitoring
18	**Name:** Baraiya Bhupatbhai Sukhabhai **Village:** Padhiyarka	Sir, you have just said that you will take our land with willingness only; otherwise you will not take it, Which you have already informed in first session. He told that as the British had ruled and occupied the entire country of India and for any reason and by guile if someone gives this land for mining and makes pits, then what to do with the neighbors and if their total land is given for mining. So their source of income is gone. We have question to Collector Shri whether you can allot a wasteland as goucher land as we have no goucher land in our village. If you can give this goucher land to Nirma then why not to us? Which land will be allotted by Panchayat for sports activity for development of our children? We don't want Mining and Nirma Plant and if Nirma comes then we will protest with violent	-	No goucher land is allotted to Nirma for mining. The private land will be purchased from the persons at market price with their willingness only.

Sl.	Name and Address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		agitation as we strongly oppose both.		
19	**Name:** Bharwad Palabhai Gobarbhai **Village:** Padiyarka	Sir, we want to know are you going to establish Nirma Cement Plant or Mines, as the people here are not aware of it. They don"t know about Nirma Cement plant so please let us know the actual fact about this. So will you tell us the truth about it?	-	Everyone knows that Nirma Cement Plant is about to come and this mining is to be done for that only. The case is pending with Supreme Court and once case is decided then Nirma Cement Plant will also come.
19-A	Bharatbhai Naranbhai Shiyal Village: Dudheri	In the argument, it was inform by Bharatbhai that Nirma Company has been given a stay in the Supreme Court.	-	The information given by Bharatbhai Naranbhai Shiyal is incorrect. There is no stay in Supreme Court.
20	**Name:** Bhikhabhai Valabhai Bhil **Village:** Padhiyarka	Sir, as you have said that you will give irrigation water for farming but where we will use the irrigation water if the farming itself will not exist due to mining activity? The only request I have is that you should have some mercy on us. Our children will suffer if you do this Mining. And previous submissions made by the people are correct.	-	Agricultural land will be taken for mining, only with their consent. Care will be taken to ensure that the land of the farmers is not affected. Agriculture as well as mining will work simultaneously.
21	**Name:** Kadviben **Village:** Dudheri	Our people are sitting here since morning. We have enough strength to fight and protest against Mining. We have walked down to Gandhinagar in the past to protest against Nirma. The questions will arise for education of people and their future will be in trouble.	-	Company shall work for education such as provision of scholarships, stationary, maintenance and development of schools, etc. in project affected areas.

PART B : WRITTEN REPRESENTATION RECEIVED DURING PUBLIC HEARING

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
1.	C1	President Shri, Kisan Ekta Samiti, Mahuva dated 28.03.2023	1. The land of these 7 villages is very fertile so it cannot be given for mining. 2. The Mining will take away the main livelihood of the area which is agriculture. 3. The stones lying in soil of these villages act as a protective wall. The sea salinity will have a terrible effect on the fertile land if these stones are removed. 4. As soon as mining is allowed, the youth will become unemployed and serious issue of displacement will arise. 5. Lions & other wild animals are living in the land of these seven villages. 6. National bird Peacock and other similar types of birds are living in the land of these seven villages. 7. Since the land of these seven villages are fertile, crops like vegetables, grains, pulses, cotton, groundnuts are produced in abundance in these lands, so it should not be allowed to go for mining. 8. In 2018, the farmers of these villages have jointly given undertaking that Nirma mining activity is not suitable for this area. So the hearing should be stopped.	D1	1. The Industries and Mines Department of the State Government has obtained the prior approval of the Central Government before granting mining leases in the Limestone bearing area. Mineral rights in all types of lands are held by the Government. However, the project will not acquire agricultural land for mining, if the farmers want to sell/consent their land for mining at market rates, the mine owner may, accordingly, sell the land/take consent of the land owner to mine that land. Thus, mining will be done in that land only after getting the consent of the land owner. 2. Agriculture along with mining will work simultaneously. The establishment of mining and related industries in the area will create direct and indirect employment and create more employment opportunities for the local people. 3. Mining leases of limestone are granted away from the Coastal Regulatory Zone of the sea. The ground water quality of seven villages is saline and the salinity is already increasing due to excessive extraction of ground water aquifers for agriculture. However, the retention of rainwater due to mining in the mined out pits will percolate into the soil, raising the groundwater table and prevent further salinity ingression. Accordingly, the rain water stored in the pits will act as a salinity barrier.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					Moreover, as per the approved mining plan, the mining will not intersect the ground water table & will be done above it and the ground water will not be used for mining so that there will be no harm to the existing ground water condition. 4. The habitation, village and its surrounding area is not part of the mining lease area and it is outside the lease area. Hence there will be no disturbance to the village habitation. Youth have to go out for employment due to lack of industries. The establishment of mining and related industries in the area will create direct and indirect employment and create more employment opportunities for the local people. Local and land loosers will be given priority in employment as per their capability and educational qualification. 5. A Wildlife Conservation Plan has been approved by the Wildlife Department for the protection of Schedule I species and accordingly it will be implemented along with commencement of mining activities in the area. 6. Same as point 5 above 7. The soil in seven villages is not fertile as the ground water quality is saline. So crops are always dependent on monsoon water. 8. The Industries and Mines Department of the State Government has obtained the prior approval of the Central Government for granting mining leases in the Limestone bearing area. Mineral rights for all types of

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					land are held by the Government. Although the Government will not acquire agricultural land for Mining purpose. If the farmers want to sell/ give consent their land for mining at market rates, accordingly mine owner shall do the mining. Thus, mining will be done in that land only. In the year 2017, Mining Lease in Limestone bearing area was approved by Government and accordingly Lease Deed Agreement was executed by District Collector, Bhavnagar
2.	C2	Shri Mahuva-Bandhara-Kheti Paryavaran Bachav Samiti dated 8.04.2023	1. For the land owned by the farmers of the survey numbers of the privately owned agricultural land included in the mining lease, without the consent of the farmers, the District Collector's office, Bhavnagar, Mines and Minerals (Government) and M/s Nirma Limited, Ahmedabad has executed the lease deed and registered the same at Mahuva sub register office on 11-1-2017. Cultivation is being done on the land is privately owned by the farmers. The farmers here do not want mining in their fertile land, the company cannot buy the above lands for mining purpose and due to such reasons the company cannot do mining in the land here. Not a single farmer wants to give away his land. 2. Within the radius of 5 km of the granted mining lease area, there are three major reservoirs (Malan Bandhara, Nikol Bandhara	D2	1. Mining leases consists of limestone minerals bearing Government and Privately owned land. Govt of Gujarat Industries and Mines Department with the prior approval of the Central Government, granted Mining Lease in Limestone bearing areas and District Collector has executed the Mining Lease Deed and registered. The rights of Mining Lease grant are with the State Govt in mineral bearing areas of privately owned land. After lease deed execution / registration, there is a provision to carry out mining operation in privately owned land after obtaining the consent of the owner of the private land, which will be observed. 2. Granted mining lease areas do not consist the water catchment areas as well as in the benefited areas of Malan and Nikol Bandhara. The purpose of the Samdhiyala Salinity Control Bund is to prevent the ingress of salty sea water towards the land. In which
3.	C3	Madhiya Gram Panchayat dated 8.4.2023		D3	
4.	C4	Vangar Gram Panchayat dated 8.4.2023		D4	
5.	C5	Padhiyarka Gram Panchayat dated 8.4.2023		D5	
6.	C6	Doliya Gram Panchayat dated 8.4.2023		D6	
7.	C7	Dudhala no.1 Gram Panchayat dated 8.4.2023		D7	
8.	C8	Dudheri Gram		D8	

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		Panchayat dated 8.4.2023	and Samdhiyala Bandhara). The water of these reservoirs meets the agriculture here, so that the prosperity in agriculture is irrigated, the farmers take three crops in a year. So the farmers here are not agree to give land for mining. It is absolutely inappropriate to allow mining in the vicinity of such water bodies. 3. The area surrounding of the proposed mining lease land has been declared as Reserve Forest (Brihadgir Area) by the Forest Department of Govt. and the Lions are currently living and roaming in this area. 4. The above mining lease area and the land thereon have been given a report by the Expert Committee constituted by the Hon'ble Supreme Court and by the Department of MOEF&CC, Government of India declaring the land to be 'Wetland', 5. Mining leases have been granted in seven villages. The Government Waste Land of all these seven villages are included in leases. In all these villages there is a shortage of Guacher land in proportion to the number of cattle. Therefore, Gram Panchayats and Cattle breeder of these seven villages are not agree to give the Government Waste land for mining lease.		rainwater is collected. It is planned for catchment area of water and to increase the storage capacity of this Bandhara. The lands of Madhiya, Dudheri, Dudhala and Gujarda villages do not fall within the earmarked benefit area of any of the above Bandhara. Malan Bandhara and Samdhiyala Salinity Control Bund are located within 10 km of the mining lease areas mining leases are granted as per prevailing Act and Rules. All Mining, Environment and related regulations will be observed. 3. The granted mining lease areas do not include reserve forest or other forest area of any kind. The information about the wildlife living and roaming in the mining lease areas and its surrounding 10 km area obtained from the Wildlife Forest Department and included in the draft EIA report. For the conservation of schedule-1 species and other wildlife, actions will be carried out as per the Wildlife Conservation Plan and all relevant rules will be observed. Will participate in wildlife conservation through forest department schemes. 4. The granted mining lease areas do not include any declared wetlands and there is no notification declaring the land as 'wetland' either by the Supreme Court-constituted expert committee or the Ministry of
9.	C9	Gujarda Gram Panchayat dated 8.4.2023		D9	
10.	C10	Devaliya Gram Panchayat dated 8.4.2023		D10	
11.	C11	Khared Gram Panchayat dated 8.4.202		D10	
12.	C12	Katpar Gram Panchayat dated 8.4.2023		D12	
13.	C13	Samdhiyala- 1 Gram Panchayat dated 8.4.2023		D13	
14.	C14	Patwa Gram Panchayat dated 8.4.2023		D14	
15.	C15	Gadhda Gram Panchayat Samiti dated 8.4.2023		D15	
16.	C16	Shantuben Narsinh bhai Chauhan dated 8.4.2023		D16	
17.	C17	President Mohanbhai Hamirbhai Makwana, BJP		D17	

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		(Mahuva) dated 8.4.2023	6. The nature has blessed us by creating a wall of limestone in area; this is an advantage for us in the form of a belt during natural calamities. which protects the entire area. Moreover, as the area in question is located on the sea coast, the salinity intrusion is very intense. If this coastal belt is broken, the situation will be worsening. Due to this belt, the salinity of this area is controlled.		Environment, Forest and Climate Change, Government of India. 5. A resolution of the Gram Panchayat is necessary to grant a mining lease in Gauchar land. In Government land, Mining Leases are granted by the Government on getting Land availability recommendation report of the District Revenue Department. 6. The Mining leases of limestone are granted away from the Natural Coastal Belt (Coastal Regulatory Zone) of the sea. The mining of limestone in the mining lease areas are planned to be carried out above the ground water table. The mining activities will not intersect the ground water in any way. So that there will not be ingression of sea water due to the mining activities. In fact some of the mining pits will be used as an artificial recharge structures and this will improve the quality of the ground water and prevent further salinity ingression and reduce the increased salinity.
18.	C18	Shrimati Anjuben Ghelabhai Makwana dated 8.4.2023		D18	
19.	C19	Shri Vitthalbhai Madhubhai Vaghela dated 8.4.2023		D19	
20.	C20	Shri Bharatbhai Naranbhai Shiyal dated 8.4.2023		D20	
21.	C21	Shri Chhaganbhai Nanbhai Bhaliya dated 8.4.2023		D21	
22.	C22	Shri Ramjibhai Chittharbhai Dolshiyadated 8.4.2023		D22	
23.	C23	Mahesh Pandya Paryavaran Mitra 502, Raj Avenue, Bhaikaka nagar Road Thaltej, Ahmedabad - 380059 dated 20.4.2023	1. Justify the delay in organizing EPH and the delay in taking Environmental Clearance for the project. 2. How many local people are getting employment in this project? Direct and Indirect way? 3.What's your plan for social improvement and for community welfare? 4. How do you reduce noise pollution that arises from transportation of vehicles?	D23	1. First, EPH of the said mining lease has been scheduled on 14.10.2020 which was postponed due to COVID-19 pandemic. Again in year 2021, EPH was scheduled on 16.12.2021, however due to unavoidable circumstances GPCB has canceled the EPH. Meantime, ToR has been expired and we have again taken fresh ToR and on submission of EIA report this EPH has been scheduled on 28.04.2023.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			5. What kind of steps are you taking to mitigate air pollution? 6. What will be the main components of the mining closure plan? Which materials will be used for that purpose? Provide details. 7. What fuel are you using for the DG set? Kindly justify. 8. How do you fulfil the water requirement? Give details.		2. Direct employment due to said mining project is around 55 nos and many more thousands of persons will be indirectly engaged. Details on employment potential has been given in section 2.14 and 8.1 in DEIA report. 3. Project would initially target the villages within 2 km of limestone Mine. Additionally, the amenities as reported for the villages in Census 2011 were studied. As per Census 2011 data, almost all the facilities are available in the villages. The field observations and data analysis indicate that the villages have concerns related to safe drinking water & proper water supply system, connecting roads in the villages and sanitation. Details regarding the same has been given in Section 8.4 & 8.3 of EIA report. 4. Effective mitigation measures have been considered to control noise level due to transportation. • Fitting of special silencer, proper lubrication and periodic maintenance of noise generating machinery and transportation vehicles will be ensured. • Dense green belt around the opencast working. • Further, provision of greenbelt around mine infrastructures and both sides of haul road on the surface. Environment Management Plan has been given in Section 10.1 of EIA report.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					5. Major points of Air Environment Management have been given as below. • The emission of dust will be restricted by the use of dust suppressing systems such as fixed or mobile water spraying system at fugitive sources (working faces & loading point), haul roads, stock yards, dumps, stock yard and wherever required. • Transport vehicles will be maintained periodically as per the manufacturers' norms and maintained spill proof. They will be covered during transportation of mineral. No overloading shall be permitted. All heavy and light vehicles shall be well maintained and will have their "Pollution Under Control" (PUC) certificates. • Tree plantation will be carried out along the mine periphery (7.5 m), along the sides of haul roads (outside quarry area or working dumps) and other vacant area • Dust masks will be provided as safety measure to the workers, engaged at dust generation points like excavation site, loading/unloading points, etc. • All equipment's will be maintained periodically to minimize source emissions. Regular maintenance schedule will be adopted as per manufacturer's specification. • Good housekeeping will be enforced.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					Environment Management Plan has been given in Section 10.1 of EIA report. 6. There are major six components of mine closure plan. i. Management / decommissioning of infrastructure ii. Disposal of mining machinery iii. Safety and security iv. Temporary discontinuance v. Economic repercussions of closure of mine and manpower retrenchment vi. Time scheduling for abandonment Details about each component have been given in Section 4.10.3 of EIA report. 7. Diesel is proposed as a fuel in the DG Set. 8. Water requirement will be fulfilling from the following three sources. • Water harvested within mine lease during rainy season. • Narmada water pipeline. • Reject water RO/DM Plant of proposed cement plant
24.	C24	Shri Mahuva Bandhara Khetivadi Paryavaran Bhachav Samiti	1. Pursuant to the order dated 18/03/2011 by Hon'ble Supreme Court, the Ministry of Forest and Environment, Government of India, New Delhi constituted expert committee of 9 (nine) members chaired by Prof. C. R. Babu and as	D24	1. The report of Professor C.R.Babu Committee and Professor C.K.Vashney Committee constituted by the Ministry of Forest and Environment, in which the land in this area was shown as wetland. This report has not

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		dated 28.04.2023	per the Ministry of Forest and Environment, Order No. L-11011/7/2008-A-II(1) constituted an expert committee of 7 (seven) members under the chairmanship of C. K. Varshney. Both these expert committees have given a report that the land in these mining lease area to be "Wet Land" (fertile). 2. Land of mining lease included Survey numbers of privately owned agricultural land owned by the farmers without the consent of the farmers are executed by the District Collector, Geology & Mining Department, Bhavnagar and M/s. Nirma Limited, Ahmedabad for all the three leases in Mahuva Sub Registrar Office. The all three lease deed has been registered as per document no. 56, 57 and 58 on 11.01.2017". Most of these lands are privately owned by farmers, where cultivation takes place. Farmers here do not want mining lease in their fertile land, do not want to give land for mining. The company cannot purchase the above land for mining lease. Not a single farmer wants to give his land without consent. All the farmers included in the lease have signed an affidavit to not to sell their land for mining. 3. Within radius of 5 km of the sanctioned mining lease area, there are three major reservoirs (Samdhiyala Dam, Malan Dam and Nikol Dam). The water of these reservoirs is used in the agriculture farm, Ground water level remains good, so that agriculture is		been approved by the Hon'ble NGT and the NGT vide Order dated 14/01/2015 has dismissed the MoEF&CC's EC cancellation order dated 01/12/2011. Further, The Principal Chief conservator of Forest, Gujarat State, Gandhi Nagar has certified by its letter dated 13.01.2022 that "No National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant within 10 km of the Reserve". A copy of DCF's letter covering the area of all three mines is submitted in Public Hearing Documents. Also, as per the latest Ramsar Convention site released in Nov'22, the core zone and buffer zone of the proposed mining lease area are not covered as wetlands in the latest report.
25.	C50	Bharatbhai Naranbhai Shiyal, Village Dudheri		D50	
26.	C52	Chhaganbhai Nanbhai Bhaliya, Doliya dated 28.04.2023		D52	
27.	C100	Gitaben Rameshbhai Makwana, Head of Mahuva Muncipality dated 28.04.2023		D100	
28.	C44	Shantuben Narshibhai Chauhan, Katpar Panchayat dated 28.04.2023		D44	
29.	C46	Mohanbhai Hamirbhai Makwana, Village Gujarda dated 28.04.2023		D46	2. The state government grants mining leases in limestone bearing areas with the prior approval of the central government through the Department of Industries and Mines. Mineral rights in all types of land are held by the government. According to which the state government has approved the mining lease. However, the company will not acquire agricultural land for mining without consent of farmers. If the farmers want to sell/consent their land for mining at market rates/commercial negotiation, the project

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			richly irrigated. Farmers have three crops per year, so the farmers here are not agreed to give land in mining. Large number of native birds live in these water bodies, it is totally inappropriate to give environmental clearance to mining in the vicinity of such water bodies. 4. The area surrounding the proposed mining lease land is declared as Reserve Forest (Brihadgir area) as per Government of Gujarat, Forest and Environment Department, Gandhinagar's Resolution no. WLP-117-57R-G.1 dated 18/05/2007. Forest Land is located at a distance of only two-three km from the mining lease land and the area is currently inhabited and roamed by lions as well as Schedule-I animals. 5. Government waste lands of all these seven villages are included in the mining lease. In all these villages there is a reduction in gauchar land in proportion to the number of cattle according to the guidance of the Hon'ble Supreme Court. Therefore, the gram panchayats of the seven affected villages as well as the cattle owners are not agreeing to give government waste land for mining lease and under that it is inappropriate to give environmental clearance to the Company. For this Resolution has been passed by Gram Panchayat		proponent may, accordingly, purchase the land/take consent of the land owner to mine that land. Thus, mining will be done in that land only after getting the consent of the land owner. 3. Within 10 km of the mining lease area, Malan Bandhara and Samdhiyala Salinity Control Bund are to prevent salt spread and the mining lease is granted as per existing Acts and Rules. The water catchment area of Malan and Nikol Bandhara as well as the benefited areas do not include the mining lease areas granted. The purpose of the Samdhiyala Salinity Ingress Control Bund is to prevent the rising of salty sea water towards the land. In which the rain water is collected, it has been planned to increase the storage capacity of the bund and to facilitate the flow of water in the salt control bund, three canals will be constructed around the cement plant. As per suggestion/advice of Irrigation Department the company will deepen the proposed land towards the bandhara to increase water storage. No reservoir is located in any mining lease area. Apart from this, environment and all related rules will be followed during mining. 4. No 'Bruhadgir Vistar' has been declared as Reserve Forest in resolution No. WLP-1107-

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			6. The natural wall of limestone in this area is an advantage to us in the form of a belt during natural calamities, which protects the entire area. Moreover, since the area in question is located on the sea coast, the ingress of salinity is happening very fast. The situation will worsen, if the coastal belt is broken, as this natural barrier controls the salinity of the area. 7. The company has taken permission for its water requirement from Gujarat Water Infrastructure Limited, Gandhinagar since 4th June-2008, which is now 15 years long and since all the conditions of the permission given have been violated, the water permission is considered as canceled. The company has not taken fresh or revised approval and has misled the competent authority by giving wrong details by including old approval letters as available source of water in TOR in EIA/EMP report of the proposed project, which is also ineligible to grant environmental clearance approval to the company. 8. The proposed mining project falls in the same area, in which the Environmental Clearance for M/s Nirma Limited's Cement Plant Environmental Clearance (Approval) is canceled by Ministry of Environment & Forests, Government of India, New Delhi's		572-J of the Department of Forest and Environment, Gandhinagar dated 18/05/2009. Further, the The Principal Chief conservator of Forest, Gujarat State, Gandhi Nagar has certified by its letter dated 13.01.2022 that "No National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant within 10 km of the Reserve". 5. Mining leases are granted by the Government after obtaining a land availability recommendation report from the District Revenue Department on government land falling within the sanctioned mining lease areas. 6. None of the mining lease areas fall within the Coastal Regulatory Zone (natural wall-buffer zone) and no excavation is to be carried out in this natural wall. Mining of limestone in the mining lease areas is planned to be carried out above the ground water level. Mining activities shall not in any way intersect the ground water. So there is no possibility of intrusion of sea water due to mining activities. In fact some of the pits from mining will be used as artificial recharge structures and this will improve the groundwater quality and prevent the intrusion of more salinity and reduce the increased salinity. 7. The Company itself handed over the approved connection of Narmada Pipeline to GWIL vide

<table>
<tr><th>Sl.</th><th>Query in Annexure no. of PH minutes</th><th>Name and address</th><th>Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)</th><th>Response in Annexure no. of PH minutes</th><th>Response of the project proponent during public hearing and updated thereafter</th></tr>
<tr><td></td><td></td><td></td><td>letter no. J-11011/992/2007-IA||(1) dated 01.12.2011. For the same land, the same company now wants to take environmental clearance approval for the mining project for the same area. In such circumstances, it is not at all appropriate to grant environmental clearance.</td><td></td><td>letter dated 01.07.2011 for conservation of water source. GWIL has not canceled the same. Once we receive environmental clearance, we will revive or re-contract the above GWIL permit.

8. The land area of all the three mining leases and the land area of the cement plant are different. Also, the NGT vide its judgment dated 14.01.2015 has set aside the MoEF, New Delhi order no. J 11011/992/2007-IA II(I) dated 1.12.2011 vide which EC of the plant was canceled. As both mining & cement plant projects are different as well as EC application are different, therefore not mentioned about this in EIA.</td></tr>
<tr><td>30.</td><td>C25</td><td>On letter head of Madhiya gram panchayat Jorubhai Former Surpanch- Madhiya dated 28.4.2023</td><td>They raised the following issues:
1. Grant of environmental clearance for mining in all revenue survey no. other than village habitat, hence, no meaning of Panchayat.
2. XXX farmers of our village will loose their land rights.

<table><tr><th>In letter of</th><th>No. of farmers (XXX)</th></tr><tr><td>Jorubhai Former Surpanch- Madhiya</td><td>193</td></tr><tr><td>Rekha Bariya, Former Surpanch Padhiyarka</td><td>193</td></tr></table></td><td>D25</td><td rowspan="3">Mineral rights in all types of land are held by the government. According to which mining lease has been granted in Limestone mineral bearing area by obtaining the prior approval of the Central Government by the Industries and Mines Department of the State Government.
No agricultural land will be acquired by the Government for mining in the granted mining lease area. If the farmers are willing to give consent to sell their land for mining at market rates, accordingly, the mine owner can mine the land. Thus, mining will be done in that land only after getting the consent of the land owner.

Mineral rights in all types of land are held by the government. According to which mining lease</td></tr>
<tr><td>31.</td><td>C27</td><td>Rekha Bariya, Former Surpanch Padhiyarka</td><td>D27</td></tr>
<tr><td>32.</td><td>C29</td><td>Doliya Grampanchayat</td><td>D29</td></tr>
</table>

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)		Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		dated 28.4.2023	Doliya Grampanchayat	193		has been granted in Limestone mineral bearing area by obtaining the prior approval of the Central Government by the Industries and Mines Department of the State Government. The mining lease granted to Nirma Limited is away from the Samdhiyala Bandhara (Salinity ingress Prevention Bund). Hence, there is no question of its impact. Garland drain is proposed to be constructed in the sanctioned mining lease area to divert water flow towards the samdhiyala salinity ingress prevention bund during mining operations. Hence there is no question of changing the flow of water. Limestone mining leases are granted far from the coastal regulatory zone (CRZ) of the sea. Further, as per the mining plan, the mining shall not intersect the ground water table and shall be carried out above it and the underground water shall not be used for mining. However, rainwater percolating in pits caused by mining will raise the water table and prevent further salinity ingress. Mineral rights in all types of land are held by the government. According to which mining lease has been granted in Lime stone mineral bearing area by obtaining the prior approval of the Central Government by the Industries and Mines Department of the State Government. No
33.	C30	Dudhala no. 1 village, Grampanchayat dated 28.4.2023	Dudhala no. 1 village, Grampanchayat	169	D30	
			Dudheri Gram Panchayat	188		
34.	C32	Dudheri Gram Panchayat dated 28.04.2023	Gujarda village Grampanchayat	328	D32	
			Devaliya village Grampanchayat	100		
35.	C34	Gujarda village Grampanchayat dated 28.04.2023	Khared village Grampanchayat	122	D34	
			Ex Sarpanch & Member, Katpur village, Grampanchayat	122		
			Gadhada village Grampanchayat	112		
36.	C35	Devaliya village Grampanchayat dated 28.04.2023	Joliya Ravshibhai Devshibhai, Doliya	102	D35	
			Jodiya Maganbhai Govindbhai, Village Doliya	102		
37.	C37	Khared village Grampanchayat dated 28.04.2023	Jodiya Prasumbhai Khimabhai, Village Doliya	102	D37	
			Makvana Mohanbhai Ukabhai, Village Doliya	102		
			Baraiya Bharatbhai Govindbhai,Village Doliya	102		
38.	C41	Ex Sarpanch & Member, Katpur village, Grampanchayat dated 28.04.2023	Joliya Jadavbhai Govindbhai, Village Doliya	102	D41	
			Bhanubhai Machubhai Shiyal Village Khared	200		
			Samatbhai Rambhai Dhapa, Village Khared	500		
39.	C42	Gadhada village Grampanchayat dated 28.04.2023	Vijaybhai Narshibhai, Village Pahiyarka	133	D42	
			Kamlesh Parshot Baraiya,	133		

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)		Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
40.	C56	Joliya Ravshibhai Devshibhai, Doliya dated 28.04.2023	Village Padhiyarka		D56	agricultural land will be acquired by the Government for mining in the granted mining lease area. If the farmers are willing to give consent to sell their land for mining at market rates, accordingly, the mine owner can mine the land only after taking the land on sale or by consent of the land owner. Thus, only after obtaining the consent of the land owner, mining work will be done in that land. Therefore, there is no risk of destruction of agriculture or animal husbandry. Wildlife Conservation Plan for the conservation of wildlife Schedule 1 in the area has been approved by Wildlife Department and accordingly on starting of mining activity in the area, this approved Wildlife Conservation Plan will be implemented. List of Migratory birds are there in in fauna list in the study area. Wildlife Conservation Plan has been approved by the Wildlife Department for the protection of wildlife Schedule.1, and accordingly the approved Wildlife Conservation Plan will be implemented along with commencement of mining activities in the area. And Noise pollution will remain within prescribed limit. There will be no harm to wildlife. In view of all the above the contentions raised are either not correct or not properly addressed.
			Vipul K Baraiya, Village Padhiyarka	133		
41.	C58	Jodiya Maganbhai Govindbhai, Village Doliya dated 28.04.2023	Vajubhai Khimabhai Village Padhiyarka	133	D58	
			Lal Dayahai, Village Padhiyarka	133		
			Parmar Mukesh, Village Padhiyarka	133		
42.	C59	Jodiya Prasumbhai Khimabhai, Village Doliya dated 28.04.2023	Parmar Vipul Bachubhai, Village Pdhiyarka	133	D59	
			Baraiya Mansukhbhai Nagjibhai, Village Padhiyarka	133		
			Joliya Vipul Devjibhai, Village Doliya	102		
43.	C60	Makvana Mohanbhai Ukabhai, Village Doliya dated 28.04.2023	Makvana Vashram Jashabhai, Village Doliya	102	D60	
			Joliya Jayanti Ramji Village Doliya	102		
			Makvana Arjan Chithar, Village Doliya	102		
			Joliya Dhiru Kalu, Village Doliya	102		
44.	C61	Baraiya Bharatbhai Govindbhai,Village Doliya dated 28.04.2023	Jivanbhai Boghabhai Makvana, Village Doliya	102	D61	
			Joliya Narshi Daya,Village Doliya	102		
45.	C62	Joliya Jadavbhai Govindbhai, Village Doliya dated 28.04.2023	Makvana Vitthalbhai Madhubhai,Village Doliya	102	D62	
			Joliya Vikram Bala,Village Doliya	102		
			Makvana Gunabhai Boghabhai, Village	102		

<table>
<tr><th>Sl.</th><th>Query in Annexure no. of PH minutes</th><th>Name and address</th><th>Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)</th><th>Response in Annexure no. of PH minutes</th><th>Response of the project proponent during public hearing and updated thereafter</th></tr>
<tr><td>46.</td><td>C65</td><td>Bhanubhai Machubhai Shiyal Village Khared dated 28.04.2023</td><td rowspan="9"><table>
<tr><td>Doliya</td><td></td></tr>
<tr><td>Makvana Mangal Natha, Village Doliya</td><td>102</td></tr>
<tr><td>Makvana Patubhai Lakhabhai Village Doliya</td><td>102</td></tr>
<tr><td>Mer Jitu Vira Village Doliya</td><td>102</td></tr>
<tr><td>Khimjibhai Lakhabhai Village Doliya</td><td>133</td></tr>
<tr><td>Baraiya Punabhai Rambhai,Village Padhiyarka</td><td>133</td></tr>
</table>
3. YYY livestock of our village will be lost due to mining in waste land areas, the herdsmen will have to migrate.
<table>
<tr><th>In letter of</th><th>No. Of livestock (YYY)</th></tr>
<tr><td>Jorubhai Former Surpanch-Madhiya</td><td>1123</td></tr>
<tr><td>Rekha Bariya, Former Surpanch Padhiyarka</td><td>1123</td></tr>
<tr><td>Doliya Grampanchayat</td><td>1407</td></tr>
<tr><td>Dudhala no. 1 village, Grampanchayat</td><td>855</td></tr>
<tr><td>Dudheri Gram Panchayat</td><td>555</td></tr>
<tr><td>Gujarda village Grampanchayat</td><td>1338</td></tr>
</table></td><td>D65</td><td rowspan="9">Specific in case of two queries C25 & C27 we want to bring to attention of the government that as per our knowledge the term of this Gram Panchayat has been completed and the administrator has been appointed. The signatories are not Sarpanch at present, but, he has used letterhead of the village for signature & representation to mislead the Ministry – Govt. In view of this, we request you to not to consider this representation and consider as cancel.</td></tr>
<tr><td>47.</td><td>C66</td><td>Samatbhai Rambhai Dhapa, Village Khared dated 28.04.2023</td><td>D66</td></tr>
<tr><td>48.</td><td>C68</td><td>Vijaybhai Narshibhai, Village Pahiyarka dated 28.04.2023</td><td>D68</td></tr>
<tr><td>49.</td><td>C69</td><td>Kamlesh Parshot Baraiya, Village Padhiyarka dated 28.04.2023</td><td>D69</td></tr>
<tr><td>50.</td><td>C70</td><td>Vipul K Baraiya, Village Padhiyarka dated 28.04.2023</td><td>D70</td></tr>
<tr><td>51.</td><td>C72</td><td>Vajubhai Khimabhai Village Padhiyarka dated 28.04.2023</td><td>D72</td></tr>
<tr><td>52.</td><td>C73</td><td>Lal Dayahai, Village Padhiyarka dated</td><td>D73</td></tr>
</table>

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)		Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		28.04.2023	Devaliya village Grampanchayat	1113		
53.	C74	Parmar Mukesh, Village Padhiyarka dated 28.04.2023	Khared village Grampanchayat	598	D74	
			Ex Sarpanch & Member, Katpur village, Grampanchayat	598		
54.	C75	Parmar Vipul Bachubhai, Village Pdhiyarka dated 28.04.2023	Gadhada village Grampanchayat	1500	D75	
55.	C76	Baraiya Mansukhbhai Nagjibhai, Village Padhiyarka dated 28.04.2023	Joliya Ravshibhai Devshibhai, Doliya	1407	D76	
			Jodiya Maganbhai Govindbhai, Village Doliya	1407		
56.	C77	Joliya Vipul Devjibhai, Village Doliya dated 28.04.2023	Jodiya Prasumbhai Khimabhai, Village Doliya	1407	D77	
			Makvana Mohanbhai Ukabhai, Village Doliya	1407		
57.	C79	Makvana Vashram Jashabhai, Village Doliya dated 28.04.2023	Baraiya Bharatbhai Govindbhai,Village Doliya	1407	D79	
			Joliya Jadavbhai Govindbhai, Village Doliya	1407		
58.	C80	Joliya Jayanti Ramji Village Doliya dated 28.04.2023	Vijaybhai Narshibhai, Village Pahiyarka	392	D80	
59.	C82	Makvana Arjan Chithar, Village Doliya dated 28.04.2023	Kamlesh Parshot Baraiya, Village Padhiyarka	392	D82	
			Vipul K Baraiya,	392		
60.	C85	Joliya Dhiru Kalu,			D86	

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)		Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		Village Doliya dated 28.04.2023	Village Padhiyarka			
61.	C86	Jivanbhai Boghabhai Makvana, Village Doliya dated 28.04.2023	Vajubhai Khimabhai Village Padhiyarka	392	D86	
			Lal Dayahai, Village Padhiyarka	392		
			Parmar Mukesh, Village Padhiyarka	392		
62.	C87	Joliya Narshi Daya,Village Doliya dated 28.04.2023	Parmar Vipul Bachubhai, Village Pdhiyarka	392	D87	
			Baraiya Mansukhbhai Nagjibhai, Village Padhiyarka	392		
63.	C88	Makvana Vitthalbhai Madhubhai,Village Doliya dated 28.04.2023	Joliya Vipul Devjibhai, Village Doliya	1407	D88	
			Makvana Vashram Jashabhai, Village Doliya	1407		
64.	C89	Joliya Vikram Bala,Village Doliya dated 28.04.2023	Joliya Jayanti Ramji Village Doliya	1407	D89	
			Makvana Arjan Chithar, Village Doliya	1047		
65.	C90	Makvana Gunabhai Boghabhai, Village Doliya dated 28.04.2023	Joliya Dhiru Kalu, Village Doliya	1704	D90	
			Jivanbhai Boghabhai Makvana, Village Doliya	1407		
			Joliya Narshi Daya,Village Doliya	1704		
66.	C91	Makvana Mangal Natha, Village Doliya dated 28.04.2023	Makvana Vitthalbhai Madhubhai,Village Doliya	1704	D91	
			Joliya Vikram Bala,Village	1704		

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
67.	C92	Makvana Patubhai Lakhabhai Village Doliya dated 28.04.2023	Doliya Makvana Gunabhai Boghabhai, Village Doliya — 1407 Makvana Mangal Natha, Village Doliya — 1407 Makvana Patubhai Lakhabhai Village Doliya — 1407 Mer Jitu Vira Village Doliya — 1704 Khimjibhai Lakhabhai Village Doliya — 392 Baraiya Punabhai Rambhai,Village Padhiyarka — 392 4. The Samdhiala Bund adjacent to our village will be finished. 5. Our water flow direction will be changed 6. The salinity will be increase and destroy the surrounding talukas as well. 7. If the agriculture and animal husbandry of the villages will be destroyed, then this area will become desolate, when the villagers migrate. 8. Lions, Leopards, Chinkaras live in the revenue area of our village. 9. Both, Samdhiyala and Malan bandhara attract a large number of migratory birds in winter season. These birds will stop coming because of mining dust pollution and	D92	
68.	C93	Mer Jitu Vira Village Doliya dated 28.04.2023		D93	
69.	C94	Khimjibhai Lakhabhai Village Doliya dated 28.04.2023		D94	
70.	C96	Baraiya Punabhai Rambhai,Village Padhiyarka dated 28.04.2023		D96	

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			blasting.		
71.	C26	Chauhan Vishnubhai Panchabhai, Village Vangar dated 28.4.2023	He welcomed the establishment of project in this area and said mining project will help the people getting daily breads and also getting the good compensation.	D26	PP has welcomed the suggestion.
72.	C28	Vala Gopalsinh Ajitsinh Village Dudhala no. 01 dated 28.4.2023	He supported the project and said If the mining project of Nirma Limited comes up, there will be direct and indirect employment and job opportunities in Mahuva and nearby villages, good education facilities will be created, good hospital facilities will be created, roads will be built.	D28	Company welcomed his suggestion.
73.	C31	Vala Girirajsinh Pravinsinh Village Dudhala no. 1 dated 28.04.2023	He supported and welcomed the project.	D31	Company welcomed his support.
74.	C33	Vala Temubha Raghubha Village Dudhala no. 01 dated 28.04.2023	He supported and welcomed the project.	D33	Company welcomed his support.
75.	C36	Vala Dhanubha Surbha, Village Dudhala no. 1 dated 28.04.2023	He supported and welcomed the project.	D36	Company welcomed his support.
76.	C38	Vala Vikramsinh Velubha, Village Dudhala no. 1 dated	He supported and welcomed the project by saying that people will get daily bread, education and health will improve when this mining project comes up in this area.	D38	Company welcomed his support.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		28.04.2023			
77.	C39	Dipubha Gulabsinh Vala, Village Dudhala no. 01 dated 28.04.2023	He supported and welcomed the project.	D39	Company welcomed his support.
78.	C40	Vala Ajitsinh Bhomubha, Village Dudhala no. 1 dated 28.04.2023	He welcomed the project and anticipated that the establishment of project will increase price of land and hospitals & educational institutions will come.	D40	Company welcomed his support.
79.	C43	Vala Narendrasinh Andubha Village Dudhala no 01 dated 28.04.2023	He supported and welcomed the establishment of project.	D43	Company welcomed his support.
80.	C45	Bhaliya Lakhman Narshi Village Dudheri dated 28.04.2023	He supported and welcomed the establishment of project.	D45	Company welcomed his support.
81.	C47	Vala Kanaksinh Vikramsinh Village Dudhala no. 01 dated 28.04.2023	He supported and welcomed the establishment of project.	D47	Company welcomed his support.
82.	C48	Bhaliya Vikram Village Dudheri dated 28.04.2023	He mentioned the EIA & EMP report of the projects which contains substansive measures to avoid the encounter with groundwater during the mining. He supported and welcomed the project.	D48	Company welcomed his support.
83.	C49	Vitthalbhai Madhubhai	1. The area to be used for mining has a permanent habitat for wildlife and its corridor.	D49	1. The Principal Chief conservator of Forest, Gujarat State, Gandhi Nagar has certified by

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		Vaghela, Khared dated 28.04.2023	The area is a corridor area for Asiatic lions in Gujarat, which is listed in schedule 1. 2. The lion is observed by the forest deptt. and recorded regularly. 3. There is a 17 km long sweet water bandhara in this area which has also been declared as important Bird area by I.B.A. (Important Bird Area) in 2005. 4. 275 species of birds have been recorded here in the area sought for mining as well as within a radius of 10 km from mining, of which 41 birds are in schedule 1 and 234 birds are in schedule 2.		its letter dated 13.01.2022s certified the map of our mining area and its surrounding buffer area and certified that "There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar Sites, Tiger Elephant Reserves within the 10 km study area of the three mines. Copy of letter dated: 13.01.2022 from Deputy Conservator of Forests is available and according to the conservation plan approved by the forest department, conservation of schedule-1 and other wildlife will be implemented. 2. Authenticated list of flora and fauna of the mining lease area and its surrounding Buffer area has been given by the Forest Department, Gujarat State Department vide letter dated 05.02.2018 and the same is mentioned in the EIA, Wildlife Conservation Plan for schedule 1 including Lion is mentioned therein, is approved by the Wildlife Department and approved wildlife conservation plan will be implemented as soon as the initiation of mining activities in the area 3. According to the I.B.A. report-2016, the proposed mining lease area does not fall under the Important Bird Area (IBA) and not a Ramsar Site or any Important Area declared by the Forest Department. 4. Department of Industries and Mines of the State Government has granted mining leases in Limestone bearing area with the prior approval of the Central Government. No any

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					forest, reserve forest or CRZ area falls in the proposed mining lease area. Hence wildlife and aquatic life will not be affected due to mining activity. Authenticated list of flora and fauna of the mining lease area and its surrounding Buffer area has been given by the Forest Department, Gujarat State Department vide letter dated 05.02.2018. For conservation of birds measures as suggested in EIA report shall be followed.
84.	C51	Siyad Manish Vaghabhai, Vangar Village dated 28.04.2023	He welcomed the establishment of the project and welcomed the public hearing for environmental clearance for limestone mining.	D51	Company welcomed his support.
85.	C53	Ramjibhai Chikarbhai Dolashiya dated 28.04.2023	1. The area to be used for mining has a permanent habitat for wildlife and its corridor. The area is a corridor area for Asiatic lions in Gujarat, which is listed in schedule 1. 2. The lion is observed by the forest deptt. and recorded regularly 3. There is a 17 km long sweet water bandhara in this area which has also been declared as important Bird area by I.B.A. (Important Bird Area) in 2005. 4. 275 species of birds have been recorded here in the area sought for mining as well as within a radius of 10 km from mining, of which 41 birds are in schedule 1 and 234 birds are in schedule 2.	D53	Queries have already been answered at point no. 49.
86.	C54	Joliya Arjan	He supported the establishment of project and	D54	Company welcomed his support.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		Devabhai Village Dudheri dated 28.04.2023	welcomed the project.		
87.	C55	Sagar Rabari, Trustee, Khedut Ekta Manch, dated 27.04.2023	1. We are submitting a single representation for all 7 villages and 3 mines because we consider them to be a single mining unit since all the 7 villages comprising the 3 mines are contiguous (as is shown below), and therefore they cannot be treated as 3 separate units. 2. Doing so is not only misleading but illegal. The Project Proponent cannot and does not have any discretionary powers to thus splice the mining area and portray an incomplete and misleading picture of environmental loss and degradation and destruction of livelihoods. 3. Hence at the outset we state that the 3 EPHs being held on 28th April 2023 are illegal and cannot and should not happen at all. Our letter dated 26th April 2023 to Secretary, MoEF&CC has already been sent to concerned authorities. With reference to that letter we had hoped that the EPH would have been canceled. 4. There are 3 mining projects by the same company in the area spread over 7 villages in the Mahuva taluka – one in villages Gujarda, Dudheri and Dudhala, second in Vangar and Madhiya, and the third in Padhiarka and Doliya (EIA p. C1-11 for all 3	D55	1. As all minerals under purview of State Government, the said mining leases has been granted as three individual mining leases by Industries and Mining Department by Government of Gujarat on 08.01.2017. Lease deed has been executed on 11.01.2017 as under. The three-mine lease area of Padhiyarka & Doliya, Vangar & Madhiya and Gujarda, Dudheri & Dudhala for the mining of Limestone in the area 332.24 ha, 616.1336 ha & 681.62 ha has been granted to the M/s Nirma Ltd. through the three different grant orders vide letter No. MCR-102004-1945-CHH, MCR-102004-1827-CHH & MCR-102004-1943-CHH dated 08.01.2017 by the Govt. of Gujarat respectively. 2. The State Government have sanctioned above mentioned three mining leases under the Mineral Act / Rules in mineral bearing area and as per Environment Act, the date of public hearing for environmental clearance of the above mentioned three limestone mining leases is fixed on 28.04.2023 by GPCB for conduct of Public Hearing. Three contiguous mine leases have been granted by the state government
88.	C102	Vitthalbhai Solanki, Dudheri dated 28.04.2023		D102	

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			reports). 5. The MoEF&CC also recognizes this fact. Which is why condition no. 8 of the ToR for Padhiarka and Doliya mine, condition no. 8 for Vangar and Madhiya mine and condition no. 9 for Gujarda, Dudheri and Dudhala mine has asked for a "**cumulative impact assessment** by considering all the mining activity … of the **mines** …. and should indicate the capacity of **each mine** considered for predication of air quality modeling…" (emphasis added): The Project Proponent needs to carry out the cumulative impact assessment by considering all the mining activity including the transport scenario of the mines in the study area and should indicate the capacity of each mine considered for predication of air quality modelling. The control case and worst-case scenario needs to be demonstrated with controlling factor and GLCs values for all the pollutants needs to be clearly mentioned. The input parameters used for the modelling also needs to be submitted. The PP, in their Compliance report (in the same table), has accepted that they have done a "cumulative impact assessment". If the impact is to be cumulatively assessed, why is it spliced into 3 mines? Alternatively, if the mine is to be reported separately, why does the ToR ask for a "cumulative		to the company and each mine lease is required to obtain a separate environmental clearance as per EIA Notification 2006. Therefore, no discretionary powers have been availed by the project proponent nor any portrayal done which is incomplete or misleading. 3. The State Government have sanctioned above mentioned three mining leases under the Mineral Act / Rules and as per Environment Act, the date of public hearing for environmental clearance of the above mentioned three limestone mining leases is fixed on 28.04.2023 by GPCB for conduct of Public Hearing after submission of Draft EIA report as per granted ToR from MoEF&CC. 4. The State Government have sanctioned above mentioned three mining leases under the Mineral Act / Rules and in mineral bearing area with prior approval of Central Government in 2008, subsequently in 2017. 5. The contiguity of the mine lease has been recorded in the documents submitted to the MOEF&CC, New Delhi during the process of obtaining Terms of Reference. As a consequence, the cumulative impact assessment has been prescribed at sl. no. 8 for Vangar & Madhiya and Padhiyarka & Doliya and sr. no. 9 for Gujarda, Dhudheri & Dudhala by MoEF&CC and the same have

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			assessment"? In this connection, the reporting in EIA is malafide. The EIA, on page C1-10 (all 3 reports) states that: "…since there are two other mines also proposed by Nirma Ltd. in the vicinity of … EIA/ EMP is also being prepared for the other two mines together, air quality stations were established giving due consideration to all three mines in core zone and buffer zone." The important fact to highlight here is that the EIA/EMP is not being prepared **together** only because Ms. Nirma Ltd. has proposed 2 other mines in the area, but is being done in **fulfilment of a condition of the ToR**. This fact is being suppressed here and hence it is malafide in its misleading presentation. 6. All 7 villages are contiguous villages (as shown in the taluka map above) and the buffer zone of one lease area becomes the core zone of the other lease area, and vice versa. This is made amply clear in Table C3-5 (Location of Air Sampling Stations, page C3-13-14) which provides the list of air sampling stations established to measure the Ambient Air Quality and the accompanying Figure no. C3-8 which establishes the proximity and contiguity of the 7 villages in the 3 mining lease areas. The separate EIAs are a ploy to hide the entirety of the bio-diversity, flora and fauna, endangered and protected wildlife as well as minimize (on paper) the tremendous loss of		been complied while making draft EIA report. Therefore, no discretionary powers have been availed by the project proponent nor any portrayal done which is incomplete or misleading. Cumulative impact assessment has been carried out to comply ToR condition no. 8 & 9. Air quality predication modeling for Cumulative impact of 3 mines is given in EIA Report as follows: Doliya and Padhiyaraka mine: Annexure XXI and summarized in Section 4.4.1 (b) page 4-8, Table C 4.4, page 4-10 of EIA report. Gujarada, Dudheri and Dudhala mine: Annexure XXI and summarized in Section 4.4.1 (a) page C 4-8, Table C 4.4, page C4-11 of EIA report. Vangar and Madhiya Mine: Annexure XXI and summarized in Section 4.4.1 (b) page 4-8, Table C4-4, page C4-10 of EIA report Cumulative impact has been carried out because mines are close to each other. Mathematical modelling helps to predict impact on ambient air quality when all three mines will work simultaneously. This helps in taking preventive/ mitigative measures to improve parameters of ambient air quality within norms as per given in NAAQS 2009. This is condition of ToR point (viii) for Vangar and Madhiya, (ix) for Gujarada, Dudheri and Dudhala and (viii) for Doliya and Padhiyaraka mine. There is no malafide

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			livelihoods and the irreversible damage to the water bodies, Samadhiyala salinity ingress control bund and the Malan reservoir being the most important, that the project will unleash. It is a ploy to ultimately mislead the Ministry and the public at large. Hence, our submission is that the entire mining operation over these 7 villages be treated as one project. Only then can the magnitude of the adverse impacts on water, water bodies, livelihoods, health, wildlife habitat, salinity ingress, coastal mangroves and marine life be accurately assessed. Treating the 3 mines as separate means that the EIAs will be incomplete and hence inaccurate and misleading. Only a single EIA for all the 3 mines spread over these 7 villages would be able to bring out the real picture of the loss and degradation that will be caused to land, air, water and the life of the people of the area. Moreover, the mining operation by M/s Nirma Cement Ltd. in these 7 villages cannot be viewed in isolation and should be seen in conjunction with the mining operation by M/s Ultratech Ltd. in 13 villages of Mahuva and Talaja talukas. Seeing it thus reveals that the entire stretch of nearly 90-100 kms. of the coastline will be denuded of the limestone which acts as a natural barrier against coastal erosion and salinity ingress.		reporting in EIA. Three contiguous mine leases have been granted by the state government to the company and each mine lease is required to obtain a separate environmental clearance as per EIA Notification 2006. Company is following guidelines of Ministry of Environment, Forest & Climate Change, Govt. Of India in preparing EIA Reports. No fact has been suppressed nor any malafide nor misleading presentation is there. 6. Three separate EIAs have been prepared as three contiguous mine leases have been granted by the state government to the company and each mine lease is required to obtain a separate environmental clearance as per EIA Notification 2006. Company is following guidelines of Ministry of Environment, Forest & Climate Change, Govt. Of India in preparing EIA Reports. No fact is being hidden in preparation of EIA Reports. List of flora and fauna is given in Annexure XIII, Authenticated location map showing no presence of Wildlife Sanctuary/National Park etc in 15 km radius is given in Annexure XIV of EIA report. There is no perennial surface water body

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			Further, both these, i.e. Nirma Cement mines and Ultratech Cement mines, must be seen in conjunction with the following proposed mines running along the coast of Saurashtra: The above list is only a sample of the proposed mines which are to have a public hearing and does not include the already sanctioned and running mines. It is thus **essential to see the entire peninsular coast as one geographical and geological unit to understand the cumulative impact of all such mining for the present and the future**. Such massive mining of materials and destruction of the natural barrier of limestone will spell doom and destruction for the whole of Saurashtra. The impact of this destruction on flora, fauna, lion habitat, lion numbers, human misery and attendant migration will be irreversible and nearly permanent. From the development point of view this is neither sustainable nor responsible. This project cannot and should not be granted the EC. 7. Paltry and costly job creation The employment potential of this mine is mentioned in the EIA on page C2-28 and in tables C2-16 and C2-14. The total employment generation will be 84 (Gujardi, Dudheri and Dudhala), 55 (Padhiarka and Dolia) and 58 (Vangar and Madhiya) jobs		within the 3-mine lease area and hence there will not be any impact on surface water body within mining lease, except seasonal streams. Mining activity shall not take place outside ML area. Mining activities will not have any impact on Malan reservoir since all three mines are outside the drainage system of Malan. For Samdhiyala, the mines are planned to scientifically contribute so as water flow towards Samdhiyala will not disturb & increase its water storage capacity also. Wildlife conservation plan has been approved from forest department (PCCF) vide letter no. WLP/32/C/670-672/2021-22 dated 20.12.2021. Measures suggested in the plan shall be followed in consultation with Forest Department. Besides this, any other support required time to time to protect ecology of area by the forest department shall be undertaken by the company if required. Mines/ industries present in 10 km radius of project (impact area) are given in report as per requirement of MoEF&CC guidelines. In order to check salinity ingression, large scale rainwater harvesting and artificial recharge measures shall be taken up in and around the core zone. Hydrological network

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			only and for 11 years only. A total of 197 jobs!!! **The cost of 1 job is therefore Rs. 40,10,152/-**, calculated on the basis of the total cost of the mining which has been calculated as Rs. 79,00,00,000/- (Rs. 25 crores for Gujardi, Dudheri and Dudhala, Rs. 29 crores for Padhiarka and Dolia and Rs. 25 crores for Vangar and Madhiya in Table C1-1 on page C1-5). Of the 197, 28 jobs will be of a highly skilled nature and 129 of a skilled nature. 40 will be semi-skilled and unskilled jobs. Creating a mere 28 highly-skilled and 129 skilled jobs at this huge cost is not only questionable but entirely foolish and laughable, if not so tragic. Calling 197 jobs for 11 years as "job creation" is a travesty. Conversely, the destruction of agriculture and people dependent on it for their livelihood will run into thousands of families and tens of thousands of people. The agricultural jobs maintain and sustain nature, flora and fauna and is sustainable and preserves a way of life, which mining will completely destroy and erase. Most importantly though, agriculture keeps people protected from vulnerabilities and vagaries of life and allows them to be in charge of their lives, which will not be the case if there is large scale destruction of livelihoods and attendant migration. Creating 197 jobs while destroying		system will be established by constructing the piezometers in and around the lease and water quality will be checked regularly to know the movement of fresh water / saline water interface. Positive pressure of fresh water on landward site will be created, this will push back the saline front, which may be at a lower elevation. Mines of Ultratech Ltd. are outside 10 km impact area. Excavated area at the end of life of Gujarda, Dudheri and Dudhala Mine shall be 114.24 ha (16.76%) out of total ML area of 681.62 ha, Vangar and Madhiya Mine shall be 197.0 ha (32.18%) out of total ML area of 612.1336 ha and Padhiyarka and Doliya Mine shall be 100.61 ha (30.28%) out of total ML area of 332.24 ha. Thus excavations shall be carried in small area at this stage. Limestone will be mined out in small patches only and that will be restricted upto a depth of +1 m above ground water table. Therefore, no sea water ingress due to mining. Considering that the company is willing to address of all possible concerns, in a reasonable manner for safeguarding the environment. 7. There are several factors that are accounted for in project cost. These include

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			thousands of jobs and upending tens of thousands of lives is not justifiable from any cost-benefit point of view. At least it does not come through in the EIA. The indirect job creation will be in the nature of casual unskilled jobs such as automobile drivers, tea vendors, peons, watchmen, etc. The indirect jobs created by agriculture, on the other hand, are in onion dehydration plants, APMCs, trading, oil mills, ginning presses, and exports. The numbers absorbed in the latter will be far greater than those in the former. 8. Impact On Water Bodies And Water Table The EIA report states that "Ground water is the major source of water for irrigation as well as for drinking purpose in the study area. …" (Exe. Sum. p. 7). The impact of mining related blasting and removal of limestone, as is widely reported and known, leads to the disappearance of the ground water from the area. This has not been reported in the EIA and would be a major omission. The impact of this would be disastrous for the agriculture in the surrounding areas. Hence the impact of the project would not be confined to the 7 villages or the mining pit area only and will be felt much further than that and for far longer than 11 years of the mine life. By granting an EC to a project of this nature,		the high cost of land purchase or land lease, high cost of machinery such as surface miners, cost of creating infrastructure, etc. In order to have minimum impact on the surrounding area due to excavation, surface miners have been proposed for operation. Thus, to operate machinery, safety aspects in mining, operation of mine as per approved plan, environment management etc. involves highly skilled and skilled manpower with required qualification and experience. Cost calculation given is not correct and misleading. Other than direct employment several indirect employments will also be created by way of transportation, maintenance facilities and other auxiliary business. There will be no massive destruction of agriculture nor will people dependent on it for their livelihood will run into thousands of families and tens of thousands of people as indicated by Khedut Ekta Manch. In fact, agriculture is the most affected profession due to vagaries of climate change. In lieu of land purchase for mining, compensation in consensus/ in consultation with the land owner as per market rate shall be paid. Preference in employment depending upon their

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			the MoEFCC and GPCB are directly and knowingly inviting irreversible and permanent damage to the quality and quantity of groundwater in the area. Further, it has been stated that "… none of the first order or second order streams will get disturbed by the mining pits except initial stretches of first order stream in … Dudhala area" (pt. 4.2.2, page C4-2). However, Fig. C4-1 (Proposed Diversion Channels) on page C4-3 show that the other 2 mines of which this core zone forms the buffer zone will affect these streams. It is imperative that all 3 mines over these 7 villages be seen as one entity. The EIA Report also accepts that "However, monsoon runoff volume (to Samadhiyala salinity ingress control bund) may marginally reduce due to excavated pit areas" (point 4.2.2, page C4-4). 9. Soil Degradation It is observed that, wherever there is limestone underground the land is fertile and agriculture is prosperous. On the seashore from Ghogha to Porbandar, the coastal area is fertile, and the rich agriculture there is known in local language as "Lili Nagher" – the lush green. Inland area away from seashore is comparatively less fertile. On the seashore, sweet water availability is also due to the limestone. The site where mining is permitted – the Mahuva taluka – is known as		eligibility/qualification, indirect employment opportunities, etc. shall be there. After completion of mining activities, shallow depth mining pits of 4 to 6 m shall be backfilled with soil and shall be utilised for agriculture on purpose in case of private land and plantation purpose in case of government land. The land will be returned back to the land owner who has given consent/surface rights for mining only. The project will create direct employment Opportunities will be generated for indirect employment on account of new trucks, company's vehicles, hired vehicles & create opportunities for indirect employment through stockists and retailers in Gujarat and other States in India as well and all other ancillary activities. 8. There will be no intersection of ground water table upto end of mine life any of the three limestone mines i.e., Padhiyarka & Doliya Mine, Vangar & Madhiya Mine and Gujarda, Dudheri & Dudhala mine as limestone mining will be restricted upto a depth +1 m above ground water table. Hence groundwater shall not be affected due to the mining activities. Since limestone is nontoxic in nature and the settlement of any suspended solids will

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			Kashmir of Saurashtra. Horticulture is widely practiced here, especially coconut plantations and the world-famous JAMADAR mango, which are now under danger of extinction. This is corroborated in the EIA in pt. 3.7 on page C3-29 wherein it states that: As per "Ground Water Brochure, Bhavnagar District" by CGWB Ahmedabad (2013), the soils of Bhavnagar district may be broadly classified into following categories: i) Medium black soils ii) Alluvial soils iii) Alkaline soils. Medium black soils are wide spread and are found in all the talukas of the district. They are more productive and are rich in lime, magnesium and alumina and poor in phosphorous, nitrogen and organic matters. They can retain considerable moisture and are much suitable for agriculture. The process of mining will entail excavation, manual shattering of rocks, loading and transportation, etc. The dust disbursed during these processes will settle on the nearby fields, water bodies and standing crops. The soil dug from the mine would be dropped from a height making the dust to disburse in the air and deposit on the land rendering the soil sterile. The net effects will be: ● erosion of the top soil ● existing land becomes unfit for cultivation		occur by following control measures, thus the runoff will be prevented from contamination. Operational activities of Dudhala area will not affect the streams in its buffer zone. In order to check salinity ingression, large scale rainwater harvesting and artificial recharge measures shall be taken up in and around the core zone. Hydrological network system will be established by constructing the piezometers in and around the lease and water quality will be checked regularly to know the movement of fresh water / saline water interface. Positive pressure of fresh water on landward site will be created, this will push back the saline front, which may be at a lower elevation. Water from the garland drain/ diverted water channels will flow to the salinity control bund i.e. Samadhiyala bund, to ensure better runoff harvesting and collection. Company will deepen the salinity control bund area to improve the water storage capacity in consultation with Irrigation Department. Three canals will be constructed to enhance smooth flow of incoming water towards Samdhiayala salinity ingress control bund. As per suggestion of/ in consultation with Irrigation Department, the Company will deepen the landside upstream of salinity ingress control bund to improve the water storage.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			because of dumping of solid waste, probably leading to desertification ● standing crops are adversely affected due to dust disbursed in the air, stunting the growth of plants and crops cotton, groundnut, onion, garlic, jowar, millet and other vegetables will be badly affected by the dust and water pollution. ● It should be pertinent to note here that the analysis report on page C3-30 does not mention the fact that the soil is also rich in nitrogen-nitrate which is 12.57 mg/kg. 10. Damage to the built infrastructure The EIA (pt. 2.6.7 on page C2-16) states that "Drilling/ blasting will be carried out for almost half of the proposed production." History of limestone mining suggests that houses and other built infrastructure gets damaged, develops cracks and needs repeated repairs due to the excavation, drilling and blasting processes. This impact is not confined to the core zone only and is felt and documented in the buffer zone of the mining area. It means that the price for the mining will be paid by people who have not even been considered as affected by the mining. The EIA says on page C4-5 that "The ground vibrations (due to blasting operation) are anticipated to cause negative impact if the charge per delay is not rationalized." Hence, they have also admitted a potentially debilitating impact of the mining activity.		9. In the ML area, soil cover above limestone varies from 0.5 to 1.0 M. The soil will be carefully scrapped, collected manually and will be utilized for plantation purpose near mine boundary and safety barrier of the road, simultaneously to the extent possible. The excess soil has been proposed for back filling for mined out pits having shallow depth. Since the area is water scarce area, therefore the major part of excavated pits will be used as water reservoir at the end of life, which will in turn be used for pisci-culture, irrigation and recharging the water table. The impact on soil quality due to mining shall be minimized through following: ● Establishment of greenbelt and plantation along various facilities and periphery will prevent erosion of top soil. The widths of the belt will be 7.5 m all along the boundary. Interaction with state forest department would be carried out in choosing the plant species and sourcing the saplings for the greenbelt. ● No waste in the form of OB/ IB/ SB is available in the ML area as per known geology. ● The topsoil removed shall be disposed of by means of making a temporary stack at the prescribed sites. The location selected shall

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			Moreover, this fact is known to MoEFCC as well as the state Pollution Control Board – GPCB. 11. Salinity Ingress It has been reported by various studies, in India and internationally, that mining activity results in making deep pits which in turn causes ground water table to go down. The contamination of surface water due to dumping of solid waste and dust results in contamination of tanks, rivulets, rivers, open wells and ground water as well. Gujarat being a state with the longest coastline in India, is one of the states with a problem of high salinity ingress. Bhavnagar district is a coastal district and is also affected by salinity ingress which threatens agriculture, water quality and overall health of the people. One of the (effective/successful) measures for checking salinity ingress is the embankment (*bandharo*). ***Salinity Control*** 6.25 The age-old method for controlling the salinity in coastal areas has been the **construction of embankments** as a protective measure to stop ingress of sea, water to these lands. Such bunds existing in Sunderbans (West Bengal), Orissa, Gujarat, Maharashtra, Karnataka etc. are protecting large areas of coastal lands but many of them		be outside the ultimate pit limit, on temporary basis. ● No mineral reject is proposed to be generated. The top soil shall be used simultaneously for the plantation over backfill areas, in green belt and other areas. ● Mitigation measures as suggested in EIA report shall be followed to prevent dust and water pollution. ● ☐Dust Control: Fixed or mobile water spraying system at fugitive sources (working faces & loading point), haul roads, stock yards and wherever required shall be installed. Dust extractors shall be used at drill machine. Transport vehicles will be be maintained, optimally loaded and shall have PUC certificates. ● Water pollution: There is no generation of effluents /toxic material by mining or allied activities. Leak proof containers will be used for storage and transportation of waste oil/ grease. All top soil dumps will be provided with garland drains equipped with baffles to prevent wash offs from reaching the downstream natural channels. Nitrate nitrogen should be 2-5% for it to be optimum for plant growth. 12.57 mg/kg is 0.001257%, which is deficient. 10. Minimum blasting shall be carried out in hard strata only if require, otherwise

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			need improvements and renovation. There is also need to protect rest of the areas by constructing saline embankments along the sea coast in between the area demarcated by creeks and streams. *Source: Report on Development of Coastal Areas Affected by Salinity (NATIONAL COMMITTEE ON THE DEVELOPMENT OF BACKWARD AREAS), November, 1981, Planning Commission, Government of India, New Delhi* While the GoG and the GoI spend many millions of rupees carrying out studies and making recommendations to the effect that embankments should be built, the MoEF&CC and the GoG go and give out mining leases in these same areas which threaten the embankment. The embankment also means that there is a shift from ground water irrigation to surface water irrigation which is a highly recommended measure to check groundwater depletion. The mining will force the farmers to revert back to groundwater irrigation further endangering the already dangerous levels of groundwater. 12. **In Core Zone** (p. C3-25) As mentioned in the EIA in Table C3-10 the land use (in ha.) is as follows:		continuous surface miner shall be used for mining. During blasting following precautions shall be taken: No blasting shall be carried out within 300m of any surface structure of permanent nature. DGMS norms shall be followed for ensuring ground vibration due to blasting for different types structures. Controlled blasting shall be practised by competent persons. 11. In order to check further salinity ingression, large scale rainwater harvesting and artificial recharge measures shall be taken up in and around the core zone. The voids created due to excavation shall work as ground water recharge structures after the end of mine life. Positive pressure of fresh water on landward site will be created, this will push back the saline front, which may be at a lower elevation. Company will deepen the salinity control bund area to improve the water storage capacity in consultation with Irrigation Department. Three canals will be constructed to enhance smooth flow of incoming water towards Samdhiayala salinity ingress control bund. As per suggestion of/ consultation with Irrigation

<table>
<tr><th>Sl.</th><th>Query in Annexure no. of PH minutes</th><th>Name and address</th><th>Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)</th><th>Response in Annexure no. of PH minutes</th><th>Response of the project proponent during public hearing and updated thereafter</th></tr>
<tr>
<td></td><td></td><td></td>
<td>
<table>
<tr><th>Village</th><th>Forest land</th><th colspan="2">Government land</th><th colspan="2">Private land</th><th>Total area</th></tr>
<tr><td>Dudhala</td><td>-</td><td>0.3813</td><td>0.23%</td><td>169.6295</td><td>99.77%</td><td>170.0108</td></tr>
<tr><td>Gujarda</td><td>-</td><td>43.5789</td><td>15.75%</td><td>233.1211</td><td>84.25%</td><td>276.70</td></tr>
<tr><td>Dudheri</td><td>-</td><td>71.7144</td><td>30.53%</td><td>163.1948</td><td>69.47%</td><td>234.9092</td></tr>
<tr><td>Total</td><td>-</td><td>115.6746</td><td>16.98%</td><td>565.9454</td><td>83.02%</td><td>681.62</td></tr>
</table>
The EIA does not give percentages. When percentages are calculated, it becomes clear that the proportion of agricultural land is 83%. In village Dudhala, for instance, it is almost entirely private agricultural land that will be lost to mining. It is quite clear that the brunt of the mining will be borne by the land losers and not the mining company or the government.

13. In Buffer Zone (p. C3-25)
A crucial omission in the EIA is that the villages falling In the buffer zone of the mining lease area have not been mentioned in the EIA. The buffer zone comprises the study area of the EIA (p. C1-10). The villages falling in the buffer zone of the mining lease area should be mentioned in the EIA and the omission is unacceptable.

On page C3-25, C3-24 and C3-26 (of the 3 EIAs) the number of villages falling in the buffer zone are mentioned. The buffer zone covers 48, 40 and 49 villages. However, since the EIAs do not provide the names of the
</td>
<td></td>
<td>Department, the Company will deepen the suggested landside upstream of salinity ingress control bund to improve the water storage.

12. Though private land is 565.9454 out of the 681.62 ha of area of all three villages, the entire private land will not be required for mining.

At this stage, land required for quarry area of 114.24 ha which comprises of Govt. Land 14.02 ha and Pvt. Land 100.22 ha. Thus, only 14.7% of the private land will be required as per approved mining plan as against the 83% stated by Khedut Ekta Manch. This land will be purchased from the land owners with mutual consensus and commensurate with the local market conditions. Furthermore, 15.66 ha out of the 114.24 ha shall be backfilled and converted to the agricultural land and/ or to be utilized for plantation.

Only that land shall be purchased from farmers that will be required for mining & allied activities (including greenbelt). Based on observations of EAC, MoEF&CC during meetings dated 23-24 May 2016 & 22-23 August 2016, the Company revised the initial mine lease proposal to a reduced area, thus, minimizing the impact on private agricultural land.</td>
</tr>
</table>

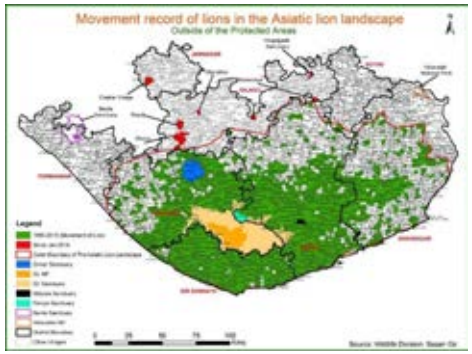
Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			villages it is difficult to figure out which are core of which mine and which are buffer of which mine and which are overlapping. This is a serious and deliberate omission and is unacceptable. Further on page C3-26 (Gujarda EIA), the EIA states that "A perusal of Fig. no. C3-11 shows that the area under non-agricultural use accounts for a major portion (48.75%) followed by net sown area (39.06%)." This is deliberately misleading. It is misleading because fig. no. C3-12 (Map showing satellite imagery interpretation for 10 km. radius) reveals that the area under Sea (Gulf of Cambay), Reservoir/lake (Malan bandharo and Samadhiyala embankment), water logged area is included which takes the "area under non-agriculture use" to 48.75%. If we deduct this area from the calculation, then the area under agricultural use will come to 77.20% of the total land area. This is made amply clear by Figure C3-12 on page C3-28 (Map showing satellite imagery interpretation for 10 km. radius). Calculated thus the RF area will also increase from 0.55% to 1.06%. This way of presenting data is misleading and insulting to the intelligence of the people and the MoEFCC. 14. Permanent and irreversible damage to the ecosystem		13. Complete list of the villages falling under the study area as per Census 2011 has been incorporated in the EIA at Annexure IX, XVI & XVII of 3 mines. On page C3-25, C3-24 and C3-26 (of the 3 EIAs respectively) only summarized part of Annexure IX is given. There is no omission since information was easily accessible in the referred Annexure on the aforementioned pages. Details of land use is given as per Census 2011 in Table C 3-12 and Fig. C3-11. Land use break up of study area in this table is based on the Census of India 2011. Further, the latest land use of the study area has been interpreted using recent satellite imagery can be seen in Fig No. C3-12. The satellite imagery is of May 2021, summer season, hence, the water-logged areas of Bandharas are low. The land use classification used in the census land use data is different (based on Census classification) from the classification used in satellite imagery interpretation (based on the EIA guidance manuals). Hence, these two data are not directly comparable due to their different land use classification and date of data collection.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			As argued above, the present project, like limestone mining projects elsewhere in the state and country, will entail excavation, blasting, crushing, loading, transportation of the mined limestone. All these activities will unleash permanent and irreversible damage to the fragile coastal ecosystem of the area. Given this knowledge and data, granting an EC to this project is tantamount to granting MoEFCC and GPCB's acquiescence to the destruction of the entire Saurashtra coast, its biodiversity, water, and socio-cultural way of life of the people. Further and more crucially, mining in such a huge area will damage the aquifers. As is well known Gujarat is situated along a Faultline. Mining will result in permanent changes to the geology and hydrology of the area. In such a situation the impact of seismic shocks will be compounded and felt further than normal and most likely may affect people who may otherwise not have been impacted by the seismic activity. 15. Cumulative impacts of mining, power plant and cement plant M/s Nirma Cement Ltd. has a cement factory in village Padhiarka and they are also going to put up their own power plant for generating electricity. Thus, the EIA must bring out the cumulative impacts of all three of these activities on the people, the land, the water,		14. Mining is site specific project and mineral can only be excavated from where it is available. Excavated area at the end of life of Gujarda, Dudheri and Dudhala Mine shall be 114.24 ha (16.76%) out of total ML area of 681.62 ha, Vangar and Madhiya Mine shall be 197.0 ha (32.18%) out of total ML area of 612.1336 ha and Padhiyarka and Doliya Mine shall be 100.61 ha (30.28%) out of total ML area of 332.24 ha. Thus, excavation shall be carried out in small area at this stage. Minimum blasting shall be carried out in hard strata only if require, otherwise continuous surface miner shall be used for mining. Drilling and blasting shall not be carried near the habitation, road and mine boundary. Continuous surface miner shall be used near these areas. The advantage in this project is the use of surface miners to most of the mineral excavation, which reduces the consequences of blasting and ground vibration. Completion of mining activities, shallow depth mining pits of 4 to 6 m shall be backfilled with soil and shall be utilized for agriculture/ plantation purpose in case of private land and plantation purpose in case of government land. This will minimize

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			the flora and the fauna of the region. Only then can the impact be rightly assessed. 16. Skin diseases Limestone mines are known to induce skin and lung diseases. This crucial fact has not even been touched upon in the EIA. 17. History of limestone mining along with its impacts on environment and people Finally, any EIA must be mandatorily made to submit the long history of limestone mining in Gujarat and India along with its impacts on environment and people which has already manifested themselves in the course of the mining and which is extensively reported and documented. 18. Comparison of requirements mentioned in ToR & data provided in the EIA cost-benefit analysis (Table 1.4 Compliance of Generic ToR for Opencast Mine Project, p. 1, EIA Report) Chapter 9 on page no. C9-1 is about Environmental Cost Benefit analysis which has been carried out in line with "Guidelines for conducting cost-benefit analysis for projects involving diversion of forest land under the provisions of the Forest (Conservation) Act, 1980" issued by Forest Conservation Division, MoEF&CC, GOI vide letter no. 7-69/2011-FC (Pt.) dt. 01-08-2017. Our submission in this regard is that: i.The Environment Cost Benefit Analysis (ECB) model is incomplete and fails to		impact on land. Mine lease boundary of all three leases is outside the 500 m distance from the high tide line. Therefore, coastal ecosystem is safeguarded. In this regard, the CRZ map has been prepared by Institute of Remote Sensing, Anna University, Chennai and reproduced in Annexure XIX of EIA report. There will be no intersection of ground water table upto end of mine life in any of the three mines i.e., Padhiyarka & Doliya Mines, Vangar & Madhiya Mines and Gujarda, Dudheri & Dudhala Limestone mine. Limestone will be mined out in small patches only and that will be restricted upto a depth of +1 m above ground water table. Hence groundwater shall not be affected due to the mining activities. The mine leases are in seismic zone III and the precautions during construction of any structures within mine lease shall be followed as per BIS codes. 15. This EIA has been prepared for the mining projects only based on TOR point no. 8 which specifies "The Project Proponent needs to carry out the cumulative impact assessment by considering all the mining

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			capture the entire gamut of loss that follows in the wake of such projects. Since the impacts of any project are not confined to the actual operational area of the project but the entire surrounding area, it is imperative that this model be amended to include the entire surrounding area under the ambit of the ECB. ii.It follows that the present ECB is also incomplete, since it has not taken cognizance of the effects of the mining operations on the surrounding area. iii.Moreover, the ECB is only confined to the mining pit area, i.e. 114.24 ha. which is a mere 16.76% of the entire mining lease area of 681.62 ha. The rest of the 567.38 ha. (83.24%) of the mining lease area has been left out of the purview of the ECB. This, to us, is a clear violation of the condition of the ToR. iv.The ECB has not considered the following points: a.The cropping pattern has not been considered; b.APMC data has not been analysed or calculated; c.The loss of direct and indirect employment has not been calculated; only direct employment generation has been factored in. d.There is a vast difference between the current direct employment generation in agriculture and allied industries and the		activity….". It does not include power plant and cement plant. EIA has been prepared in compliance to the ToR issued to Padhiarka & Doliya, Gujarda, Dudheri and Dudhala and Vangar & Madhiya Limestone Mine Vide Letter No. J-11015/154/2016-IA.II (M) dated 28th November 2022, Letter No. J-11015/153/2016-IA.II (M) dated 6th February, 2023 and Letter No. J-11015/152/2016-IA.II (M) dated 23rd December, 2022 respectively by the MoEF&CC. The main impact of mining & transportation activities is on air quality and consequently on people and ecology due to incremental GLC's which have been assessed in 4.4.1 and Annexure XXI of EIA report. 16. Section 4.14.2 addresses various manners in which health of the workers may get affected which includes irritation in eyes, breathlessness etc. among other hazards to health. Precautions have been discussed. With respect to the public, section 4.14.3 discusses that incremental ground level concentrations of particulate matter due to mines show that the resultant levels will be well within the national ambient air quality standards, 2009 in the vicinity of the mines. Thus, there will not be any health impact envisaged on the villagers due to the mining activities. Air pollution control measures given in section 4.4.2 shall be strictly followed.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			mere 84 direct jobs which will be created by the mining operation. There can be no comparison between the two situations. The dehydration plants, the cotton ginning mills, agro-business centers, onion and coconut transportation to the Azadpur Mandi - New Delhi and other parts of Northern India are bigger sources of employment and have not been calculated at all. e.No lifespan of direct employment in mining vis-à-vis agriculture and allied industries has been calculated and presented; f.The cost of environmental degradation and pollution has not been calculated. 19. Impact on wildlife (Table 1.4 Compliance of Generic ToR for Opencast Mine Project, p. 11, EIA Report) Our submission in this regard is that: i. The fact is that this area is part of Bruhad Gir (Extended Gir) for Asiatic lions, no plan can mitigate the impact on Asiatic lions inhabiting here in good numbers. The data obtained through RTI by farmers shows that the numbers and its pug marks here are much bigger. ii. These villages have been included in the Bruhad Gir (Extended Gir) by the Dept. of Environment and Forests through GR no. WLP-1107-572-G.1 dated 18-5-2007. This has not been mentioned in the EIA. Iii. The map and data by the Principal Chief Conservator of Forest and Head of the Forest		17. The EIAs are project specific documents that have been prepared in compliance to the ToRs issued to (i) Padhiarka & Doliya, (ii) Gujarda, Dudheri and Dudhala and (iiI) Vangar & Madhiya Limestone Mine vide letters no. J-11015/154/2016-IA.II (M) dated 28.11.2022, J-11015/153/2016-IA.II (M) dated 06.02.2023 and J-11015/152/2016-IA.II (M) dated 23.12.2022 respectively by the MoEF&CC. 18. ● Environment Cost Benefit Analysis (ECB) model available from MOEF&CC has been followed and it covers the major contributing components to cost as well as benefit. The same model is followed by all projects seeking forest dereservation permission under Forest Act from MOEF&CC. ● Environment Cost Benefit Analysis has been carried out for the specific project only as per the prescribed ToR. The land which is coming under the pit area and for the required facility shall only be affected at this stage and hence, the same has been considered while estimating the cost to environment and society. ● Although the mine lease is large, the disturbed areas are smaller as observed in the representation. The impact on land shall be restricted to the pit area, dump area & infrastructure area as per the conceptual plan of approved mine plan and shall not

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			Force (PCCF & HoFF) (gujarat.gov.in) "The March of the Asiatic Lion" clearly shows that the area falls within the lion movement area as well.  "…lion has over the time carved out space for him and has successfully re-colonised some of its lost territory. As compared to the previous 1883.04 sq.km network of Gir Protected Area, the present Asiatic Lion Landscape (ALL) admeasures around 20,000sq km in Saurashtra (as per the 2015 census). The concept of ALL has been adapted through which additional suitable habitats for lion have been developed. Lions now have a larger home range than before. The man power and infrastructure have been strengthened for intensive protection and conservation of lion in ALL." Also see Singh, H. (2017) Dispersion of the Asiatic Lion Panthera leo persica and its Survival in Human-Dominated Landscape Outside the Gir Forest, Gujarat, India.		cover the undisturbed area. Hence, there is no violation of the condition of the ToR. ● (a) The land which is being disturbed due to mining is being utilized for agricultural purposes and the benefit from the agricultural income has been considered while calculating the cost benefit analysis as given in Table C9-1. ● 4 (b) The cost of doing agriculture, if no project comes up has been considered as per the market rate of the crops. ● 4 (c) Indirect employment has been accounted for in Table C9-1, part B, points 3 & 4. ● 4 (d) The project will create opportunities for indirect employment on account of new trucks, company's vehicles, hired vehicles & create opportunities for indirect employment through stockists and retailers in Gujarat and other States in India as well and ancillary activities. With respect the mentioned "dehydration plants, the cotton ginning mills, agro-business centers, onion and coconut transportation to the Azadpur Mandi - New Delhi and other parts of Northern India", these will not get affected by the project and continue their business as usual ● 4 (e) The lifespan of the employment for mining has been considered as life of mine. ● 4 (f) Only the tangible costs of environmental degradation based on the MOEF&CC guidelines have been considered

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			https://www.semanticscholar.org/paper/Dispersion-of-the-Asiatic-Lion-Panthera-leo-persica-Singh/311565d651df1fc52cf874dd5583bb01159a5893 Hence, stating that "There are no National park, Wildlife Sanctuary, Biospheres reserve or migratory Corridor within 15 km radius of ML area." (Executive Summary, p. 8) and "Lease area does not form a part of any Reserve Forest, National park, Wild life Sanctuary or National biosphere reserve" (EIA, p. C1-4) is untrue. 20. Water requirement (Table 1.4 Compliance of Generic ToR for Opencast Mine Project, p. 13-14, EIA Report) Our submission in this regard is that: 1.Narmada water has been cited as the source of water (EIA Report pt. 2.12, p. C2-28). The fact of the matter is that Narmada water is not sufficient even to provide irrigation to the command area. How will it provide water to industries which are ALL claiming to have Narmada as their source of water? 2.They have not provided any letter from SSNNL which has sanctioned this water to them. The EIA report states that "Ground water is the major source of water for irrigation as well as for drinking purpose in the study area. …" (Exe. Sum. p. 7). The impact of mining related blasting and removal of		such as Ecosystem services losses, loss of animal husbandry productivity/ fodder/ public facilities, soil & moisture conservation cost, value of tree and Cost of the land. 19. Reply is as follows: ● The presence of Asiatic lions in the study area has been fully acknowledged and recorded in the EIA however there is no habitation observed in the mining lease area. Wildlife conservation plan prepared and approved by Forest Department. The company will take the necessary steps to ensure that its activity do not result in any conflict with the lions. ● Same as above, Bruhad Gir concept specifically has not been mentioned in the EIA but the Asiatic Lion, has been clearly mentioned and conservation plan prepared for it. As per authenticated map and letter No. WLP/32/C/426-427 dated 14.02.2022 received from Chief Wildlife Warden there is no any notified protected area (National Park, Sanctuaries, etc.) in 10 km area of the mines. (Letter given in Annexure XXV of EIA reports). ● Same as point 1 & 2. Hence, based on the letter received from Honourable Chief Wildlife Warden, who has jurisdiction over all the wildlife of the state, the following statements are true: * "There is no National park, Wildlife

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			limestone, as is widely reported and known, leads to the disappearance of the ground water from the area. This has not been reported in the EIA and would be a major omission. The impact of this would be disastrous for the agriculture in the surrounding areas. Hence the impact of the project would not be confined to the 7 villages or the mining pit area only and will be felt much further than that and for far longer than 11 years of the mine life 21. R&R plan and compensation (Table 1.4 Compliance of Generic ToR for Opencast Mine Project, p. 3-4 and 15-16, EIA Report) Our submission in this regard is that: The land owners are NOT willing to sell or lease out their land; THE ISSUE OF COMPENSATION THEREFORE DOES NOT ARISE. Earlier, in 2008, when EC was granted, they had agitated strongly, including taking out a 350 km. long foot march from Mahuva to Gandhinagar, meeting the then CM (now PM) to register their strong opposition to the proposed cement plant and mining project. Their opposition to this project stands and they will continue their peaceful and non-violent protest. They are also submitting their letters spelling out their opposition and refusal to sell or lease out their land to the mining project. But the EIA is being dishonest when it		Sanctuary, Biospheres reserve or migratory Corridor within 15 km radius of ML area." (Executive Summary, p. 8) and * "Lease area does not form a part of any Reserve Forest, National park, Wild life Sanctuary or National biosphere reserve" (EIA, p. C1-4). ● Gir National Park, Gir Wildlife Sanctuary & Mitiyala Wildlife Sanctuary are located at a distance more than 43 km from mining lease areas. ● Even in draft ESZ notification of Gir National Park, Gir Wildlife Sanctuary & Mitiyala Wildlife Sanctuary, no any village of mining lease areas included in Draft ESZ. 20. ● The permission for water shall be taken from the GWIL after obtaining the EC. It is completely under the purview of GWIL to decide the adequacy of water from the Narmada river and grant permission to industries for fulfilling their requirements. ● The letter has been given by GWIL and enclosed in Annexure XXIV of EIA report ● The EIA clearly mentions that there will be no intersection of ground water table up to end of mine life any of the three mines i.e., Padhiyarka & Doliya Mines, Vangar & Madhiya Mines and Gujarda, Dudheri & Dudhala Limestone mine. As limestone mining will be restricted upto a depth +1 m

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			argues that "…the main habitation of villages are outside the ML area, few scattered house/ hutments can be seen in the core zone" (pt. 3.11.1, p. C3-40) but only gives a break-up of the houses falling in the mining pit area (Table C3-21) and remains silent on the households residing in the core area. The immediate next line states that "These house/hutments will get disturbed during mining". However, it has claimed that no R&R may be required since they will not be disturbed. This is contradictory, and willful misleading and lying. There are 133 villages in Mahuva taluka, of which 35 fall in the buffer zone of this mine which is 26% of total villages of the taluka (per Gujarda EIA). To imply that the intrusion in their lives through the mine will be minimal is entirely and deliberately false. Since the village names have not been provided it is difficult to arrive at the exact numbers of people who may be affected and this, to us, appears to be the real reason for not listing the villages by name. This is malafide. 22. Apparent anomaly in the ToR numbers and the dates The ToRs for the three mines vide letters number are as below: J-11015/152/2016 – IA.II(M) Dated 23rd December, 2022 for Vangar and Madhiya J-11015/153/2016 – IA.II(M) Dated 6th		above ground water table. Also, regular monitoring of ground water level in the area shall be done. Hence groundwater shall not be affected due to the mining activities. 21. Main village habitation/residence area outside the mining lease area and scattered huts/house are seen in the ML area. The EIA has clearly explained that there is an ML area, which has presence of habitation, which has been acknowledged by the Khedut Ekta Manch. The entire habitation in the ML will not be displaced since entire area within the ML will not be used for mining. Only the habitation within the quarry will have to be removed. There is R&R related to quarry mining which is clearly mentioned against TOR 12. However, TOR 42 pertains to any R&R required for overburden dumps, which is not required as no displacement will be there due to overburden dumps. Therefore, there is no contradiction nor willful misleading nor lying. The company intends to purchase any private land from the land owners with mutual consent and commensurate with the local market conditions. The land which is coming under the pit area and for the required facility shall only be

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			February, 2023 for Dudhala, Dudheri and Gujarda J-11015/154/2016 – IA.II(M) Dated 28th November, 2022 for Padhiarka and Doliya The numbering of 152, 153 and 154 and the dates are anomalous since the earlier number i.e. 152 was granted (i.e. in December '22) after the later number i.e. 154 which was granted earlier, i.e. in November '22. How did this happen? **Additional facts that the EIA has not mentioned or omitted or suppressed are:** The EIA does not mention the fact that the earlier EC was canceled owing to the tremendous opposition and resistance from the farmers and the local people. What makes them think that the resistance will be any less this time around? Apart from this, the following facts are completely suppressed in the EIA: i. Total capacity of the cement plant, daily requirement of mining and total land loss; ii. Life of the cement plant and future limestone requirement; iii. How many mines have been approved on the coastal belt of Gujarat; iv. Impact of the mining on salinity ingress; v. Total employment loss, present agricultural production and yield, and agro and allied industries in the area; (in the case of record unemployment in the country, destroying existing employments must have a strong		affected. No, surrounding land shall be disturbed due to mining. Proper safety rules will be flowed as per DGMS during mining. Void area of shallow depths shall be back filled and later on utilized for agricultural and plantation purposes. So, the contention of malafied is not acceptable. 22. The files for the ToR application were first created in the MOEF&CC database in 2016, as evidenced by the number 2016 mentioned in the letter number. The same file number has been continued by MOEF&CC when the fresh application for ToR was applied in 2022. The ToR J-11015/154/2016 – IA.II(M) dated 28th November, 2022 for Padhiarka and Doliya has been issued before other two because this project was applied for ToR on 23.09.2022. Vangar & Madhiya (Letter No. J-11015/152/2016-IA.II (M) dated 23.12.2022) and Gujarda, Dudheri & Dudhala (Letter No. J-11015/153/2016-IA.II (M) dated 06.02.2023) were applied on 18.11.2022, therefore, their TOR letters were issued after Padhiarka and Doliya It is denied that information has been omitted or suppressed. The EIAs have been prepared as per the Terms of Reference issued by

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			and irrefutable justification); vi. India is a 'High Climate Risk Zone' country, and within India, Gujarat is a high climate risk zone. Why such a project should be sanctioned in such a fragile climatic zone needed an explanation which is missing; Nine Indian states at high risk of damage due to climate change hazards: Report (scroll.in); XDI gross domestic weather risk report: 9 Indian states in the list (groundreport.in) vii. The fact that migratory birds have been regularly spotted at the Malan reservoir and the Samadhiyala salinity control bund has not been mentioned in the EIA; viii. The silting speed at Malan reservoir and the Samadhiyala salinity control bund had to be calculated and put in the EIA; ix. A comparative study of contribution of mining to state revenue vis-à-vis loss to the people – land, water, livelihood, opportunity, health –had to be done; x. A comparative study of the time span of incomes and livelihoods from mining and agriculture had to be done; xi. Impacts of blasting activity in other limestone mines in other states had to be studied and provided here which has not been done; xii. The net impact of mining on migration (in the absence of viable livelihoods) and stress on urban infrastructure had to be studied and reported, which has not been done.		MOEF&CC. Our three mining projects have never been granted environmental clearance in the past, hence, question of cancellation of their EC does not arise. This mining projects are still under process to receive the environmental clearance. The public hearing has been conducted in which the local people and farmers have recorded their objections and the company will take into consideration their concerns during finalizing the EIA. The company requests for support from local people. It is denied that information has been suppressed. 1.☐1.9 MTPA cement plant capacity is mentioned in section 1.2, Chapter 1 of all three EIA reports ☐The daily mining capacity of each mine is also mentioned in section 1.2, Chapter 1 of all three EIA reports ☐Land loss for cement plant is not pertinent since the EIAs have been prepared to obtain EC for the mining projects and not for the cement plant. 2. Not pertinent since the EIAs have been prepared to obtain EC for the mining projects and not for the Cement Plant. Furthermore, the limestone use is not restricted to cement plant. 3. The EIA study has been conducted based on study area, i.e. up to 10 km radius from the project area/ core zone and not throughout

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					the coastal belt of Gujrat. This representation received from Khedut Ekta Manch itself contains such a list of mines, public hearing of which have been or will be conducted as part of EC process. 4. With respect to the intersection with ground water conceptual pit bottom level will be restricted upto a depth +1 m above ground water table in all three mines and no ground water will be intersect is envisaged. Also, all three mining lease areas are out of CRZ. Which will act as buffer area. So, there will be no possibility of sea water ingress. During operation and also after exhaustion of mineral, voids left will act as natural water harvesting structures and store fresh water. Collected water will stand and gradually percolate into the sub surface water. Positive pressure of fresh water on landward site will be created, this will push back the saline front, which may be at a lower elevation. The remedial suggestion has been incorporated in section 4.5.2 in the Draft EIA Report. In this way, this project will put good impact and check salinity ingress. 5. The land required for mining is both government land as well as agricultural land. The agricultural land will be taken from willing farmers only through purchase or lease basis.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					In case a land owner, whose land has limestone resource of depth <4 m is desirous of only leasing the land for the duration of mining instead of perpetual sale, then the company will enter into a lease agreement for the pre-decided duration at a mutually agreed rent. The company will remove the top soil from the progressing face of the open cast pit and store it temporarily till it can be filled back on the exhausted portion of the open cast pit. After laying back the soil on the exhausted shallow pit (<4 m depth), the land will be returned back to the land owner. Thus, there will not be loss of income to the farmer who agrees to give land on lease since he will receive income through lease rent and go back to farming after completion of mining. It is expected that the farmers who sell land shall also be utilizing the money in a fruitful manner. Thus, no destruction of employment is intended by the project. 6 It is prudent to note that the referred news article explains that 'This increase and overall risk to the built environment in 2050 is driven predominately by sea level rise and secondarily by flooding and coastal inundation". The referred news article puts

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					9 states of India at high risk of extreme weather change hazards and cities like Mumbai are mentioned. This does not imply that development should cease in Mumbai or the rest of the country. Taking the spirit of the article into consideration, projects should come up incorporating climate resilience measures and preparation measures to protect from hazards such as flooding and inundation, which are already covered in chapter 7 of the EIA. 7. A perusal of the list of birds given in Annexure XIII in EIA shows that various migratory birds such as flamingo, ibis, spoonbills, etc are observed in study area. A wildlife conservation plan has been prepared in which preservation of fauna of the study area has planned and the same has been approved by Forest Department. Approval letter & conservation plan are given in Annexure XXIII of EIA report. 8. Siltation at Malan reservoir and the Samadhiyala salinity control bund are impacted by a multitude of activities in their respective catchments. Mining activities will not have any impact on Malan reservoir since the mines are outside the drainage system of Malan. For Samdhiyala, the mines are planned to contribute to its water storage and mitigation measures for erosion control have been given for mining

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					activities in Chapter 4 of EIA. EIA has been prepared in compliance to the ToR issued by MOEF&CC. 9. In this regard detailed Cost to Benefit analysis has been carried out in Chapter 9. 10 In this regard detailed Cost to Benefit analysis has been carried out in Chapter 9. 11. EIA has been prepared in compliance to the ToRs issued by MOEF&CC. And the precautions for blasting along with the measures to ensure compliance to the DGMS norms for ground vibration has been given in Section 4.8 of the EIA report. 12. EIA has been prepared in compliance to the ToRs issued by MOEF&CC.
89.	C57	Vala Rajdeepsinh Mafatsinh, Village Vangar dated 28.04.2023	He supported the establishment of project and welcomed the project.	D57	Company welcomed his support.
90.	C63	Makwana Jeetubhai Jinuthai, Village Doliya dated 28.04.2023	The entire mining operation of these 7 villages be considered as a single project only when the severity of adverse effects on water, reservoirs, livelihoods, health, wildlife habitats, salinity intrusion and marine life are accurately assessed.	D63	The company had made three separate applications for grant of mining lease of limestone in the year 2004 and accordingly Department of Industries and Mines of the State Government granted mining leases through three different Letters of Intent in the year: 2008 on receipt of prior approval of the Central Government. Accordingly, in the year 2017, State Govt. has issued three separate detailed
91.	C78	Joliya Nagjibhai Bhupatbhai, Village Doliya dated 28.04.2023		D78	

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
92.	C83	Joliya Kashbhai, Village Doliya dated 28.04.2023		D83	grant orders for grant of three separate mining leases. The details of which are as follows. 1. Padhiyarka & Doliya 332.24 hectares - Grant order dated 08.01.2017 – Lease deed execution dated 11.01.2017 2. Vangar & Madhiya – 612. 1336 hectares - Grant order dated 08.01.2017 - Lease deed execution dated 11.01.2017 3. Gujarda, Dudhala & Dudheri- 681.62 hectare - Grant order dated 08.01.2017 - Lease deed execution dated 11.01.2017 As per above details, these three mining leases have been separately applied, granted and executed. Hence, the separate three EIA/EMP has been prepared for its environmental clearance. Along with this, Cumulative monitoring and summarization as per issued TOR for three mine leases has also been provided in the draft E.I.A. reports.
93.	C64	Bababhai Nanabhai, Khared dated 28.04.2023	He mainly emphasized on why 7 adjoining villages divided into 3 different mining areas.	D64	This query has been replied at point no. 63.
94.	C67	Chauhan Ajaybhai, Khared dated 28.04.2023	He mainly ephasized on why 7 adjoining villages divided into 3 different mining areas.	D67	This query has been replied at point no. 63.
95.	C71	Joliya Dhirubhai Arjanbhai, Village Doliya	He mainly emphasized on why 7 adjoining villages divided into 3 different mining areas.	D71	This query has been replied at point no. 63.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
		dated 28.04.2023			
96.	C81	Joliya Narshibhai Mohanbhai, Doliya dated 28.04.2023	• The area to be used for mining has a permanent habitat for wildlife and its corridor The area is a corridor area for Asiatic lions in Gujarat, which is listed in schedule 1. • Lion is observed by Forest Department and recorded regularly. 275 species of birds have been recorded in the area sought for mining as well as within a radius of 10 km from mining, out of which 41 birds are in schedule 1 and 234 birds are in schedule 2. The 17 km long embankment was declared bird area IBA in 2005. If mining happens, what about the habitat of these birds ? • Noise pollution from mining (explosives) is harmful to wildlife and humans. • The proposed route of transportation and area proposed for mining will lead to deforestation. • Wildlife habitat will be destroyed. Corridor area of wildlife will be destroyed. • The mining site should be close to the residential area so that wildlife will leave the existing site and move towards the human settlement area. • Possibility of accidents with wild animals like lions, leopards, etc. • The area is also home to reptiles and mainly such creatures live underground and spend their livelihood only in a short space. • There is also threat to marine life.	D81	• The The Principal Chief conservator of Forest, Gujarat State, Gandhi Nagar has certified by its letter dated 13.01.2022s certified the map of our mining area and its surrounding buffer area and certified that "There are no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar Sites, Tiger Elephant Reserves within the 10 km study area of the three mines. Copy of letter dated: 13.01.20220 from Deputy Conservator of Forests is enclosed herewith and according to the conservation plan approved by the forest department, conservation of schedule-1 and other wildlife will be implemented. • Authenticated list of flora and fauna of the mining lease area and its surrounding Buffer area has been given by the Forest Department, Gujarat State Department vide letter dated 05.02.2018 and the same is mentioned in the EIA, Wildlife Conservation Plan for schedule 1 mentioned therein, is approved by the Wildlife Department and approved wildlife conservation plan will be implemented as soon as the initiation of mining activities in the area. According to the I.B.A. report-2016, the proposed mining lease area does not fall under the Important Bird Area (IBA) and not a Ramsar Site or any Important Area declared by the Forest Department.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			• Due to mining, the environment and human life will also be affected. • The mining area has grey stones which prevents sea from advancing, if mining takes place there will be a possibility of sea water flowing into the countryside. • Loud noise from explosives used for mining will add to the noise pollution. • It also includes land, water and vegetation which is the natural home of a wild animal, according to the Wildlife Protection Act, 1972. • EIA for Nirma Mining it is clearly mentioned in the report that the wild life and birds are permanently removed from the site due to the explosion.		• The management proposed in the EIA report to abate Noise pollution, will be implemented during mining. • The mining lease area of limestone is not part of any bandhara land and is sanctioned away from the coastal regulatory zone of the sea. Further, as per the mining plan, the mining will not intersect the ground water table and will be carried out above it and the underground water will not be used for mining. However, rainwater percolating into the pits caused by mining will raise the water table and prevent further salinity Ingress. • Deputy Conservator of Forests, Bhavnagar has provided details vide his letter dated 27.01.2023 that turtle rearing/breeding center is located at Hathab, Taluka: Bhavnagar is located at about 70 km away from our mining lease and there is no turtle area in 10 km area from our lease area. • There is no any forest, reserve forest or any CRZ area falls in the proposed mining lease area. Hence, wildlife and aquatic life will not be affected due to mining activity. • According to the I.B.A. report-2016, the proposed mining lease area does not fall under the Important Bird Area (IBA) and not a Ramsar Site or any Important Area declared by the Forest Department. • The Deputy Conservator of Forests has authenticated the map of our mining lease area and surrounding Buffer area and

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					certified that "There is no National Park, Sanctuaries Biosphere Reserves, Wildlife Corridor, Ramsar Site, Tiger / Elephant Reserve in the 10 km study area. Conservation plan for schedule-1 and other wildlife will be implemented as per conservation plan approved by the wildlife department. ● The mining lease area of limestone is not part of any bandhara land and is sanctioned away from the coastal regulatory zone of the sea. Further, as per the mining plan, the mining will not intersect the ground water table and will be carried out above it and the underground water will not be used for mining. However, rainwater percolating into the pits caused by mining will raise the water table and prevent further salinity Ingress. Measures to control the noise pollution are given in EIA report, will be implemented during mining. ● The Deputy Conservator of Forests has authenticated the map of our mining lease area and surrounding Buffer area and certified that "There is no National Park, Sanctuaries Biosphere Reserves, Wildlife Corridor, Ramsar Site, Tiger / Elephant Reserve in the 15 km study area. Conservation plan for schedule-1 and other wildlife will be implemented as per conservation plan approved by the wildlife department.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					• Impacts from mining given as wildlife and birds may migrate from the area due to explosives. But In the EIA report, the measures have been suggested to prevent its impact and its implementation will minimize this impact.
97.	C84	Jodiya Girdhar, Village Doliya dated 28.04.2023	He mainly emphasized on why 7 adjoining villages divided into 3 different mining areas.	D84	This query has been replied at point no. 63.
98.	C95	Joliya Vikrambhai Arjanbhai, Village Doliya	1. The 332.24 hectares of government land and private ownership of our Doliya, Padhiyarka villages have been allotted to Nirma Ltd. Company for extracting Limestone Marl mineral without our consent. Opposition has been expressed by writing letters dated 27/07/2020 and 08/04/2023. Limestone stone walls are visible in the ground in our area at different places. Thousands of hectares of land are like our mother Earth with fossil evidence from ages like 'Jurassic'. It is an open document of millions of years of history. 2. If such mining of our mother earth is allowed, the ecological balance will be disturbed and there is a possibility of severe damage to the environment. Due to this, life becomes a helpless struggle for the living creatures. Due to such indiscriminate mining, thousands of plant species are likely to disappear from the face of the earth.	D95	1. The State Government have sanctioned three mining leases area in villages Padhiyarka & Doliya, Vangar & Madhiya and Gujarda, Dudheri & Dudhala for the mining of Limestone in mineral bearing area under the Mineral Act / Rules. 2. The habitation, village and its surrounding area is not part of the mining lease area and it is outside of lease area, hence there will be no disturbance to the village habitation. Limestone will be mined out in small patches only and that will be restricted above ground water table. The land required for mining, will be taken from willing farmers only through purchase or lease (consent/ surface rights) basis at market rate. In case of consented land and mining shallow pits, The company will filled back on the exhausted portion of the shallow pit and land and the land will be returned back to the land owner for agriculture use. Also, a Wildlife Conservation Plan has been approved by the Wildlife Department for the protection of Schedule I wildlife and accordingly

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			3. The decision of mining lease approved in principle by the Industries and Mines Department of the Government for the land of our Doliya, Padhiarka villages is not correct.		the approved Wildlife Conservation Plan will be implemented along with commencement of mining activities in the area. 3. The Industries and Mines Department of the State Government has obtained the prior approval of the Central Government before granting mining leases in the Limestone bearing area. Mineral rights in all types of lands are held by the Government.
99.	C97	Jagdish Ambalal Patel, village Gujarda dated 28.04.2023	He supported and welcomed the project.	D97	Company welcomed his support.
100.	C98	Maheshbhai Bhagwandas Patel, Village Padhiyarka dated 28.04.2023	He supported and welcomed the project.	D98	Company welcomed his support.
101.	C99	Rajabhai Kanabhai Vala, village Vangar dated 28.04.2023	He supported and welcomed the project.	D99	Company welcomed his support.
102.	C101	Saraswati Foundation dated 28.04.2023	1. How it is possible to do blasting and drilling as mentioned in the EIA report but no waste will come out of it. 2. How appropriate it is to leave land after mining for water storage. 3. State the effect of drilling & blasting on marine life as the project is at a distance of 500 m from the coast.	D101	1.No waste will be generated from the mining process. Mining will be done by surface miners. However, sometimes drilling and blasting will be carried out and necessary mitigation measures will be taken. In addition, mining will be done by taking safety measures as stated in the mining plan approved by IBM.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			4. whether you have obtained CRZ approval or not. 5. Kindly state what steps you will take to deal with the particulate matter in the air as a result of your mining activities 6. You will leave this land as a pond after mining, it is agricultural land. So why do you want to make this land non-reusable. 7. What are the measures being taken so that least damage could occur to the rivers in the study area. 8. Kindly request to provide detailed information as to why your mining area has been reduced by NGT. 9. As mentioned in EIA the undertaking of consultant is dated December 2022 and Tor is also received in December-2022. So you have indicated the monitoring time from March to June 2021, is it possible ? 10. What measures are being taken to avoid damage to salt manufacturing center and windmill present in the study area. 11. Can this mining be allowed as per CRZ rules? And kindly request to give us copies of all his statutory proofs if available. 12. CRZ of this area falls under which category.		2.Some of the pits from mining will be used as artificial recharge structures and this will improve the groundwater quality and prevent intrusion & reduction of excess salinity as well as there will be freshwater ponds. 3. The mining will be done by surface miners. However, sometimes drilling and blasting will be carried out with necessary mitigation measures and it will not harm the area or the marine ecosystem. 4.The proposed lease area is not within the CRZ area and is at a distance of 500m hence CRZ approval is not applicable. 5.Following measures will be taken to control air pollution: • Water will be sprinkled on unpaved roads to prevent dust generation during transportation. • Trucks for transporting minerals will be covered with tarpaulin. • Ambient air quality will be monitored regularly to ensure that air pollutants remain within limits. • Tree plantation will be done to control air pollution. 6. At the end of the mine life, the backfilling area will be converted into agricultural land/ for tree planting and remaining void area shall be used used as an artificial recharge pit as per approved plan in the proposed IBM. 7.There are no rivers in the mining core zone. Mining will be done by surface miners. However, sometimes drilling and blasting will

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
					be carried out where necessary mitigation measures will be taken. Mining activities shall not in any way intersect the ground water. So there is no possibility of intrusion of sea water due to mining activities. 8.There is no reduction in mining lease area by NGT. Undertaking of consultant in EIA report is dated 04.01.2023 and ToR was received on 28.11.2022. Baseline data results are valid for up to 3 years. 9. The mining lease has been granted as per the existing Acts and Rules and all environmental and related regulations shall be followed during mining. No impact on salt manufacturing center and windmill is envisaged as it is away from ML area 10. CRZ approval is not applicable to the proposed lease area. 11. As the proposed lease area does not fall under CRZ, it has no category.
103.	C103	Shri Nitish Bambhaniya Jatayu Nature Club, Bhavnagar - 364001	The area is a corridor area for Asiatic lions in Gujarat's Shan Sama, which falls in schedule 1, and is also a habitat, the area is mainly used by lions to raise their cubs, where they have access to sufficient water and food. Apart from this, wild animals like leopard, wolf (Schedule-1), deer, lynx, jackal, harrier, jungle cat, porcupine also live in this area and raise their cubs. Lions are observed permanently by the forest department and observations are also recorded with GPS regularly.	D103	Land area other than village habitation is either government waste land or agriculture land. Movement of Lion and other wild animals are present in core and buffer zone. However, there is no lion or any wild animal habitation observed in core or buffer zone of limestone mining lease area. Also in draft Eco Sensitive Zone (ESZ) notification of Gir National Park, the Gir Wildlife Sanctuary, the Paniya Wildlife Sanctuary and the Mitiyala Wildlife Sanctuary, riverine corridor mentioning movement of lion & other wildlife

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			There is a 17 km long sweet water dam in this area and it has been declared as IBA (Important Bird Area) in 2005. 280 species of birds have been recorded here, including 44 birds in schedule 1 and 236 birds in schedule 2 in the area sought for mining as well as within a radius of 10 km from mining. The figures shown in the EIA report show only 70 birds which seems to be misrepresented just to get permission. Apart from this, rare and endangered birds have also been seen in this area. Endangered vultures also find their food in this area and also live in the nearby area, mainly through predation by vultures and lions. In the area sought for mine lease, an estimated 190 hectares of inundated area of the freshwater dam is included in the mining. Besides, due to the proximity of the sea, dams have been built by the government at a cost of crores of rupees to prevent salt control. The limestone that is mined there Being a stony area, there is a possibility of salt migration, thus the purpose of salt prevention is not maintained. Indian Ocean humpback dolphins, bottlenose dolphins, finless porpoises, pygmy sperm whales, sting-rays and endangered sea turtles, green sea turtles and olives, protected in Schedule-I of the Wildlife Protection Act-1972 within 10 km from mining. Ridley turtles are also found here and their nests have been recorded in the past.The main reason for this		movement which does not reflect said seven villages of proposed mining lease area. Moreover, Wildlife Conservation Plan has been prepared in consultation of Forest Department and conservation activity of plan has been approved by the Wildlife Department and will be implemented on starting the mining activity in the area. No Part of Samdhiyala or Malan Bandhara land falls in Mining lease area of Nirma. Low-lying areas are part of ML applied area in 2004 and LOI granted area in year 2008 and also ML grant in 2017 for lease deed by the Govt. looking to mineral bearing area. However, company will surrender the area from mining lease after deepening, in consultation with irrigation dep't for enhancement of water storage capacity of Bandhara. Proposed mining lease area does not fall under any of the following notified area: • Important Bird Area(IBA) as per 2016 IBA report • Latest Ramsar Wetland Sites,2022. • CRZ Notification,2011 Proposed mining lease area does not fall under Important Bird Area(IBA) as per 2016 IBA report. Point wise reply of your query is as under

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			17 km long dam which was declared IBA in 2005 is because of the birds living here. What will happen to the habitat of these birds if mining takes place? Besides above following issues were also raised: 1. Noise pollution from mining (explosives) is harmful to wildlife, birds, marine life, and humans. 2. Permitted mining area is a gateway for migratory birds coming to Gujarat. In which Malan Bandhara is his first vacation. In future, if they feel threatened here, they will stop coming to this area. Due to which there can be a big change in the food chain and food web of the residential area here. Which can cause great loss to humans in the coming years. 3. The proposed route for the movement of mining vehicles and the area proposed for excavation will deforest. Due to which the habitat of wildlife and birds will be affected. Apart from this, there will be a greater impact on small scale fishing than coastal fishing. 4. What will happen if mining takes place where mining takes place where there is a permanent habitat and corridor for wildlife and reptiles? 5. Wildlife habitat will be destroyed. 6. Corridor area of wildlife will be destroyed. 7. Wildlife currently living in mined areas to		1. Effective mitigation measures have been considered to control noise level due to blasting and transportation. • Fitting of special silencer, proper lubrication and periodic maintenance of noise generating machinery and transportation vehicles will be ensured. • Dense green belt around the opencast working has been proposed. • Further, provision of greenbelt around mine infrastructures and both sides of haul road on the surface has been made. • Blasting will be carried out as per DGMS regulations, Environment Management Plan has been given in Section 10.1 of EIA report. 2. No part of Malan Bandhara land falls in Mining lease area of Nirma. Therefore, there will be no impact on migratory birds due to mining activity. 3. No Forest or Reserved Forest or CRZ area falls in proposed mining lease area. Hence, there will be no impact on wildlife & aquatic life due to mining activity. 4. Land area other than village habitation is either government waste land or agriculture land. Movement of Lion and other wild animals are present in core and buffer zone.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			raise their young will be destroyed. 8. Loud noise and movement of vehicles will disturb the daily activities of animals. 9. The mining site is close to the residential area so that the wild life will leave the existing area and there will be possibility to reach near the human settlement. 10. Possibility of accidents with wild animals like lions, leopards, etc. during mining by heavy vehicles, currently the death of lions, leopards, and other wild animals due to vehicle accidents is increasing while mining in such corridor area will be like giving death to wild animals. 11. The area is also home to reptiles and mainly such creatures live underground and make their living in a short space, so it would not be appropriate to allow mining in the area. 12. Apart from this the marine life will also be affected. 13. Due to mining, the environment and human life will also be adversely affected and will cause heavy losses in the long run. 14. The mining area is an area with gray stones and the area is located near the sea which prevents the sea from advancing, if mining takes place there will be a possibility of sea water flowing into the countryside. These gray stones make the water clean, if mining takes place, the purity of the water will decrease due to which the people around will have to fight for clean water for a long		However, there is no lion or any wild animal habitation observed in core or buffer zone of limestone mining lease area. Also in draft Eco Sensitive Zone(ESZ) notification of Gir National Park, the Gir Wildlife Sanctuary, the Paniya Wildlife Sanctuary and the Mitiyala Wildlife Sanctuary, riverine corridor mentioning movement of lion & other wildlife movement which does not reflect said seven villages of proposed mining lease area. 5. Wildlife Conservation Plan has been prepared in consultation of Forest Department and has been approved by the Wildlife Department and will be implemented on starting the mining activity in the area. 6. No CRZ area falls in proposed mining lease area. During mining, there will not be any intersection with ground water. Therefore, no adverse impacts have been envisaged as proper mitigation measures have been considered. 7. Mining will be done through continuous surface miner only. However, as and when required, drilling and blasting will be carried out with required mitigation measures. 8. No Forest land, reserved Forest area falls in proposed mining lease area. Wildlife Conservation Plan has been prepared in consultation of Forest Department and

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			time. 15. Loud noise from explosives used for mining will increase noise pollution and such loud noise will also be a concern for nearby human settlements. According to the Wildlife Protection Act, 1972 to move the wildlife from their permanent residence, or to change their residence, disturbing their daily routine etc. is counted to be a punishable activity. In EIA report for Nirma mining it is clearly mentioned that due to explosives wild animals & birds will be removed permanently from this area. Places asked by Nirma Limited for mining may lead to huge loss to wild animals, environment & human life. Due to which this area doesn't seem appropriate for mining if still proceedings doesn't happen then will again knock the doors of NGT.		conservation activity of plan has been approved by the Wildlife Department and will be implemented on starting the mining activity in the area.
104.	C104	Dr. Kanubhai Kalasaria, Former MLA, 54, Mahuva C/o. Sadbhavna Trust Hospital, Vadli (Mahuva)(District Bhavnagar dated 28.04.2023	1. Since 2009, In this area, the Nirma Limited has obtained various approvals for the Integrated Cement Plant means Cement & Clinker project, and the granted the mining leases around it, including Environmental Clearance (EC) granted by the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India at the time. But then due to the opposition of the people in the area and such environmental clearance was challenged before the reputed	D104	1. The Environmental Clearance (EC) granted by the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India has not been quashed by the Hon'ble Supreme Court. Honorable NGT on 14/01/2015 has quashed Environment clearance canceled by MoEFCC. Both ECs are for separate processes. The EC received in 2008 was for a cement plant. The proposed public hearing is being held by the Gujarat Pollution Control Board for mining leases.

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			Gujarat High Court and the Supreme Court in which the said Supreme Court gave judgments as per reference 1 to 3 respectively, the said environmental clearance was canceled. So after about 13 years there will be an attempt to get environmental approval again by Nirma Limited, which is completely unfair and against the law. It is my humble request not to grant the environmental clearance to Nirma Limited. 2. It is my clear request not to grant good environmental clearance for the purpose of mining lease in this area as there are Samdhiyala Bandhara constructed for control of Salinity control department, habitat of Lion, various endangered species of animals and fauna, which are listed in schedule 1 wildlife. 3. At present, public hearings are being held to seek environmental clearance for three different mining leases by Nirma Limited, The mining leases consists of wholly owned private fertile agricultural lands, which in their possession, have not sold these lands to Nirma Limited Company, nor have they been acquired by the government, nor has the company paid any compensation to the farmers for these lands. 4. 760 hectares of land of 7 villages will be		All the issues raised have been addressed in a proper scientific manner so there is no basis for rejecting the EC grant. Hon'ble Gujarat High Court and NGT have also given detailed scrutiny to this project and have given permission to set up the cement project. 2.The purpose of the Samdhiyala Salinity Ingress Control Bund is to prevent the rising of salty sea water towards the land. In which rainwater is collected, this bund has been planned to store water and increase the storage capacity. Three canals will be built around the cement plant to facilitate the flow of water towards the dam to prevent the spread of salinity. As per suggestion/advice of Irrigation Department the company will deepen the proposed land towards the embankment to increase water storage. No 'Bruhadgir Vistar' has been declared as Reserve Forest by Resolution No. WLP-1107-572-J G1 dated 18/05/2009 of Forest and Environment Department, Gandhinagar. And by the letter dated 09.11.2020 by the Deputy Conservator of Forests, the map of reserved forest has been certified and stated that "There is no National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant reserved in the 15 km study area of the three mines". Also, the mining lease area has no habitat for wild life and schedule 1 species. A Conservation Plan has been approved by the

Sl.	Query in Annexure no. of PH minutes	Name and address	Questions/ suggestions/issue etc raised (as recorded in public hearing minutes)	Response in Annexure no. of PH minutes	Response of the project proponent during public hearing and updated thereafter
			cultivated in future through public-constructed ponds and a government-sanctioned connection pipeline connecting Malan-Bandhara to Samdhiyala Bandhara. 5. Thus, when the ownership of the mining lease in question is present and earlier also the respective farmers have developed their land. Articles 14, 19, 21 and 300 of the Constitution of India in cases where the company has not obtained consent for the purpose of mining. Even if it is taken into consideration, the mining lease to be granted is wrong-illegal and contrary to the law in relation to the Constitution of India, it is considered illegal and unconstitutional to conduct environmental hearing and grant environmental clearance for such mining leases, so it is my humble request not to grant environmental clearance.		Wildlife Department for the protection of Schedule I wildlife. The Wildlife Conservation Plan dated 20.12.2021 has been approved by the Chief Conservator of Wildlife and will accordingly be implemented along with commencement of mining activities in the area. 3. A public hearing is being held for the first time for the proposed mining lease. Inform the villagers about the true facts. 4. The land in the proposed three mining lease areas is not fully privately owned land. It also includes government waste land. Limestone Mining Lease in Limestone Minerals rich area sanctioned by the Government in 2017 and the agreement deed executed by the Collector accordingly. Mineral rights in all types of land are held by the government. 5. However, the mine owner will not acquire agricultural land for mining if the farmers are willing to sell/consent their land for mining at market rates, accordingly the mine owner can mine the land with the sale/consent of the land owner. Thus, mining will be done in that land only after getting the consent of the land owner. Article 14, 19, 21,300(a) of the Constitution of India shown in these circumstances is absolutely not violated. The scheme connecting Malan Dam to Samdhiyala salt seepage dam is a government scheme.

7.5.1 Budget of Welfare Expenditure Based on Public Consultation

The total expenditure to meet public hearing demands will be Rs. 77 lakhs to be distributed over 3 years. The budget proposed to address the points raised during public hearings dated 28.04.2023 as detailed in **Table No. C7-3.**

TABLE NO. C7-3: BUDGET OF WELFARE EXPENDITURE BASED ON PUBLIC HEARING FOR DOLIYA & PADHIYARKA LIMESTONE MINE, DISTRICT BHAVNAGAR

Sl. No.	Physical activity and action plan		Year of Implementation (Budget in Rs. lakhs)			Total Expenditure (Rs. in lakhs)		
	Name of the Activity	Physical Target	Year 1	Year 2	Year 3	Capital	Recurring for 3 years	Total
	Infrastructure Development							
1	Road Infrastructure	Maintenance of roads	1	1	1	-	3	6
		Provision of street light	1	1	1	-	3	
2	Rain Water Harvesting	Rain water harvesting through water channels shall be developed in and around the project area	1	1	1	-	3	3
3	Deepening of Bandhara	Deepening of Samdhiyala Salinity Ingress Control Bund & village ponds	10	10	10	-	30	30
4	Land for school development	Land for school development in Dudheri village	-	-	-	-	-	-
	Livelihood Support							
5.	Support for locals in transportation & other related business.	Contractual activities will get generated on commencement of mining operation	-	-	-	-	Contract amount (paid for contract period for different activities)	-
5	Vocational training programme for skill development	The company will facilitate vocational training along with skill development for getting better job opportunities	1	1	1	-	3	6

Sl. No.	Physical activity and action plan		Year of Implementation (Budget in Rs. lakhs)			Total Expenditure (Rs. in lakhs)		
	Name of the Activity	**Physical Target**	**Year 1**	**Year 2**	**Year 3**	**Capital**	**Recurring for 3 years**	**Total**
		Imparting training to build capacity for self-employment [stitching, embroidery, tailoring, pickles, dairy improvement, poultry farming, etc] to groups in villages	1	1	1	-	3	
	Education							
6.	Education facilities	➢ Repair/ renovation and/ or extension of existing school buildings and/ or their boundary walls/ toilets, etc. ➢ Scholarship to meritorious students and students from economically weaker sections ➢ Distribution of bags, study material (slate, globe, maps, charts, exercise book, duster, chalk etc.) as per demand from school. ➢ Assistance in the form of furniture, uniforms, sports kits and other miscellaneous items ➢ Any other aid required by the primary school to upgrade into middle & later secondary and senior secondary schools	5	5	5	0	15	15
	Health Care							
7	Provision of Ambulance.	The company shall have its own ambulance for the group of mining leases. The contact number for the ambulance shall be posted at Panchayat houses/ community centers in the villages and ambulance will be provided when a call is received.	-	-	-	10	1	11

Sl. No.	Physical activity and action plan		Year of Implementation (Budget in Rs. lakhs)			Total Expenditure (Rs. in lakhs)		
	Name of the Activity	**Physical Target**	**Year 1**	**Year 2**	**Year 3**	**Capital**	**Recurring for 3 years**	**Total**
8	Medical facilities	Conducting mobile health camp (with Doctor, para-medical staff and free medicines) on a pre-determined frequency	1	1	1	-	3	6
		Conducting veterinary camps and provide access to a visiting veterinary doctor, according to pre-determined time table	1	1	1	-	3	
		Total	**22**	**22**	**22**	**10**	**67**	**77**

CHAPTER 8
PROJECT BENEFITS

This chapter comprises of project benefits in terms of employment potential and physical & social infrastructure development due to the project.

8.1 EMPLOYMENT POTENTIAL

The mining project is located in one of the undeveloped district of Gujarat State in view of industries. During operation phase, 55 persons will be directly employed at the mine. Many more persons will be indirectly engaged either on contract basis or in transportation of materials in provision of different services associated with the project. As majority of unskilled and semi-skilled persons will be from the surrounding villages, benefits will extend to the local population. The project will create:

- direct employment in mining activities
- indirect employment on account of transportation by road, transportation of manpower, services required for operation and manpower, etc.
- indirect employment through stockists and retailers in Gujarat and outside.

The project may also induce the development of ancillary and related small-scale industries in the adjoining areas. The activities of the proposed mining operations will produce some improvements in the socio-economic levels in the study area.

8.2 PHYSICAL & SOCIAL INFRASTRUCTURE DEVELOPMENT DUE TO MINE

With the commencement of operation, amenities for communication, education, health, entertainment, canteen, etc. will be developed in and around the project area. These amenities will be available to local people also, in addition to those who are directly associated with the project. Thus, even those not associated in the project related activities will be benefited by these amenities. With the commencement of limestone mine, there shall be substantial improvement in the overall economy of the local people in the form of additional income through employment and development of infrastructure in surrounding areas as part of Corporate Social Responsibility (CSR).

The project will contribute additional revenue to the State and Central exchequer in the form of royalty, District Mineral Foundation Trust (DMFT), National Mineral Exploration Trust (NMET), cess and other taxes etc. These taxes also indirectly lead to physical and social infrastructure development in the State.

8.3 SOCIAL WELFARE INITIATIVES UNDERTAKEN BY M/S NIRMA LTD.

Nirma Ltd. has committed to its responsibility towards the society and has been doing several welfare activities in surrounding area and in Gujarat state based on specific needs and requirements. Company has already initiated the social-welfare activities in the vicinity of soda ash plant, proposed cement plant & proposed mining lease area. These are;

- Human Development & Capacity Building
- Infrastructure development
- Health, medical care & hygiene
- Improvement in Socio economic condition
- Sports & recreation
- Education
- Religion, culture & other activities

CSR expenditure made earlier for villages near Padhiarka cement plant & proposed mining sites are as given in **Table No. C8-1**. When the operation of the mines will commence, such and other activities will be started again.

TABLE NO. C8-1: LIST OF ACTIVITIES/MATERIAL SUPPLIED (UNDER CSR) TO NEARBY VILLAGES OF CEMENT PLANT & LIMESTONE MINING COMPLEX AT MAHUVA, BHAVNAGAR

Sl. No.	Party or Purpose	Year	Issued Material			Cost in Rs. (Approx.)	Remarks
			Sand	Grit	Total		
1	Padhiyarka gram panchayat	2012-13	9	9	18	54000	-
2	Padhiyarka Gram Panchayat for Bajarang Das Bapa ni Madhi	2014-15	26	24	50	155200	R.C.C pipe 2.0 m long
3	Padhiyarka Gram Panchayat for levelling Below Paving Block At Samshan	2015-16	17	9	26	83200	-
4	Padhiyarka Gram Panchayat for Street levelling Below Paving Block at Padhiyarka	2016-17	16	15	31	102400	-
5	Padhiyarka & Madhiya Gram Panchayat for School compound wall at Padhiyarka & Ramji Madir etc.	2017-18	38	17	55	192500	White Stone 30 Nos.
6	Padhiyarka Gram Panchayat for Samshan new compound wall construction & road repairing work	2018-19	50	20	70	245000	-
7	Sand & Grit in tractor trolly provided to Padhiarka village for Road Paving Block work	2018-19	14	2	16	48000	
8	CSR work in Temple at Padhiarka for Remuneration of	2018-19				48000	

Sl. No.	Party or Purpose	Year	Issued Material			Cost in Rs. (Approx.)	Remarks
			Sand	Grit	Total		
	Pujari						
9	Sand & Grit in tractor trolly provided to Padhiarka village for Road Paving Block work	2019-20	26	6	32	96000	
10	CSR work in Temple at Padhiarka for Remuneration of Pujari	2019-20				48000	
11	Sand & Grit in tractor trolly provided to Padhiarka village for Road Paving Block work	2020-21	24	3	27	81000	
12	CSR work in Temple at Padhiarka for Remuneration of Pujari	2020-21				48000	
13	Sand & Grit in tractor trolly provided to Padhiarka village for Road Paving Block work	2021-22	79	84	163	489000	
14	CSR work in Temple at Padhiarka for Remuneration of Pujari	2021-22				48000	
15	Sand & Grit in tractor trolly provided to Padhiarka village for Road Paving Block work	2022-23	15	9	24	72000	
16	CSR work in Temple at Padhiarka for Remuneration of Pujari	2022-23				48000	
Total Cost						**Rs. 18,58,300**	

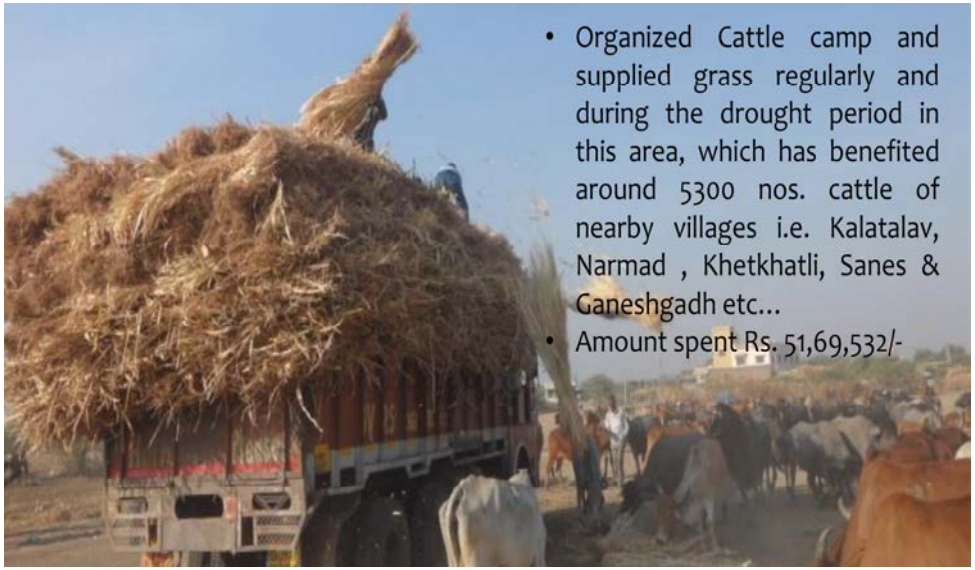
Company is also carrying various social development activities. Details of various CSR activities & expenditure made undertaken in last 10 years by M/s Nirma Ltd. for its plant at village Kalatalav, District Bhavnagar is given in **Table No. C8-2**. **Fig No. C8-1** shows some glimpse of activities completed in the past.

TABLE NO. C8-2: CSR ACTIVITIES & EXPENDITURE MADE IN LAST 10 YEARS BY M/S.NIRMA LIMITED, BHAVNAGAR

Sr. No	CER Program	Financial Expenditure Made (Rs. In Lacs)				
		2013-2015	**2015-2017**	**2017-2019**	**2019-2021**	***2021-2023**
A	Human Development and Capacity Building	105.28	7.56	57.84	114.97	100.91
B	Infrastructure	194.1	138.52	142.07	179.91	305.92
C	Health & Hygiene and COVID-19	52.47	72	30.87	72.55	38.92
D	Socio-Economic Development	126.36	10.15	25.59	142.23	176.31
E	Sports & Recreation	36.57	10.14	21.16	34.09	24.49
TOTAL		**514.78**	**238.37**	**277.53**	**543.74**	**646.55**

***2021-23: Actual financial expenditure till March'23**

FIG NO. C8-1: SOME GLIMPSE OF PAST CSR ACTIVITIES CONDUCTED BY NIRMA LTD.



- Construction of rain water wear/ culvert at village Narmad, Sanes and Jaswantpura to provide free flow to rainwater
- Amount spent: Rs. 39,79,975/-

- Regularly organized "School Pravesh Utshav" to encourage the school going children in the villages of Kalatalav, Narmad, Khetkhatli, Savaiya nagar and Madhiya. Around 170 students has benefited
- Amount spent Rs. 45,304/-

FIG NO. C8-1: SOME GLIMPSE OF PAST CSR ACTIVITIES CONDUCTED BY NIRMA LTD. (Contd...)

- Provided better infrastructures by construction and maintenance of school building at Kalatalav and Anganbadi of Khetakhatli village

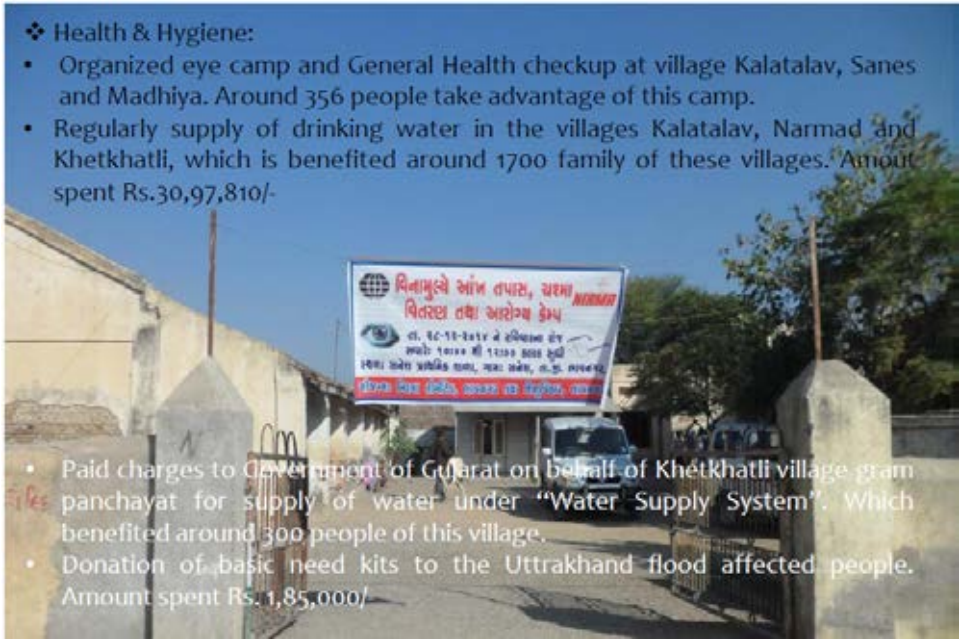
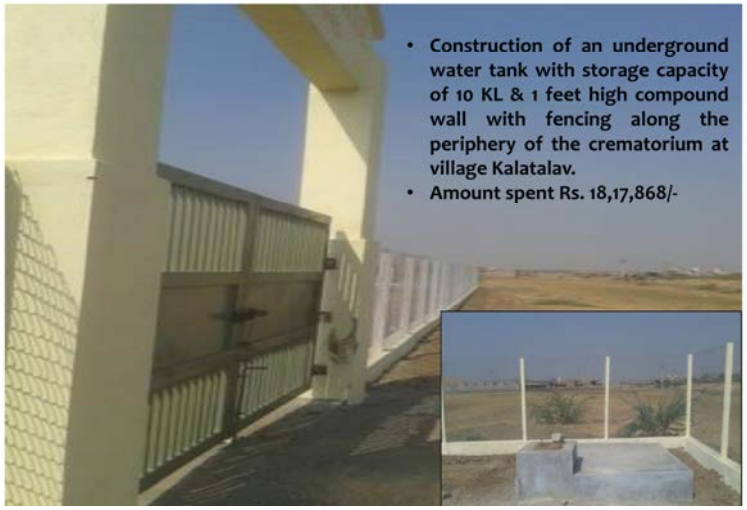
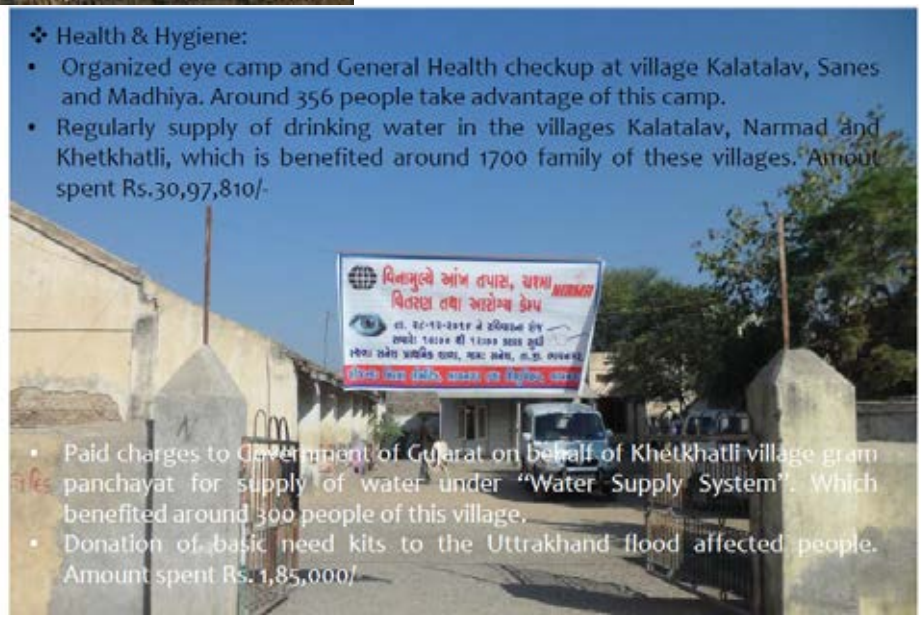


FIG NO. C8-1: SOME GLIMPSE OF PAST CSR ACTIVITIES CONDUCTED BY NIRMA LTD. (Contd...)





8.4 NEED ASSESSMENT

The need assessment for infrastructure and/ or facilities has been carried out for the villages around the mine. Villages present around the project are:

Within project area:	Doliya & Padhiarka
Within 2 km radius (4 nos.):	Vangar, Dudhala, Dudheri & Madhia
Within 5 km radius (11 nos.):	Mota Jadra, Amratvel, Pipalva Nana, Rabhada Samadhiala, Patva, Gadhada, Gujarda, Devlia, Biladi& Bhanvad

Village level observations were made to identify deficiencies or needs related to selected sectors through physical survey and interaction with local persons in Doliya, Padhiarka, Vangar, Dudhala, Dudheri & Madhiya,

Additionally, the amenities as reported for the villages in Census 2011 were studied. As per Census 2011 data, several facilities are deficient. The field observations and local persons interaction indicate that they have concerns related to roads, health and education facilities. The summary of the sector wise findings, their present status, identified deficiency and proposed intervention are discussed in **Table C8-3.** The stated activities will be carried out in consultation with the government authorities and the agencies in-charge of the respective infrastructure in the areas of interest.

TABLE C8-3: PRESENT PHYSICAL & SOCIAL INFRASTRUCTURE, NEED ASSESSMENT AND PROPOSED INTERVENTIONS IN VILLAGES AROUND PADHIARKA & DOLIYA LIMESTONE MINE

Sector	Present status	Identified Deficiencies	Proposed intervention	Proposed timeline of implementation
(1)	(2)	(3)	(4)	
1. Roads	The village roads of Doliya, Padhiarka, Vangar, Dudhala, Dudheri & Madhia are Kachcha, in part and some are PCC/ Black topped/ Paved block	➢ In summers specially, air borne dust is there due to condition of roads, whenever a vehicle moves inside a village ➢ Street lights are partially available along roadside	➢ Maintenance of roads as and when requested by villagers ➢ Provision of solar street lights will be taken up as per requirement. ➢ The stated activities will be carried out in consultation with the government authorities i.e. In collaboration with local Panchayats and Govt. Schemes if any.	➢ Will commence on commencement of mine working ➢ Continue throughout life of mine
2. Drinking Water	All of the villages have water of Narmada River pipeline having connection of PVC pipeline to meet their domestic water requirements.	Adequate water supply facility is available in villages	Water supply through tankers during festivals, fairs and other functions on requirement of panchayat/ villagers	➢ Will commence on commencement of mine working ➢ Continue throughout life of mine
3. Drainage	➢ Rain water drainage system is absent in settlements	➢ During monsoons, water logging, breeding of mosquitoes, odour problem and water borne diseases occur. ➢ Drainage system is required.	In collaboration with local Panchayats and Govt. Schemes, to undertake: ➢ Awareness camp to prevent water logging and water borne diseases ➢ Anti mosquito fumigation drive	➢ Will commence on commencement of mine working ➢ Continue throughout life of mine
4. Sanitation & solid waste management	➢ Toilets with septic tanks are available in 60% of the homes of villages but not used by villagers due to lack of awareness. ➢ Open defecation is still done	➢ Open urination and defecation in public places causes spread of diseases. ➢ Due to lack of proper disposal of solid waste,	Swachh Bharat Mission has initiated construction of toilets, hence, the company will focus on improvement of overall hygiene & cleanliness in collaboration with local Panchayats and Govt. Schemes. Will undertaken	➢ Will commence on commencement of mine working ➢ Continue throughout life of

Sector	Present status	Identified Deficiencies	Proposed intervention	Proposed timeline of implementation
(1)	(2)	(3)	(4)	
	by villagers, although in small numbers ➢ Dustbins are not there at public places, in schools etc. ➢ There is no vehicle designated for waste collection in villages. ➢ No solid waste management system was observed	the waste is being managed by individual households at their own level. Therefore, some burning of waste is done occasionally. ➢ Dustbins absent at public places, schools etc.	following: ➢ Holding awareness camps about solid waste segregation and household composting to avoid burning of waste ➢ Purchase of dustbins for garbage collection in common areas of the village. ➢ Awareness drives against open urination and defecation ➢ Construction of public toilet ➢ Provide support for cleaning of common areas periodically. ➢ Help Panchayats to develop a sustainable solid waste management system	mine
5. Market access and local livelihood means	➢ Nearest Mandi/ regular market exists at Mahuva (approximately 10 km from core zone). ➢ Local people are involved in agriculture for cotton,onion & millet. People are also involved in diamond polishing and other labour work	➢ Youth need training in ITIs in different vocations to prepare themselves for recruitment in the upcoming project. ➢ Other vocations, which are not dependent on industries also need to be taught to local people. ➢ Women empowerment to make them financially self-reliant is necessary. Hence, gender based skill development programs are required.	➢ Imparting training to build capacity for self-employment [stitching, embroidery, tailoring, pickles, dairy improvement, poultry farming, etc] to groups in villages ➢ Training to people for improvement of agriculture and agriculture based products ➢ Plantation of those trees in villages which are fruit bearing and/ or have medicinal/ commercial importance.	➢ Will commence on receipt of environmental clearance & on commencement of mine working ➢ Continue throughout life of mine

Sector	Present status	Identified Deficiencies	Proposed intervention	Proposed timeline of implementation
(1)	(2)	(3)	(4)	
6. Education	➢ Primary school are available in all villages within 2 km radius i.e. Doliya, Padhiarka, Vangar, Dudhala, Dudheri, Madhiya Middle School is present in Madhiya village but secondary or senior secondary schools are not available in any of the villages in 2 km. They are available in Mahuva. ➢ Two private Higher Secondary schools are available within 2 km. ➢ Degree college is available at Mahuva ➢ Engineering college is available at Bhavnagar	➢ Need to expand primary schools into middle and later secondary and senior secondary school within the villages, thus, eliminating long travel distance for students ➢ Adequacy of study material ➢ Measures are required for encouraging students to excel in studies	➢ Repair/ renovation and/ or extension of existing school buildings and/ or their boundary walls/ toilets, etc. ➢ Scholarship to meritorious students and students from economically weaker sections ➢ Distribution of bags, study material (slate, globe, maps, charts, exercise book, duster, chalk etc.) as per demand from school. ➢ Assistance in the form of furniture, uniforms, sports kits and other miscellaneous items ➢ Any other aid required by the primary school to upgrade into middle & later secondary and senior secondary schools	➢ Will commence on receipt of environmental clearance & on commencement of mine working ➢ Continue throughout life of mine
7. Health Care	➢ Absence of chemist shop, testing, diagnostic and ambulance facilities in the area. ➢ Anganwadi facility is available in every village ➢ There is no Primary Health Centre within villages in 2 km radius except in village Madhiya ➢ Nearest multi-specialty hospitals, ambulances on call are from Mahuva	➢ Lack of adequate health facilities such as chemist shop, testing, diagnostic and ambulance facilities in the area. ➢ Fever and dysentery/ diarrhoea are commonly prevalent in the area, especially during monsoon. ➢ General steps required to make medical access easier for local people	➢ The company shall have its own ambulance for the group of mining leases. The contact number for the ambulance shall be posted at Panchayat houses/ community centers in the villages and ambulance will be provided when a call is received. ➢ Conducting mobile health camp (with Doctor, para-medical staff and free medicines) on a pre-determined frequency (quarterly/ six monthly) ➢ Conducting veterinary camps and	➢ Will commence on commencement of mine working ➢ Continue throughout life of mine

Sector	Present status	Identified Deficiencies	Proposed intervention	Proposed timeline of implementation
(1)	(2)	(3)	(4)	
	(approximately 5 km away) ➢ Nearest veterinary hospital is at Mahuva	➢ Lack of ambulance available nearby for emergency condition	provide access to a visiting veterinary doctor, according to a pre-determined time table. ➢ The stated activities will be carried out in consultation with the government authorities i.e. in collaboration with local Panchayats and Govt. Schemes if any.	
8. Sports and entertainment	➢ Sports Club/ Recreation Centre is not available in villages in 2 km radius ➢ Private water park is available in vicinity. ➢ Community centre is available at Gujarda village in 2 km radius	➢ Lack of Sports facilities ➢ In adequate Community Centres in villages within 2 km	➢ Sponsorship to rural Sports events ➢ Sponsorship to local talent to participate at state & national levels ➢ Provide equipment to village level teams in different sports such as cricket, football, badminton etc.	➢ Will commence on commencement of mine working ➢ Continue throughout life of mine
9. Welfare of SC/ ST	➢ As per Census 2011, within the core zone, there is no ST. ➢ Within the 10km radius there are 48 ST persons, which are 0.04% of the population in study area ➢ There are 4055 SC in 10 km radius comprising 3.49% of the total population in the	➢ Lack of awareness amongst the people in order to avail these schemes	➢ Awareness program about available schemes ➢ Goal is to improve the efficiency of utilisation of Government Schemes by SC/ ST	➢ Will commence on receipt of environmental clearance & on commencement of mine working ➢ Continue throughout life of mine

Sector	Present status	Identified Deficiencies	Proposed intervention	Proposed timeline of implementation
(1)	(2)	(3)	(4)	
	study area ➢ Current schemes of the Gujarat government in the study area are[1]: ○ Education related schemes = 34 nos. ○ Economic upliftment related schemes - 20 nos. ○ Health, housing construction and other related schemes - 15 nos. ○ Direction and Administration related schemes - 8 nos. ○ Poverty Eradication Program related schemes- 5 nos.			

[1] Source: https://sje.gujarat.gov.in/Dscw/Schemes?lang=English accessed 27.07.2023

8.5 PROPOSED CSR EXPENDITURE

The CSR Budget shall be as per the Companies Act 2013 which states that two percent (2%) of the average net profit of the company for last 3 (three) financial years as per the Annual Report of the company. Since the project is not yet operational, the expenditure on CSR shall be earmarked as per need assessement and directions from District Administration.

Project would initially target the villages within 2 km of limestone Mine and later. Additionally, the amenities as reported for the villages in Census 2011 were studied. As per Census 2011 data, almost all the facilities are available in the villages. The field observations and data analysis indicate that the villages have concerns related to safe drinking water & proper water supply system, connecting roads in the villages and sanitation.

8.6 ENVIRONMENTAL BENEFIT

Contribution to the District Mineral Foundation Trust (DMF) : M/s Nirma Limited shall contribute 30% of Royalty to the District Mineral Foundation Trust, Bhavnagar, established by the State Govt. to work for the interest and benefit of persons and areas affected mining related operations. As per the present maximum targeted production and rate of Royalty such contribution will be Rs. 3.6 crores annually. This amount will be in addition to the amount shown in CSR & CER activity to be taken directly by the company.

At the end of conceptual period of Initial stage, out of 100.61 hectare of excavated area, 26.52 hectares of mined out area will be backfilled and converted into agricultural land and/ or to be utilized for plantation work as the case may be and the balance land of 74.09 hectares will remain to form a water storage ponds which will serve as recharge pits, sweet water for irrigation and as a source of water supply for public use.

Green belt shall be developed in 18.50 ha area within road barrier and boundary barrier within the mine lease area

CHAPTER 9
ENVIRONMENTAL COST BENEFIT ANALYSIS

The scope of the EIA/EMP has been prescribed through Terms of Reference issued by Ministry of Environment, Forest and Climate Change, New Delhi vide MOEF&CC's letter no. J-11015/154/2016-IA. II(M) dated 28.11.2022 (copy given in **Annexure I**). The Environmental cost benefit analysis was prescribed at point no. (ii) in specific Terms of reference in ToR.

This Environmental Cost Benefit Analysis (ECBA) have been done to understand the project benefits giving due consideration to environmental as well as social well being for the following scenario:

With reference to the open cast mining or to leave that reserve of limestone as it is (no mining scenario).

The Environmental Cost Benefit (ECB) Analysis has been carried out in line with "Guidelines for conducting Cost benefit analysis for projects involving diversion of forest land under the provisions of the Forest (Conservation) Act, 1980" issued by Forest Conservation Division, MoEF&CC, GOI vide letter no. 7-69/2011-FC(Pt.) dt. 01.08.2017.

Conclusion: It can be seen from the Table-1 that the benefit: cost ratio is more in Opencast Method (13.6) compared to no mining scenario. Further, at local level direct employment will be there for 55 persons directly in the opencast mining. Thus, extraction of 10.707 mio. ton limestone reserve at shallow depth will be beneficial for proponent as well as for local society & Government through opencast mining method.

TABLE NO. C9-1: ENVIRONMENTAL COST BENEFIT (ECB) ANALYSIS FOR OPENCAST MINING VS. NO MINING SCENARIO

Sl. No.	Parameters	Remarks, if any	Evaluation of Scenario	
			Opencast Mining Scenario	No Mining Scenario
(1)	(2)	(3)	(4)	(5)
A	**Estimation of cost**			
1.	Ecosystem services losses due to proposed forest diversion	-	No loss of forest land, hence, Rs. 0	No loss of forest land, hence, Rs. 0
2.	Loss of animal husbandry productivity, including loss of fodder.	Considered as per gochar land to be acquired	Gochar land =0 ha Rate = Rs. 12.60 lakh/ ha **Total cost = Rs. 0 Lakhs** (considering only that gochar falling under mining pits)	No gochar land lost, hence, Rs. 0
3.	Cost of human resettlement	R&R cost involved in the proposed project	There are 35 buildings located in proposed pit area. Compensation rate = Rs. 1lakhs / building **Total cost = Rs. 35 Lakhs**	Nil
4.	Loss of public facilities and administrative infrastructure (Roads, Building, Schools, Dispensaries, Electric lines, Railways etc.) on forest land, if these facilities were diverted due to this project	-	No loss of public facilities and administrative infrastructure Village road at some portion shall be diverted. New road construction = 0.65 km Rate = Rs. 40 lakhs/ km **Estimated cost = Rs. 26 Lakhs**	No loss of public facilities and administrative infrastructure
5.	Possession value of forest land diverted	The possession value of forest land diverted (as per guideline) shall be 30% of NPV due to loss of forest	Nil	Nil
6.	Habitat Fragmentation Cost	Habitat fragmentation Cost shall be 50% of NPV (as per guideline)	Nil as no habitat fragmentation shall occur	Nil

Sl. No.	Parameters	Remarks, if any	Evaluation of Scenario	
			Opencast Mining Scenario	No Mining Scenario
(1)	(2)	(3)	(4)	(5)
7.	Compensatory afforestation and soil & moisture conservation cost	The cost @ Rs 400000 / Ha is taken for plantation and soil & moisture conservation.	No loss of forest land, hence, Rs. 0	No loss of forest land, hence, Rs. 0
8.	Value of tree	Economic benefit of one tree accruing monetized in terms of providing oxygen, fertilizer, water, soil moisture conservation, micronutrients and compost, etc. is Rs. 74,500[1]	No. of trees to be cut in open cast pit area = 56 Cost to the society due to tree cutting of 56 nos. of trees @ Rs. 0.745 lakhs/ annum for 25 years life span = 18.62 lakh Total cost = **Rs. 1,042.72 Lakhs**	Nil
9.	Cost of the land	Area under quarry is 100.61 ha (Govt. Land - 21.33 ha & Pvt Land - 79.28 ha) and 26.52 ha shall be backfilled and converted to the agricultural land and/ or to be utilized for planation work. 74.09 ha of land shall be the final quarry area.	Cost of the quarry area = 12.60 Lakhs/ha x 79.28 ha = **998.9 Lakhs**	No excavation involved.
10.	Project Cost/ agriculture cost	Cost of mining project and the cost of doing agriculture if no project comes up (55% of Rs. 1.66 lakhs/ ha/ annum returns from agriculture)	**Rs. 2,900 lakhs**	Area = 79.28 ha Cost of doing agriculture for 11 years = Rs. 796.21 lakhs
	Total cost to society		**Rs. 5,002.62 Lakh**	**Rs. 796.21 Lakh**

[1] *According to the report submitted by 5 members SC committee comprised of Soham Pandya, B K Maji & others (refer case "Special Leave Petition (Civil) No. 25047 of 2018"), the monetary value of a tree is to be counted as – its age multiplied by Rs. 74,500.*

Sl. No.	Parameters	Remarks, if any	Evaluation of Scenario	
			Opencast Mining Scenario	No Mining Scenario
(1)	(2)	(3)	(4)	(5)
B.	**Estimating benefits**			
1.	Increase in productivity attribute to the specific project	There will be production of limestone from the mine. The representative prices at pit head considered, as on Sep 2022, are: Cement Grade - Rs. 517/ tonne	The cost of the 10.707 mio. ton reserves has been estimated as **Rs. 55,355 lakhs**	Nil
2.	Benefits to economy due to the specific project	The incremental economic benefit in monetary terms will be contribution towards Royalty, DMF, NMET, Infrastructure tax, Forest transit cess amounts to Rs 106/T	Total contribution will be 10.707 mio. T X Rs. 106/ T **= Rs.11,349 Lakh**	Nil
3.	No. of population benefited due to specific project	There will be direct & indirect employment to various people in the proposed mining project. Besides this, local people will have income opportunity in various ancillary work & other activities.	● Direct - 55 nos. ● Indirect- 100 nos.	Direct/ indirect - No employment.
4.	Economic benefits due to of direct and indirect employment due to the Specific project.	On an average salary for direct employees have been considered as Rs. 36, 000 Per Month and for Indirect beneficiary who will be at about Rs. 20,000 per month	● **Direct** - 55 nos. X Rs. 0.36 Lakh X 12 Month = Rs. 237.6 Lakh/ year ● **Indirect**- 100 nos. X Rs. 0.20 Lakh X 12 Month = Rs. 240 Lakh/ year Total life of mine is 11 years. Thus, the total benefit as salary (compounded @ 10%) will be = Rs. 477.6 (1+10/100)^11= **Rs. 1,362.65 Lakh**	Nil

Sl. No.	Parameters	Remarks, if any	Evaluation of Scenario	
			Opencast Mining Scenario	**No Mining Scenario**
(1)	**(2)**	**(3)**	**(4)**	**(5)**
5.	Economic benefits due to compensatory afforestation	-	No loss of forest land, hence, Rs. 0	No loss of forest land, hence, Rs. 0
6.	Agriculture Income	Average income considered Rs. 1.66 lakhs/ ha/ annum with 45% profit	Nil	Area = Rs. 79.28 ha Total profit for 11 years = Rs. 651.42 Lakh
	Total benefit due to diversion of agricultural land for non-agricultural activity		**Rs. 68,066.65 Lakh**	**Rs. 651.42 Lakh**
COST BENEFIT ANALYSIS BASED ON VALUE OF PRODUCTS:				
A	Total Cost to the Society		**Rs. 5,002.62 Lakh**	**Rs. 796.21 Lakh**
B	Total Benefit to the Society		**Rs. 68,066.65 Lakh**	**Rs. 651.42 Lakh**
	Benefit: Cost Ratio (Total Benefit/ Total Cost)		**13.6**	**0.81**

CHAPTER 10
ENVIRONMENT MANAGEMENT PLAN

10.1 ENVIRONMENT MANAGEMENT PLAN

The proposed mitigation measures have been tabulated along with safeguards to be adopted to comply with the applicable environmental standards and regulations in **Table No. C10-1**.

TABLE NO. C10-1: ENVIRONMENT MANAGEMENT MEASURES

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
Topography	• Out of the total project area of 332.24 ha, there will be one temporary top soil dump over 4.31 ha. The maximum height of the soil dump will be 5.0 m above the ground level. • At the end of life of mine, 100.61 ha of land shall be excavated by opencast mining. 229.88 Ha. shall remain undisturbed while rest of the area will be partly used for infrastructure and road.	• The soil dumps over 4.31 ha shall be rehandled and shall be utilized for backfilling after 7th year simultaneously with mine working. • At the end of life of mine, out of 100.61 ha. excavated land, 26.52 ha will be backfilled and reclaimed and 18.50 ha will be plantation and greenbelt. • 74.09 ha will remain as void area. • In the subsequent stage i.e. post mine closure stage, the mine void will be used for rainwater storage.	Field Assistant under Environment Officer	Assistant Mine Manager	Measurement of material handling, inspections and reporting,

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
Drainage	• No specific drainage pattern is developed within the ML area. • Flash floods due to heavy rain in cyclonic conditions	• One sump will be developed for storage of adequate quantity of rain (sweet) water and to keep the working benches dry. Sump water will be pumped to the surface reservoir, suspended solids will be settled and water shall be reused. • Rainwater run off will be managed by construction of garland drains around the mine pit, along roads and topsoil dumps areas. • The rainwater will be conveyed to the settling pond for settlement of suspended solids. Water collected in settling pond will be reutilized and excess will be released into the nearby Bandhara through natural nala. • Uninterupted runoff flow from upstream to downstream of pit by construction of diversion channels wherever required • Hence, there will not be any adverse impact on the drainage system.	Support Staff (Civil)	Environment Officer	Verification of construction of proposed structures, construction orders and completion reports
Air quality	• Fly rock and fugitive dust generation during drilling and blasting operation. • PM_{10}, $PM_{2.5}$, SO_2, NO_2 emission due to	• The emission of dust will be restricted by the use of dust suppressing systems such as fixed or mobile water spraying system at fugitive sources (working faces & loading point), haul roads, stock yards, dumps,	Pollution control Supervisor under Environment Officer	Mine Manager	Air quality parameters monitoring by self or by third party Verification of

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
	➢ Operation of surface miner, excavators & loaders, ➢ Loading of dumpers (fugitive dust) ➢ Movement of dumpers on haul roads (dust & gases) ➢ Dumping (dust) ➢ Operation of other fossil fuel based equipment/ machinery • Fugitive dust emission due to movement of tippers/ dumpers on roads and PM, SO_2 and NO_2 from exhaust of dumpers. • Dust generation in Mineral Handling plant	stock yard and wherever required. • Mobile sprinkling system will be used on haul roads to achieve 95% dust suppression with a frequency of 2 times/shift in winters and 4 times/ shift in summers. • Automatic water sprinkler system i.e. fixed sprinklers (Whirling) will be installed along main haulage road and where SPM are likely to be high constantly to suppress the dust. The efficiency of the static sprinklers shall be more than 95% in suppressing dust. • Transport vehicles will be maintained periodically as per the manufacturers' norms and maintained spill proof. They will be covered during transportation of mineral. No overloading shall be permitted. All heavy and light vehicles shall be well maintained and will have their "Pollution Under Control" (PUC) certificates. • Tree plantation will be carried out along the mine periphery (7.5 m), along the sides of haul roads (outside quarry area or working dumps) and other vacant area • Provision of reclamation of dump and later backfill with plantation, agroforestry and agriculture			cover of trucks dust suppression measures & plantation

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
		• Dust masks will be provided as safety measure to the workers, engaged at dust generation points like excavation site, loading/unloading points, etc. • All equipment's will be maintained periodically to minimize source emissions. Regular maintenance schedule will be adopted as per manufacturer's specification. • Good housekeeping will be enforced. • The mine ambient air quality will be regularly monitored and tested to detect the presence of any pollutants above prescribed limits and appropriate measures will be adopted.			
Water quality	Suspended solids due to • Soil in run-off during heavy precipitation • Wash offs from dumps • Pumping of mine water • Soil erosion from mine, dump and roads Oil spillage at the pit head, resulting in oil and grease contamination of surface water if appropriate control measures	• Mine water will be collected in the pit, from sump to surface reservoir and will be utilized for mine activities, plantation, etc. after settlement of suspended solids. • Run-off around reclamation area will be controlled by providing catch drains • Run-off from soil stack will be collected through a series of contour drains which would be connected to a water retention pond. The clear water from this pond will be discharged to the natural water course.	Jointly by Assistant Mine Manager and Chemist under Environment Officer	Mine Manager	Verification of settling tanks, OWS, etc. Monitoring of water quality prior to discharge

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
	are not adopted. Sewage generated from various facilities	• Sewage generated from various facilities within the mining lease will be treated in septic tank & soak pit systems. • Septic tanks will be cleaned periodically by removal of sludge, which will be used as manure.			
Water table	• No Intersection of ground water table due to OC workings. • Decline of water table in radius of influence.	• No intersection of ground water is envisaged • Supply of potable water in affected areas within radius of influence. • Rain water harvesting structures shall be there for ground water recharge.	Assistant Mine Manager	Mine Manager	Piezometer monitoring station, pumping records, monitoring of water quality parameters
Land	• The total project area is 332.24 ha. Out of this, 100.61 ha land i.e. 30.28% will be disturbed by excavation till the end of life of mine. • The disturbed area within project during the 5 years plan period will comprise excavated land, soil stack, mineral storage area, area occupied by infrastructure including roads, offices, etc.	• An important aspect of the mitigating the impact on agricultural land is to attempt to save the fertile top soil. For that purpose, the mine plan has provisioned for 0.5 Mcum of top soil to be removed during the life of the mine and to be stacked separately on temporary basis. This top soil will be simultaneously reutilized in plantation of green belt along periphery and in safety zone • At the end of life of mine, the backfilled area will be 26.52 ha and converted into agricultural land/utilized for plantation work and 18.50 ha under plantation.	● Foreman ● Mining mate ● HEMM and pumps operator under Environment Officer	Assistant Mine Manager	Volume of material handled, survey for area measurements, plantation inventory.

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
		• At the end of conceptual period, the excavated area will be backfilled (26.52 ha.) and 74.09 ha will be void area which will be used for storage of rainwater.			
Solid Waste	• Pollution of air due to handling of top soil, • Pollution of ground water due to suspended solids in runoff	• Trucks will be covered while transporting the topsoil. • Garland drains followed by settling tank will be provided around the top soil dump to arrest any soil from the dump from being carried away by the rain water. • The top soil dump will be stabilized on non working faces through plantation	● Mining mate ● HEMM and pumps operator	• Assistant mines manager	• Log of solid waste handling and disposal • OB and TS handling records • Log books of OWS • Surprise checks • Verification by observation
Noise	• Noise level will be high due to heavy earth moving machinery, vehicles and blasting. • The adverse impact can be more within the mining lease area, and may cause hearing loss and other related problems to the workmen, if mitigation through protective	• For the protection of the nearest settlement safety zone is proposed to be afforested. The afforested belt will act as a buffer to absorb noise and dust. • Dense green belt around the opencast working has been proposed. • Further, provision of greenbelt around mine infrastructures and both sides of haul road on the surface has been made. • Fitting of special silencer, proper lubrication	Assistant Mine Manager	Mine Manager	Noise level, vibration level, tree inventory, PPE issue records and surprise inspections for compliance

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
	measures are not taken. • Impact can be there on the local people of nearest settlements if proper control measures are not adopted.	and periodic maintenance of noise generating machinery and transportation vehicles will be ensured. • To protect the workers from exposures to higher noise levels, the following measures will be adopted: ▪ Provision of protective devices like ear muffs/ear plugs to those workers who cannot be isolated from the source of noise. ▪ Confining the noise by isolating the source of noise. ▪ Reducing the exposure time of workers to the higher noise levels. ▪ The operators of HEMM will be accommodated in cabins which are acoustically designed and air conditioned. It forms a part of the equipment so that level of sound inside the cabin is below 90 dB(A).			
Ground vibration & Blasting	• Ground vibrations on roads due to the movement of trucks and vehicles. • Drilling and blasting of	• Vibration due to traffic can be reduced by constructing and maintaining the roads in good quality • Multi-row drilling and V-pattern drill holes	Safety Officer	Assistant Mine Manager	Ground vibration study

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
	exposed hard strata	shall be practiced for deep hole drilling and blasting. • Each blast will be carefully planned, checked, executed and observed. During blasting, a responsible officer will be supervising the whole operation. • Blasting will be carried out during day time only. Blasting will not be carried out when strong winds are blowing towards the inhabited areas.			
Traffic impacts	Impact on air quality and noise due to vehicular movement resulting into impacts on habitation including flora and fauna falling along the mineral transportation route from mine lease area to Cement plant located near Padhiarka and Soda Ash Plant Located at Kalatalav, Bhavnagar.	• Improvement of internal roads by strengthening and its maintenance, • Optimum weight to be carried by the vehicle and over loading prohibited • Periodic maintenance of the vehicles as per manufacturers specifications for best fuel efficiency • The transportation vehicles will under go for "Pollution Under Control (PUC)" checkups on every six months to obtain PUC certificate. • Water sprinkling at load points and covering of trucks with tarpaulin will be ensured. • Water sprinkling on roads within project area. • Training to drivers and periodic awareness drives.	A separate supervisor for traffic management under Assistant Mine Manager	Mine Manager	Observation of condition of roads, Verification by observation and surprise checks

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
Terrestrial ecology & greenbelt	• Dust emission from mine due to excavation and transportation, affects the effective photosynthesis by covering the plant/ tree leaves by thin dust layer during dry months which however will be washed away in rainy months. • Disturbance to birds and animals due to bright light and unusual noise during operation activity.	• Sprinkling of water around the excavation area and on haul roads to reduce the dust generation. • Establishment of greenbelt and plantation along various facilities and periphery. • Plantation shall also be carried out along roadside and around Administrative buildings, facilities and in vacant undisturbed areas as well. • The plantation program in the project area will be implemented in a phased manner throughout life of mine ***For safeguarding fauna*** • The greenbelt around facilities, periphery and along roads will result in developing a favourable habitat for small sized fauna such as squirrels, hare, etc., reptiles and birds in finding a favorable habitat. • The roads leading to and from the mine shall have caution boards warning drivers to slow down for animal crossings, if any develop in the future. • The drivers shall be sensitized not to hit stray animals on the road. • The emissions from the mines shall always be	Gardner under Ecologist/ Environment Officer	Environment Officer	Tree inventory, tree cutting permission, if required; boundary inspection, new plantation inventory and inspection, waste water reuse log book

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
		kept within the norms so that surrounding environment will always be clean and comfortable for humans, wildlife and vegetation. • Care shall be taken that no food or degradable waste is openly disposed. This could attract wild animals near to human habitation and create man-animal conflict. Hence, disposal of wastes shall always be on the designated and protected place. • While carrying out social welfare activities, awareness about the variety of faunal species, their status of endangerment and behavior will be spread through posters/ seminars/workshops or discussions to sensitize the villagers. • Waste water from domestic sources (toilets/ canteens/ baths/ kitchens) will not be released into the environment but treated in septic tank system or STP. Thus, the flora and fauna shall not be exposed to any contaminants. • Expenditure as envisaged towards wildlife conservation shall be spent by the company as planned			

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
Demography and socio-economics	• The project falls under parts of two villages namely Padhiarka and Doliya. • Only 35 buildings in Padhiarka (08 nos.) & Doliya villages (27 nos.) have been identified for rehabilitation and resettlement. • A total of 683 project affected families including homestead, land losers, encroachers, livelihood losers, etc	• The displaced habitation of Padhiarka & Doliya villages which are falling under the pit area will be compensated or resettled and rehabilitated. • The land losers who will be giving their land for quarry area shall also be given compensation. • The compensation or resettlement terms shall be as per mutually agreed rates, terms and conditions and commensurate with the latest market conditions for the type of homestead and land. • The company shall enter into written agreement with the homestead and land owners for the same.	Social/labour Welfare officer	Assistant Mine Manager	
Fire and safety	Accidents/disasters related to fire and safety	• Sufficient fire extinguishers will be installed during operation at selected locations • Well trained professional groups will be there to control the emergency situations. The group will comprise three teams, namely, Fire fighting team, Rescue team and Support team • A tele-communication network and wireless will connect Site Emergency Control Room	Safety Officer and Maintenance Engineer.	Assistant Mine Manager	Verification of approvals from safety inspector, training, verification of fire fighting equipment

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
		(SECR) to control various Departments of the mine, fire station and neighbouring industrial units/mines.			
Health and safety	Injury	**Safety precautions will be implemented are as follows:** • Erecting barbed wire fencing around the areas being excavated and dumped • Provision of personal protection devices to the workforce, regular maintenance of equipment, rotation of shift of workers exposed to noisy premises. • Periodic safety drills and celebrating the National Safety Week, Road Safety Week, World Environment Day, National Fire Service Week etc. **Following measures will be taken to ensure good health of employees:** • OHS centre & appointment of safety officer. • Warning announcements/signal and red flags before blasting, caution boards on roads and road crossings, fencing/ bunding around open pits, etc. • A separate person will be designated to undertake administration of personal protective equipments.	• Safety officer • Medical Officer	• Assistant Mines Manager	Examination records, training records, PPE disbursement record

Discipline	Potential impacts	Mitigation measures and action plan	Administrative aspect		Monitoring Parameters
			Implementation	Monitoring	
		• Provision of drinking water at close distance, rehydration solution at standby, air conditioned cabins and rooms, wherever possible, ventilated and cool clothes, etc. • Close surveillance of the factors in working environment and work practices, which may affect environment and workers health. Monitoring of the values of various factors which may lead to occupational health hazards. • Periodical survey shall be conducted to see the impact on the health status of local people and to take remedial measures, wherever required. • Medical examination shall be carried out as per DGMS Circular No. DGMS(Tech.)(S&T) Circular No. 05 of 2011 in continuation with the Form-'O' under rule 29F (2) and 29L for the report of Medical Examination under rule 29B of Mines Rules,1955.			

10.2 CORPORATE ENVIRONMENT POLICY

Nirma Ltd. has a well laid down Environmental Policy which was approved by Board of Directors dated 01st Jan, 2021, which is presented below:

NIRMA

ENVIRONMENT, HEALTH & SAFETY POLICY

Nirma is committed to operate all its facilities in a safe clean and socially responsible manner. Environment, Health & Safety are an integral part of all our activities.

Continual improvement in performance of Environment, Health & Safety is achieved through :

- **Sharing the responsibility of maintaining safe and healthy work environment by all stakeholders.**
- **Maintaining a vigilant, responsible and accountable team by imparting appropriate training.**
- **Organizing awareness programs for surrounding community.**
- **Periodical review of EHS practices.**
- **Complying with all legal and other requirements.**

DATE: 01.01.2021

SHAILESHBHAI V. SONARA
Occupier & Director (EHS)
NIRMA LIMITED

10.3 STANDARD OPERATING PROCESS / PROCEDURES TO ADDRESS DEVIATION/ VIOLATION

An Environmental Manual will be prepared, as part of the Environmental Management. The Manual shall be prepared to comply to the Corporate Environmental Policy covering the following aspects:

- Environment clearance conditions/ stipulations/ norms
- Consent to operate conditions / stipulations / norms
- Monitoring mechanism for compliance through periodic audits
- Reporting of the audit results
- Corrective and Preventive Actions to be taken
- Self improvement measures

10.3.1 Hierarchical systems to deal with the environmental issues and for ensuring compliance

Nirma Ltd. will handle environmental issues of Limestone Mine headed by the General Manager (Projects) posted at HO, Ahmedabad. At the project level, Mine Manager will have the responsibility for the compliance within the lease area. He will be assisted by the Mine Safety Officer & Environment Officer who will in turn take action down the line through various subordinates to implement various environmental conditions.

10.3.2 Systems of reporting of non compliances/violations

Half yearly Progress Report to the conditions imposed by MOEF&CC in respect of Environmental Clearance of mines shall be uploaded at Company's website regularly. Deviations from the policy and cases of violation of Environmental Clearance conditions as found by MoEF&CC and GPCB or other public authority will be reported to Board of Directors and corrective as well as preventive action will be taken. The system will function as follows:

Inputs	➢ Periodic Manual monitoring data ➢ Perusal of data from manual or online AAQ monitoring systems ➢ NOC/ EC conditions compliance status ➢ Inspection report of MOEF&CC ➢ Inspection report of SPCB ➢ Complaints from local people, NGO or any other ➢ Environmental statement (Form V)

Heirarchy of reporting upwards	The Safety Officer and the Environment Officer --> Assistant Mine Manager -->Mine Manager-->Vice president-->GM (Projects), HO --> Executive Director --> Managing Director --> Board of Directors
Reporting	(1) Quarterly compliance Report (2) Event based report whenever any of the inputs reveals non compliance
Frequency of consideration by Board	Board of Directors meets regularly and considers the reports received as one of the agenda items. It is to be recorded in minutes of meeting. In case of non compliance, a decision for its resolution is to be taken and communicated down the line to the person executing the compliance. The Environmental Statement (Form V) is to be considered annually and recorded in the Annual Report.
Hierarchy of downward implementation	Board of Directors --> --> Director & Occupier Mines --> GM (Projects), HO -->Vice president --> Mine Manager -->Assistant Mine Manager --> the Environment Officer and the Safety officer-->Down the line personnel for implementation.

CHAPTER 11
SUMMARY AND CONCLUSION

11.1 INTRODUCTION

11.1.1 Background of the project

M/s Nirma Ltd. has been allotted Mine by the State Govt. for mineral limestone and marl over an area of 616.7254 ha vide letter no. MCR-102004-1945-CHH dated 15.02.2008 for a period of 30 years. Meanwhile, during the process of our proposal for grant of EC, the Expert Appraisal Committee (Mining) of MoEF&CC recommended the proposal for grant of ToR in Padhiarka & Doliya Limestone Mining Lease with reduced mining lease area of 332.24 Ha and issued Terms of Reference (TOR) vide letter no. J-11015/154/2016-IA-II(M) for the mining lease dated 03.01.2017. Ministry of Mines, Govt. of India, New Delhi issued order titled "Mines & Minerals (Development and Regulations) Removal of Difficulties Order 2017" dated 04.01.2017. It permitted to consider the grant of the mining lease in those cases where in the condition of obtaining Environment Clearance has not been complied herewith by the applicant on or before 11.01.2017 but all other conditions specified in LOI have been fulfilled.

Accordingly, the order for grant of mining lease was issued by Industries and Mines Department, Govt. of Gujarat, Gandhinagar vide letter no. MCR-102004-1945-CHH dated 08.01.2017 for reduced area of 332.24 Ha for 50 years. In due course of time, the mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the applicant Nirma Ltd. for a period of 50 years under the provision of MMDR Amendment Act, 2015 and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017. Under provision of Minerals (other than Atomic Hydro Carbons Energy Minerals) Concession Rules, 2016, "Mine Development and Production Agreement' has been signed between State Govt. and proponent on 11.01.2017. After the reduction in ML area the Modified Mining Plan with Progressive Mine Closure Plan under Rule 17(3) of Minerals (other than Atomic & Hydrocarbon Energy Minerals) Concession Rules, 2016 and 23 of MCDR 2017 has been submitted for approval of IBM. IBM has approved the Modified Mining Plan with Progressive Mine Closure Plan for the said mining lease with reduce area of 332.24 Ha vide approval letter no. 684(4)(1)/MP-195/2018-GNR dated 04.02.2019 which was valid up to 31.03.2021. Thereafter, on expiry of Modified Mining Plan, Review of Mining Plan with Progressive Mine Closure Plan over area of 332.24 ha. for Padhiarka & Doliya Limestone Mining Lease has been submitted and approved by Indian Bureau of Mines, Gandhinagar, Gujarat vide letter No. 684(4)(1)/MP-349(195)/2021-22 GNR/ 1129 dated 05.08.2021 for further five year period i.e. from 2021-22 to 2025-26. Annual production target shall be 1.5 million tonnes per annum at an overall stripping ratio of 1:0.00 tonne/cum. The total life of mine worked out is 11 years. (Life of mine may be

increased subject to conversions of resources under 333 category into category of reserves 111).

Meanwhile, the Company submitted the fresh proposal for grant of Terms of Reference vide letter No. NL/BH/ENV-154/1911/2022 dated 23.09.2022.The EAC recommended the proposal in the 5th EAC (Non-Coal Mining) meeting held during 18-20, October, 2022 for grant of Terms of Reference (ToR) under the provisions of EIA Notification, 2006 for M/s Nirma Limited for mining of Limestone in Padhiarka and Doliya Limestone mine with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha. The Terms of Reference were issued for the preparation of EIA/EMP Report vide MOEF&CC's letter no. J-11015/154/2016-IA. II(M) dated 28.11.2022.

11.1.2 Justification for implementation of the project

- The mining project is located in one of the undeveloped district of Gujarat State in view of industries. During operation phase, 55 persons will be directly employed at the mine. Many more thousands of persons will get indirect employment either on contract basis or in transportation of materials etc.
- The project will also induce the development of ancillary and related small-scale industries in the adjoining areas. It is obvious to assume that the activities of the proposed mining operations will produce some improvements in the socio-economic levels in the study area.
- The project will contribute additional revenue to the State and Central exchequer in the form of royalty, District Mineral Foundation Trust (DMFT), National Mineral Exploration Trust (NMET), cess and other taxes etc.
- The project will create opportunities for indirect employment on account of new trucks, company's vehicles and hired vehicles & Create opportunities for indirect employment through stockists and retailers in Gujarat.
- With the commencement of operation, amenities for communication, education, health, entertainment, canteen, etc. will be developed in and around the project area. These amenities will be available to local people also, who are directly associated with the project.

11.1.3 Location and communication

The mine is located in villages Padhiarka and Doliya, Tehsil Mahuva, District Bhavnagar, Gujarat. The mining lease area falls within the Survey of India Toposheet No. 41 O/12 (restricted). The lease area is bounded by Latitude 21º 00' 42.81"N to 21º02' 28.09"N and Longitude 71º 40' 09.09" to 71º 41' 39.94"E.

The lease area is located at a distance of 9.5 km, NE of Mahuva town (Tehsil Headquarter) and is easily approachable by road. National Highway NH-51/NH-8E (Una/Rajula-Mahuva/Bhavnagar highway) is at a distance of 0.7 km, N. The

nearest railway station Mahuva lies on Mahuva-Rajula broad gauge section of Western Railway Zone, 9.8 km approximately by road in NE. The nearest airport is Bhavnagar, district HQ, at about 100 km NE.

11.2 PROJECT DESCRIPTION

11.2.1 Geology and reserves

Saurashtra coastal tract is composed extensively of tertiary sediments, which are mostly calcareous in nature. The area forms part of the Late Tertiary Miliolitic Limestone, which is believed to have been deposited under a marine transgressive environment. Apart from the miliolitic limestone, lithological units of recent age are also seen in the area. The deposit is underlain by the Gaj Limestone and clays that have been encountered in the boreholes drilled in the adjoining areas with have similar geological setup. The deposit exhibits a simple structural setup. The dip of the area appears to be almost horizontal.

The mineable reserves are in accordance with threshold value issued by IBM i.e. CaO >34% & MgO <5%. The entire mineable reserves under UNFC 121 & 122 shall be made usable.

Total mineral resources are 28.177 million tonnes in which total mineable reserve are 10.707 mio. Tonne. The limestone is of the high / cement grade quality and is followed by Marly Limestone/ Marl down the quality parameter.

11.2.2 Mining

The Padhiarka and Doliya deposit will be worked out by mechanized open cast method using Continuous Surface Miner (CSM) with combination of excavator/ loader and dumpers as well as conventional method i.e. drilling and blasting. Surface miner is environment friendly mining operation and will be used in area near road, habitation and boundary areas in order to avoid blasting. The excavation is proposed to be carried out by hydraulic excavator and pay loader for loading of limestone and transportation shall be done by means of dumper/tippers of 25 tonnes capacity. The destination of mined out limestone is proposed clinkerization unit with crushing unit for crushed material at the cement plant located at Padhiarka. Crusher is proposed in proposed cement plant in the vicinity of ML area. For use in Soda ash plant, excavated limestone mineral (ROM) shall be sent directly to the soda Ash Plant located at Kalatalav, Bhavnagar where further breaking of limestone into required size will be done before the feed.

The bench height is proposed 6.0 m. Due to absence of waste, no handling of waste is required as pre-production development except soil removal and preparation of haul/ mine road. Soil shall be removed first in order to remove limestone. Benches of 6 m height and working width 12-15 m (as per MMR) maintaining working bench slope of 80-85^0 in limestone shall be proposed.

Multi-row drilling and V-pattern drill holes shall be practiced for deep hole drilling and blasting. The diameter of the hole drilled shall not be more than 4". Since the proposed height of the benches is 6m, depth of the drill holes shall be kept 6.6 m (about 10% extra taken as sub grade drilling). Company will explore the possibility of reducing the mining with drilling & blasting by using ripper-dozer combination to eliminate the drilling & blasting for limestone use in cement plant.

For our soda ash plant, Company needs sized limestone, i.e. 25-100 mm for which drilling & blasting is essential to break in-situ limestone rock for required size. However, Company shall also explore the possibility to deploy rock breaker to eliminate the drilling & blasting. Rock breaker can be installed in excavator by replacing it bucket and can be used as per the requirement.

11.2.3 Site services

Core infrastructure like mine office & common facilities, power distribution system, road, telecommunication, First Aid centre, canteen etc. shall be established at the mine site. Explosive Magazine shall be established in company's adjacent mine which will be common for all three mines.

Total requirement of water is estimated as 3 KLD for potable and 38 KLD for dust suppression & green belt purpose. Source of water required for potable shall be Narmada water pipeline/ water tankers and for mine activities shall be Reject water of RO /DM plant (proposed at Cement plant).

Total power requirement shall be 100 KW which will be met from Gujarat State Electricity Board / Captive Power Plant located at Cement Plant near Padhiyarka.

11.2.4 Manpower

Total manpower required for mine and allied activities will be 55.

11.3 PRESENT ENVIRONMENTAL SCENARIO

The lease area is referred to as "core zone". Area falling within 10 km from boundary of core zone is referred to as "buffer zone". Together, both of them form the "study area".

11.3.1 Topography and drainage

Core zone: Topography has gentle undulations. The area lies in the extreme south-eastern part of the Saurashtra peninsula, with the Bay of Khambhat forming the southern limit. The elevation in the core area varies between 1.0 m to 15.31 m AMSL. Few second order and a first order seasonal stream after passing through the ML area ultimately dissipate into the vast saline plain/Samadhiala salinity ingress control bund that is seen in the south-western

part of the area and finally drains out to sea. Water logged area is present in southern portion of the ML.

Buffer zone: The general altitude of buffer zone area area varies between 0 m. amsl to 58 m. amsl. The general physiographic gradient is in south towards Arabian sea. The drainage pattern is almost dendritic in nature with general flow direction from north to south. The entire storm water flows over the area through these rivers and finally drains out to sea. There is a bund near Samadhiala village for prevention of the saline water ingress in the western/ south-western side of the project area and the water from the seasonal streams is partly flowing into its catchment and ultimately accumulate into the said harvesting pond i.e. Samadhiala salinity ingress control bund Arabian Sea is situated at a distance of more than 0.50 km in the south of the mine lease.

11.3.2 Climate and micro-meteorology

The climate of the district is arid with large annual variations in rainfall and moderate humidity. The area experiences extreme climate conditions. January is the coldest month, with the temperature falling to 14.0°C. May is the hottest month of the year, when the maximum ambient temperature reaches 39.8°C. As per the Climatological table for Bhavnagar Meteorological station, the average annual rainfall (1991 to 2020) in the area is 718.0 mm while as per Disaster Management Cell, Bhavnagar it is 687 mm for Mahuva for 2011-2019.

Micro-meteorological data was recorded at site for 3 months from 1st March to 2nd June 2021. Temperature was recorded as a minimum of 20°C and maximum of 42.63°C, relative humidity as a minimum of 38.80% and maximum of 78.10% during the monitoring period. The wind speed varies between 0.00 to 28.52 km/hr and the predominant wind direction was observed from S with 18.08% of occurrences.

11.3.3 Ambient air quality

Ambient air quality was studied at sixteen locations in and around the mine from 1st March - 2nd June 2021. One stations were established in project area and fifteen stations in the buffer zone. Ambient air quality stations were established Near Cement Plant at Padhiarka in core area and Padhiarka (0.2 km, W), Vangar (2.1 km, NW), Madhiya (0.5 km, N), Dudhala No.1 (1.8 km, ENE), Gujarda (3.2 km, E), Patva (1.8 km, SW), Samadhiyala No. 1 (3.0 km, W), Doliya (0.3 km, S), Rabhda (4.9 km, WNW), Nana Pipalva (3.6 km, NW), Amrutvel (3.8 km, N), Mota Jadra (4.2 km, NNE), Devalia (4.9 km, ENE), Khared (6.8 km, ENE) and Gadhada (4.2 km, E). Concentration of PM_{10} range 27.6 to 71.1 µg/m^3, while that of $PM_{2.5}$ ranges from 11.2 to 40.0µg/m^3. The concentration of SO_2 is found between 2.7 to 10.2 µg/m^3 and NO_2 concentration ranges from 3.6 to 14.5µg/m^3. Heavy metals such as Pb, Ni and As have been found below detectable limits. All the parameters are within the prescribed limits as per National Ambient Air Quality Standards (NAAQS). Concentration of

Silica in PM_{10} sample of core zone are found as 1.1µg/m³, 0.9µg/m³ and 1.2µg/m³ in sample collected near cement plant, Padhiyarka, Vangar and Dudhala No.1 respectively.

11.3.4 Water environment and quality

Mainly ground water is the source of water for irrigation as well as for drinking purpose in the study area. The ground water is found with in the secondary porosity of limestone in the form of joints & fracture. The ground water in these formations occur in unconfined state. The geomorphology is the main controlling factor for occurrence and movement of ground water. The depth to water in buffer zone ranges from 3.65 m to 25.55 m bgl. The average seasonal fluctuation at average rainfall is about 2 m as reported in the field. The ground water storage in the area gets charged through rainfall alone. The regional ground water flow is towards the sea in the S direction.

Twelve ground water samples were collected from Core Zone i.e from near Cement Plant, Padhiarka and villages Padhiarka, Vangar, Madhiya, Dudhala no. 1, Dudheri Dudhala near NH-8E, Gujarda, Doliya, Rabhada, Amratvel and Near Devlia. Three surface water samples were collected from Malan Bandhara near Khared, Malan River near Barpara Village and Arabian Sea near Doliya. The water of area is saline due to the presence of Arabian Sea in 10 km radius of Mine.

11.3.5 Land use pattern and soil quality

Land use: Total Mine lease area is 332.24 ha. There is no reserve forest land present within core zone. Out of total ML area, private land is 199.2246 ha and Government Land is 133.0154 ha. As per Census data 2011, within study area, the area under non-agricultural use accounts for a major portion (44.38%) followed by net sown area (39.66%). Forest land in the study area is only 3.21%.

Soil Quality*:* The soil samples were collected from twelve locations namely, near Cement Plant - Padhiyarka, Vangar, Madhiya, Padhiarka, Dudhala near NH-51, Doliya, Dudhala No. 1, Gujarda, Dudheri, Rabhada, Amratvel and near Devlia. The pH of soils is moderately alkaline in the core zone and pH of soil varies from 7.7 to 8.2 in study area. The electrical conductivity varies from 0.190 to 1.739 mS/cm in study area. Soil is normal at all locations except for one location at Vangar village where EC reaches 1.739 mS/cm and found to be critical for germination. The soils have organic carbon varying from 0.22 to 2.26 which shows that soil is rich in organic carbon at four locations,,optimum at two locations and deficient at six locations.

11.3.6 Noise and Traffic volume

The noise levels were measured at sixteen stations located in and around the project. The levels varied between 47.57 to 52.46 dB(A) during day time and 39.36 to 42.89 dB(A) during night time. These were well within the limits prescribed by National Ambient Air Quality Standards for Noise.

The traffic density survey was conducted on Bhavnagar to Una Road: NH -51 (Near Vangar Village). Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day.

11.3.7 Ecology

Forest: There are Reserve Forests present in the study area. They are RF near Patwa (0.4 km, SW), RF near Dudheri village (0.6 km, SSE), RF near Gujarada village (2.3 km, E), RF near Doliya village (0.4 km, S), RF near Khared village (5.8 km, E). As per census data 2011 there is 1331.11 Ha i.e. 3.21 % forest within 10 km of the mine lease. Forest are classified as Tropical Dry Deciduous Forest and Northern Tropical Thorn Forest. There are no national park, wildlife sanctuary, biospheres reserve or migratory corridor within 15km radius of ML area. Nearest National Park & Wildlife Sanctuary is the GIR National Park, GIR Wildlife Sanctuary & Mitiyala Wildlife Sanctuary located at a nearest distance of 79 km, 47.6 km and 46.7 km respectively.

Flora: The core zone is virgin land where mining is proposed to be carried out. The natural vegetation in the core area includes trees, shrubs, herbs etc. *Prosopis juliflora is the dominant specie in the study area.* Common species such as Neem, Mango, coconut, etc. are present in the buffer area.

Fauna: Common avifauna such as house sparrow, house crow, pigeon, common myna, owl, koel, were observed. Mammals such as hare, squirrel, common house rat, mongoose and porcupine have been observed. Amongst reptiles, common garden lizard, and Indian krait were seen or reported by villagers. A total of about 70 faunal species were recorded during the field survey, comprising 11 species of mammals, 06 species of Reptiles & 53 Avifaunal species. Peafowl, chinkara and Asiatic lion are the Schedule I animals observed in the study area as per Wildlife Protection Act, 1972 amended upto 2019. After the amendments vide Act 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.

Cropping pattern: The main food crops of the district are Bajra, Wheat, Onion and Maize. The main non-food crops are Cotton, Groundnut, Til and Fodder. Pulses are also grown in the study area.

11.3.8 Socio-economic condition

Although, the main habitation of villages are outside the ML area, few scattered huts / structures can be seen in the core zone. As per Census 2011, total population is 116055 with 59328 (51.12%) males and 56727 (48.88 %) females. 56.62% of the total population is literate.

The schedule castes comprise 3.49% and scheduled tribes comprise 0.04% of total population. The average family size is 6 persons/ family. Main worker and marginal workers form 34.26% and 5.82% respectively of the total population. Other workers account for 38.45% of the main workers and 22.51% of the marginal workers.

In Padhiarka & Doliya villages due to opencast mining activities, there will be 35 homestead losers & 131 private plots (Survey Nos.) falling in the pit area. There will be 58 private plots (Survey Nos.) of Padhiarka village and 73 of Doliya village. They will be compensated as per mutually agreed rates, terms and conditions and commensurate with the latest market conditions for the type of homestead and land.

11.3.9 Industries around the project area

There exist no major industries, except some salt pans i.e. salt manufacturing industries, wind mills and cotton gin mill in the study area.

11.3.10 Places of archaeological/ historical/ tourist/ religious importance

There are no places of tourist, religious, historical interest or archaeological importance in study area. Arabian Sea is present at a distance of more than 0.5 km from ML area.

11.4 ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

11.4.1 Topography and drainage

Impact on Topography: At the end of life of mine, out of total ML area, 100.61 Ha. of land shall be excavated, 229.88 ha shall remain undisturbed while rest of area shall be used for infrastructure, road etc. The depth of working as per presently approved review of mine plan will be at +1/+2 m AMSL & will be restricted much above ground water table. This impact will be of permanent in nature and will not be reversed, as there is insufficient material for backfilling to restore the land upto its original level. However shallow depth mined out area shall be backfilled and utilized for agricultural/plantation use and rest of mined out area shall be converted into water reservoir. Another activity affecting the topography will be construction of various buildings and infrastructures, which will be removed on abandoning the mine except some,

which are useful for the surrounding villages. Mining activities will not affect the topography outside the mine lease.

Management: At the end of conceptual period, 26.52 hectares of mined out area will be backfilled and will be converted into agricultural land/ utilized for plantation work and the balance area of 74.09 hectares will remain to form a water storage ponds which will serve as recharge pits, water for plantation and as a source of water supply for public use.

Impact on Drainage: Within mine lease, first order drain will get excavated in pit no. 3 while three second order drains will get disturbed due to pit no. 5 & 6. Their management is given below. Mining activities will not affect the drainage system outside the project area. Monsoon runoff volume may marginally reduce due to excavated areas.

Management: There are no major water body in the study area except for few rainwater storage ponds of bunds/bandhara in the vicinity of the mining lease area. Rainwater run off will be managed by construction of garland drains around the mine pit, along roads and dumps areas. The rainwater will be conveyed to the bandhara through settling pond for settlement of suspended solids. In contest of the dependent project, the cement plant, three canals will be constructed to enhance smooth flow of incoming water towards Samdhiyala salinity ingress control bunds. As per suggestion/ consultation with Irrigation Department, the Company will deepen the suggested landside upstream of bandhara to improve the water storage.

11.4.2 Climate and meteorology

Impact: The climatic conditions including temperature variations, wind direction and speed, rainfall and humidity are governed by regional factors and the monsoons. As such the mining and other allied activities will not tend to influence the climate. Emission of green house gases due to combustion of fossil fuels shall be there.

Management: Development of greenbelt, afforestation and rehabilitation in the mine lease area will contribute in a positive manner towards mitigation of greenhouse gases. The company will be undertaking all possible measures to minimise the CO_2 emissions. These include regular maintenance of all fossil fuel based machinery and equipment and ensuring their emissions within limit.

11.4.3 Air quality

Impact: The opencast mining operations are generally prone to generation of high levels of particulate matter due to material handling and to a lesser extent of sulphur dioxide, nitrogen dioxide and carbon monoxide due to fuel combustion. The sources of air pollutants will be drilling, blasting, loading and transportation. Air quality prediction modelling has been carried out to estimate

ground level concentrations (GLCs) of various pollutants. Air quality prediction models called ISCST3 and CALINE 4 have been used. Maximum incremental values due to mining activity of 7.29 µg/m^3 for PM_{10}, 4.19 µg/m^3 $PM_{2.5}$, 0.019 µg/m^3 SO_2 and 0.69 µg/m^3 for NO_2, respectively are anticipated at a distance of 100 from the mining lease boundary with control measured. Maximum additional incremental values at 50 m from road due to transportation have been estimated as 1.02 µg/m^3 for PM_{10}, 0.25 µg/m^3 for $PM_{2.5}$, 0.10 µg/m^3 for SO_2 and 0.67 µg/m^3 for NO_2 with control measured. Cumulative impact have also been modelled considering the probable impact of other two proposed mine of Nirma Ltd. in the vicinity. The cumulative impact shall be within the permissible standards as specified in National Ambient Air Quality Standards 2009.

Management: Although adequate control measures are proposed to be taken during mining operation, transportation and loading operations, PM_{10} and $PM_{2.5}$ management need additional attention in core zone. Dust suppression system (like water sprinkling systems) will be adopted on roads within the mine lease. Frequent watering will be done on dump area to mitigate dust. Green belt shall be developed around the mine and loading facilities. Dust masks will be provided to the workers. The ambient air quality will be regularly monitored and immediate corrections will be adopted to ensure that air pollutants remain within limits.

11.4.4 Water environment

Impact: There is no perennial surface water body within the mine lease area and hence there will not be any impact on surface water body within mining lease. No adverse impact on ground water quality is anticipated since no OB external dumps are there which could result in leaching & contamination. Considering the annual rainfall of 718.0 mm over a pit area of 100.61 ha, the total direct rainfall accumulation can be 0.7 MCM. Assuming, 50% losses to seepage and evaporation 0.35 MCM per annum can be available for plantation and agriculture use.

Presently no mining operation has been carried out. During the five years planning period of working, mining operations is envisaged up to a level of 10.5 m AMSL. As such no ground water table intersection is envisaged in plan period or upto 11^{th} year of operation. i.e. end of mine life. The shallow depth pits shall be backfilled simultaneously after mining for limestone and converted into agricultural land/utilized for plantation work.

As per Hydrogeological & Hydrological Studies of core and buffer zone of Padhiarka & Doliya Limestone Mine, the qualitative aspects of ground water shows that salinity ingress from sea has taken place up to over 3 km from Arabian sea reaching center of buffer zone including mines falling in core zone.

Management: Mine water as well as domestic sewage will be treated to the norms prescribed by regulatory agencies. Mine water will be collected in the sump. This will act as a sedimentation lagoon. It will then be pumped to surface reservoir for utilisation. To minimise suspended solids in run-off, rain water around dump, mine pit and reclaimed areas will be collected in garland drains and settled in sedimentation tank. Thereafter, it will be reutilised and balance released to nearby salinity ingress control bund through natural drain. Domestic waste water from facilities in the mines will be treated in septic tanks. Rain water harvesting will be done in the mine lease to collect water in surface reservoir for reuse.

11.4.5 Land environment

Impact: Mining activities introduce changes in the land use pattern. From non mining area, the area becomes mined out. There is creation of dumps, roads, facilities, mining pits etc. Land degradation is inevitable during mining particularly in open cast mines, where the original soil ecosystem and structure are adversely affected. However, mitigation measures can restore the land & ecological status of the area.

Management: At the end of conceptual period, 26.52 hectares of mined out area will be backfilled and converted into agricultural land/utilized for plantation work and the balance area of 74.09 hectares will remain to form a water storage ponds which will serve as recharge pits, water for plantation and as a source of water supply for public use.

11.4.6 Noise and ground vibration

Impact: The main noise generating sources during operation will be proposed surface miners, HEMM and dumpers. Operation of machines & vehicles will continuously generate noise. The impact can be more within the ML area. Impact of noise will more near the machines being operated with continuous exposure and may cause hearing loss and other related problems if protective measures are not taken. Blasting has been proposed to remove the hard strata. Thus, flying fragments due to blasting or vibration and secondary cracking of structures on the surface may be there if the blast are not regulated as per control blasting techniques.

Management: There will be peripheral green belt along mine lease boundary, roads, mine infrastructures etc. Plantation will act as a noise absorbing medium. Mining operation shall be carried out as per norms of Directorate General of Mine Safety. Maintenance of noise generation machinery including the transport vehicles will be ensured. Workers exposed to noisy areas will be provided earmuffs/ear plugs. Controlled blasting techniques shall be followed and compliance to the norms of DGMS shall be followed. Surface Miner which is eco-friendly in mining operation will be used in the area near habitation & village boundary area in order to avoid blasting. Ground vibration / air blast

due to drilling blasting will be controlled / reduced by multi-row drilling, V-pattern drill holes etc.

11.4.7 Traffic

Impact: The limestone transportation shall be carried out through dumpers/tippers to the cement plant located adjacent to the mine through Internal road and Soda Ash plant located at Kalatalav, Bhavnagar through National Highway. When conveying through internal haul roads, the impact of traffic movement will not interact or interfere with public transport and humans on the public roads. Water sprinkling facility will be available for haul road. Hence, the impact anticipated is negligible. However, when using the public road, the trucks will interact with public traffic. Increase in traffic volume will be there.

Management of traffic: Trucks will carry optimum weight, undergo periodic maintenance, under go "Pollution Under Control (PUC)" check ups periodically and be covered with tarpaulin. Most of traffic movement will be through internal haul roads, therefore, eliminating any interaction or interference with public transport and humans on the public roads. Company will ensure that all dumpers follow the necessary safety procedure for accident free operation. Water sprinkling on roads within lease area shall be done to mitigate dust. Plantation will be carried out along the transportation routes with in project and along roads.

11.4.8 Solid waste impact & management

Impact: No waste in the form of Over burden/ Inter burden is envisaged as there is no waste observed in open dug well geology. Soil removed during five years of plan period (127122 cubic meter) is proposed to be disposed off by means of making a temporary stack (4.31 hectare) at the prescribed site. At the end of mine life, around 5,00,000 cum soil will required to be removed for limestone mining. The other wastes generated will be sludge from septic tanks and municipal solid waste from mine office.

Management: Soil removed during five years is proposed to be disposed off by means of making temporary stack. The height of the stack shall be about 5.0 m AGL (Max.) which will cover an area of 4.31 ha. The stacking space selected shall be temporary in nature. So there will be no adverse impact on the space chose for the stacking purpose. At the end of mine life, total soil removed shall be around 5,00,000 cum and shall be utilised simultaneously for back filling of shallow depths pits of an area around 26.52 Ha and reclaimed area will be converted for agriculture use / plantation purposes. For municipal solid waste, segregation shall be done. The biodegradable component shall be composted and utilized as manure in greenbelt. The recyclable component shall be sold to authorised recycling vendors.

11.4.9 Ecology

Impact: Ecological impacts from open cast mining will result from generation of pollutants both in air and water. Loss of vegetation and its dependent fauna due to excavation and dumping will be there. Also animals and birds will migrate to other places due to enhanced noise and lights at site. Trees existing along agricultural fields, habitation, ponds and open areas will get uprooted during mining activities.

Management: Management of ecology will comprise of compensatory afforestation as well as agro forestry and agriculture. Plantation will be done along roads, in safety barrier and undisturbed areas. Plantation will attract small fauna and birds and serve as micro habitats.

The company shall participate in wild life conservation through schemes of Forest Department. Requisite wildlife conservation plan has been prepared in consultation with Forest Dept & got approved by PCCF, Govt. of Gujarat and will be implemented. Awareness to villagers for wildlife protection shall be a part of the social welfare activities with target to reduce man animal conflict. Company has a plan to plant saplings of trees and shrubs within the boundary barrier and road barrier. Plantation is proposed to be done at the rate of 1000 saplings per year. Sandy soil/ topsoil removed during mining is proposed to be used for plantation at pit slope. Total area covered under proposed plantation/greenbelt shall be 18.50 ha at end of mine life.

By the end of this mining plan period, an area of 5.0 ha will be under greenbelt which shall increase aesthetic beauty of the area. Besides this, at the end of mine life, proposed backfilling area shall be converted into agriculture land/ utilize for plantation work.

11.4.10 Occupational Health

The Company will have qualified mining engineers and mine managers. They will plan, supervise, control, manage and direct mining operations as per mining regulations. All safety norms shall be followed. Personal protective equipments will be issued to workers. A Safety, Health and Environment officer will also be appointed for effective implementation of safety rules and regulations. Regular Safety Committee meetings will be held at the mines to review the status of implementation of statutes. Regular safety trainings will be conducted. Safety posters and pamphlets in English, Hindi and Gujarati shall displayed and distributed to workers. Company shall put 100% efforts for a zero accident rate.

11.4.11 Socio-economics - Impact and Management

The mine lease area consists land of two villages Padhiarka and Doliya. At initial stage, the land & hutments which are falling under the pit area will be

compensated at mutually agreed rates. After exploration as shown in approved review of mining plan, mineral bearing area of lease will be increased and put into use for mining. Mining and allied activities will also provide job opportunities for eligible persons and many will find employment in service sector. Preference will be given to the land losers and local people for employment in the unskilled and semi-skilled categories. 55 manpower will be required for mining and ancillary activities. Preference will be given to local people to meet the manpower requirement in unskilled and semiskilled categories. Besides this, thousands of local people will get indirect employment by the cement project. Activities under Corporate Social Responsibility (CSR) shall be undertaken. The facilities and amenities like health and education shall be set up for the project which can also be used by the people of the nearby villages. Overall positive impact of the project is anticipated.

11.5 ANALYSIS OF ALTERNATIVES

Mining industry is very much site specific and a mineral has to be mined at the place where it exists in economically feasible quality and quantity. So, no site alternatives can be chosen. Opencast mining method with Continuous Surface Miner and conventional mining method i.e. Drilling & Blasting for mine working occasionally has been selected for the mine.

11.6 ENVIRONMENTAL CONTROL AND MONITORING ORGANISATION

An environmental management cell is proposed and shall be responsible for the implementation of environmental control and mitigation measures. A reporting system as per hierarchy shall be created. The responsibility of environmental compliances will be with General Manager (Projects) at Head Office, Ahmedabad. At the project level, Mines Manager will be responsible for environmental compliances within the lease area. He will be assisted by Mining Engineer, Safety, Health & Environment Officer and a Medical Officer Incharge. All these managers will be assisted by engineers and supported by supervisors, helpers, water tanker operator, horticulturists and gardeners, etc. Regular monitoring of the important environmental parameters will be taken up.

The total investment on environmental improvement works is envisaged as Rs. 39.80 lakhs and recurring expenditure during the stage of production is Rs. 31.47 lakhs per year.

11.7 ADDITIONAL STUDIES: DISASTER MANAGEMENT PLAN

There are various factors, which can result in a disaster in the mine. In open cast mines, the hazards are due to machines, accidents due to poor visibility, on haul roads, due to bench failure, pit slope failure, dump failure, blasting, explosion, fire and inundation. The preventive and hazard management measures will be taken during operation phase. As a part of disaster management plan, a rescue team shall be formed by imparting specialized

training from selected mining staff. All the statutory precautions will be followed.

11.8 PROJECT BENEFITS

Primary benefit will be of employment. Number of persons will get employment for mining and ancillary jobs. Preference will be given to local people to meet the manpower requirement in unskilled and semi skilled categories. Besides this, thousands of local people will get indirect employment by the cement project.

Nirma Ltd. under the Companies Act, 2013 is obligated to spend at least 2% of its profit after tax on CSR activities around its projects.

In addition, huge contribution towards District Mineral Foundation (DMF) at the rate of 30% of royalty payment will also be utilized for the benefit of persons and areas affected by mining related operations through District Mineral Foundation Trust. The amount roughly estimated is around Rs. 3.6 crores annually at the targeted maximum production & present royalty rate.

11.9 CONSULTANTS

The consultants engaged for the preparation of the EIA/EMP of the project are Centre for Envotech and Management Consultancy Pvt Ltd. (CEMC), Bhubaneshwar, Odisha. CEMC is one of the leading Environmental and Forest consultancy organisations in the state of Odisha. CEMC was established during 2005 and registered under Companies Act 1956 and is NABET, QCI accredited consultant. The baseline data collection was carried out by Min Mec R&D Laboratory, New Delhi. In June 2006, the laboratory received accreditation from NABL which has been renewed as per procedure (current certificate no. TC-6337 valid till 16.03.2024) and is recognised by MoEF&CC (Gazette Notification No. S.O. 3744 (E) dated 17.10.2019).

The Review of Mining Plan with Progressive Mine Closure Plan has been prepared by Mr. Rakesh Purohit and Shailendra Kumar Soni. Hydro-geological and Rainwater harvesting Report has been prepared by Ground water & Mineral Investigation Consultancy Centre (P) Ltd. Wildlife Conservation Plan has been prepared by Min Mec Consultancy Pvt. Ltd, New Delhi.

CHAPTER 12
DISCLOSURE OF CONSULTANTS ENGAGED

12.1 CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY (P) LTD. (CEMC)

Centre for Envotech and Management Consultancy (P) Ltd. (CEMC) is an ISO 9001:2015, ISO 45001:2018 & ISO 14001:2015 certified leading Forest and Environmental consultancy empanelled by State Pollution Control Board (SPCB), Odisha. It was established in 2005 & its registered office is at Plot No. 522/3458, Pahal, Bhubaneswar-752101, Odisha. The consultancy/firm has well-furnished laboratory equipped with modern scientific instruments for analysis of various physico-chemical parameters of soil, water and air. The technical team of CEMC (P) Ltd. has wide experience in Mineral Exploration & Mining, Environmental Impact Assessment/Environmental Management Planning and Environmental Monitoring, Forest Diversion Planning, Development of Various Projects like Industry & Building Projects, in Commissioning of Various Pollution Control Devices, Air Quality modeling and Hydrogeological survey, and other technical assignment for various industries. CEMC Pvt. Ltd. is Accredited by National Accreditation Board for Education and Training (NABET), Quality Council of India (QCI) as 'A' Category Consultant Organization for carrying out EIA Studies in Mining of Minerals, Irrigation, Thermal Power, Coal Washery, Mineral Beneficiation including pelletisation, Metallurgical industries (ferrous and Non-ferrous), Highways, Common Municipal Solid Waste Management Facility, building and large construction projects.

CEMC Environment Laboratory got recognition by MoEF&CC, Govt. of India, under Environment (Protection) Act, 1986 and accredited by National Accreditation Board for Testing and Calibration of Laboratories (NABL- An Autonomous body under Department of Science and Technology) in accordance with the standard ISO/IEC 17025:2017.

Our aim is to provide sustainable development for the growth of Industries, a one stop service provider for all types of Industries/Mines related projects, particularly relating to environmental issue.

Core Team:

The level of expertise available with us and the infrastructure we have made is imperative for us to think about of the consultancy in fulfilling its mandate of providing highest quality of works to their clients on monitoring of air, water and soil in mining and urban areas, GIS and geographical analysis, biodiversity and resource mapping of forest covers and their modeling, preparation of EIA, EMP of various projects. To make these activities successful the expert members in respective fields with their expertization are mentioned below:

KEY PERSONNELS OF THE COMPANY

Mr. Debashish Mishra (EIA coordinator)	
Qualification	M.Sc. (Botany), PG Diploma in Environmental Management
Experience	Fourteen years of experience in environment and socio-economic sector, mostly dealt with following assignments. Assisting in Preparing EIA /EMP report, Study of flora & fauna, Development of plantation strategy, Study the quality of top soil and suggest methods for it's conservation & reuse, Sampling, analysis and characterization of soil, Study on the impact of environmental factors on livelihood, Look after project on traditional seeds and live fence as means of sustainable livelihood, Documentation of medicinal plants, Organize seminars, workshops & meetings on conservation, propagation & cultivation of medicinal plants.
Mr. Dayananda Pandey (FAE-AP,WP,AQ,N)	
Qualification	M.Sc. (Environmental Science)
Experience	He has experience in data collection, preparation of documents for submission to MoEF, preparation of presentation for obtaining ToR, preparation of EIA/EMP report, Preparation of final presentation for EC.
Dr. Nihar Ranjan Das (FAE-LU, SE)	
Qualification	Doctorate Degree in Urban Development & EnvironmentalIssues. Master degree in Geography. Post Graduate Diploma in Remote Sensing and GIS during2001.
Experience	He is considered to be an expert in Remote Sensing and GIS Application in Land use planning and Geological Exploration. He provided expert consultancy in Remote Sensing Application to Large number of Govt. Departments and public and private sector undertakings. To his credit he has also provided consultancy for large number of projects in different areas related to ground and surface water resources and preparation of maps related to Forest Diversion Proposals based on the latest guidelines of Forest Conservation Act, 1980 and Wild Life Protection Act, 1972. He is the life member of various scientific societies.
Mr. Debashish Mishra (FAE-EB)	
Qualification	M.Sc. (Botany),Management P.G. Diploma in Environmental
Experience	Fourteen years of experience in environment and socio-economic sector, mostly dealt with following assignments. Assisting in Preparing EIA /EMP report, Study of flora & fauna, Development of plantation strategy, Study the quality of top soil and suggest methods for it's

	conservation & reuse, Sampling, analysis and characterization of soil, Study on the impact of environmental factors on livelihood, Look after project on traditional seeds and live fence as means of sustainable livelihood, Documentation of medicinal plants, Organize seminars, workshops & meetings on conservation, propagation & cultivation of medicinal plants.
Mr. Ashutosh Kanungo (FAE- HG, G)	
Qualification	M.Sc in Geology
Experience	He has experience in water quality analysis, data compilation and Hydrogeological tasks, in developing project strategy, Consultancy services provided to various agencies regarding well sitting and also in EIA report Preparation related to Geology/ Hydrogeology/ Ground water.
Er. Anata Prasad Barik (FAE-SHW,RH)	
Qualification	B.Sc. Engineering (Chemical)
Experience	He has experience in data collection, preparation of documents for submission to MoEF, preparation of presentation for obtaining ToR, preparation of EIA/EMP report, Preparation of final presentation for EC.
Dr. Dilip Kumar Pandey (FAE-NV) Empanelled	
Qualification	M.Sc. in Environmental Science and Ph.D. in Environmental Science (Dehradun)
Experience	He has experience in presentation of EIA/EMP reports for EC at MoEF/SPCB, coordination for preparation of EIA/EMP, supervising the baseline data collection in respect of Ecology Biodiversity, Noise and vibration parameters.
Dr. Rabindra Kumar Mishra (FAE –SC) Empanelled	
Qualification	Post Doctorate Degree in Germination Ecology.Doctorate Degree in Forest Ecology. Master Degree in Botany.
Experience	He has experience in survey of aquatic Biodiversity, study ofphysico - chemical behavior of soil and water, Survey, research and documentation on project related impact of disturbance on forest ecosystems, Preparation of EIA and EMP. Attended many International Workshops on various biological topics. Life Member of Indian Science Congress Association and Odisha Botanical Society, Bhubaneswar.
Dr. Bidyut Kumar Patra(FAE-AP, SW&HW)	
Qualification	Post Doctorate Degree in Environmental Science Master Degree in Environmental Science.

Experience	He has experience in presentation of EIA/EMP reports for EC at MoEF/SPCB, coordination for preparation of EIA/EMP, supervising the baseline data collection in respect of Air Pollution and Solid Hazardous Waste Management.
Mrs. Anupama Swain(FAE-WP)	
Qualification	Master Degree in Environmental Science.
Experience	She has experience in water quality analysis, supervising the baseline data collection in respect of water pollution, data compilation and water quality results in EIA report.
Mrs. Mitali Rout(FAE-AP,WP)	
Qualification	Master Degree in Environmental Science.
Experience	She has experience in Ambient air quality and water quality analysis, supervising the baseline data collection in respect of Air & water analysis, data compilation in EIA report.
Mr. Sudhansu Kumar Dash(FAE-SE)	
Qualification	Master of Social Work (MSW)
Experience	He has experience in presentation of EIA/EMP reports for EC at MoEF&CC/SPCB, coordination for preparation of EIA/EMP, supervising the Social Impact Assessment data collection in respect of socioeconomic survey.

Others consultants:

1. M/s Min Mec R&D Laboratory has collected baseline data through primary surveys for air quality, water quality, soil quality and noise levels. The laboratory is accredited by NABL (Certificate No. TC-6337 valid till 16.03.2024) and MoEF&CC Recognised (Gazette Notification No. S.O. 3744 (E) dated 17.10.2019 valid till 16.10.2024).

2. The Review of Mining Plan with Progressive Mine Closure Plan has been prepared by Mr. Rakesh Purohit and Shailendra Kumar Soni in 2021 and approved by IBM on 05.08.2021.

3. Hydrogeological & Hydrological studies of core and buffer zone of Padhiarka & Doliya Limestone Mine and impact of mining on water regime near village Padhiarka,Taluka-Mahuva, district Bhavnagar,Gujarat of January 2022 has been prepared by Ground water & Mineral Investigation Consultancy Centre (P) Ltd.

4. Site Specific Wildlife Conservation Plan has been prepared in consultation with the Forest Department, as per the latest rules of the Govt. of Gujarat by Min Mec Consultancy Pvt. Ltd., New Delhi in November 2021.

ANNEXURES

F. No: J-11015/154/2016-IA. II(M)
Government of India
Ministry of Environment, Forest and Climate Change
Impact Assessment Division
***

2nd Floor, Prithvi Wing,
Indira Paryavaran Bhavan,
Jor Bagh Road, Aliganj,
New Delhi - 110 003.

Dated: 28th November, 2022

To,

M/s Nirma Limited,
Nirma House, Ashram Road,
Ahmedabad – 380 009, Gujarat.

Subject: - Padhiarka and Doliya Limestone mine of M/s Nirma Limited for mining of Limestone with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha, located at Villages Padhiarka & Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat - Terms of Reference (ToR) - regarding.

Sir,

This has reference to the online proposal no. IA/GJ/MIN/400887/2022 for grant of Terms of Reference (ToR) for mining of Limestone in Padhiarka and Doliya Limestone mine of M/s Nirma Limited with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha, located at Villages Padhiarka & Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat.

2. Details of the proposal, as ascertained from the proposal documents are given as under:

i. The mine lease area is located between Latitude 21°00'42.8152" N to 21°02' 9.7579" N and Longitude 71°40'10.0006"E to 71°41'9.9043"E. The mine lease area falls under the Survey of India Toposheet No: F42R12 and falls in Seismic Zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. The Project Proponent submitted that earlier Terms of Reference (ToR) was granted by the Ministry vide letter dated 03.01.2017 and extension of validity of ToR vide letter dated 17.03.2020 for the period upto 12.11.2021. The draft EIA report was submitted to the Gujarat Pollution Control Board and public hearing was scheduled on 16.12.2021. However, Public hearing has been postponed by Gujarat Pollution Control Board due to "unavoidable circumstances" vide Board letter no. GPCB/PH/2020-21/Bhavnagar-41/608749 dated 13.12.2021. Since the conduct of public hearing has got delayed, Project Proponent will not be able to submit the Final EIA report within the stipulated time of validity of ToR. Hence, the Project Proponent submitted the fresh proposal for grant of Terms of Reference.

iv. The Project Proponent submitted that the mining lease was granted by Industries and Mines Department, Govt. of Gujarat vide Order no: MCR-102004-1945-CHH dated 08.01.2017 for Limestone and Marl to M/s Nirma Limited over an area of 333.24 ha for a period of 50 years for its captive consumption.

v. Land Use/Land Cover of the Mine lease area:

Private land	199.2246 ha
Government land	133.0154 ha
Total Mining lease area (MLA)	332.24 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No facilities outside the mine lease area. However crusher will be installed at company's Cement Plant.

vi. Details of Mining Plan:

Review and updation of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines (IBM)	Letter No.	File No.: 684(4)(1)/MP-349(195)/2021-22 GNR/1129
	Date	05.08.2021
	Mineral	Limestone
	Mine lease area	332.24 ha
	Validity	31.03.2026
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized	
Geological resource	28.177 Million Tonnes	
Mineable reserve	10.707 Million Tonnes	
Life of mine	11 years	
Bench Height	6.0 m	
Bench Width	12-15m	
Individual bench slope	80-85°	
Overall pit slope	~ 45°	
Drilling/Blasting	Multi-row drilling and V-pattern drill holes for deep hole drilling and blasting. Parameters will be 6.6 m depth x 4.0 m spacing x 3.0 m burden. Slurry explosive -cap sensitive and non-cap sensitive.	
Transportation details	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease/through dumpers/ trucks to the Soda Ash Plant located at Kalatalav, Bhavnagar.	
Dumpers capacity	25 tonnes	
Overburden	Nil	

vii. Water requirement:

Total water requirement	41.0 KLD	Fresh water	3.0 KLD
		Treated water	38.0 KLD
Source	i. Fresh water source Narmada water pipeline/Water tanker		

	ii. Water harvested within mine lease during rainy season iii. Treated water source- Reject water of RO /DM plant &Reject water of RO /DM plant (proposed at Cement plant)
Permission	Permission for water withdrawal from Narmada water pipeline has been obtained vide letter No. GWIL/Bhavnagar/Ind.conn./1257 dated 04.06.2008.

viii. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance & Direction
Village	Madhiya	0.5 km, N
Town	Mahuva	9.5km, NE
Highway	NH-51 (Una-Mahuva highway)	0.7 km, N
Railway Station	Amrutvel	4.5 km, N
Water bodies	Arabian Sea Coast	0.5 km, S from the HTL
	Samdiyala Bandhara	2.3 km, WSW
	Bhambhali River	3.6 km, W
Monuments	Firangi Deval Sun Temple, at Kalsar, Bhavnagar	23.5 km, NE

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter/Remarks
Forest Land	No	Nil
National park	No	
Wildlife Sanctuary	No	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area(ESA)	No	
Schedule-I species	Yes	Peafowl, Chinkara and Asiatic lion are the Schedule - I species observed in the study area.
Status of Wildlife Conservation Plan	Yes	Wildlife Conservation Plan has been prepared.

x. Green belt/plantation details:

Proposed area for green belt/plantation	18.50 Ha
Budget for green plant& plantation till the end of life of mine.	56.10 Lakhs
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	5.0
50 m safety zone of nallah, roads, electric lines	3.0
500 m safety zones of nearest habitation villages	-
Additional information (if any)	10.50 ha(Backfilled area - Govt. wasteland)

xi. The Project Proponent submitted that baseline study conducted during 1st March 2021 to 2nd June 2021 (Summer season).

xii. Rehabilitation & Resettlement:

R & R details	The Project Proponent submitted that there is no displacement proposed from the mining lease area as habitation of villages falls outside the mining lease area.

xiii. The Project Proponent submitted that there is no litigation pending against the project and/or land in which the project is proposed to be set up.

xiv. The Project Proponent submitted that the total project cost is Rs 29.0 Cr and about 55 persons will get employment.

3. Observation and Recommendation of the Committee:

The EAC noted that the Project Proponent earlier obtained Terms of Reference vide letter dated 03.01.2017 and extension of validity of ToR vide letter dated 17.03.2020 for the period upto 12.11.2021 and the Project Proponent submitted the draft EIA report to the Gujarat Pollution Control Board and public hearing was scheduled on 16.12.2021. The Project Proponent informed the EAC that the Public hearing has been postponed by Gujarat Pollution Control Board due to "unavoidable circumstances" vide Board letter dated 13.12.2021 and since the conduct of public hearing has got delayed, Project Proponent will not be able to submit the Final EIA report within the stipulated time of validity of ToR and hence the fresh proposal for grant of Terms of Reference was submitted.

The EAC asked the Project Proponent to begin with the KML file indicating the site features in the vicinity of the mine lease area and well as within the 10 km radius of the study area. The Project Proponent informed the EAC that the NH-51 (Una-Mahuva highway) is located at a distance of 0.7 km, N from the mine lease area. Nearest village is Madhiya located at a distance of 0.5 km, N from the mine lease area. The Project Proponent informed the EAC that the total mine lease area is 332.24 ha, out of which 199.2246 ha is a Private land and 133.0154 ha is a Government land. PP also informed that the few encroachments in the Govt. land will be shifted and some part of the area in the Pvt. agricultural land will be purchased and will be compensated accordingly. The EAC asked the Project Proponent to submit the area to be acquired along with timeline. The EAC also asked the Project Proponent to carry out a detailed R&R plan with need based study and also to submit the cost benefit analysis study comparing to the production of agriculture and mineral production. The EAC also asked the Project Proponent to submit the action plan for returning the land back to the farmers along with the timeline.

The EAC asked the Project Proponent that what is the mine lease area at the time of grant of mining lease. The Project Proponent informed the EAC that the total mine lease area is 616.7254 ha at the time of grant of mining lease during the year 2008 and after that the part of the mine lease area was surrendered and at present the total mine lease area is 333.24 ha. The lease deed was executed on 11.01.2017 for the reduced mine lease area over an area of 333.24 ha for mineral Limestone and Marl for a period of 50 years. The Project Proponent vide email dated 18.10.2022 has submitted the entire approved mining plan, letter of intent over a mine lease area of 616.7254 ha dated 15.02.2008 and grant of mining lease order dated 08.01.2017 for revised mine lease area of 333.24 ha.

The EAC asked the Project Proponent to show the environmental sensitivity in the study area of the 10 km radius in the KML file. The Project Proponent informed the EAC that the rivers located in the vicinity of the mine lease area flows in to the Arabian Sea which is located at a distance of 0.5 km, S (from the HTL) from the mine lease area. The EAC asked about the status of the Coastal Regulation Zone(CRZ)? The Project Proponent informed the EAC that the areas regard to CRZ have been excluded while surrendering the part of the mine lease area and the mine lease area is falling outside the CRZ and hence no clearance required for CRZ. The EAC asked the Project Proponent to show the supporting document in this regard. The Project Proponent informed the EAC that the detailed study has been carried out by Anna University, Chennai who has been authorized to carry out CRZ studies and the study mentioned that the instant mine lease area is falling outside the CRZ. The Project Proponent has shown the study done by Institute of Remote Sensing during the year 2019 for the combined three mine lease areas demarcating the HTL, LTL and CRZ area. The study mentioned that the mine lease area is away from the CRZ area. The EAC opined that the Ministry may seek comments from the CRZ Division in the Ministry in this regard. The EAC was of the view that Bhavnagar coast line is very sensitive w.r.t sea turtles and Schedule-I species such as Lion are visible in the vicinity of the study area. The EAC also asked about the turtle breeding sites in the study area. The Project Proponent informed the EAC that the conservation will be taken care of in consultation with the Forest Department. The EAC asked the Project Proponent to show the other two mine lease areas in the KML file. The Project Proponent has shown the other two mine lease areas and informed the EAC that the two mine lease areas are green field project. The EAC asked the Project Proponent to carry out the cumulative impact assessment by considering these two mines and also other mines in the study area.

The EAC asked whether any court case is pending against the project? The Project Proponent informed the EAC that there is no court case/litigation pending against the project. PP also informed that there is no Wildlife Sanctuary, National Park and Critically Polluted Areas within the study area of 10km radius. The Project Proponent informed the EAC that the baseline study has been conducted during 1st March- 2nd June, 2021 (Summer season).

The EAC noted that the Consultant, Min Mec Consultancy Pvt. Ltd is not having accreditation for sector 1(a) Mining of Minerals and whereas the instant proposal is for 1(a) Mining of Minerals. The Consultant informed that the accreditation of the sector 1(a) Mining of Minerals was kept on hold since the Vibration expert was not accredited. The EAC asked the Project Proponent whether they are aware of the accreditation of the Consultant or not? The Project Proponent informed the EAC that they are aware that the Consultant is not accredited for 1(a) Mining of Minerals. The EAC warned both the Project Proponent and the Consultant for hiding the facts before the EAC. The EAC was of the view that neither the Project Proponent nor the Consultant revealed the information until the EAC took clarification. The EAC opined that the Project Proponent/ Consultant should have informed before the start of the presentation. The Project Proponent apologized before the EAC and it will not be repeated in future. The EAC took a stringent view and asked the Ministry to take action against the Consultant for hiding the facts before the EAC. Thereafter, the EAC

allowed the Project Proponent to give the presentation since the instant proposal is for grant of Terms of Reference (ToR).

Based on the above discussions held, the EAC **recommended** the proposal in the 5th EAC (Non-Coal Mining) meeting held during 18-20, October, 2022 for grant of Terms of Reference (ToR) under the provisions of EIA Notification, 2006 for M/s Nirma Limited for mining of Limestone in Padhiarka and Doliya Limestone mine with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha, located at Villages Padhiarka & Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study subject to the specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects.

4. The matter was examined in the Ministry in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments thereto and the undersigned is directed to say that the Ministry of Environment Forest & Climate Change after accepting the recommendation of EAC during its meeting held during 18th – 20th October, 2022 hereby accords Specific and Standard Terms of Reference (ToR) for M/s Nirma Limited for mining of Limestone in Padhiarka and Doliya Limestone mine with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha, located at Villages Padhiarka & Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects.

A. SPECIFIC TERMS OF REFRERENCE

i. The Project Proponent needs to submit the copy of layout superimposed on the HTL/LTL map demarcated by an authorized agency on 1:4000 scales and SCZMA Gujarat's recommendation at the time of appraisal of Environmental Clearance.

ii. In view of the agricultural land proposed under the mining lease area, the Project Proponent needs to submit the Cost Benefit analysis comparing the current agricultural production and annual turnover including the cost and the benefits drawn by the local villages vis-a-vis the mineral cost and beneficiaries.

iii. The Project Proponent needs to submit the action plan for deploying the Ripper-Dozer combination to eliminate the drilling and blasting.

iv. The Project Proponent shall ensure that the shallow pits up to depth of 4 m shall be refilled and reclaimed and given back to the farmers as agriculture land. Return all the proposed non-mining area to farmers/owners of the land. The mining plan, inter-alia, includes the above mentioned details with regard to pits and reclamation.

v. The Project Proponent needs to submit the detailed measures to be taken for protection of turtle breeding sites and also needs to specifically address the movement of Lions and conservation in the Wildlife Conservation plan in consultation with the Forest Department.

vi. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution. PP also needs to submit the breakup of total excavation in tonnes.

vii. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

viii. The Project Proponent needs to carry out the cumulative impact assessment by considering all the mining activity including the transport scenario of the mines in the study area and should indicate the capacity of each mine considered for predication of air quality modeling. The control case and worst-case scenario needs to be demonstrated with controlling factor and GLCs values for all the pollutants needs to be clearly mentioned. The input parameters used for the modeling also needs to be submitted.

ix. The Project Proponent needs to submit the detailed R&R plan covering all the components viz. number of Project Affected Families (PAF) and details of the land owned by them, break up of total compensation to be paid including method of calculation including the sources/references adopted and mode of payment etc. PP need to submit the plan for Socio economic development of the neighbourhood habitats based on the need based survey along with the time bound action plan. PP also needs to submit the possession certificate and timeline for acquiring the land at the time of appraisal of EC.

x. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xi. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xii. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xiii. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years.

xiv. The Project Proponent needs to submit the documents related to part surrender of the mine lease area at the time of appraisal of EC.

xv. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

B. STANDARD TOR FOR MINING PROJECT

I. Project Details

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government.
2) A copy of the document in support of rightful lessee of the mine should be submitted. In case of new mines copy of LoI granted by State Government to be submitted. PP should ensure that LoI is valid at the time of grant of ToR. PP should submit the copy of lease deed/supplementary lease deed/extension letter/transfer deed, from its initial grant to subsequent renewals/ transfer/extension of validity.
3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4) PP should submit the District Survey Report (DSR) as per S.O. 3611(E) dated 25.07.2018 in case of minor minerals.
5) Brief of proposal to be submitted which include total excavation of the material required for the production of certain quantity of the minerals, location of the project, mining lease area, latitude longitude, seismic zone etc. In case of expansion project details of expansion viz. expansion in mining lease area or expansion in production of any particular mineral or expansion in total excavation, latest certified Compliance report (CCR) from IRO of conditions granted in existing EC needs to be submitted.
6) The PP should submit the real-time aerial video footage & video of the mining lease area and of the transportation route.
7) All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
8) Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
9) The PP should collect the Baseline data (BLD) in respect of initial level of the mining lease. For this permanent bench marks (BM) needs to be established at prominent

location preferably close to mining leases in question and should have precisely known relationship to the level datum of the area, typically mean sea level.

10) In case of sand mining, the entire mining lease area should be divided suitably into grids of 25 m x 25 m with the help of sections across the width of river and along the direction of flow of the river. The levels (MSL & RL) of the corner point of each grid needs to be recorded. Each Grid should be suitably numbered for identification. PP should identity grids which will be worked out and grids which will come under no mining zone i.e. safety barriers from the river bank. PP should comply with the sustainable sand mining management guidelines 2016 and enforcement and monitoring guidelines, 2020 etc.

11) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

12) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

13) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

14) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

15) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

16) Compliance of the Ministry's Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.

II. Forest

17) PP shall submit a certificate from Chief Conservator of Forests regarding involvement of Forest Land in the mining lease area if any. In case forest land is involved i) PP should submit the proof of application made for obtaining forest clearance and ii) a map clearly showing the forest & non-forest area.

18) Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

19) Implementation status of recognition of forest rights under the Scheduled Tribes and

other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

20) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

III. Court Matters

21) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

IV. Land Environment

22) PP should submit the details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area.

23) The study area will comprise of 10km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

24) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

25) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

V. Wildlife

26) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

27) A detailed biological study of the study area [core zone and buffer zone] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. PP shall submit list of Schedule-1 species present in core and buffer zone duly authenticated by CWLW. In case of any Scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest/Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost. Proof of its submission of conservation plan to the CWLW needs to be submitted.

28) PP shall submit a certificate from Chief Wildlife Warden regarding distance of mining

lease from the protected area falling within 10 KM of the mining lease. In case project requires clearance under Wildlife (Protection) Act, 1972 then copy of application made for the same needs to be submitted.

VI. Baseline Environment:

29) One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season); December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

30) Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The windrose showing pre-dominant wind direction may also be indicated on the map.

31) The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this, PP should submit the original test reports and certificates of the labs from which samples were analyzed.

VII. Water Environment

32) The water requirement for the Project, its availability and source should be furnished. Quantity of surface or ground water to be used for the Project should be indicated. A detailed water balance should also be provided. Submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. The capital and recurring expenditure to be incurred needs to be submitted.

33) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

VIII. Hydro Geology

34) Details of any stream, seasonal or otherwise, passing through the lease area and

modification / diversion proposed, if any, and the impact of the same on the hydrology should be.

35) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.

36) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working bench will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished. In case of surface water is proposed to be utilized then Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

IX. Transportation

37) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

X. Land Acquisition and R&R

38) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

39) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

XI. Socio-Economic Environment

40) Public health implications of the Project and related activities for the population in

the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

41) Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

42) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

43) Activity-wise time-bound action plan on the issues raised and commitment made during public hearing to be submitted as part of the final EMP Report in compliance of the Ministry's OM F.No.22-65/2017-IA.III dated 30th September, 2020.

XII. Environmental Monitoring and Management

44) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.

45) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

XIII. Critically Polluted Areas, Aravali & CRZ

46) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

47) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

XIV. Risk Assessment & Disaster Management

48) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be

detailed. The proposed safeguard measures in each case should also be provided.

49) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

50) A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.

XV. Miscellaneous

51) The general points are also to be followed: -

a) All documents to be properly referenced with index and continuous page numbering.

b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

d) Where the documents provided are in a language other than English, an English translation should be provided.

e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

h) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

5. The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report, as per the notification S.O 751 (E) dated 17.02.2020. The instant TOR is valid up to four years from the date of issuance of TOR.

6. The Project Proponent should submit the EIA/EMP report as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006 after incorporating the details of public hearing conducted and covering the above-mentioned issues, to take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

7. This issues with the approval of the Competent Authority.

Yours faithfully,

Pankaj Verma

(Pankaj Verma)
Scientist 'E'

Copy to:

i. **The Secretary,** Ministry of Mines, Government of India Shastri Bhawan, New Delhi-110 001.
ii. **The Secretary,** Department of Environment, Government of Gujarat, Gujarat.
iii. **The Secretary,** Department of Mines and Geology, Government of Gujarat, Gujarat.
iv. **The Secretary,** Department of Forests, Government of Gujarat, Gujarat.
v. **The Deputy Director General of Forests (C),** Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Gandhi Nagar, A-Wing – 407 & 409, Aranya Bhawan, Near CH-3 Circle, Sector-10A, Gandhi Nagar – 382010.
vi. **The Chairman,** Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
vii. **The Chairman,** Gujarat Pollution Control Board, Paryavaran Bhavan, Sector-10A, Gandhinagar-382 010, Gujarat.
viii. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440001.
ix. **The Member Secretary,** Central Ground Water Board, Ministry of Agriculture and Irrigation, 12/1 Jam Nagar House, Shahjahan road, New Delhi-110 011.
x. **The District Collector,** Bhavnagar District, Govt. of Gujarat.
xi. **Guard File.**
xii. **PARIVESH Portal.**

Pankaj Verma

(Pankaj Verma)
Scientist 'E'

ANNEXURE : II

GOVERNMENT OF GUJARAT
Industries and Mines Department,
Sachivalaya, Gandhinagar,
Dated: 8/1/2017

ORDER :-

No.MCR-102004-1945-CHH:- In exercise of the powers conferred by Section 8(A) and 10 of the Mines and Minerals (Development And Regulation) Act, 1957, Government of Gujarat is pleased to grant a Mining Lease for Limestone and Marl Mineral to M/s Nirma Limited for its captive consumption for a period of 50 (Fifty) years in respect of the area in the Bhavnagar District as detailed below:-

TALUKA	VILLAGE	SURVEY NO.	AREA/ In HECTARES
Mahuva	Padhiarka & Doliya	Various Survey No.	332.24

2. The grant of the mining lease is subject to the condition and as per terms and conditions mentioned below:

(a) The lessee will have to produce Environmental Clearance Certificate issued by Ministry of Environment, Forest and Climate Change as laid down under the Environment (Protection) Act,1986 and the rules made there under before commencing the mining activity as stated in Mines and Minerals(Development and Regulation) Removal of Difficulties Order, 2017 dated 4/1/2017. The final area will be as per Environmental Clearance Certificate and the area of the mining lease under consideration is accordingly amended will be bound to the lessee.

(b) The Mining lease shall be in respect of Limestone and Marl only. If any other minerals are found in association with this mineral, they should be brought to the notice of the Government.

(c) Royalty at the rate specified for the mineral Limestone and Marl in Schedule IInd of the Mines and Minerals (Development and Regulation) Act, 1957 as amended from time to time and dead rent at the rate mentioned in the IIIrd Schedule of the said Act, as amended from time to time whichever is greater shall be charged.

(d) Surface rent and cess/tax assessable on the land shall be charged.

(e) If beryl or any other substances prescribed under section 3 of the atomic Energy Act, 1948 (XXIX of 1948) is found to occur in the property under the lease, the lessee shall make available such mineral to Government.

(f) The lease shall be subject to the provision of the following Act and Rules as amended from time to time:

i. The MMDR Act, 1957 and M(OTA And HCEM)C Rules,2016
ii. The Minerals (Evidence of Mineral contents) Rules, 2015
iii. The Minerals Conservation and Development Rules, 1988
iv. The Mines Act, 1952 and Rules made there under.
v. Environment (protection) Act, 1986 and Rules framed there under.
vi. Forest (Conservation) Act, 1980 and Rules made there under.
vii. Environment Impact Assessment Notification dated 27-1-1994 and orders/ notifications issued thereafter in this regard by Ministry of Environment & Forest.
viii. Bombay land Revenue Code- 1869
ix. Gujarat Panchayat Act, 1961
x. Indian Registration Act, 1908.
xi. Bombay Stamp Act, 1958 and any laws implemented in area by respective department of the State Government / Central Government as amended from time.
xii. Gujarat Mineral (Prevention of illegal mining, transportation and storage) Rules-2005.

.....2/-

(g) The lessee shall furnish to the Collector of Bhavnagar an accurate map of the area sanctioned under the lease together with the description giving the situation and boundaries duly attested by the District Inspector of Land Records. The Collector is authorized to get the area of the Mining Lease demarcated.

(h) The lessee shall pay to the Collector, Bhavnagar necessary performance security deposit as stated in the Rule 8(3)(a) of the Mineral (Other Than Atomic And Hydro Carbons Energy Minerals) Concession Rules, 2016.

(i) The lessee shall submit the progress report from time to time or when required to the Commissioner of Geology and Mining, Gujarat State, Gandhinagar or to an officer authorized by him along with the sample of the minerals collected during mining operations together with the analysis report.

(j) The lessee shall not use or sell the said Mineral or deal with it in whatsoever manner or knowingly allow anyone to use or sell the said mineral or deal with it in whatsoever manner as a minor mineral.

(k) If the area is likely to be submerged on account of the dam to be considered in near future the lessee shall on demand by Government or the Collector Bhavnagar return the mining lease forthwith without claiming any compensation of any kind including inter-alias any claim for land, minerals, machineries, equipment or for loss of business.

(l) The lease holder has to furnish financial assurance as provided in Rule 23(F) of the Minerals Conservation and Development Rules, 1988 before executing the mining lease deed.

(m) As the area under demand for lease is owned by a private owner, a statement in writing shall have to be produced that the surface rights over the area has been obtained or consent of the owner for starting mining operation is obtained. The area has to be converted to Non Agriculture before commencing the mining work in the said area.

(n) The lessee shall use all the Limestone and Marl excavated from the said area for captive use in his proposed/existing cement plant in Gujarat State.

(o) As per the condition of Letter of Intent (LoI) the mineral which is excavated from the lease shall be used only for the captive purpose and the lessee shall not trade or sell Limestone and Marl minerals other than using it for captive use.

(p) The lessee will have to adhere to the terms and conditions as mentioned in the letter that may be issued by the Ministry of Environment,Forest and Climate Change Impact Assessment Division, Government of India.

(q) The terms and conditions mentioned in the IBM, Ministry of Mines, Government of India letter No. 682(23)(623)/2008-UDAY dated 24/03/2009 will be binding to the lessee.

(r) The lessee will be bounded by the Rule-12 in Terms and Condition of the Mining Lease, as mentioned in the Mineral (Other Than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

(s) The lessee will have to pay the NMET fund apart from the royalty and any other levies as decided by the Central Government according to the National Mineral Exploration Trust Rules.

(t) The lessee will have to pay the DMF fund apart from the royalty and any other levies as decided by the Goverament according to the District Mineral Foundation Rules.

.....3/-

(u) All the Environmental related instructions/guidelines issued by Government of India/ Government of Gujarat shall be adhered to.

(v) The lessee will have to abide by any changes made/any new terms and condition added to the present terms and condition by the Government of India or the State Government.

(w) The lessee shall execute Mine Development & Production Agreement (MDPA) with the competent authority in the format specified by the Central Government as per Rule 8(3)(b) of the Mineral (Other Than Atomic And Hydro Carbons Energy Minerals) Concession Rules, 2016.

(x) The lessee has to seek the approval of the State Government before commencing the mining activity.

(y) The State Government holds the right to make any amendment or addition in the lease deed. The lessee will abide by this and will have to pay the stamp duty and registration charges.

By order and in the name of the Governor of Gujarat.

(D. G. Chaudhari)
Deputy Secretary
Industries and Mines Department

R.P.A.D.

To,
M/s Nirma Limited,
Nirma House, Ashram Road,
Ahmedabad-380009.

With a request to approach the Collector of Bhavnagar, Dist. Bhavnagar for execution of mining lease deed. The applicant is required to execute and register the lease deed for the said grant order as per the provisions prescribed in Rule 8(4) of Minerals (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Copy to:-,

- The Commissioner of Geology & Mining, Gujarat State, Gandhinagar,(By E-mail)
- The Collector of Bhavnagar, Dist. Bhavnagar. (By R.P.A.D. & E-mail)
  (The Collector is directed to execute the lease deed as per the provision in MMDR Act-1957 and MCR-2016.)
- The Assistant Geologist, Office of Geology & Mining, Dist. Bhavnagar.(By R.P.A.D.)
- The Regional Controller of Mines, Indian Bureau of Mines, Sector No.11, Hiran Magri, Scheme, Udaipur. 313001
- The Director General of Mines, Dhanbad-826001
- The Director of Mines Safety, Udaipur Region, 56, Shastri Marg, Udaipur-313 001
- The Revenue Department, Sachivalaya, Gandhinagar.
- The District Inspector of Land Records, Dist. Bhavnagar.(By R.P.A.D.)
- The Accountant General, Gujarat, Ahmedabad.
- The Accountant General, Gujarat, Rajkot
- The Controller General, Indian Bureau of Mines, 6th floor, Block No. B & C, Indira Bhavan, Civillines, Nagpur-440001
- The Forest and Environment Department, Sachivalaya, Gandhingar.
- The Member Secretary, Gujarat Pollution Control Board, Sector: 10-B, Gandhinagar
- Copy for D.S.(Mines), Industries and Mines Department, Select file.
- Copy for Dy.S.O.
- Select file.

National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

MIN MEC R & D LABORATORY

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

A- 121, PARYAVARAN COMPLEX, IGNOU ROAD, NEW DELHI, DELHI, INDIA

in the field of

TESTING

Certificate Number: TC-6337

Issue Date: 17/03/2022 Valid Until: 16/03/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : Min Mec Consultancy Pvt. Ltd.

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 17th October, 2019

S.O. 3744(E).—In exercise of the powers conferred by clause (b) of sub-section (1) of section 12 and section 13 of the Environment (Protection) Act, 1986 (29 of 1986), read with rule 10 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendments in the notification of the Government of India in the erstwhile Ministry of Environment and Forests, *vide* number S.O. 1174(E), dated the 18th July, 2007, namely: -

in the said notification, in the table, -

(i) for serial numbers 3, 6, 27, 32, 33, 35, 37, 44, 49, 50, 55, 58, 65, 66, 97, 98, 105, 107, 108, 110 and 112 the entries relating thereto, the following serial numbers and entries shall be substituted, namely: -

(1)	(2)	(3)	(4)
"3	M/s Bhagavathi Ana Labs Pvt. Ltd. 7-2-C7, 8/4 & 14, Industrial Estate, Sanath Nagar, Hyderabad-500018, Telangana	(i) Mr. M.V. Raghavacharyulu (ii) Ms. B. Radha Kumari	17th October,2019 To 16th October, 2024"
"6	M/s Jeedimetla Effluent Treatment Ltd. Plot No. 267, Phase-1, IDA-Jeedimetla, Hyderabad-500025, Telangana	(i) Mr. I. Srinivasa Rao (ii) Mr. K. Venkata Subbareddy (iii) Mr. Ch. Satish	17th October,2019 To 16th October, 2024"
"27	M/s Startech Labs Pvt. Ltd. H. No. 1-58/7, 2nd Floor, S.M.R Chambers, Madinaguda, Hyderabad-500050, Telangana	(i) Dr. Upendra M. Tripathi (ii) Mr. Godavarthi Rambabu (iii) Ms. I. Annapurna	17th October,2019 To 16th October, 2024"
"32	M/s Enviro-International Plot No. 138-139, Udyog Kendrall Extn., Eco Tech-III, Greater Noida, G.B. Nagar-201306, Uttar Pradesh	(i) Dr. Vipul Kumar (ii) Mr. Ravinder Pal Marwah (iii) Mrs. Manisha Srivastav	17th October,2019 To 16th October, 2024"
"33	M/s Shriram Institute for Industrial Research (A unit of Shriram Scientific and Industrial Research Foundation) 19 University Road, Delhi-110007	(i) Dr. V.K. Verma (ii) Dr. Jagdish Kumar (iii) Dr. Mukesh Garg	17th October,2019 To 16th October, 2024"
"35	M/s SGS India Pvt. Ltd. CS Plot No. 512(P), Mouza-Hanspukuria, Diamond Harbour Road, PO- Joka, Dist-South 24 Parganas, Kolkata-700104, West Bengal	(i) Mr. Satya Charan Manna (ii) Mr. Monaj Roy (iii) Mr. Sumallya Bhattacharjee	17th October,2019 To 16th October, 2024"
"37	M/s Netel (India) Limited. W-408, Rabale MIDC, TTC Industrial Area, Navi Mumabi-400701, Maharashtra	(i) Mrs. Shraddha Sriram Kere (ii) Ms. Neelima Dhonduram Dalvi (iii) Ms. Surekha Sitaram Jamdar	17th October,2019 To 16th October, 2024"
"44	M/s Pragathi Labs & Consultants Pvt. Ltd. Plot No. B15 & 16, Industrial Estate, Behind Pollution Control Board , Sanath Nagar, Hyderabad-500018, Telangana	(i) Dr. Madala Ravi Kiran (ii) Mr. Kambhampati Sreedhar (iii) Mr. I. Rama Murthy	17th October,2019 To 16th October, 2024"
"49	M/s Padmaja Aerobiologicals Pvt. Ltd. "Nandan" , Plot No. 36, Sector-24, Near Bank of India , Turbhe, Navi Mumbai-400705, Maharashtra	(i) Dr. Nandkishor T. Joshi (ii) Mr. Kishor P. Potekar (iii) Mr. Ramdas B. Chaudhari	17th October,2019 To 16th October, 2024"
"50	M/s Shiva Test House 1st Floor, Rajhans Niketan, Near Canal, Rukunpura, Bailey Road, Patna-800014, Bihar	(i) Dr. Shibeswar Prasad (ii) Dr. (Mrs.) Shreyasee Prasad	17th October,2019 To 16th October, 2024"
"55	M/s Anacon Laboratories Pvt. Ltd. FP-34, 35 Food Park, 5 Star Industrial Estate, Butibori, Nagpur-441122, Maharashtra	(i) Dr. Dattatraya Gajanan Garway (ii) Dr. (Mrs.) Sugandha Dattatraya Garway (iii) Mrs. Kavita Sanjay Saygaonkar	17th October,2019 To 16th October, 2024"

"58	M/s Interstellar Testing Centre Private Limited Plot No. 86, Industrial Area, Phase-I, Panchkula- 134109, Haryana	(i) (ii) (iii)	Dr. Parkash Kaur Mr. Prem Kumar Mr. Gaurav Goyal	17th October,2019 To 16th October, 2024"
"65	M/s Envirodesigns Eco Labs Eco Tower, Janatha Jn. Palarivattom, Kochi-682025, Kerala	(i) (ii) (iii)	Dr. K.L. Anthony Mrs. Susan Abraham Ms. Jesty M.T	17th October,2019 To 16th October, 2024"
"66	M/s J.M. Envirolab Pvt. Ltd. 424, Ground Floor, Udyog Vihar, Phase-IV, Gurugram, Haryana- 122015	(i) (ii) (iii)	Mr. Surendra Yadav Mr. Raj Kumar Yadav Mr. Ghanshyam Yadav	17th October,2019 To 16th October, 2024"
"97	M/s Min Mec R&D Laboratory A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030	(i) (ii) (iii)	Mr. B.D. Sharma Dr. Marisha Sharma Ms. Rashmi Gupta	17th October,2019 To 16th October, 2024"
"98	M/s Bhagwati Enviro Care Pvt. Ltd. 28,29 & 30, Parmeshwar Estate-II, Opp. AMCO Bank, Phase-I , GIDC Estate, Vatva, Ahmedabad-382445 Gujarat	(i) (ii)	Mr. Shailesh Patel Mr. Mahesh Oza	17th October,2019 To 16th October, 2024"
"105	M/s Aavanira Biotech (P) Ltd. Kinetic Innovaon Park, D-1 Block, Plot No. 18/1 Part, MIDC Chinchwad, Pune-411019, Maharashtra	(i) (ii) (iii)	Dr. Bikash Ajit Aich Ms. Sarita Jayant Upadhye Dr. Neeta Hiten Zatakia	17th October,2019 To 16th October, 2024"
"107	M/s EMTRC Consultants Pvt. Ltd. F-66, Road No.2, Phase-1, Masuri Gulawthi Road, UPSIDC Industrial Area, Ghaziabad-201009, Uttar Pradesh	(i) (ii) (iii)	Mr. Jayanta Kumar Moitra Mr. Mukesh Kumar Mr. Om Prakash Singh	17th October,2019 To 16th October, 2024"
"108	M/s Visiontek Consultancy Pvt. Ltd. Plot M22 & M23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Odisha	(i) (ii) (iii)	Mr. B.K. Mishra Ms. Puja Mohanty Mrs. Chanchala Pattanaik	17th October,2019 To 16th October, 2024"
"110	M/s SMS Labs Services Private Limited No. 39/6, Thiruvallur High Road, Puduchatram Post, Thirumazhisai (Via), Poonamallee TK, Chennai-600124, Tamil Nadu	(i) (ii) (iii)	Dr. K. Thulasi Raman Mr. K. Elakkiyathasan Mr. R. lyappan	17th October,2019 To 16th October, 2024"
"112	M/s Bureau Veritas (India) Pvt. Ltd., No.F-2, Thiru Vi Ka Industrial Estate, Phase-III, Ekkattuthangal Guindy, Chennai-600032, Tamil Nadu	(i) (ii) (iii)	Mr. K. Hari Chandra Prasad Mr. M. Ramesh Mr. M. Shanthi	17th October,2019 To 16th October, 2024"

(ii) after serial number 178 and the entries relating thereto, the following serial numbers and entries shall be inserted, namely: -

(1)	(2)	(3)		(4)
"179	M/s Agss Analyical and Research Lab Pvt. Ltd. C-37/2, Lawrence Road Industrial Area, Delhi-110035	(i) (ii) (iii)	Dr. Shivlal Singh Mr. Jaswant Ray Mr. Lalit Kumar Agarwal	17th October,2019 To 16th October, 2024
180	M/s Alpha Test House 198-199, M.I.E, Phase-I, Bahadurgarh-124507, Haryana	(i) (ii) (iii)	Mr. Vivek Tyagi Mr. Anup Singh Ms. Pratibha Rawat	17th October,2019 To 16th October, 2024
181	M/s Avantha Centre for Industrial Research & Development Paper Mill Campus, Yamuna Nagar-135001, Haryana	(i) (ii) (iii)	Dr. Sunil Kumar Dr. Subir Barnie Mr. Vipul Gupta	17th October,2019 To 16th October, 2024
182	M/s Catts Labs & Research Pvt. Ltd., S-78, First Floor, Okhla Industrial Area Phase-II, New Delhi-110020	(i) (ii) (iii)	Mr. Jagmohan Singh Chadha Mr. Sunil Datt Panwar Ms. Nooris Naqvi	17th October,2019 To 16th October, 2024

183	M/s Centre for Environment and Food Technology Pvt. Ltd. 1st & 2nd Floor, DLF Industrial Area, Moti Nagar, New Delhi-110015	(i) (ii) (iii)	Mr. Hemant Singh Mr. Manoj Singh Ms. Shweta Sharma	17th October,2019 To 16th October, 2024
184	M/s Eco Green Solution Systems Pvt. Ltd. Plot #48/A-4, Kiadb Industrial Area, Veerapura Post, Doddaballapur, Bengaluru-561203, Karnataka	(i) (ii) (iii)	Mr. P.Hanumanthaiah Mr. Suhas S.S Mrs. Tushali Jagwani	17th October,2019 To 16th October, 2024
185	M/s Ecosteps Laboratory Private Limited D-79, Sector-6, Noida-201301, Uttar Pradesh	(i) (ii) (iii)	Ms. Saudamini Sharma Ms. Sneh Smita Ms. Deep Shikha	17th October,2019 To 16th October, 2024
186	M/s Environ Tech Laboratories Plot No. 62, 1st Floor, JLPL Industrial Area, Sector 82, Airport Road, S.A.S. Nagar, Mohali, Punjab	(i) (ii) (iii)	Mr. Jasvir Singh Mr. Amit Kumar Ms. Manisha	17th October,2019 To 16th October, 2024
187	M/s Global Environment & Mining Services 3rd Main Road, Basaveswara Badavane, Hosapete-583201, Bellari District, Karnataka	(i) (ii) (iii)	Dr. Vikas Gupta Ms. S. Shameem Banu Mr. J.Ravi Kumar	17th October,2019 To 16th October, 2024
188	M/s Greenleaf Envirotech Pvt. Ltd. 304, Kankavati Complex, Singanpor-Cauzway Road, Katargam, Surat-395004, Gujarat	(i) (ii) (iii)	Mr. Kalpesh Gordhanbhai Goti Ms. Keta Prabodhchandra Jariwala Ms. Rekha Vaghajibhai Dare	17th October,2019 To 16th October, 2024
189	M/s Green Enviro Sr. No. 45A/1-4A/4, "Parshuram" Eliphiston Road, Bopodi, Pune-411003, Maharashtra	(i) (ii) (iii)	Mrs. Kanchan Prashant Rhatole Mrs. Swati Manoj Joshi Mr. Vinay Ramchandra Govande	17th October,2019 To 16th October, 2024
190	M/s Green Vision Testing & Enviro Services Plot No. 21, First Floor, Aarna-2 Tower, Kartarpura Industrial Area, 22 Godam, Jaipur-302006, Rajasthan	(i) (ii)	Mr. Umesh Kumar Sharma Mr. Mukesh Kumar Gupta	17th October,2019 To 16th October, 2024
191	M/s Global Enviro Laboratories Plot No. 4, Khasra No. 45, Opposite Shree Manan Dham Temple, Industrial Area 8KM Milestone, Meerut Road, Ghaziabad-201003, Uttar Pradesh	(i) (ii) (iii)	Mr. Arvind Kumar Srivastava Mr. Rishad Parwez Ms. Shikha Bhatiya	17th October,2019 To 16th October, 2024
192	M/s Interstellar Testing Centre Pvt. Ltd. Plot No. 2, S. No.12/2A, Industrial Estate, Perungudi, Chennai-600096, Tamil Nadu	(i) (ii) (iii)	Mr. Tharun Kumar T. Mr. Vijayanand M. Mr. Prabakaran V.	17th October,2019 To 16th October, 2024
193	M/s Jubilant Pharma & Chemical Lab. Surya Gayatri CHS, Shop No. 10 to 15, Plot No. 14/15, Sector No. 6, New Panvel (East), Navi Mumbai-410206, Maharashtra	(i) (ii)	Mrs. Ashwini Dinesh Mule Mr. Meghanath Changdev Thakur	17th October,2019 To 16th October, 2024
194	M/s Metamorphosis Laboratory Private Limited Prakruti Bhavan, #200, 1st & 2nd Floor, 1st Cross 40th Main, Behind Central Silk Board, BTM Layout II Stage, Bengaluru-560068, Karnataka	(i) (ii) (iii)	Dr. Shanth A. Thimmaiah Mr. Sreekantan Nair P. Mr. Suresh Babu H.S.	17th October,2019 To 16th October, 2024
195	M/s Nakshatra Enviro Services 46, Solitaire Industrial Park, Dahmi Kalan Bagru, Jaipur-303007, Rajasthan	(i) (ii) (iii)	Mr. Jagmohan Sharma Mrs. Meenu Sharma Mr.Laxmi Chand Nagar	17th October,2019 To 16th October, 2024
196	M/s Nitya Laboratories 81B , Sector-5, Channi Himmat-180015, Jammu, Jammu & Kashmir	(i) (ii) (iii)	Mr. Ravinder Kumar Smt. Radha Devi Mr. Ajay Sharma	17th October,2019 To 16th October, 2024
197	M/s OneEarth Enviro Labs 1st Floor, KSIA Building Baikampady Industrial Area Road, Mangaluru-575011, Karnataka	(i) (ii) (iii)	Mr. Murlidhar S.M Mr. Dinesh S.M Dr. Sandesh Kamath B.	17th October,2019 To 16th October, 2024

198	M/s Shree Krishna Analytical Services A-5/4, Phase-II, Mayapuri Industrial Area, New Delhi-110064	(i) (ii) (iii)	Mr. Vinay Kumar Mr. Narendra Kumar Giri Mr. Surjeet Das	17th October,2019 To 16th October, 2024
199	M/s Spectro Analytical Labs Limited. S-1, GNEPIP, Surajpur Industrial Area, Phase-V, Kasna, Greater Noida, Uttar Pradesh	(i) (ii) (iii)	Mr. Yogesh Malik Mrs. Astha Vig Mrs. Riloni Rajput	17th October,2019 To 16th October, 2024
200	M/s Trans Thane Creek Waste Management Association, P-128, TTC Industrial Area, Near L&T Infotech, Shil Mahape Road, Mahape, Navi Mumbai-400710	(i) (ii) (iii)	Dr. Nitin Ramchandra Nimkar Dr. Datta Baban Mandhare Mr. Jayesh Narayan Idate	17th October,2019 To 16th October, 2024
201	M/s Vsix Analytical Labs Pvt. Ltd. #77(502/503), 2nd Floor, 21st 'D' Cross Muthurayaswamy Layout, Srigandakaval, Sunkadakatte, Bengaluru-560091, Karnataka	(i) (ii) (iii)	Mrs. Nagalakshmi N.S Mrs. Gunavathy M.K Mrs. Apeksha Shenoy	17th October,2019 To 16th October, 2024".

[F. No. Q. 15018/21/2017-CPW]

JIGMET TAKPA, Jt. Secy.

Note : The principal notification was published in the Gazette of India, Extraordinary, *vide* number S.O. 1174(E), dated the 18th July, 2007 and was last amended by notification No. S.O. 5768(E), dated the 15th November, 2018.

Uploaded by Dte. of Printing at Government of India Press, Ring Road, Mayapuri, New Delhi-110064
and Published by the Controller of Publications, Delhi-110054.

DAILY AVERAGE OF MICRO-METEOROLOGICAL MONITORED DATA (1 MARCH, 2021 TO 2 JUNE, 2021)

DATE	CALM	<---------- DIRECTION WISE AVERAGE WIND SPEED (km/hr) EXCLUDING CALM ---------->																TEMP.	REL_HUM
	<1.8kmph	E	ENE	NE	NNE	N	NNW	NW	WNW	W	WSW	SW	SSW	S	SSE	SE	ESE	(°C)	(%)
01/03/21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.76	0.00	0.00	0.00	0.00	0.00	16.30	22.26	0.00	0.00	24.96	59.00
02/03/21	0.50	24.53	10.35	0.00	0.00	0.00	0.00	4.94	0.00	14.87	14.17	1.94	0.00	14.81	0.00	19.00	16.86	25.05	66.00
03/03/21	0.00	19.16	14.34	15.65	0.00	0.00	0.00	14.80	0.00	19.17	0.00	12.35	0.00	20.37	6.57	22.49	0.00	24.81	66.00
04/03/21	0.53	19.09	0.00	0.00	0.00	0.00	0.00	16.69	13.70	14.10	4.49	19.81	0.00	22.34	21.92	16.89	12.09	25.36	65.00
05/03/21	0.75	12.65	0.00	0.00	0.00	0.00	0.00	3.96	12.92	11.70	3.26	21.00	20.95	19.22	22.44	20.03	0.00	25.49	65.00
06/03/21	0.00	23.44	3.39	2.07	0.00	0.00	0.00	10.87	15.28	19.06	20.61	0.00	0.00	20.51	0.00	21.14	10.76	25.27	65.00
07/03/21	0.00	18.17	14.46	17.23	0.00	0.00	0.00	7.77	15.07	4.11	0.00	22.05	2.79	21.91	12.22	22.69	5.51	25.65	65.00
08/03/21	0.74	5.80	6.94	19.60	0.00	0.00	0.00	10.54	14.37	17.85	0.00	2.75	19.70	21.10	0.00	14.50	10.49	25.55	65.00
09/03/21	0.81	0.00	0.00	12.98	0.00	0.00	0.00	5.57	0.00	12.93	0.00	12.47	0.00	21.08	0.00	18.54	11.94	25.85	65.00
10/03/21	0.65	14.43	11.14	0.00	0.00	0.00	0.00	11.62	2.79	10.75	0.00	2.89	5.38	21.21	2.61	19.40	19.53	25.82	64.00
11/03/21	0.00	16.43	0.00	0.00	0.00	0.00	0.00	8.93	7.73	0.00	5.89	26.09	0.00	21.85	12.12	20.27	14.20	25.92	64.00
12/03/21	0.00	6.65	0.00	0.00	0.00	0.00	0.00	6.44	12.67	5.51	0.00	12.56	2.49	21.58	13.76	15.16	9.07	25.99	64.00
13/03/21	0.60	2.24	0.00	0.00	0.00	0.00	0.00	12.81	4.50	19.92	0.00	20.24	0.00	23.10	12.72	19.94	13.43	26.08	64.00
14/03/21	0.00	16.45	6.86	0.00	0.00	0.00	0.00	6.49	5.65	10.40	0.00	23.02	18.99	22.33	22.68	13.14	22.77	26.24	64.00
15/03/21	0.00	6.01	12.87	0.00	0.00	0.00	0.00	16.66	0.00	12.73	0.00	19.17	20.23	22.07	12.90	17.72	16.56	26.38	63.00
16/03/21	0.56	12.78	0.00	14.36	0.00	0.00	0.00	10.10	21.15	4.71	0.00	3.15	4.24	19.20	0.00	16.29	0.00	26.58	63.00
17/03/21	0.00	13.16	11.64	8.66	0.00	0.00	0.00	5.29	23.15	8.76	0.00	12.68	0.00	21.18	22.79	16.94	5.39	26.47	63.00
18/03/21	0.17	17.87	2.63	21.34	0.00	0.00	0.00	6.38	11.73	0.00	0.00	21.79	0.00	21.26	17.13	0.00	2.13	26.74	63.00
19/03/21	0.50	13.19	0.00	12.11	0.00	0.00	0.00	19.20	0.00	26.02	10.00	3.14	0.00	18.36	6.57	16.22	0.00	26.58	63.00
20/03/21	0.00	0.00	20.94	23.20	0.00	0.00	0.00	7.20	15.67	0.00	9.24	3.91	20.78	21.01	22.91	13.19	19.40	26.89	62.00
21/03/21	0.00	20.65	0.00	0.00	0.00	0.00	0.00	17.08	0.00	13.16	0.00	20.92	0.00	18.16	0.00	10.80	11.79	27.29	62.00
22/03/21	0.45	3.19	12.76	0.00	0.00	0.00	0.00	13.67	0.00	18.99	21.18	6.52	0.00	21.27	0.00	14.04	20.73	27.54	61.00
23/03/21	0.24	16.50	0.00	10.21	0.00	0.00	0.00	12.86	20.46	0.00	9.30	12.07	0.00	17.62	3.44	16.08	21.62	27.59	61.00
24/03/21	0.00	20.45	21.38	8.16	0.00	0.00	0.00	3.74	24.70	18.88	0.00	0.00	0.00	17.97	0.00	22.16	12.04	27.48	61.00
25/03/21	0.42	0.00	22.96	21.51	0.00	0.00	0.00	12.78	4.94	13.16	0.00	11.93	0.00	18.09	0.00	14.45	0.00	27.63	61.00
26/03/21	0.25	0.00	0.00	20.25	0.00	0.00	0.00	11.70	17.20	8.25	0.00	21.34	0.00	16.35	21.63	18.28	0.00	27.90	61.00
27/03/21	0.57	22.04	2.63	22.68	0.00	0.00	0.00	9.08	0.00	10.74	11.29	22.37	0.00	21.40	22.22	9.32	0.00	27.97	60.00
28/03/21	0.00	8.46	14.18	0.00	0.00	0.00	0.00	9.85	0.00	0.00	13.19	22.36	0.00	21.62	20.54	13.28	0.00	28.20	60.00
29/03/21	0.00	0.00	12.68	11.23	0.00	0.00	0.00	10.36	0.00	9.37	0.00	4.30	0.00	18.77	0.00	15.88	3.95	28.12	60.00
30/03/21	0.00	16.11	18.23	21.15	0.00	0.00	7.79	5.15	13.47	7.69	20.10	19.94	0.00	21.84	12.68	6.19	0.00	28.31	60.00
31/03/21	0.45	8.88	8.73	0.00	0.00	0.00	6.59	14.80	4.22	5.95	0.00	2.77	0.00	20.88	0.00	18.18	11.53	28.31	60.00
01/04/21	0.00	0.00	21.19	22.26	0.00	0.00	0.00	4.15	15.30	14.69	0.00	0.00	3.45	19.34	0.00	20.43	8.13	28.52	60.00
02/04/21	0.00	22.98	19.66	1.86	0.00	0.00	0.00	10.87	0.00	28.52	20.80	7.74	0.00	23.72	15.87	14.36	0.00	28.61	59.00
03/04/21	0.00	20.45	11.44	0.00	0.00	0.00	0.00	10.12	16.50	11.90	5.52	12.75	18.91	22.16	0.00	0.00	0.00	28.66	59.00
04/04/21	0.00	0.00	6.11	11.95	0.00	0.00	0.00	5.16	0.00	8.69	20.08	23.80	6.25	21.39	4.51	17.10	23.40	28.67	59.00
05/04/21	0.76	6.32	0.00	0.00	0.00	0.00	0.00	14.76	9.20	0.00	21.52	25.27	0.00	21.57	2.09	16.72	19.75	28.71	58.00
06/04/21	0.00	20.52	0.00	22.41	0.00	0.00	0.00	11.43	18.51	5.54	0.00	6.80	21.26	17.08	12.19	3.64	17.77	29.33	58.00
07/04/21	0.00	22.69	16.67	0.00	0.00	0.00	0.00	12.66	15.81	24.52	0.00	10.72	0.00	16.06	0.00	21.97	17.73	28.86	58.00
08/04/21	0.00	22.82	20.65	24.26	0.00	0.00	0.00	11.58	12.40	0.00	0.00	3.88	20.53	19.06	0.00	8.56	0.00	29.08	58.00
09/04/21	0.50	11.78	7.76	0.00	0.00	0.00	0.00	7.46	9.84	2.72	17.84	0.00	5.93	21.41	22.17	22.03	14.82	29.37	57.00
10/04/21	0.00	14.22	22.61	4.63	0.00	0.00	0.00	8.65	10.46	15.75	15.79	21.10	4.70	20.80	3.72	23.55	0.00	29.57	57.00
11/04/21	0.00	11.59	2.78	8.92	0.00	0.00	0.00	13.43	4.77	24.15	0.00	10.15	0.00	21.60	21.75	17.73	0.00	29.54	57.00
12/04/21	0.28	0.00	3.70	0.00	0.00	0.00	0.00	17.20	14.81	22.87	0.00	22.07	19.21	18.10	0.00	19.71	6.03	29.77	57.00
13/04/21	0.00	22.76	1.99	14.47	0.00	0.00	0.00	5.36	0.00	8.89	21.61	0.00	3.67	22.59	3.88	21.21	11.67	29.32	57.00
14/04/21	0.00	19.47	20.57	13.35	0.00	0.00	0.00	5.44	12.20	0.00	20.51	0.00	0.00	18.41	0.00	17.87	0.00	30.22	56.00
15/04/21	0.35	13.29	7.60	0.00	0.00	0.00	0.00	15.03	19.88	16.79	0.00	20.82	5.67	21.88	20.14	17.08	19.52	30.56	56.00
16/04/21	0.00	13.09	12.25	20.85	0.00	0.00	0.00	5.72	0.00	11.53	0.00	11.21	4.62	21.46	23.30	14.03	0.00	30.42	56.00
17/04/21	0.81	14.40	17.79	2.55	0.00	0.00	0.00	12.41	6.17	4.77	0.00	0.00	5.17	22.48	3.31	24.14	12.31	30.31	55.00
18/04/21	0.00	22.15	17.78	5.83	0.00	0.00	5.80	8.30	0.00	12.64	0.00	23.25	0.00	21.93	19.97	13.86	9.26	30.51	56.00

DAILY AVERAGE OF MICRO-METEOROLOGICAL MONITORED DATA (1 MARCH, 2021 TO 2 JUNE, 2021)

DATE	CALM	<---------- DIRECTION WISE AVERAGE WIND SPEED (km/hr) EXCLUDING CALM ---------->																TEMP.	REL_HUM
	<1.8kmph	E	ENE	NE	NNE	N	NNW	NW	WNW	W	WSW	SW	SSW	S	SSE	SE	ESE	(°C)	(%)
19/04/21	0.08	11.13	6.98	6.89	0.00	0.00	0.00	13.13	0.00	0.00	0.00	16.20	20.17	20.11	21.18	20.24	0.00	31.00	55.00
20/04/21	0.00	19.96	12.31	0.00	0.00	0.00	0.00	12.19	18.08	8.63	6.81	3.41	9.23	19.86	19.54	15.53	0.00	30.60	55.00
21/04/21	0.25	21.30	16.91	0.00	0.00	0.00	0.00	9.47	0.00	0.00	0.00	13.08	0.00	21.49	0.00	20.59	22.00	30.94	55.00
22/04/21	0.00	15.22	15.00	14.16	0.00	0.00	6.11	8.52	0.00	12.44	20.88	20.54	0.00	23.24	0.00	22.13	13.12	31.24	54.00
23/04/21	0.00	16.69	3.98	0.00	0.00	0.00	0.00	12.66	0.00	10.43	0.00	5.18	0.00	21.90	7.00	8.29	5.99	31.14	54.00
24/04/21	0.56	20.24	10.52	0.00	0.00	0.00	0.00	13.21	22.64	0.00	0.00	12.68	0.00	21.53	5.67	0.00	19.51	31.43	54.00
25/04/21	0.27	16.88	0.00	7.91	0.00	0.00	0.00	13.77	10.64	3.01	0.00	13.47	0.00	20.79	21.71	16.31	0.00	31.72	54.00
26/04/21	0.73	22.32	15.95	0.00	0.00	0.00	0.00	4.14	5.64	20.63	0.00	4.51	19.61	17.97	22.95	19.97	21.54	31.66	54.00
27/04/21	0.73	16.06	12.69	0.00	0.00	0.00	0.00	9.12	16.28	20.61	8.95	0.00	0.00	20.42	21.63	2.69	11.27	31.54	53.00
28/04/21	0.00	22.25	0.00	12.47	0.00	0.00	0.00	11.66	20.52	13.98	3.96	22.51	0.00	22.06	6.40	19.97	0.00	31.66	53.00
29/04/21	0.75	22.34	9.25	12.52	0.00	0.00	0.00	16.10	5.51	17.19	4.54	0.00	0.00	19.09	0.00	23.24	0.00	31.82	53.00
30/04/21	0.81	15.59	14.40	7.48	0.00	0.00	0.00	11.55	0.00	18.19	14.44	6.81	2.76	21.87	13.72	23.82	13.60	31.85	53.00
01/05/21	0.54	16.53	3.74	0.00	0.00	0.00	0.00	6.47	11.11	12.63	22.20	0.00	0.00	18.77	6.72	16.89	0.00	31.86	53.00
02/05/21	0.00	15.87	6.62	0.00	0.00	0.00	0.00	12.27	12.14	13.98	0.00	20.18	0.00	18.74	20.74	15.71	0.00	32.13	52.00
03/05/21	0.95	14.51	6.01	18.90	0.00	0.00	0.00	9.62	6.12	0.00	0.00	6.94	0.00	21.22	12.57	22.35	9.63	32.38	52.00
04/05/21	0.00	16.66	0.00	7.58	0.00	0.00	0.00	15.08	6.26	17.75	6.05	14.55	0.00	21.04	16.66	8.98	8.98	32.52	52.00
05/05/21	0.00	23.17	10.22	20.72	0.00	0.00	0.00	10.31	11.56	10.15	0.00	4.98	10.87	21.46	7.66	6.03	11.25	32.59	51.00
06/05/21	0.00	0.00	6.44	0.00	0.00	0.00	0.00	15.46	4.29	14.53	21.26	0.00	0.00	18.57	0.00	21.97	21.11	32.51	51.00
07/05/21	0.59	21.81	0.00	12.03	0.00	0.00	0.00	8.95	2.97	13.94	0.00	22.09	0.00	16.49	0.00	14.12	0.00	32.60	51.00
08/05/21	0.00	19.75	21.71	16.93	0.00	0.00	0.00	6.87	9.69	11.18	0.00	3.44	0.00	19.21	0.00	10.03	0.00	32.91	50.00
09/05/21	0.19	0.00	19.52	11.07	0.00	0.00	0.00	7.82	15.26	10.12	7.34	3.21	0.00	21.53	12.29	22.71	9.03	33.09	50.00
10/05/21	0.00	17.63	0.00	0.00	0.00	0.00	0.00	10.48	4.93	4.37	0.00	9.68	0.00	21.91	0.00	12.78	12.54	33.21	50.00
11/05/21	0.22	22.88	7.97	0.00	0.00	0.00	6.28	14.18	21.81	7.48	0.00	0.00	20.95	21.67	0.00	11.19	2.29	33.22	50.00
12/05/21	0.41	21.34	14.95	0.00	0.00	0.00	0.00	6.42	14.62	13.21	20.47	21.68	0.00	16.17	19.71	15.33	0.00	33.34	50.00
13/05/21	0.00	0.00	15.35	14.59	0.00	0.00	0.00	5.73	13.20	4.20	0.00	11.39	0.00	21.79	20.22	24.20	10.37	33.51	49.00
14/05/21	0.00	20.67	22.11	17.66	0.00	0.00	0.00	10.32	7.70	11.80	0.00	0.00	19.98	18.22	0.00	6.58	0.00	33.50	49.00
15/05/21	0.43	0.00	18.53	19.22	0.00	0.00	0.00	13.53	21.97	9.10	21.95	4.94	0.00	21.34	0.00	13.00	22.61	33.78	49.00
16/05/21	0.93	0.00	20.96	9.05	0.00	0.00	0.00	11.60	3.04	0.00	20.57	15.69	0.00	22.65	0.00	15.43	0.00	34.09	48.00
17/05/21	0.00	17.88	12.51	12.50	0.00	0.00	0.00	5.80	11.32	19.00	0.00	4.38	3.97	0.00	0.00	0.00	10.78	34.59	59.00
19/05/21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.10	0.00	8.02	21.71	0.00	0.00	21.10	21.14	21.60	22.51	36.38	60.00
20/05/21	0.00	19.87	16.71	20.63	0.00	0.00	0.00	6.01	9.77	14.18	0.00	15.11	0.00	21.88	22.18	19.95	0.00	34.38	49.00
21/05/21	1.00	0.00	0.00	14.62	0.00	0.00	0.00	4.30	0.00	10.74	0.00	10.26	0.00	16.05	22.57	19.74	0.00	34.59	48.00
22/05/21	0.00	23.22	11.15	13.02	0.00	0.00	0.00	15.31	2.84	15.13	0.00	13.19	20.92	21.47	0.00	12.26	20.32	34.42	48.00
23/05/21	0.51	3.40	0.00	21.40	0.00	0.00	0.00	13.62	0.00	15.45	0.00	13.48	0.00	21.10	22.56	12.97	0.00	34.82	47.00
24/05/21	0.00	20.79	7.60	0.00	0.00	0.00	0.00	14.80	3.27	12.51	22.03	11.80	2.90	23.03	20.53	19.58	5.15	34.52	48.00
25/05/21	0.00	21.61	16.66	20.33	0.00	0.00	0.00	17.38	0.00	22.18	26.64	14.71	4.02	20.77	13.10	10.52	0.00	34.59	47.00
26/05/21	0.99	21.81	19.80	17.24	0.00	0.00	0.00	14.02	16.32	0.00	0.00	11.63	0.00	16.99	22.63	17.64	7.69	34.88	47.00
27/05/21	0.48	20.36	23.52	0.00	0.00	0.00	0.00	12.44	0.00	20.83	20.56	4.94	0.00	21.35	0.00	5.26	14.31	34.75	47.00
28/05/21	0.44	19.03	20.08	0.00	0.00	0.00	0.00	16.41	22.54	14.94	0.00	24.09	4.44	21.72	5.67	19.06	0.00	35.39	46.00
29/05/21	0.00	15.89	0.00	18.89	0.00	0.00	0.00	15.60	13.70	27.29	0.00	7.17	9.17	21.92	21.14	4.94	18.61	35.16	46.00
30/05/21	0.00	0.00	18.22	22.87	0.00	0.00	0.00	10.56	2.02	14.51	0.00	18.88	22.14	21.68	0.00	17.78	2.56	35.34	46.00
31/05/21	0.36	16.29	4.08	0.00	0.00	0.00	0.00	10.65	19.89	6.70	20.84	3.51	0.00	18.55	19.54	18.67	3.19	35.55	45.00
01/06/21	0.50	17.88	12.51	12.50	0.00	0.00	0.00	5.80	11.32	19.00	6.34	4.38	20.33	21.23	22.69	0.00	10.78	34.05	49.00
02/06/21	1.01	0.00	0.00	16.35	0.00	0.00	0.00	6.05	9.13	10.90	11.36	3.63	4.21	0.00	4.65	14.46	11.65	34.11	49.00

Note : The above has been processed from hourly data recorded from automatic weather station.
Shut down during extreme weather phenomenon for safety reasons on 18/05/2023.

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

ANNEXURE : V

Customer's Name & Address
Nirma Ltd.
Nirma House, Ashram Road
Ahemadabad – 380009

Contact Person : Ms. Tejal Patel

Sample Particulars

Type of Sample	:	Ambient Air
Work Order No.	:	NNL/CP-43/LOI-095/2020-21/PTV/
Sampling Location	:	In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines, District Bhavnagar, Gujarat
Sampling Procedure	:	IS 5182 (Part 2) 2001 for SO_2, CPCB guidelines NAAQMS 96/2012-13 for PM_{10}, NO_2,& Lab SOP/09 for $PM_{2.5}$
Sample Duration	:	24 hours
Sampling Team	:	MMRDL (Ravikant)
Sample Reg. No	:	MMA/2021S1L1, L2, L3, L4, L5, L6, L7, L8, L9, L10, L11, L12, L13, L14, L15 & L16/01-24
Date of Sampling	:	01/03/2021 to 30/05/2021
Date of Receipt	:	19/03/2021 to 08/06/2021
Date of Report	:	18/06/2021
Test Report No.	:	MMA/06-2021/68
ULR No.	:	TC633721000000140F
Page	:	1 of 5

TEST REPORT

Sl. No.	Location:→	Near Cement Plant at Padhiarka				Vangar Village				Dhdhala No. 1			
	Date of sampling↓	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	1 - 02-03-2021	51.4	24.1	4.6	7.0	68.8	27.5	7.7	8.2	62.9	30.4	6.2	8.9
2	5 - 06-03-2021	60.8	22.8	4.6	7.7	65.8	27.8	6.7	7.4	61.1	24.6	5.2	9.7
3	9 - 10-03-2021	50.3	27.5	4.6	7.8	63.5	26.8	5.2	8.5	59.6	30.1	5.2	9.3
4	12 - 13-03-2021	50.8	25.0	5.1	6.6	59.2	25.9	7.7	10.5	59.8	24.7	6.2	7.8
5	16 - 17-03-2021	62.3	25.8	5.7	7.4	58.5	27.7	5.2	7.4	64.1	34.6	6.7	8.1
6	19 - 20-03-2021	60.3	31.8	4.6	6.2	59.8	34.6	6.2	7.4	63.9	35.5	6.2	7.4
7	23 - 24-03-2021	49.6	20.4	4.6	7.4	64.6	33.1	5.7	10.5	61.7	26.0	4.6	8.5
8	27 - 28-03-2021	64.6	28.0	5.1	5.8	57.6	24.7	6.2	9.7	58.6	22.1	5.7	8.2
9	1 - 02-04-2021	62.0	24.3	5.5	6.4	61.5	24.2	5.5	10.5	58.6	31.3	5.5	9.3
10	5 - 06-04-2021	64.8	29.6	5.4	6.0	66.3	37.4	5.4	7.2	60.1	27.2	6.1	9.7
11	9 - 10-04-2021	53.1	20.4	4.1	6.8	63.4	35.3	6.1	8.5	61.3	23.0	5.5	8.9
12	12 - 13-04-2021	59.1	25.0	5.5	5.6	62.2	28.4	5.5	8.9	65.1	30.6	6.1	7.7
13	16 - 17-04-2021	56.9	27.6	4.8	5.6	59.6	25.4	5.4	8.9	60.3	24.6	6.8	9.2
14	19 - 20-04-2021	49.5	19.6	5.5	7.3	60.9	22.5	6.1	10.5	63.2	28.0	4.1	9.7
15	23 - 24-04-2021	56.2	23.8	4.8	7.7	66.5	30.1	6.1	7.2	62.6	31.2	6.8	8.1
16	27 - 28-04-2021	63.4	32.6	4.8	7.2	60.9	34.6	5.5	9.7	66.3	34.6	4.1	8.4
17	1 - 02-05-2021	53.8	23.3	5.5	5.2	58.5	32.1	6.8	8.9	56.4	25.8	4.8	6.4
18	4 - 05-05-2021	50.4	25.4	4.1	4.4	60.8	30.9	4.8	6.4	54.5	28.3	4.8	6.8
19	8 - 09-05-2021	50.7	20.1	4.8	5.2	54.9	22.9	6.1	8.9	52.5	26.4	6.1	8.1
20	11 - 12-05-2021	46.0	20.8	5.5	5.6	52.1	24.1	4.8	9.7	57.3	30.8	4.1	7.6
21	14 - 15-05-2021	54.8	27.9	5.3	6.5	60.2	25.8	5.3	8.5	58.4	31.5	3.7	8.9
22	19 - 20-05-2021	38.2	14.6	4.3	4.9	40.8	21.8	5.4	4.9	43.0	22.1	4.3	6.9
23	23 - 24-05-2021	43.2	22.1	3.7	4.9	46.1	23.0	4.8	7.3	40.9	23.8	3.7	6.9
24	27 - 28-05-2021	42.9	19.6	3.2	5.7	47.5	21.7	5.3	7.7	41.3	23.7	4.8	5.3
Minimum		**38.2**	**14.6**	**3.2**	**4.4**	**40.8**	**21.7**	**4.8**	**4.9**	**40.9**	**22.1**	**3.7**	**5.3**
Maximum		**64.8**	**32.6**	**5.7**	**7.8**	**68.8**	**37.4**	**7.7**	**10.5**	**66.3**	**35.5**	**6.8**	**9.7**
Average		**54.0**	**24.3**	**4.8**	**6.3**	**59.2**	**27.8**	**5.8**	**8.4**	**58.1**	**28.0**	**5.3**	**8.2**
98 percentile		**64.7**	**32.2**	**5.6**	**7.8**	**67.7**	**36.4**	**7.7**	**10.5**	**65.7**	**35.1**	**6.8**	**9.7**

NOTES:

- ***The results indicated only refer to the tested samples and listed parameters and do not endorse any product***
- ***Total liability of the laboratory is limited to the invoice amount***
- ***This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory***
- ***Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified***
- ***This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory***
- ***Complaint register is available with the laboratory, in case required***

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMA/06-2021/68
Page : 2 of 5

ANNEXURE : V Contd..

Sl. No.	Location:→	Gujarda Village				Samadhiyala No. 1				Doliya Village			
	Date of sampling↓	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	1 - 02-03-2021	63.1	33.5	6.7	7.8	55.3	21.7	6.7	6.6	50.7	22.5	6.7	9.7
2	5 - 06-03-2021	62.1	25.0	4.6	7.8	56.2	31.3	5.7	8.5	57.9	32.5	7.7	10.5
3	9 - 10-03-2021	67.1	35.9	6.2	7.7	60.6	32.8	4.6	7.4	57.0	29.7	6.7	8.5
4	12 - 13-03-2021	62.2	27.1	6.7	7.8	53.7	25.9	4.6	8.6	56.7	31.3	7.2	9.7
5	16 - 17-03-2021	58.5	24.1	5.7	7.4	59.4	26.7	4.6	7.8	53.3	23.4	7.2	7.4
6	19 - 20-03-2021	56.7	32.2	5.7	5.8	63.4	35.0	5.7	7.4	51.5	28.0	6.7	8.9
7	23 - 24-03-2021	62.0	28.4	6.2	6.6	49.4	21.3	5.1	7.0	53.1	22.6	7.7	9.3
8	27 - 28-03-2021	56.4	23.7	6.2	7.0	55.1	28.0	4.6	8.1	56.9	26.3	7.2	9.7
9	1 - 02-04-2021	63.4	27.2	5.5	6.1	63.2	36.0	5.5	8.5	56.7	30.1	7.5	9.3
10	5 - 06-04-2021	62.8	36.6	6.8	6.8	59.0	27.0	4.8	8.0	58.0	25.4	6.8	10.1
11	9 - 10-04-2021	64.6	24.6	4.8	7.7	51.3	28.3	4.8	7.7	55.3	31.0	6.8	9.7
12	12 - 13-04-2021	68.0	30.4	4.8	5.6	61.9	30.9	4.1	8.5	50.1	18.4	6.1	9.7
13	16 - 17-04-2021	66.0	33.0	5.5	6.5	55.0	21.3	5.5	8.1	57.6	32.0	6.1	9.3
14	19 - 20-04-2021	66.0	30.9	4.1	7.7	59.7	34.8	6.1	8.9	59.4	31.3	7.5	8.0
15	23 - 24-04-2021	66.8	28.6	4.8	6.0	55.1	29.3	4.8	7.7	51.2	30.2	7.5	10.1
16	27 - 28-04-2021	55.5	31.7	6.1	6.4	60.4	32.9	6.8	6.9	54.1	25.7	7.5	10.9
17	1 - 02-05-2021	61.1	26.2	4.8	4.8	46.8	21.7	3.4	6.0	47.5	26.3	6.1	9.7
18	4 - 05-05-2021	58.4	32.9	5.4	4.8	55.6	24.3	6.1	6.5	47.0	22.2	6.1	7.7
19	8 - 09-05-2021	60.8	34.7	5.5	5.2	42.9	19.2	4.1	7.6	52.3	21.2	6.1	9.3
20	11 - 12-05-2021	60.9	28.3	6.1	5.6	54.8	29.6	4.1	6.8	53.6	27.8	6.8	7.6
21	14 - 15-05-2021	49.0	18.4	6.4	6.1	54.0	22.9	5.9	6.9	48.6	26.2	6.4	7.3
22	19 - 20-05-2021	47.0	24.6	3.2	3.6	38.8	20.9	2.7	4.9	41.2	21.2	5.3	6.1
23	23 - 24-05-2021	37.2	18.8	3.7	3.6	43.9	17.5	4.8	5.7	38.7	20.5	5.4	6.5
24	27 - 28-05-2021	38.5	21.3	3.7	5.7	34.0	17.9	4.8	6.1	35.0	14.1	4.8	7.3
Minimum		**37.2**	**18.4**	**3.2**	**3.6**	**34.0**	**17.5**	**2.7**	**4.9**	**35.0**	**14.1**	**4.8**	**6.1**
Maximum		**68.0**	**36.6**	**6.8**	**7.8**	**63.4**	**36.0**	**6.8**	**8.9**	**59.4**	**32.5**	**7.7**	**10.9**
Average		**58.9**	**28.3**	**5.4**	**6.3**	**53.7**	**26.6**	**5.0**	**7.3**	**51.8**	**25.8**	**6.7**	**8.8**
98 percentile		**67.6**	**36.3**	**6.8**	**7.8**	**63.3**	**35.5**	**6.8**	**8.7**	**58.8**	**32.3**	**7.7**	**10.7**

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMA/06-2021/68
Page : 3 of 5

ANNEXURE : V Contd..

Sl. No.	Location:→	Padhiarka Village				Rabhda Village				Amrutvel Village			
	Date of sampling↓	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02 - 03-03-2021	55.8	23.8	6.2	9.3	51.3	27.5	4.6	6.2	61.8	29.6	6.7	7.4
2	06 - 07-03-2021	57.0	24.6	5.2	7.8	55.4	23.0	4.6	8.2	59.1	29.3	7.7	8.9
3	10 - 11-03-2021	47.4	20.1	6.7	7.4	49.2	23.4	6.7	7.8	60.4	32.9	5.7	8.9
4	13 - 14-03-2021	59.5	28.7	6.2	10.1	52.0	25.4	5.1	7.0	60.6	23.9	5.1	9.3
5	17 - 18-03-2021	61.0	34.5	5.7	8.1	56.1	24.1	4.6	8.1	54.6	24.9	6.2	7.7
6	20 - 21-03-2021	54.1	28.0	5.1	7.0	46.3	23.3	7.2	8.5	61.3	25.9	6.7	9.7
7	24 - 25-03-2021	60.0	27.2	4.6	10.5	46.6	22.2	6.2	6.2	53.8	28.4	6.7	7.4
8	28 - 29-03-2021	50.8	23.9	5.7	8.9	53.4	24.7	6.7	7.4	61.9	33.4	5.1	8.5
9	02 - 03-04-2021	51.1	21.6	4.8	10.9	49.7	19.5	4.8	6.4	59.5	22.5	7.5	9.7
10	06 - 07-04-2021	49.8	19.1	5.5	9.3	57.5	22.5	5.5	6.5	61.3	28.0	8.2	8.0
11	10 - 11-04-2021	51.8	21.7	6.8	10.9	54.2	30.0	5.5	6.5	59.1	26.3	6.1	8.5
12	13 - 14-04-2021	55.3	30.5	4.8	8.5	46.2	17.1	6.8	8.1	55.1	23.7	5.4	7.2
13	17 - 18-04-2021	50.6	20.0	6.8	7.7	57.3	21.3	6.8	8.5	59.5	33.7	7.5	8.5
14	20 - 21-04-2021	48.1	24.6	5.5	10.5	45.3	22.9	6.8	7.7	59.2	25.8	6.8	8.0
15	24 - 25-04-2021	47.4	24.1	4.8	8.5	45.8	22.5	5.4	6.8	57.1	31.6	6.1	7.7
16	28 - 29-04-2021	58.7	23.4	4.8	9.3	48.6	23.4	6.1	8.5	56.0	30.5	4.8	7.6
17	02 - 03-05-2021	52.2	22.0	5.5	7.2	50.1	27.1	5.5	6.0	53.2	25.8	6.1	8.5
18	05 - 06-05-2021	45.7	20.0	5.5	7.3	49.8	25.9	4.1	6.8	51.6	28.5	6.1	7.3
19	09 - 10-05-2021	46.8	20.4	4.8	8.5	51.4	23.3	5.5	6.5	52.8	28.8	5.5	8.5
20	12 - 13-05-2021	46.6	25.4	4.8	8.1	51.6	24.6	4.8	5.6	53.6	20.9	6.1	8.5
21	15 - 16-05-2021	46.3	17.5	5.3	8.5	41.9	22.6	5.4	7.3	54.9	24.2	5.3	8.9
22	20 - 21-05-2021	35.8	16.3	3.2	5.3	34.2	17.1	4.8	6.1	38.3	19.6	5.3	6.9
23	24 - 25-05-2021	35.5	16.3	3.7	6.5	34.4	19.2	3.2	4.9	42.6	20.0	3.7	5.7
24	28 - 29-05-2021	33.1	16.7	4.3	5.7	35.0	15.8	3.7	4.9	41.2	20.4	4.3	6.1
Minimum		**33.1**	**16.3**	**3.2**	**5.3**	**34.2**	**15.8**	**3.2**	**4.9**	**38.3**	**19.6**	**3.7**	**5.7**
Maximum		**61.0**	**34.5**	**6.8**	**10.9**	**57.5**	**30.0**	**7.2**	**8.5**	**61.9**	**33.7**	**8.2**	**9.7**
Average		**50.0**	**22.9**	**5.3**	**8.4**	**48.5**	**22.9**	**5.4**	**6.9**	**55.4**	**26.6**	**6.0**	**8.1**
98 percentile		**60.5**	**32.7**	**6.8**	**10.9**	**57.4**	**28.9**	**7.0**	**8.5**	**61.9**	**33.6**	**8.0**	**9.7**

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMA/06-2021/68
Page : 4 of 5

ANNEXURE : V Contd..

Sl. No.	Location:→	Devaliya Village				Patva Village				Gadhada Village			
	Date of sampling↓	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02 - 03-03-2021	61.5	34.3	5.2	7.0	52.8	24.5	5.7	7.8	41.9	23.4	5.1	5.8
2	06 - 07-03-2021	54.0	26.2	6.7	7.4	52.2	30.4	6.7	8.1	44.4	25.9	5.7	5.8
3	10 - 11-03-2021	60.0	27.1	7.2	7.8	52.1	30.1	5.7	7.8	42.9	23.3	4.6	6.6
4	13 - 14-03-2021	58.2	22.0	6.2	7.0	53.3	26.6	4.6	7.8	45.1	21.2	4.6	5.8
5	17 - 18-03-2021	49.8	23.0	5.7	5.8	48.3	26.6	5.7	7.8	38.5	17.9	4.6	5.4
6	20 - 21-03-2021	59.1	25.5	6.2	7.4	51.3	19.6	5.1	7.0	45.5	24.6	5.7	7.4
7	24 - 25-03-2021	51.0	26.6	4.6	7.4	53.1	21.2	5.7	7.0	48.6	24.2	4.1	7.4
8	28 - 29-03-2021	54.5	30.1	7.2	7.4	50.7	26.2	5.7	6.6	42.9	20.4	5.7	7.4
9	02 - 03-04-2021	57.7	29.5	4.8	6.0	58.1	24.9	5.4	7.2	40.7	17.5	6.1	6.8
10	06 - 07-04-2021	52.6	30.5	6.8	7.6	51.6	30.6	5.5	6.9	40.3	16.7	4.8	6.4
11	10 - 11-04-2021	53.2	25.9	6.8	8.1	57.5	23.8	4.8	7.2	44.4	22.5	4.8	5.6
12	13 - 14-04-2021	49.9	20.0	6.8	7.7	59.3	22.1	6.1	7.2	48.2	23.4	5.5	7.3
13	17 - 18-04-2021	64.7	27.9	4.8	5.6	51.5	28.3	6.8	6.9	46.9	25.4	5.5	6.1
14	20 - 21-04-2021	60.2	23.0	4.8	7.7	47.9	20.1	4.8	7.7	45.2	18.7	6.8	7.3
15	24 - 25-04-2021	57.2	23.7	4.8	7.3	55.4	31.7	4.8	7.7	48.1	21.7	6.8	7.2
16	28 - 29-04-2021	50.2	21.6	5.5	7.2	59.8	32.1	5.5	7.7	41.8	18.8	6.1	7.2
17	02 - 03-05-2021	51.4	25.9	5.5	7.3	52.3	27.9	5.4	6.8	34.2	20.0	4.1	6.4
18	05 - 06-05-2021	54.9	23.8	4.8	6.0	41.9	18.0	5.5	6.5	41.0	23.8	5.5	5.2
19	09 - 10-05-2021	46.3	26.3	4.1	4.8	42.1	21.4	5.5	6.0	43.5	17.9	5.5	6.9
20	12 - 13-05-2021	49.2	23.7	4.1	6.8	45.4	21.2	6.1	6.0	35.5	18.4	4.1	5.2
21	15 - 16-05-2021	52.2	28.2	4.8	6.5	49.1	26.3	5.9	6.1	34.7	17.9	5.4	6.9
22	20 - 21-05-2021	38.4	20.9	5.3	4.4	37.7	19.1	4.8	4.9	32.8	16.6	4.8	3.6
23	24 - 25-05-2021	35.3	18.0	5.4	5.7	36.8	16.3	3.7	5.3	27.6	11.2	3.2	3.6
24	28 - 29-05-2021	44.3	23.2	4.8	4.0	34.6	19.3	4.8	5.3	32.9	13.7	3.7	4.0
Minimum		**35.3**	**18.0**	**4.1**	**4.0**	**34.6**	**16.3**	**3.7**	**4.9**	**27.6**	**11.2**	**3.2**	**3.6**
Maximum		**64.7**	**34.3**	**7.2**	**8.1**	**59.8**	**32.1**	**6.8**	**8.1**	**48.6**	**25.9**	**6.8**	**7.4**
Average		**52.7**	**25.3**	**5.5**	**6.7**	**49.8**	**24.5**	**5.4**	**6.9**	**41.2**	**20.2**	**5.1**	**6.1**
98 percentile		**63.2**	**32.6**	**7.2**	**7.9**	**59.6**	**31.9**	**6.8**	**8.0**	**48.4**	**25.7**	**6.8**	**7.4**

Test Report No. : MMA/06-2021/68
Page : 5 of 5

ANNEXURE : V Contd..

Sl. No.	Location:→	Madhiya Village				Nana Pipalva Village				Mota Jadra Village				Khared Village			
	Date of sampling↓	PM$_{10}$ ($\mu g/m^3$)	PM$_{2.5}$ ($\mu g/m^3$)	SO$_2$ ($\mu g/m^3$)	NO$_2$ ($\mu g/m^3$)	PM$_{10}$ ($\mu g/m^3$)	PM$_{2.5}$ ($\mu g/m^3$)	SO$_2$ ($\mu g/m^3$)	NO$_2$ ($\mu g/m^3$)	PM$_{10}$ ($\mu g/m^3$)	PM$_{2.5}$ ($\mu g/m^3$)	SO$_2$ ($\mu g/m^3$)	NO$_2$ ($\mu g/m^3$)	PM$_{10}$ ($\mu g/m^3$)	PM$_{2.5}$ ($\mu g/m^3$)	SO$_2$ ($\mu g/m^3$)	NO$_2$ ($\mu g/m^3$)
1	3 - 04-03-2021	64.9	24.3	8.8	9.3	51.4	23.0	6.7	7.4	53.7	22.9	5.7	8.1	57.0	24.1	6.2	7.0
2	7 - 08-03-2021	61.9	23.0	8.2	14.0	57.3	23.8	5.7	8.1	52.4	26.4	5.2	7.0	53.9	25.4	5.7	7.0
3	11 - 12-03-2021	61.4	27.1	9.8	11.2	59.2	22.4	7.2	7.4	57.7	27.6	5.7	7.8	48.3	24.6	5.2	7.4
4	14 - 15-03-2021	59.4	23.4	7.2	13.6	57.3	28.4	5.1	6.6	59.8	25.0	4.6	8.5	55.7	28.7	5.1	6.2
5	18 - 19-03-2021	70.8	31.7	9.3	10.9	51.6	26.7	6.2	6.2	53.4	30.5	6.7	8.1	52.9	21.2	7.2	8.1
6	21 - 22-03-2021	63.2	33.7	8.2	14.3	58.3	27.5	5.7	7.4	58.0	25.6	7.2	7.8	57.8	31.2	6.7	7.8
7	25 - 26-03-2021	70.5	32.6	7.2	9.3	58.8	24.6	5.7	8.2	59.0	28.0	7.2	8.2	56.0	20.5	5.7	5.8
8	29 - 30-03-2021	71.1	34.7	9.3	10.9	49.6	22.6	5.1	8.2	56.1	21.3	5.7	9.3	51.1	23.7	5.1	7.4
9	3 - 04-04-2021	71.0	40.0	8.9	11.7	56.7	25.9	4.8	6.4	56.3	23.7	4.8	8.9	52.6	20.8	4.8	8.1
10	7 - 08-04-2021	67.9	29.5	8.9	11.3	48.3	23.4	6.1	6.4	57.8	30.9	6.1	7.2	60.3	26.6	6.8	7.7
11	11 - 12-04-2021	63.1	23.7	8.2	14.5	57.6	24.1	6.8	7.3	52.4	20.0	4.8	8.1	56.3	26.3	6.1	6.0
12	14 - 15-04-2021	59.3	32.5	9.5	13.3	52.5	24.3	5.5	6.9	59.0	26.4	6.1	7.7	50.1	22.5	4.8	7.7
13	18 - 19-04-2021	60.7	30.5	8.9	11.3	50.8	20.4	6.1	8.1	57.8	27.1	6.8	8.8	54.3	29.7	6.1	7.7
14	21 - 22-04-2021	67.9	36.3	8.9	12.9	50.5	19.2	5.5	6.1	55.6	23.3	6.8	7.2	61.6	26.7	4.8	8.1
15	25 - 26-04-2021	58.4	29.6	10.2	14.1	50.0	29.1	6.1	7.7	59.8	22.1	4.8	9.3	47.2	23.8	5.5	5.6
16	29 - 30-04-2021	58.8	25.1	9.5	10.9	56.5	28.8	6.1	8.5	58.6	32.1	7.5	7.7	62.5	27.5	6.8	8.1
17	3 - 04-05-2021	62.0	29.7	6.8	8.1	47.7	25.0	4.8	6.0	51.1	26.8	4.8	6.4	44.3	19.1	6.8	7.2
18	6 - 07-05-2021	52.4	23.4	6.8	10.1	45.0	26.3	4.8	6.0	49.6	18.7	6.1	7.3	56.6	22.5	6.8	6.4
19	10 - 11-05-2021	55.2	28.9	6.8	9.3	46.5	20.8	4.1	5.6	50.6	24.3	5.5	7.7	54.8	30.0	6.8	6.4
20	13 - 14-05-2021	57.5	27.5	7.5	9.7	46.6	24.6	4.8	7.3	47.2	23.4	6.1	6.8	50.9	21.3	4.8	4.8
21	16 - 17-05-2021	64.6	35.1	6.4	10.5	50.6	27.9	5.9	6.1	51.6	28.3	6.4	7.3	52.4	23.3	6.4	7.3
22	21 - 22-05-2021	47.7	24.2	5.4	7.7	38.1	16.7	4.8	5.3	40.0	20.4	5.3	4.9	42.4	16.3	4.3	4.0
23	25 - 26-05-2021	45.1	17.5	5.3	6.5	37.3	15.9	4.8	4.5	38.9	18.3	4.3	5.3	39.9	17.5	5.3	3.6
24	29 - 30-05-2021	42.6	19.2	5.4	6.9	38.6	20.9	3.7	5.7	38.3	16.6	4.8	5.7	39.8	21.3	3.7	4.0
Minimum		**42.6**	**17.5**	**5.3**	**6.5**	**37.3**	**15.9**	**3.7**	**4.5**	**38.3**	**16.6**	**4.3**	**4.9**	**39.8**	**16.3**	**3.7**	**3.6**
Maximum		**71.1**	**40.0**	**10.2**	**14.5**	**59.2**	**29.1**	**7.2**	**8.5**	**59.8**	**32.1**	**7.5**	**9.3**	**62.5**	**31.2**	**7.2**	**8.1**
Average		**60.7**	**28.5**	**8.0**	**10.9**	**50.7**	**23.8**	**5.5**	**6.8**	**53.1**	**24.6**	**5.8**	**7.5**	**52.4**	**23.9**	**5.7**	**6.6**
98 percentile		**71.1**	**38.3**	**10.0**	**14.4**	**59.0**	**29.0**	**7.0**	**8.4**	**59.8**	**31.5**	**7.4**	**9.3**	**62.1**	**30.6**	**7.0**	**8.1**

Parameter	**PM$_{10}$ ($\mu g/m^3$)**	**PM$_{2.5}$ ($\mu g/m^3$)**	**SO$_2$ ($\mu g/m^3$)**	**NO$_2$ ($\mu g/m^3$)**
Protocol of Measurement	**IS:5182 (Part 23)**	**Lab SOP/09**	**IS:5182 (Part 2)**	**IS:5182 (Part 6)**
National Ambient Air Quality Standards (2009) for Concentration in Ambient Air for Industrial, Residential, Rural & Other areas.				
Industrial, Residential, Rural & Other areas	**100 (24 hours)**	**60 (24 hours)**	**80 (24 hours)**	**80 (24 hours)**

Prepared by

Rashmi

Rashmi Gupta
Administrative Manager

Checked by

Marisha

Dr. Marisha Sharma
Authorised Signatory

- end of report -

NOTES:

- *The results indicated only refer to the tested samples and listed parameters and do not endorse any product*
- *Total liability of the laboratory is limited to the invoice amount*
- *This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory*
- *Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified*
- *This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory*
- *Complaint register is available with the laboratory, in case required*

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

ANNEXURE : V Contd..

Customer's Name & Address Nirma Ltd. Nirma House, Ashram Road Ahemadabad – 380009 Contact Person : Ms. Tejal Patel		
Sample Particulars		
Type of Sample	:	Ambient Air
Work Order No.	:	NNL/CP-43/LOI-095/2020-21/PTV/
Sampling Location	:	Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines, District Bhavnagar, Gujarat
Sampling Procedure	:	IS 5182 (Part 2) 2001 for SO_2, CPCB guidelines NAAQMS 96/2012-13 for PM_{10}, NO_2,& Lab SOP/09 for $PM_{2.5}$
Sample Duration	:	24 hours
Sampling Team	:	MMRDL (Ravikant)
Sample Reg. No	:	MMA/2021S1L1/20, MMA/2021S1L2/20 & MMA/2021S1L3/20
Date of Sampling	:	11/05/2021 to 12/05/2021
Date of Receipt	:	20/05/2021
Date of Report	:	18/06/2021
Test Report No.	:	MMA/06-2021/69
ULR No.	:	TC633721000000141F
Page	:	1 of 1

TEST REPORT

Parameter	Protocol	Near Cement Plant at Padhiarka	Vangar Village	Dhdhala No. 1
Arsenic (as As), ng/m^3	IS 3025 (Part-2)	BDL	BDL	BDL
Nickel (as Ni), ng/m^3	IS 3025 (Part-2)	BDL	BDL	BDL
Lead (as Pb), µg/m^3	IS 3025 (Part-2)	BDL	BDL	BDL

Note: BDL of Pb<0.07µg/m^3, As<0.4, Ni<0.6ng/m^3

Parameter	Pb (µg/m^3)	As (ng/m^3)	Ni (ng/m^3)
Protocol of Measurement	**Method of Measurement IS 3025 (Part 2) ICP Method**		
National Ambient Air Quality Standards (2009) for Concentration in Ambient Air for Industrial, Residential, Rural & Other areas.			
Industrial, Residential, Rural & Other areas	**1.0 (24 hours)**	**06 (Annual)**	**20 (Annual)**

Prepared by

Rashmi Gupta
Administrative Manager

Checked by

Dr. Marisha Sharma
Authorised Signatory

- end of report -

NOTES:

- ***The results indicated only refer to the tested samples and listed parameters and do not endorse any product***
- ***Total liability of the laboratory is limited to the invoice amount***
- ***This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory***
- ***Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified***
- ***This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory***
- ***Complaint register is available with the laboratory, in case required***

NATIONAL AMBIENT AIR QUALITY STANDARDS

CENTRAL POLLUTION CONTROL BOARD

NOTIFICATION

Delhi, the 18th November, 2009

No.B-29016/20/90/PCI-I.— In exercise of the powers conferred by Sub-section (2) (h) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No.14 of 1981), and in supersession of the Notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect, namely:-

NATIONAL AMBIENT AIR QUALITY STANDARDS

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2), $\mu g/m^3$	Annual*	50	20	- Improved West and Gaeke
		24 hours**	80	80	-Ultraviolet fluorescence
2	Nitrogen Dioxide (NO_2), $\mu g/m^3$	Annual*	40	30	- Modified Jacob & Hochheiser (Na-Arsenite)
		24 hours**	80	80	- Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM_{10} $\mu g/m^3$	Annual*	60	60	- Gravimetric - TOEM
		24 hours**	100	100	- Beta attenuation
4	Particulate Matter (size less than 2.5µm) or $PM_{2.5}$ $\mu g/m^3$	Annual*	40	40	- Gravimetric - TOEM
		24 hours**	60	60	- Beta attenuation
5	Ozone (O_3) $\mu g/m^3$	8 hours**	100	100	- UV photometric - Chemilminescence
		1 hour**	180	180	- Chemical Method
6	Lead (Pb) $\mu g/m^3$	Annual*	0.50	0.50	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper - ED-XRF using Teflon filter
		24 hours**	1.0	1.0	
7	Carbon Monoxide (CO) mg/m^3	8 hours**	02	02	- Non Dispersive Infra Red (NDIR) spectroscopy
		1 hour**	04	04	

(1)	(2)	(3)	(4)	(5)	(6)
8	Ammonia (NH_3) $\mu g/m^3$	Annual* 24 hours**	100 400	100 400	-Chemiluminescence -Indophenol blue method
9	Benzene (C_6H_6) $\mu g/m^3$	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP) - particulate phase only, ng/m^3	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m^3	Annual*	06	06	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m^3	Annual*	20	20	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note. — Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SANT PRASAD GAUTAM, Chairman
[Advt-III/4/184/09/Exty.]

Note: The notifications on National Ambient Air Quality Standards were published by the Central Pollution Control Board in the Gazette of India, Extraordinary vide notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998.

An ISO 9001 : 2015 approved company

Certificate No. TC-6337

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (Sl. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII

TEST REPORT

Customer's Name & Address							
Nirma Ltd. Nirma House Ashram Road, Ahemdabad - 380009 Contact Person: Ms. Tejal Patel							
Sample Particulars							
Type of Sample : Ground water							
Work Order No. : NNL/CP-43/LOI-095/2020-21/PTV/							
Sampling location : In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines. District - Bhavnagar, Gujarat.							
Sampling procedure : IS 3025 (part 1)							
Sample Vol./Qty. : 1 lit.							
Sampling Team : MMRDL (Ravikant)							
Sample Reg. No. : MMW/06-2021/1.1-1.12							
Date of Sampling : 30-05-2021							
Date of Receipt : 02-06-2021							
Date of Testing : 02/06/2021 to 11/06/2021							
Date of Report : 18-06-2021							
Test Report No. : MMW/06-2021/62							
ULR Number : TC633721000000136F							
Parameters	**Drinking water limits (IS: 10500:2012 & Amendment 1)**		**Protocol**	**TEST RESULTS**			
	Acceptable	**Permissible**	.	**Near Cement Plant at Padhiyarka Village (Well)**	**Padhiyarka Village (Bore Well)**	**Vangar Village (Bore Well)**	**Madhiya Village (Bore Well)**
Turbidity, NTU	1	5	IS 3025 (Part 10)	0.701	0.613	1.139	0.262
pH value	6.5 - 8.5	No relaxation	IS 3025 (Part 11)	7.2	7.0	7.8	7.7
Specific conductance, µS/cm	-	-	IS 3025 (Part 14)	9202	8403	4301	5402
Total Dissolved Solids, mg/l	500	2000	IS 3025 (Part 16)	5276	5382	2688	3512
Total Suspended Solids, mg/l	-	-	IS 3025 (Part 17)	64	116	40	40
Total Hardness as CaCO3, mg/l	200	600	IS 3025 (Part 21)	1760	2000	560	620
Alkalinity, mg/l	200	600	IS 3025 (Part 23)	425	400	505	1025
Sulphate as SO4 mg/l	200	400	IS 3025 (Part 24)	270	134	155	115
Chloride as Cl, mg/l	250	1000	IS 3025 (Part 32)	2740	2720	1042	1193
Calcium as Ca, mg/l	75	200	IS 3025 (Part 40)	377	409	112	109
Sodium as Na, mg/l	-	-	IS 3025 (Part 45)	1262	1068	696	953
Potassium as K, mg/l	-	-	IS 3025 (Part 45)	16	15	9	10
Magnesium as Mg, mg/l	30	100	IS 3025 (Part 46)	197	235	67	84
Iron as Fe, mg/l	1.0	No relaxation	IS 3025 (Part 53)	BDL	0.30	BDL	BDL
Fluoride as F, mg/l	1.0	1.5	APHA 4500-F-D	1.23	0.33	1.03	1.13
Silver as Ag, mg/l	0.1	No relaxation	IS 3025 (Part 2)	0.063	0.065	0.039	0.031
Barium as Ba, mg/l	0.7	No relaxation	IS 3025 (Part 2)	0.107	0.553	0.034	0.021

Contd..

An ISO 9001 : 2015 approved company
Certificate No. TC-6337

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (Sl. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

Report No :MMW/06-2021/62 .

Parameters	Drinking water limits (IS: 10500:2012 & Amendment 1)		Protocol	TEST RESULTS			
	Acceptable	Permissible	.	Near Cement Plant at Padhiyarka Village (Well)	Padhiyarka Village (Bore Well)	Vangar Village (Bore Well)	Madhiya Village (Bore Well)
Cadmium as Cd, mg/l	0.003	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Chromium as Cr,mg/l	0.05	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Copper as Cu, mg/l	0.05	1.5	IS 3025 (Part 2)	BDL	0.010	BDL	BDL
Manganese as Mn, mg/l	0.1	0.3	IS 3025 (Part 2)	BDL	0.012	0.031	BDL
Nickel as Ni, mg/l	0.02	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Selenium as Se, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Arsenic as As, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Zinc as Zn, mg/l	5	15	IS 3025 (Part 2)	BDL	BDL	0.011	BDL
Acidity mg/l CaCO3	-	-	IS 3025 (Part 22)	20 at pH 8.3	30 at pH 8.3	7.5 at pH 8.3	7.5 at pH 8.3
Nitrate as NO3, mg/l	45	No relaxation	APHA (4500-NO3-B)	1.36	8.91	29.01	29.89
Hexavalent Chromium, mg/l	-	-	APHA 3500-Cr B	BDL	BDL	BDL	BDL

NOTE : BDL(Below Detection Limit) of Turbidity (NTU)<0.001, Fe<0.1, Ag<0.01, Ba<0.01, Cd<0.002, Cr<0.01, Cu<0.01, Mn<0.01, Ni<0.01, Se<0.01, As<0.01, Zn<0.01, Cr6+<0.1 mg/l

Contd..

An ISO 9001 : 2015 approved company

Certificate No. TC-6337

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (Sl. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

TEST REPORT

Customer's Name & Address

Nirma Ltd.
Nirma House
Ashram Road, Ahemdabad - 380009
Contact Person: Ms. Tejal Patel

Sample Particulars

Type of Sample : Ground water
Work Order No. : NNL/CP-43/LOI-095/2020-21/PTV/
Sampling location : In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines. District - Bhavnagar, Gujarat.
Sampling procedure : IS 3025 (part 1)
Sample Vol./Qty. : 1 lit.
Sampling Team : MMRDL (Ravikant)
Sample Reg. No. : MMW/06-2021/1.1-1.12
Date of Sampling : 30-05-2021
Date of Receipt : 02-06-2021
Date of Testing : 02/06/2021 to 11/06/2021
Date of Report : 18-06-2021
Test Report No. : MMW/06-2021/62
ULR Number : TC633721000000136F

Parameters	Drinking water limits (IS: 10500:2012 & Amendment 1)		Protocol	TEST RESULTS			
	Acceptable	Permissible	.	Dudhala Village (Bore Well)	Dhudheri Village (Well)	Dudhala near NH-8E (Bore Well)	Gujarda Village (Well)
Turbidity, NTU	1	5	IS 3025 (Part 10)	0.175	0.35	0.788	3.56
pH value	6.5 - 8.5	No relaxation	IS 3025 (Part 11)	7.2	7.0	7.2	7.1
Specific conductance, µS/cm	-	-	IS 3025 (Part 14)	1032	13265	14860	3970
Total Dissolved Solids, mg/l	500	2000	IS 3025 (Part 16)	602	8340	9360	2442
Total Suspended Solids, mg/l	-	-	IS 3025 (Part 17)	42	270	156	718
Total Hardness as CaCO3, mg/l	200	600	IS 3025 (Part 21)	320	3580	3880	920
Alkalinity, mg/l	200	600	IS 3025 (Part 23)	115	300	100	700
Sulphate as SO4 mg/l	200	400	IS 3025 (Part 24)	21	214	190	31
Chloride as Cl, mg/l	250	1000	IS 3025 (Part 32)	288	4427	5062	973
Calcium as Ca, mg/l	75	200	IS 3025 (Part 40)	64	745	729	224
Sodium as Na, mg/l	-	-	IS 3025 (Part 45)	77	1464	1655	446
Potassium as K, mg/l	-	-	IS 3025 (Part 45)	11	13	13	38
Magnesium as Mg, mg/l	30	100	IS 3025 (Part 46)	38	413	494	86
Iron as Fe, mg/l	1.0	No relaxation	IS 3025 (Part 53)	BDL	0.10	BDL	0.22
Fluoride as F, mg/l	1.0	1.5	APHA 4500-F-D	0.24	0.98	0.80	1.21
Silver as Ag, mg/l	0.1	No relaxation	IS 3025 (Part 2)	0.019	0.069	0.071	0.061
Barium as Ba, mg/l	0.7	No relaxation	IS 3025 (Part 2)	0.017	0.240	0.146	0.267

Contd..

An ISO 9001 : 2015 approved company

Certificate No. TC-6337

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (SI. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

Parameters	Drinking water limits (IS: 10500:2012 & Amendment 1)		Protocol	TEST RESULTS			
	Acceptable	Permissible	.	Dudhala Village (Bore Well)	Dhudheri Village (Well)	Dudhala near NH-8E (Bore Well)	Gujarda Village (Well)
Cadmium as Cd, mg/l	0.003	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Chromium as Cr,mg/l	0.05	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Copper as Cu, mg/l	0.05	1.5	IS 3025 (Part 2)	BDL	0.014	0.015	BDL
Manganese as Mn, mg/l	0.1	0.3	IS 3025 (Part 2)	BDL	0.033	0.021	0.016
Nickel as Ni, mg/l	0.02	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Selenium as Se, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Arsenic as As, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Zinc as Zn, mg/l	5	15	IS 3025 (Part 2)	0.053	0.022	0.115	0.016
Acidity mg/l CaCO3	-	-	IS 3025 (Part 22)	12.5 at pH 8.3	45 at pH 8.3	27.5 at pH 8.3	50 at pH 8.3
Nitrate as NO3, mg/l	45	No relaxation	APHA (4500-NO3-B)	BDL	27.36	27.84	1.87
Hexavalent Chromium, mg/l	-	-	APHA 3500-Cr B	BDL	BDL	BDL	BDL

NOTE : BDL(Below Detection Limit) of Turbidity (NTU)<0.001, Fe<0.1, Ag<0.01, Ba<0.01, Cd<0.002, Cr<0.01, Cu<0.01, Mn<0.01, Ni<0.01, Se<0.01, As<0.01, Zn<0.01, Cr6+<0.1 mg/l

Contd..

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (Sl. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

TEST REPORT

Customer's Name & Address

Nirma Ltd.
Nirma House
Ashram Road, Ahemdabad - 380009
Contact Person: Ms. Tejal Patel

Sample Particulars

Type of Sample : Ground water
Work Order No. : NNL/CP-43/LOI-095/2020-21/PTV/
Sampling location : In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines. District - Bhavnagar, Gujarat.
Sampling procedure : IS 3025 (part 1)
Sample Vol./Qty. : 1 lit.
Sampling Team : MMRDL (Ravikant)
Sample Reg. No. : MMW/06-2021/1.1-1.12
Date of Sampling : 30-05-2021
Date of Receipt : 02-06-2021
Date of Testing : 02/06/2021 to 11/06/2021
Date of Report : 18-06-2021
Test Report No. : MMW/06-2021/62
ULR Number : TC633721000000136F

Parameters	Drinking water limits (IS: 10500:2012 & Amendment 1)		Protocol	TEST RESULTS			
	Acceptable	Permissible	.	Doliya Village (Bore Well)	Rabhda Village (Hand Pump)	Amrutvel Village (Hand Pump)	Near Devlia Village (Hand Pump)
Turbidity, NTU	1	5	IS 3025 (Part 10)	0.087	0.438	0.262	BDL
pH value	6.5 - 8.5	No relaxation	IS 3025 (Part 11)	7.4	7.5	7.6	7.9
Specific conductance, µS/cm	-	-	IS 3025 (Part 14)	3510	3672	1383	4763
Total Dissolved Solids, mg/l	500	2000	IS 3025 (Part 16)	2220	2308	874	3006
Total Suspended Solids, mg/l	-	-	IS 3025 (Part 17)	42	18	8	20
Total Hardness as CaCO3, mg/l	200	600	IS 3025 (Part 21)	900	540	380	280
Alkalinity, mg/l	200	600	IS 3025 (Part 23)	175	925	525	1150
Sulphate as SO4 mg/l	200	400	IS 3025 (Part 24)	67	92	26	136
Chloride as Cl, mg/l	250	1000	IS 3025 (Part 32)	1104	647	129	794
Calcium as Ca, mg/l	75	200	IS 3025 (Part 40)	112	64	72	32
Sodium as Na, mg/l	-	-	IS 3025 (Part 45)	397	571	145	883
Potassium as K, mg/l	-	-	IS 3025 (Part 45)	27	11	5	32
Magnesium as Mg, mg/l	30	100	IS 3025 (Part 46)	149	91	48	48
Iron as Fe, mg/l	1.0	No relaxation	IS 3025 (Part 53)	BDL	BDL	BDL	BDL
Fluoride as F, mg/l	1.0	1.5	APHA 4500-F-D	0.36	0.72	1.25	1.20
Silver as Ag, mg/l	0.1	No relaxation	IS 3025 (Part 2)	0.050	0.029	0.050	BDL
Barium as Ba, mg/l	0.7	No relaxation	IS 3025 (Part 2)	0.099	BDL	0.316	0.013

Contd..

JAS-ANZ
An ISO 9001 : 2015 approved company
Certificate No. TC-6337

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (Sl. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

Report No :MMW/06-2021/62 .

Parameters	Drinking water limits (IS: 10500:2012 & Amendment 1)		Protocol	TEST RESULTS			
	Acceptable	Permissible	.	Doliya Village (Bore Well)	Rabhda Village (Hand Pump)	Amrutvel Village (Hand Pump)	Near Devlia Village (Hand Pump)
Cadmium as Cd, mg/l	0.003	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Chromium as Cr,mg/l	0.05	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Copper as Cu, mg/l	0.05	1.5	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Manganese as Mn, mg/l	0.1	0.3	IS 3025 (Part 2)	BDL	BDL	0.050	BDL
Nickel as Ni, mg/l	0.02	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Selenium as Se, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Arsenic as As, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL	BDL
Zinc as Zn, mg/l	5	15	IS 3025 (Part 2)	BDL	0.393	1.698	BDL
Acidity mg/l CaCO3	-	-	IS 3025 (Part 22)	12.5 at pH 8.3	12.5 at pH 8.3	12.5 at pH 8.3	25 at pH 8.3
Nitrate as NO3, mg/l	45	No relaxation	APHA (4500-NO3-B)	3.84	29.90	28.47	4.42
Hexavalent Chromium, mg/l	-	-	APHA 3500-Cr B	BDL	BDL	BDL	BDL

NOTE : BDL(Below Detection Limit) of Turbidity (NTU)<0.001, Fe<0.1, Ag<0.01, Ba<0.01, Cd<0.002, Cr<0.01, Cu<0.01, Mn<0.01, Ni<0.01, Se<0.01, As<0.01, Zn<0.01, Cr6+<0.1 mg/l

Prepared By
Rashmi
Rashmi Gupta
Administrative Manager

Checked By
Marisha
Dr. Marisha Sharma
Authorised Signatory

:: End of Report ::

An ISO 9001 : 2015 approved company

Certificate No. TC-6337

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (SI. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

TEST REPORT

Customer's Name & Address						
Nirma Ltd. Nirma House Ashram Road, Ahemdabad - 380009 Contact Person: Ms. Tejal Patel						
Sample Particulars						
Type of Sample : Surface water						
Work Order No. : NNL/CP-43/LOI-095/2020-21/PTV/						
Sampling location : In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines. District - Bhavnagar, Gujarat.						
Sampling procedure : IS 3025 (Part 1)						
Sample Vol./Qty. : 2 lit.						
Sampling Team : MMRDL (Ravikant)						
Sample Reg. No. : MMW/06-2021/2.21-2.3						
Date of Sampling : 31-05-2021						
Date of Receipt : 02-06-2021						
Date of Testing : 02/06/2021 to 11/06/2021						
Date of Report : 18-06-2021						
Test Report No. : MMW/06-2021/63						
ULR Number : TC633721000000137F						
Parameters	**Drinking water limits (IS: 10500:2012 & Amendment 1)**		**Protocol**	**TEST RESULTS**		
	Acceptable	**Permissible**	.	**Pond near Khared Village**	**Malan River Near Barpara Village**	**Arabian Sea, near Doliya Village**
Turbidity, NTU	1	5	IS 3025 (Part 10)	6.332	5.346	7.099
pH value	6.5 - 8.5	No relaxation	IS 3025 (Part 11)	7.3	7.3	7.8
Specific conductance, µS/cm	-	-	IS 3025 (Part 14)	1752	2751	25481
Total Dissolved Solids, mg/l	500	2000	IS 3025 (Part 16)	1018	1704	16050
Total Suspended Solids, mg/l	-	-	IS 3025 (Part 17)	20	18	760
Total Hardness as CaCO3, mg/l	200	600	IS 3025 (Part 21)	360	480	8300
Alkalinity, mg/l	200	600	IS 3025 (Part 23)	275	375	500
Sulphate as SO4 mg/l	200	400	IS 3025 (Part 24)	54	84	2303
Phosphorous as P, mg/l	-	-	IS 3025 (Part 31)	0.010	1.417	0.092
Chloride as Cl, mg/l	250	1000	IS 3025 (Part 32)	437	695	7345
Calcium as Ca, mg/l	75	200	IS 3025 (Part 40)	40	56	1571
Dissolved oxygen, mg/l	-	-	IS 3025 (Part 38)	5.8	5.9	6.3
Biochemical Oxygen Demand (BOD), mg/l	-	-	IS 3025 (Part 44)	20	15	180
Chemical Oxygen Demand (COD), mg/l	-	-	APHA 5220 D	46	36	410
Sodium as Na, mg/l	-	-	IS 3025 (Part 45)	220	357	2044
Potassium as K, mg/l	-	-	IS 3025 (Part 45)	16	23	390

Contd..

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (Sl. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

Report No :MMW/06-2021/63 .

Parameters	Drinking water limits (IS: 10500:2012 & Amendment 1)		Protocol	TEST RESULTS		
	Acceptable	Permissible	.	Pond near Khared Village	Malan River Near Barpara Village	Arabian Sea, near Doliya Village
Magnesium as Mg, mg/l	30	100	IS 3025 (Part 46)	62	82	1051
Iron as Fe, mg/l	1.0	No relaxation	IS 3025 (Part 53)	0.14	0.3	3.31
Fluoride as F, mg/l	1.0	1.5	APHA 4500-F-D	0.46	0.35	1.26
Silver as Ag, mg/l	0.1	No relaxation	IS 3025 (Part 2)	0.010	0.056	0.048
Barium as Ba, mg/l	0.7	No relaxation	IS 3025 (Part 2)	0.029	0.037	BDL
Cadmium as Cd, mg/l	0.003	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL
Chromium as Cr,mg/l	0.05	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL
Copper as Cu, mg/l	0.05	1.5	IS 3025 (Part 2)	BDL	BDL	BDL
Manganese as Mn, mg/l	0.1	0.3	IS 3025 (Part 2)	BDL	0.041	BDL
Nickel as Ni, mg/l	0.02	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL
Selenium as Se, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL
Arsenic as As, mg/l	0.01	No relaxation	IS 3025 (Part 2)	BDL	BDL	BDL
Zinc as Zn, mg/l	5	15	IS 3025 (Part 2)	BDL	0.138	0.041
Acidity mg/l CaCO3	-	-	IS 3025 (Part 22)	17.5 at pH 8.3	22.5 at pH 8.3	52.5 at pH 8.3
Nitrate as NO3, mg/l	45	No relaxation	APHA (4500-NO3-B)	0.38	2.05	3.00
Hexavalent Chromium, mg/l	-	-	APHA 3500-Cr B	BDL	BDL	BDL

NOTE : BDL(Below Detection Limit) of Ba<0.01, Cd<0.002, Cr<0.01, Cu<0.01, Mn<0.01, Ni<0.01, Se<0.01, As<0.01, Zn<0.01, Cr6+<0.1 mg/l

Prepared By
Rashmi
Rashmi Gupta
Administrative Manager

Checked By
Marisha
Dr. Marisha Sharma
Authorised Signatory

:: End of Report ::

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi-110030
Phone: 29534777, 29532236, 29535891; Fax: 91-11-29532568
Email: lab.minmec@gmail.com; Website: http://www.minmec.co.in
Recognised by MOEF&CC (Sl. No. 97 of S.O. 3744 (E) Dated 17/10/2019)

ANNEXURE : VII Contd..

TEST REPORT

Customer's Name & Address

Nirma Ltd.
Nirma House
Ashram Road, Ahemdabad - 380009
Contact Person: Ms. Tejal Patel

Sample Particulars

Type of Sample : Surface water
Work Order No. : NNL/CP-43/LOI-095/2020-21/PTV/
Sampling location : In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines. District - Bhavnagar, Gujarat.
Sampling procedure : IS 3025 (Part 1)
Sample Vol./Qty. : 2 lit.
Sampling Team : MMRDL (Ravikant)
Sample Reg. No. : MMW/06-2021/2.21-2.3
Date of Sampling : 31-05-2021
Date of Receipt : 02-06-2021
Date of Testing : 02/06/2021 to 07/06/2021
Date of Report : 18-06-2021
Test Report No. : MMW/06-2021/64

Parameters	Drinking water limits (IS: 10500:2012 & Amendment 1)		Protocol	TEST RESULTS		
	Acceptable	Permissible	.	Pond near Khared Village	Malan River Near Barpara Village	Arabian Sea, near Doliya Village
Total Coliform (MPN/100ml)	-	-	APHA 9221 B	21	43	140
E. Coli	-	-	APHA 9221 F	Present	Present	Present

Prepared By
Rashmi Gupta
Administrative Manager

Checked By
Dr. Marisha Sharma
Authorised Signatory

:: End of Report ::

CPCB's Water Quality Criteria

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	• Total Coliforms Organism MPN/100ml shall be 50 or less • pH between 6.5 and 8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20C 2mg/l or less
Outdoor bathing (Organised)	B	• Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	• Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4mg/l or more • Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Propagation of Wild life and Fisheries	D	• pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more • Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	• pH between 6.0 to 8.5 • Electrical Conductivity at 25C micro mhos/cm Max.2250 • Sodium absorption Ratio Max. 26 • Boron Max. 2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

Source: https://cpcb.nic.in/water-quality-criteria/ updated by CPCB on 11 Oct 20219

Drinking water standards IS 10500 : 2012

Table 1 Organoleptic and Physical Parameters

(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour, Hazen units, *Max*	5	15	Part 4	Extended to 15 only, if toxic substances are not suspected in absence of alternate sources
ii)	Odour	Agreeable	Agreeable	Part 5	a) Test cold and when heated b) Test at several dilutions
iii)	*p*H value	6.5-8.5	No relaxation	Part 11	—
iv)	Taste	Agreeable	Agreeable	Parts 7 and 8	Test to be conducted only after safety has been established
v)	Turbidity, NTU, *Max*	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, *Max*	500	2 000	Part 16	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 2 General Parameters Concerning Substances Undesirable in Excessive Amounts

(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Aluminium (as Al), mg/l, *Max*	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, *Max*	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, *Max*	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, *Max*	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, *Max*	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, *Max*	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cl_2), mg/l, *Max*	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, *Max*	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, *Max*	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, *Max*	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, *Min*	0.2	1	IS 3025 (Part 26)	To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be minimum 0.5 mg/l
xii)	Iron (as Fe), mg/l, *Max*	0.3	No relaxation	IS 3025 (Part 53)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xiii)	Magnesium (as Mg), mg/l, *Max*	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, *Max*	0.1	0.3	IS 3025 (Part 59)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xv)	Mineral oil, mg/l, *Max*	0.5	No relaxation	Clause 6 of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NO_3), mg/l, *Max*	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as C_6H_5OH), mg/l, *Max*	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, *Max*	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, *Max*	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO_4) mg/l, *Max*	200	400	IS 3025 (Part 24)	May be extended to 400 provided that Magnesium does not exceed 30
xxi)	Sulphide (as H_2S), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, *Max*	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as $CaCO_3$), mg/l, *Max*	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, *Max*	5	15	IS 3025 (Part 49)	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 3 Parameters Concerning Toxic Substances

(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Cadmium (as Cd), mg/l, *Max*	0.003	No relaxation	IS 3025 (Part 41)	—
ii)	Cyanide (as CN), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 27)	—
iii)	Lead (as Pb), mg/l, *Max*	0.01	No relaxation	IS 3025 (Part 47)	—
iv)	Mercury (as Hg), mg/l, *Max*	0.001	No relaxation	IS 3025 (Part 48)/ Mercury analyser	—
v)	Molybdenum (as Mo), mg/l, *Max*	0.07	No relaxation	IS 3025 (Part 2)	—
vi)	Nickel (as Ni), mg/l, *Max*	0.02	No relaxation	IS 3025 (Part 54)	—
vii)	Pesticides, µg/l, *Max*	See Table 5	No relaxation	See Table 5	—
viii)	Polychlorinated biphenyls, mg/l, *Max*	0.000 5	No relaxation	ASTM 5175* or APHA 6630	—
ix)	Polynuclear aromatic hydrocarbons (as PAH), mg/l, *Max*	0.000 1	No relaxation	APHA 6440	—
x)	Total arsenic (as As), mg/l, *Max*	0.01	0.05	IS 3025 (Part 37)	—
xi)	Total chromium (as Cr), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 52)	—
xii)	Trihalomethanes:				
	a) Bromoform, mg/l, *Max*	0.1	No relaxation	ASTM D 3973-85* or APHA 6232	—
	b) Dibromochloromethane, mg/l, *Max*	0.1	No relaxation	ASTM D 3973-85* or APHA 6232	—
	c) Bromodichloromethane, mg/l, *Max*	0.06	No relaxation	ASTM D 3973-85* or APHA 6232	—
	d) Chloroform, mg/l, *Max*	0.2	No relaxation	ASTM D 3973-85* or APHA 6232	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 4 Parameters Concerning Radioactive Substances

(*Foreword* and *Clause* 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 14194	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Radioactive materials:				
	a) Alpha emitters Bq/l, *Max*	0.1	No relaxation	Part 2	—
	b) Beta emitters Bq/l, *Max*	1.0	No relaxation	Part 1	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Amendment 1	***June 2015***	[*Page* 2, *Table* 2, *Sl No.* xii), *col* 3] —Substitute '1.0' *for* '0.3'. [*Page* 3, *Table* 3, *Sl No.* x) , *col* 4] —Substitute 'No relaxation' *for* '0.05'.
Amendment 2	***September 2018***	(*Page* 1, *clause* **4.1.1**, *line* 6) — Substitute 'IS 15185' *for* 'IS 1622'. [*Page* 2, *Table* 2, *Sl No.* (v), *col* 4] — Substitute '2.4' *for* '1.0'.
Amendment 3	***February 2021***	[*Page* 2, *Table* 2, *Sl. No.* (xv), *col* 3] — Substitute '1.0' *for* '0.5'. (*Page* 2, *Table* 2, *Notes*) — Substitute the following for the existing Notes: 'NOTES **1** Approved and validated international test methods from ISO/ APHA/ ASTM/ AOAC/ EPA/ EN may also be followed. **2** In case of dispute, methods given at column 5 and wherever indicated by '*' shall be the referee method. **3** It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.' (*Page* 3, *Table* 3) — Insert the following new entry at the end:

Table 3

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
xiii)	Uranium, mg/l, *Max*	0.03	No relaxation	IS 3025 (Part 65)	—

(*Page* 3, *Table* 3, *Notes*) — Substitute the following for the existing:

'NOTES

1 Approved and validated international test methods from ISO/ APHA/ ASTM/ AOAC/ EPA/ EN may also be followed.

2 In case of dispute, methods given at column 5 and wherever indicated by '*' shall be the referee method.

3 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.'

(*Page* 5, *clause* **4.2.7**) — Substitute the following for the existing clause:

'4.2.7 MS2 phage are indicators of viral contamination in drinking water and have been taken as representatives for presence of viruses for the purpose in this standard. MS2 phage shall be absent in 1 litre of water when tested in accordance with USEPA method 1601 or USEPA method 1602. In case of dispute, USEPA method 1602 shall be the referee method.

NOTE (for guidance purpose only) — If MS2 phage are detected in the drinking water, the virological examination is to be done by the Polymerase Chain Reaction (PCR) method as given in Annex B or the USEPA method in Manual of Method for Virology Chapter 16, June 2001. If viruses are detected, the cause must be determined by immediate further investigation by the concerned authorities.'

(*Page* 5, *clause* **4.2.7**) — Insert the following new clause:

'**4.2.8** The information given in clauses **4.2.1** to **4.2.6** is for guidance purposes only.'

(*Page 6, clause* **4.3.10**) — Substitute the following for the existing clause:

'4.3.10 The drinking water is expected to be free from microscopic organisms such as algae, zooplanktons, flagellates, parasites and toxin producing organisms. An illustrative (and not exhaustive) list is given in Annex C for guidance.'

(*Page* 6, *clause* **4.3.10**) — Insert the following after clause **4.3.10**:

'4.3.11 The information given in clauses **4.3.1** to **4.3.7** and **4.3.10** is for guidance purposes only.'

(*Page* 6, *clause* **5**) — Substitute the following for the existing clause:

'5 SAMPLING

Representative samples of water shall be drawn as prescribed in IS 1622 and IS 3025 (Part 1). For bacteriological requirements, representative samples of water shall be drawn as given in IS 15185.'

(*Page* 6, *Annex* A) — Insert the following new entries at appropriate places:

IS No.	*Title*
3025 (Part 65) : 2014	Methods of sampling and test (physical and chemical) for water and waste water : Part 2 Application of inductively coupled plasma mass spectrometry (ICP-MS) — Determination of 62 elements
15185 : 2016	Water quality — Detection and enumeration of *Escherichia coli* and coliform bacteria — Membrane filtration method for water with low bacterial background flora (*first revision*)

Amendment 4	***November 2021***	[*Page* 3, *Table* 3, *Sl. No*. (xiii), *col* 5 (*see also Amendment No*. 3)] — Substitute 'IS 3025 (Part 65)* or IS 14194 (Part 3)' for 'IS 3025 (Part 65)'. (*Page* 6, *Annex* A) — Insert the following reference at appropriate place: *IS No.* — *Title* 14194 (Part 3) : 2021 — Radionuclides in environmental samples — Method of estimation: Part 3 Uranium (*first revision*)

POPULATION AND LANDUSE OF STUDY AREA, CENSUS 2011 (Ha.)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	Population	Total area	Forest land	Area under Non-Agricultural Uses	Barren & Un-cultivable Land	Permanent Pastures and Other Grazing Land	Land Under Misc. Tree Crops etc.	Culturable Waste Land	Fallows Land other than Current Fallows	Current Fallows	Net Area Sown	Total Unirrigated Land	Area Irrigated by Source	Canals	Wells/ Tube Wells	Tanks/ Lakes	Waterfall	Other Source
District	**Amreli**																		
Sub Distt.	**Rajula**																		
515955	Mobhiyana Mota	279	351.75	0.00	0.00	14.54	38.02	0.00	0.00	0.00	0.00	299.19	200.00	99.19	0.00	99.19	0.00	0.00	0.00
515956	Mobhiyana Nana	280	272.42	0.00	0.00	9.55	6.68	0.00	0.00	2.70	0.00	253.49	203.49	50.00	0.00	50.00	0.00	0.00	0.00
515957	Rampara No-1	342	318.66	0.00	3.00	10.65	22.04	0.00	0.00	0.00	0.00	282.97	193.74	89.23	0.00	89.23	0.00	0.00	0.00
515958	Zinzka	1378	752.56	0.00	4.24	1.42	24.61	5.83	23.31	28.34	46.52	618.29	547.02	71.27	0.00	0.00	0.00	0.00	71.27
515959	Dungarparda	680	289.55	0.00	1.86	45.00	17.40	1.15	0.00	0.00	0.42	223.72	190.50	33.22	0.00	0.00	1.17	0.00	32.05
515974	Sajanavav	1181	561.12	0.00	8.00	34.25	49.50	0.00	23.65	0.00	6.24	439.48	289.48	150.00	0.00	150.00	0.00	0.00	0.00
515975	Rabhda	1266	628.20	3.00	5.50	45.60	41.68	0.00	2.52	0.00	0.00	529.90	435.27	94.63	0.00	94.63	0.00	0.00	0.00
515976	Nesdi No -1	365	233.12	0.00	4.72	3.85	14.60	0.00	0.00	0.00	3.85	206.10	150.23	55.87	0.00	55.87	0.00	0.00	0.00
515987	Visaliya	2958	525.99	0.00	3.00	101.50	38.44	0.00	0.00	7.56	0.00	375.49	300.49	75.00	0.00	0.00	0.00	0.00	75.00
515988	Dantardi	2393	1405.33	120.62	177.61	137.23	0.00	0.00	0.61	0.00	0.00	969.26	842.08	127.18	0.00	127.18	0.00	0.00	0.00
515989	Samadhiyala No-1	2427	777.95	0.00	10.13	197.37	30.00	0.00	71.29	0.00	79.89	389.27	285.15	104.12	0.00	104.12	0.00	0.00	0.00
515990	Patva	2013	869.87	0.00	118.20	231.95	35.85	0.00	0.00	0.00	3.08	480.79	389.56	91.23	0.00	91.23	0.00	0.00	0.00
515991	khera	4191	803.50	3.24	128.40	109.00	5.23	0.00	129.42	0.84	127.29	300.08	210.87	89.21	0.00	89.21	0.00	0.00	0.00
515993	Kathivadar	1623	2318.64	1089.70	0.00	569.05	96.76	0.00	0.00	27.00	0.00	536.13	421.72	114.41	114.41	0.00	0.00	0.00	0.00
	Sub total	**21376**	**10108.66**	**1216.56**	**464.66**	**1510.96**	**420.81**	**6.98**	**250.80**	**66.44**	**267.29**	**5904.16**	**4659.60**	**1244.56**	**114.41**	**950.66**	**1.17**	**0.00**	**178.32**
District	**Bhavnagar**																		
Sub Distt.	**Mahuva**																		
516764	Lusadi	1594	631.57	10.00	71.57	24.00	0.00	0.00	0.00	0.00	0.00	526.00	325.00	201.00	0.00	201.00	0.00	0.00	0.00
516765	Gundarani	1390	817.05	0.00	7.00	0.00	49.00	0.00	0.00	0.00	35.05	726.00	706.00	20.00	0.00	20.00	0.00	0.00	0.00
516766	Nana Jadra	2200	703.30	5.00	15.00	31.00	31.00	0.00	2.00	8.00	14.30	597.00	398.00	199.00	0.00	199.00	0.00	0.00	0.00
516780	Nesvad	10501	646.64	0.00	106.04	8.00	19.40	0.00	0.00	59.00	54.00	400.20	200.20	200.00	0.00	200.00	0.00	0.00	0.00
516781	Haripara	462	341.97	0.00	0.00	2.97	37.00	0.00	0.00	0.00	10.00	292.00	292.00	0.00	0.00	0.00	0.00	0.00	0.00
516782	Visavadar	521	184.94	0.00	1.34	30.60	13.00	0.00	2.00	0.00	0.00	138.00	88.00	50.00	0.00	50.00	0.00	0.00	0.00
516783	Dundas	1506	802.68	0.00	81.08	5.60	45.00	0.00	5.00	0.00	5.00	661.00	560.00	101.00	0.00	101.00	0.00	0.00	0.00
516784	Mota Pipalva	1672	367.36	0.00	0.00	0.00	30.00	0.00	20.36	6.00	0.00	311.00	111.00	200.00	0.00	200.00	0.00	0.00	0.00
516785	Kankot	556	271.77	0.00	6.97	7.71	14.00	0.00	0.00	0.00	8.09	235.00	225.00	10.00	0.00	10.00	0.00	0.00	0.00
516786	Nana Pipalva	1259	202.89	0.00	9.99	0.00	7.00	0.00	10.00	0.90	10.00	165.00	145.00	20.00	0.00	20.00	0.00	0.00	0.00
516787	Bildi	4367	660.34	0.00	12.34	16.00	80.00	0.00	15.00	20.00	25.00	492.00	412.00	80.00	0.00	80.00	0.00	0.00	0.00
516788	Amrutvel	1184	517.82	0.00	9.20	1.20	26.00	0.00	2.00	1.00	16.42	462.00	193.00	269.00	0.00	269.00	0.00	0.00	0.00
516789	Bhanvad	864	753.89	0.90	3.98	21.01	13.00	0.00	14.00	15.00	1.00	685.00	457.00	228.00	0.00	228.00	0.00	0.00	0.00
516790	Mota Jadra	3297	1038.83	0.00	40.00	45.40	80.00	0.00	38.03	0.00	10.40	825.00	400.00	425.00	0.00	425.00	0.00	0.00	0.00
516791	Maliya	2030	337.23	0.00	20.23	0.00	80.00	0.00	55.00	0.00	0.00	182.00	10.00	172.00	0.00	0.00	172.00	0.00	0.00
516794	Devaliya	1361	237.63	0.00	10.00	0.00	0.00	0.00	50.63	0.00	2.00	175.00	85.00	90.00	0.00	90.00	0.00	0.00	0.00
516795	Dudhala No.1	1405	325.81	0.00	5.00	1.40	7.00	0.00	6.00	4.41	0.00	302.00	202.00	100.00	0.00	0.00	100.00	0.00	0.00
516796	Madhiya	1170	517.52	0.00	0.00	1.02	12.00	0.00	22.50	0.00	0.00	482.00	482.00	0.00	0.00	0.00	0.00	0.00	0.00
516797	Vangar	2838	765.73	0.00	41.77	9.73	0.00	0.00	0.00	0.00	10.43	703.80	353.00	350.80	0.00	350.80	0.00	0.00	0.00
516798	Padhiyarka	1495	388.39	0.00	180.40	1.00	0.00	0.00	1.00	0.00	9.99	196.00	196.00	0.00	0.00	0.00	0.00	0.00	0.00
516799	Doliya	3224	505.59	0.00	4.20	0.00	9.00	0.00	142.00	0.00	11.39	339.00	339.00	0.00	0.00	0.00	0.00	0.00	0.00
516800	Dudheri	3544	772.90	30.65	11.08	106.00	61.00	0.00	5.17	2.00	0.00	557.00	557.00	0.00	0.00	0.00	0.00	0.00	0.00

POPULATION AND LANDUSE OF STUDY AREA, CENSUS 2011 (Ha.)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	Population	Total area	Forest land	Area under Non-Agricultural Uses	Barren & Un-cultivable Land	Permanent Pastures and Other Grazing Land	Land Under Misc. Tree Crops etc.	Culturable Waste Land	Fallows Land other than Current Fallows	Current Fallows	Net Area Sown	Total Unirrigated Land	Area Irrigated by Source	Canals	Wells/ Tube Wells	Tanks/ Lakes	Waterfall	Other Source
516801	Gujarda	3496	639.04	32.00	15.00	3.04	15.00	0.00	11.00	99.00	0.00	464.00	264.00	200.00	0.00	200.00	0.00	0.00	0.00
516802	Khared	4250	768.16	36.00	4.16	265.00	0.00	0.00	88.00	14.00	5.00	356.00	256.00	100.00	0.00	100.00	0.00	0.00	0.00
516803	Gadhada	2792	895.26	0.00	2.26	0.00	395.00	0.00	68.00	148.00	0.00	282.00	182.00	100.00	0.00	100.00	0.00	0.00	0.00
802557	Mahuva (M + OG)	35700	1040.00	-	1040.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Sub total	**94678**	**15134.31**	**114.55**	**1698.61**	**580.68**	**1023.40**	**0.00**	**557.69**	**377.31**	**228.07**	**10554.00**	**7438.20**	**3115.80**	**0.00**	**2843.80**	**272.00**	**0.00**	**0.00**
	Gulf of Khambhat		16250.00	0.00	16250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	GRAND TOTAL	**116054**	**41492.97**	**1331.11**	**18413.27**	**2091.64**	**1444.21**	**6.98**	**808.49**	**443.75**	**495.36**	**16458.16**	**12097.80**	**4360.36**	**114.41**	**3794.46**	**273.17**	**0.00**	**178.32**
	%		**100.00**	**3.21**	**44.38**	**5.04**	**3.48**	**0.02**	**1.95**	**1.07**	**1.19**	**39.66**	**29.16**	**10.51**	**2.62**	**87.02**	**6.26**	**0.00**	**4.09**

ANNEXURE : 1125 Contd..

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

ANNEXURE : X

TEST REPORT

Customer's Name & Address
Nirma Ltd.
Nirma House, Ashram Road
Ahemadabad - 380009

Contact Person : Ms. Tejal Patel

Sample Particulars		
Type of Sample	:	Noise
Work Order No.	:	NNL/CP-43/LOI-095/2020-21/PTV/
Sampling Location	:	In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines, District Bhavnagar, Gujarat
Sampling Procedure	:	Protocol for Ambient Level Noise Monitoring, CPCB
Sample Duration	:	24 hours
Sampling Team	:	MMRDL (Ravikant)
Sample Reg. No.	:	MMN/06-2021/1.1-1.16
Date of Monitoring	:	02/05/2021 to 25/05/2021
Date of Receipt	:	05/06/2021
Date of Report	:	18/06/2021
Test Report No.	:	MMN/06-2021/67
ULR No.	:	TC633721000000139F
Page	:	1 of 6

Day Time : 6 am to 10 pm

Date of Monitoring→	**02-03/05/2021**	**03-04/05/2021**	**04-05/05/2021**	**05-06/05/2021**	**07-08/05/2021**	**08-09/05/2021**
Hours↓	**Near Cement Plant at Padhiarka**	**Padhiarka Village**	**Vangar Village**	**Madhiya Village**	**Dhdhala No. 1**	**Gujarda Village**
6-7	47.3	52.1	46.8	44.7	39.2	41.6
7-8	43.4	45.6	42.8	47.3	48.6	41.4
8-9	47.1	55.5	51.7	51.4	44.9	50.2
9-10	49.6	50.4	49.9	52.0	49.4	49.2
10-11	46.2	52.3	49.2	50.4	49.8	50.8
11-12	47.1	56.4	50.6	50.8	55.0	48.0
12-1	46.4	50.3	49.7	49.1	50.3	50.0
1-2	45.5	53.0	48.2	50.1	51.7	45.4
2-3	48.3	50.8	50.4	48.4	50.6	50.5
3-4	47.6	52.5	50.7	46.9	48.4	48.0
4-5	47.7	53.0	51.0	47.1	52.5	48.2
5-6	47.9	48.4	48.9	51.5	49.0	45.8
6-7	43.9	49.1	45.2	49.8	50.7	46.3
7-8	47.7	53.8	44.3	52.6	49.4	47.1
8-9	50.5	51.1	46.3	50.0	45.1	46.8
9-10	47.6	50.3	44.6	50.0	49.0	48.1

NOTES :

- *The results indicated only refer to the tested samples and listed parameters and do not endorse any product*
- *Total liability of the laboratory is limited to the invoice amount*
- *This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory*
- *Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified*
- *This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory*
- *Complaint register is available with the laboratory , in case required*

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMN/06-2021/67
Page : 2 of 6

ANNEXURE : X Contd..

Night Time : 10 pm to 6 am						
Date of Monitoring→	**02-03/05/2021**	**03-04/05/2021**	**04-05/05/2021**	**05-06/05/2021**	**07-08/05/2021**	**08-09/05/2021**
Hours↓	**Near Cement Plant at Padhiarka**	**Padhiarka Village**	**Vangar Village**	**Madhiya Village**	**Dhdhala No. 1**	**Gujarda Village**
10-11	43.5	47.1	45.3	41.5	40.5	38.4
11-12	43.1	41.0	44.9	42.1	45.0	38.8
12-1	40.5	40.4	38.0	40.1	37.8	41.0
1-2	37.6	39.8	36.7	39.8	39.9	39.4
2-3	38.4	44.7	41.4	37.2	39.6	38.7
3-4	36.6	40.3	38.6	36.3	41.8	38.4
4-5	37.8	41.5	39.7	40.9	39.3	38.4
5-6	36.5	42.3	36.7	38.3	39.2	38.8
Day time Leq.	**47.57**	**52.46**	**48.95**	**50.11**	**50.34**	**48.20**
Night time Leq.	**40.09**	**42.89**	**41.42**	**39.93**	**40.96**	**40.11**

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMN/06-2021/67
Page : 3 of 6

ANNEXURE : X Contd..

Day Time : 6 am to 10 pm						
Date of Monitoring→	**09-10/05/2021**	**10-11/05/2021**	**12-13/05/2021**	**13-14/05/2021**	**14-15/05/2021**	**15-16/05/2021**
Hours↓	**Patva Village**	**Samadhiyala No. 1**	**Doliya Village**	**Rabhda Village**	**Nana Pipalva Village**	**Amrutvel Village**
6-7	41.8	47.3	48.3	47.0	48.1	45.2
7-8	44.4	48.0	46.2	47.5	45.9	46.0
8-9	49.9	51.4	53.7	50.3	47.8	52.7
9-10	52.0	49.7	51.8	50.7	49.9	51.2
10-11	46.6	50.1	52.7	49.7	49.5	53.1
11-12	51.3	50.1	51.5	55.4	48.6	54.1
12-1	49.3	49.4	51.4	48.4	49.0	53.4
1-2	46.6	52.3	49.1	50.6	48.3	51.0
2-3	50.0	48.2	50.7	50.7	47.9	50.0
3-4	45.3	51.1	49.8	49.6	49.7	53.2
4-5	44.7	51.3	49.2	50.7	52.2	50.4
5-6	49.0	48.1	46.2	51.2	49.9	49.4
6-7	48.8	50.1	48.6	47.8	49.8	53.1
7-8	44.9	46.6	44.9	50.5	47.7	51.2
8-9	43.5	51.6	49.7	52.2	45.9	54.1
9-10	50.4	46.5	48.2	51.7	46.6	52.6

NOTES :

- *The results indicated only refer to the tested samples and listed parameters and do not endorse any product*
- *Total liability of the laboratory is limited to the invoice amount*
- *This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory*
- *Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified*
- *This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory*
- *Complaint register is available with the laboratory , in case required*

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMN/06-2021/67
Page : 4 of 6

ANNEXURE : X Contd..

Night Time : 10 pm to 6 am						
Date of Monitoring→	**09-10/05/2021**	**10-11/05/2021**	**12-13/05/2021**	**13-14/05/2021**	**14-15/05/2021**	**15-16/05/2021**
Hours↓	**Patva Village**	**Samadhiyala No. 1**	**Doliya Village**	**Rabhda Village**	**Nana Pipalva Village**	**Amrutvel Village**
10-11	44.9	40.2	40.9	46.5	42.2	41.8
11-12	44.3	42.9	43.5	43.5	45.2	42.4
12-1	40.0	39.4	36.7	38.9	41.7	39.2
1-2	39.6	39.5	37.5	38.7	40.1	38.9
2-3	38.7	38.2	35.2	40.6	40.2	41.4
3-4	39.0	36.7	35.4	39.0	41.3	39.3
4-5	39.0	36.1	37.8	40.2	40.2	39.0
5-6	39.5	38.5	40.5	38.9	38.4	42.1
Day time Leq.	**48.65**	**49.85**	**50.51**	**50.72**	**48.96**	**51.86**
Night time Leq.	**41.35**	**39.42**	**39.36**	**41.76**	**41.62**	**40.75**

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMN/06-2021/67
Page : 5 of 6

ANNEXURE : X Contd..

Day Time : 6 am to 10 pm				
Date of Monitoring→	**21-22/05/2021**	**22-23/05/2021**	**23-24/05/2021**	**24-25/05/2021**
Hours↓	**Mota Jadra Village**	**Devaliya Village**	**Khared Village**	**Gadhada Village**
6-7	47.5	46.7	43.7	37.3
7-8	44.7	44.3	49.2	47.9
8-9	52.9	51.5	50.0	48.4
9-10	51.1	50.3	50.4	49.5
10-11	49.3	51.4	49.8	54.8
11-12	47.1	50.3	53.8	53.6
12-1	47.9	49.0	52.0	51.0
1-2	49.7	45.3	50.6	51.9
2-3	50.5	45.6	48.1	50.2
3-4	51.0	48.7	52.8	49.1
4-5	46.6	49.1	47.3	53.3
5-6	50.1	46.9	52.0	49.6
6-7	51.6	44.3	48.2	51.1
7-8	47.3	44.6	47.2	52.1
8-9	50.7	48.8	48.7	54.1
9-10	49.8	45.0	45.8	51.6

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at: http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMN/06-2021/67
Page : 6 of 6

ANNEXURE : X Contd..

Night Time : 10 pm to 6 am				
Date of Monitoring→	**21-22/05/2021**	**22-23/05/2021**	**23-24/05/2021**	**24-25/05/2021**
Hours↓	**Mota Jadra Village**	**Devaliya Village**	**Khared Village**	**Gadhada Village**
10-11	43.7	39.1	45.4	43.5
11-12	40.8	43.7	42.0	43.1
12-1	39.4	36.8	40.3	37.2
1-2	40.0	38.9	37.0	39.3
2-3	38.4	40.9	40.1	40.2
3-4	38.5	37.4	38.4	39.1
4-5	40.8	40.9	38.1	38.6
5-6	36.9	37.7	39.2	37.3
Day time Leq.	**49.97**	**48.69**	**50.07**	**51.83**
Night time Leq.	**40.27**	**40.01**	**40.89**	**40.40**

Category of area	**Ambient Air Quality Standards in Respect of Noise in db (A) Leq as per Noise Pollution (Regulation and Control) Rules 2000**	
	Day time	**Night time**
Industrial area	75	70
Commercial area	65	55
Residential area	55	45
Silence zone	50	40

Source: Pollution Control Acts, Rules and Notifications Issued Thereunder, Pollution Control Law Series: PCLS/02/1992 (Fourth edition) of Central Pollution Control Board, Sept -2001, Page 711

Prepared by

Rashmi Gupta
Administrative Manager

Checked by

Dr. Marisha Sharma
Authorised Signatory

- end of report -

NOTES :

- *The results indicated only refer to the tested samples and listed parameters and do not endorse any product*
- *Total liability of the laboratory is limited to the invoice amount*
- *This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory*
- *Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified*
- *This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory*
- *Complaint register is available with the laboratory , in case required*

ANNEXURE : XI

THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000
SCHEDULE

[See Rule 3(1) and 4(1)]

Ambient Air Quality Standards in respect of Noise

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note :

1. Day time shall mean from 6.00 a.m. to 10.00 p.m.

2. Night time shall mean from 10.00 p.m. to 6.00 a.m.

[a][3. Silence zone is an area comprising not less than 100 metres around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority].

4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

* dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale 'A' which is relatable to human hearing.

A "decibel" is a unit in which noise is measured.

"A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq : It is an energy mean of the noise level over a specified period.

SOURCE : Pollution Control Acts, Rules and Notifications Issued Thereunder, Pollution Control Law Series : PCLS/02/1992 (Fourth Edition) of Central Pollution Control Board, September 2001, pp 711

[a] Substituted by Rule 4 of the Noise Pollution (Regulation and Control) (Amendment) Rules, 2000 notified vide S.O. 1046(E), dated 22.11.2000.

ANNEXURE : XI Contd..

SCHEDULE XXIV OF MODEL RULES UNDER THE FACTORIES ACT, 1948
(Corrected up to 01-3-2019)

PART -A HIGH NOISE LEVELS

Table 1: Permissible exposure in cases of continuous noise

Total time of exposure (continuous short term exposures)	Sound pressure level in or a number of dBA per day, in hours
8	85
6	87
4	90
3	92
2	95
1 ½	97
1	100
3/4	102
½	105
1/4	110

Notes : 1. No exposure in excess of 110 dBA is to be permitted.
2. For any period of exposure falling in between any figure and the next higher or lower figure as indicated in column 1, the permissible sound pressure level is to be determined by extrapolation on a proportionate basis.

Table 2: Permissible exposure levels of impulsive or impact noise

Peak sound pressure level in dB	Permitted number of impulses or impact per day
140	100
135	315
130	1,000
125	3,160
120	10,000

Notes: 1.No exposure in excess of 140 dB peak sound pressure level is permitted
2. For any peak sound pressure level falling in between any figure and the next higher or lower figure as indicated in column 1, the permitted number of impulses or impacts per day is to be determined by extrapolation on a proportionate basis.

PART-B HIGH VIBRATION LEVELS

Exposure limit values and action values :

(1) For hand-arm vibration—

(a) the daily exposure limit value is 5 $m/s^2A(8)$;

(b) the daily exposure action value is 2.5 $m/s^2A(8)$, and daily exposure shall be ascertained on the basis set out in the relevant National/International Standards specified in table 1 below.

(2) For whole body vibration—

(a) the daily exposure limit value is 1.15 $m/s^2A(8)$;

(b) the daily exposure action value is 0.5 $m/s^2A(8)$, and daily exposure shall be ascertained on the basis set out in the relevant National/International Standards

Table 1:The Threshold Limit Values (TLVs) for exposure of the hand to vibration in X, Y, or Z direction of axes in the three dimensional system shall be as given below:

Total Daily Exposure Duration (hours)	Maximum value of frequency weighted acceleration (m/s^2) in any direction
4 to less than 8 hours	4
2 to less than 4 hours	6
1 to less than 2 hours	8
less than 1hour	12

ANNEXURE : XII

TRAFFIC VOLUME MONITORING DATA

NIRMA LTD.

Date of monitoring : 27-28/05/2021

Location: Near Vangar Village on NH-8E, Up direction

Hours	Cycle	Motor	LMV (car, jeep,	Buses	Trucks	Animal	Others	Total
7.00 - 8.00	3	80	15	2	8	0	18	**126**
8.00 - 9.00	0	131	51	2	24	1	5	**214**
9.00 - 10.00	1	161	48	0	14	2	11	**237**
10.00 - 11.00	1	146	39	0	14	1	4	**205**
11.00 - 12.00	1	84	24	0	7	1	0	**117**
12.00 - 13.00	0	109	98	4	55	0	23	**289**
13.00 - 14.00	0	116	57	0	22	0	3	**198**
14.00 - 15.00	10	118	46	1	12	0	5	**192**
15.00 - 16.00	0	92	50	2	7	0	5	**156**
16.00 - 17.00	0	122	84	5	24	0	24	**259**
17.00 - 18.00	26	106	50	1	10	0	3	**196**
18.00 - 19.00	1	71	36	4	18	2	21	**153**
19.00 - 20.00	0	94	54	4	26	0	17	**195**
20.00 - 21.00	0	69	40	2	23	0	4	**138**
21.00 - 22.00	0	62	26	6	38	0	0	**132**
22.00 - 23.00	0	26	18	4	50	0	0	**98**
23.00 - 24.00	0	7	10	3	35	0	0	**55**
0.00 - 1.00	0	2	7	7	31	0	0	**47**
1.00 - 2.00	0	1	3	2	43	0	0	**49**
2.00 - 3.00	0	0	0	0	31	0	0	**31**
3.00 - 4.00	0	2	5	12	39	0	0	**58**
4.00 - 5.00	0	14	14	5	32	0	3	**68**
5.00 - 6.00	0	21	14	5	22	0	0	**62**
6.00 - 7.00	0	36	22	4	27	0	5	**94**
TOTAL	**43**	**1670**	**811**	**75**	**612**	**7**	**151**	**3369**

Source: Min Mec R&D Laboratory, New Delhi

ANNEXURE : XII Contd..

TRAFFIC VOLUME MONITORING DATA

NIRMA LTD.
Date of monitoring : 27-28/05/2021
Location: Near Vangar Village on NH-8E, Down direction

Hours	Cycle	Motor Cycles & Scooters	LMV (car, jeep, van, three (wheelers etc.)	Buses	Trucks	Animal drawn vehicles	Others	Total
7.00 - 8.00	0	72	38	2	14	0	7	**133**
8.00 - 9.00	1	122	64	3	9	0	14	**213**
9.00 - 10.00	1	134	75	2	8	0	4	**224**
10.00 - 11.00	2	77	59	8	10	2	2	**160**
11.00 - 12.00	1	72	60	3	15	1	8	**160**
12.00 - 13.00	0	74	79	0	21	2	16	**192**
13.00 - 14.00	0	103	60	0	21	0	13	**197**
14.00 - 15.00	0	122	10	0	33	0	0	**165**
15.00 - 16.00	3	131	108	2	42	0	12	**298**
16.00 - 17.00	0	94	75	10	33	0	19	**231**
17.00 - 18.00	11	98	69	4	37	3	29	**251**
18.00 - 19.00	0	89	106	5	60	0	18	**278**
19.00 - 20.00	0	113	121	2	50	0	10	**296**
20.00 - 21.00	0	90	59	5	42	0	6	**202**
21.00 - 22.00	0	51	40	4	52	0	0	**147**
22.00 - 23.00	0	19	31	7	35	0	0	**92**
23.00 - 24.00	0	13	13	5	51	0	0	**82**
0.00 - 1.00	0	4	8	3	37	0	0	**52**
1.00 - 2.00	0	0	3	1	29	0	0	**33**
2.00 - 3.00	0	0	2	2	44	0	0	**48**
3.00 - 4.00	0	3	7	9	23	0	0	**42**
4.00 - 5.00	0	10	16	10	40	0	0	**76**
5.00 - 6.00	0	29	22	5	27	0	6	**89**
6.00 - 7.00	4	49	38	2	12	0	4	**109**
TOTAL	**22**	**1375**	**1061**	**89**	**722**	**8**	**147**	**3424**

Source: Min Mec R&D Laboratory, New Delhi

નાયબ વન સંરક્ષકશ્રીની કચેરી

ભાવનગર વન વિભાગ, બહુમાળી ભવન,
એનેક્ષી બિલ્ડીંગ, એફ–૮/૯/૧૦, ભાવનગર
ફોન નં.૦૨૭૮–૨૪૨૮૬૪૪, ફેકસ નં.૦૨૭૮–૨૪૨૭૩૧૭
e-mail. forestnormalbvn@yahoo.in

ક્રમાંક: અ/જમન/ટે.૧૧૮૩૦૨ /૧૭-૧૮

તા.૫/૨/૨૦૧૮

પ્રતિ,

નિરમા લીમીટેડ,

નિરમા હાઉસ,આશ્રમ રોડ,

અમદાવાદ.

Sub.: List of Flora & Fauna, endangered, endemic, RET species for core & buffer zone(10 km) of Padhiarka & Doliya Limestone Mining Lease Area(332.24 Ha.) of M/s. Nirma Limited in Village: Padhiarka & Doliya, Taluka: Mahuva, Dist.:Bhavnagar.

Ref.: આપના પત્રાંક - **NL/EVN-151/926 Dt. 14/11/2017**

સવિનય ઉપરોકત વિષય તથા આપના સંદર્ભીતપત્ર અન્વયે આપના ધ્વારા માંગવામાં આવેલ માહીતી જેવી કે, મંજુર લીઝના વિસ્તારથી ૧૦ કિ.મી ના વિસ્તારમાં જોવા મળતા વન્યપ્રાણીઓ,વનસ્પ્તીઓ,જીવજંતુઓ,સુક્ષમજીવાણું,લુપ્ત થતી વનસ્પ્તીઓ વગેરેની માહીતી આ સાથે સામેલ રાખી મોકલવામાં આવે છે.

આ ઉપરાંત મંજુર લીઝ વિસ્તારથી ૧૦ કિ.મી ના વિસ્તારમાં આવેલ અનામત જંગલો ની માહીતી અત્રેથી ઉપલબ્ધ વર્કીંગ પ્લાન મુજબ સામેલ રાખી મોકલવામાં આવે છે. નેશનલ પાર્ક,અભ્યારણ્ય,રામશર સાઇટ વગેરે અત્રેના વિભાગ હેઠળ આવતું નથી.જેની જાણ થવા વિનંતી છે.

નાયબ વન સંરક્ષક
ભાવનગર વન વિભાગ
ભાવનગર

SR.No. 2512 Dt. 2-5-2018

SHILPA P. SHAH, NOTARY
GOVT. OF INDIA
2-5-18

Office of the Deputy Forest Conservator,
Bhavnagar Forest Division,
Bahumali Bhavan,
Annexe Building,
F-8/9/10, Bhavnagar
Phone No. 0278-2428644 Fax No. 0278-2427317
Email: forestnormalbvn@yahoo.in

No. A/Jaman/Te.11/2302/17-18
Dt. 05/02/2018

To,
Nirma Limited,
Nirma House, Ashram Road,
Ahmedabad.

Sub: List of Flora & Fauna, endangered, endemic, RET species for core & buffer zone (10 km.) of Padhiarka & Doliya Limestone Mining Lease Area (332.24 Ha.) of M/s. Nirma Limited in village: Padhiarka & Doliya, Taluka: Mahuva, Dist. Bhavnagar.

Ref: Your letter No. NL/ENV- 151/926 Dt. 14/11/2017

With reference to the above subject and your letter asking information such as whether wild life, flora & fauna, endangered endemic, RET species etc. does exist within the 10 k.m. from the sanctioned lease area or not, the information in that regards is enclosed herewith.

Further, as per the available working plan here, information about the reserve forest from the sanctioned lease area is also enclosed herewith. You are requested to note that National Park Sanctuary, Ramshar site etc. does not fall under our division.

Sd/-
Deputy Forest Conservator
Bhavnagar Forest Division
Bhavnagar

NOTARY SHILPA P. SHAH AHMEDABAD GUJARAT REGD. No. EXPIRY DATE 09/07/2022 GOVT. OF INDIA
NOTARIAL NOTARIAL

This is the true & correct English Translation of the Original Document in Gujarati

SHILPA P. SHAH
NOTARY
GOVT. OF INDIA
2-5-18

NOTARY SHILPA P. SHAH AHMEDABAD CITY GUJARAT STATE REGD. NO. 4269 GOVT. OF INDIA

Table No: 1

Inventory of Floral Diversity in the Core & Buffer Zone of Proposed Mine Site

Based on Actual Sighting, based on inputs from locals and Perused from Secondary Literature

Habit: Tree (T), Shrub (S), Herb (H) and Grass (G)

(+) Shows: Presence of the species and (-) Shows: Absence of the species

S. No.	Scientific name	Local name	Family	Habit	Core Zone	Buffer Zone
1	*Morinda tinctoria*	Aal (Rangari)	Rubiaceae	T	+	+
2	*Phyllanthus emblica*	Amla	Euphorbiaceae	T	-	+
3	*Alangium salvifolium*	Ankol	Alangiaceae	T	+	+
4	*Terminalia catappa*	Badam	Combretaceae	T	-	+
5	*Terminalia bellirica*	Bahodo	Combretaceae	T	+	+
6	*Zizyphus mauritiana*	Bordi	Rhamnaceae	T	+	+
7	*Zizyphus glaberrima*	Ghatbor	Rhamnaceae	T	-	+
8	*Prosopis juliflora*	Gando Baval	Mimosaceae	T	+	+
9	*Acacia nilotica*	Desi Babool	Mimosaceae	T	+	+
10	*Cordial dichotoma*	Gundi	Ethretiaceae	T	+	+
11	*Acacia leucophloea*	Harmo	Mimosaceae	T	+	+
12	*Erythrina suberosa*	Jungle Khakhro	Fabaceae	T	+	+
13	*Pongamia pinnata*	Karanj	Fabaceae	T	-	+
14	*Cordial monoica*	Kath gundi	Ehretiaceae	T	+	+
15	*Balanites aegyptica*	Ingoriya	Balanitiaceae	T	-	+
16	*Salvadora persica*	Kharijar	Salvadoraceae	T	+	+
17	*Prosopis spicigera*	Khijdo	Mimosaceae	T	+	+
18	*Peltophorum feruginium*	Peltophorum	Caesalpiniaceae	T	+	+
19	*Ficus tsiela*	Pipar	Moraceae	T	-	+
20	*Manilkara hexandra*	Rayan	Sapotaceae	T	+	+
21	*Adansonia digitata*	Rukhdo	Bombacaceae	T	+	+
22	*Terminalia crenulata*	Sadad	Combretaceae	T	+	+
23	*Casuarina equisetifolia*	Saru	Casuarianceae	T	+	+
24	*Leucaena leucocepholea*	Subabooi	Mimosaceae	T	-	+
25	*Ficus racemosa*	Umro	Moraceae	T	-	+
26	*Bombax ceiba*	Shemlo	Bombacaceae	T	-	+
27	*Nyctanthes arbortristis*	Parijatak	Oleaceae	T	-	+
28	*Crataeva nurvala*	Vayvarno	Capparaceae	T	-	+
29	*Wrightia tomentosa*	Indrajav	Apocynaceae	T	-	+
30	*Mimusops elengi*	Borsali	Sapotaceae	T	+	+
31	*Alstonia scholaris*	Saptparni	Apocynaceae	T	+	+
32	*Limonia acidissima*	Kothi	Rutaceae	T	-	+
33	*Terminalia chebula*	Harde	Combretaceae	T	-	+
34	*Xeromphis spinosa*	Mindhal	Rubiaceae	T	+	+

ગોવા ફે. ગોહિલ
ડીસ્ટ્રીક્ટ ફોરેસ્ટ ઓફિસર
ભરૂચ

35	*Azadirachta indica*	Neem	Meliaceae	T	+	+
36	*Gmelina arborea*	Sevan	Verbenaceae	T	-	+
37	*Delonix regia*	Gulmohar	Fabaceae	T	+	+
38	*Cassia fistula*	Amaltas	Caesalpiniaceae	T	+	+
39	*Albizia lebbeck*	Kala Siris	Mimosaceae	T	+	+
40	*Dalbergia sissoo*	Shisham	Fabaceae	T	-	+
41	*Mangifera indica*	Aam	Anacardiaceae	T	+	+
42	*Cocos nucifera*	Narial	Arecaeae	T	+	+
43	*Pongamia pinnata*	Karanj	Fabaceae	T	-	+
44	*Acacia tortilis*	Israeli Baval	Mimosaceae	T	+	+
45	*Ficus benghalensis*	Bad	Moraceae	T	+	+
46	*Ficus religiosa*	Pipal	Moraceae	T	+	+
47	*Cordia dichotoma*	Gundi	Ehretiaceae	T	+	+
48	*Syzygium cumini*	Jamun	Myrtaceae	T	-	+
49	*Moringa oleifera*	Saragvo	Moringaceae	T	+	+
50	*Tamarindus indica*	Imli	Caesalpiniaceae	T	-	+
51	*Clerodendruna multiforum*	Arni	Verbenaceae	S	-	+
52	*Cassia auriculata*	Awal	Caesalpiniaceae	S	-	+
53	*Zizyphus nummularia*	Chanibor	Rhamnaceae	S	+	+
54	*Grewia tenax*	Gangeti	Tiliaceae	S	-	+
55	*Pendallum murex*	Gokhru	Pandaliaceae	S	+	+
56	*Hibiscus vitifolius*	Jungle Bhindo	Malvaceae	S	+	+
57	*Ocimum americanum*	Jungali Tulsi	Lamiaceae	S	+	+
58	*Haloxylon recurvum*	Khari Luni	Chenopodiaceae	S	-	+
59	*Celosia argentea*	Lampdi	Amarantaceae	S	+	+
60	*Solanum nigrum*	Piludi	Solanceae	S	+	+
61	*Maytenus emarginata*	Viklo (Vikro)	Celasteraceae	S	+	+
62	*Dodonaea viscose*	Vialyati Mehandi	Sapindaceae	S	-	+
63	*Triumfetta rhomboidea*	Zipto	Tiliaceae	S	-	+
64	*Hibiscus rosa sinensis*	Jasud	Malvaceae	S	-	+
65	*Psoralea corylifolia*	Bavchi (Takmariya)	Leguminosae	S	-	+
66	*Boerhavia diffusa*	Satodi	Nyctaginaceae	S	-	+
67	*Plimbago zeylanica*	Chitrak	Plumbaginaceae	S	-	+
68	*Piper longum*	Lidipipar	Piperaceae	S	-	+

એચ. જે. વાંદા
રાઉન્ડ ફોરેસ્ટર
મહુવા

No.	Scientific name	Local name	Family	Habit	Core Zone	Buffer Zone
69	*Clarodendrun multiflorum*	Arni	Verbenaceae	S	+	+
70	*Caesalpinia crista*	Kanchka	Malvaceae	S	+	+
71	*Ocimum sanctum*	Tulsi	Labiateae	S	+	+
72	*Echpta prostrata*	Bhangro	Compositeae	S	+	+
73	*Taverniera cunefolia*	Jethi Madh	Papilionaceae	S	+	+
74	*Commiphora wightii*	Guggul	Burseraceae	S	+	+
75	*Euphorbia nerilfolia*	Kantalo Thor	Euphorbiaceae	S	+	[illegible]
76	*Lawsonia inermis*	Mehndi	Lythraceae	S	-	[illegible]
77	*Adhatoda vasica*	Adusa	Acanthaceae	S	+	+
78	*Aloe barbadensis*	Kumar Pathu	Idliaceae	S	+	+
79	*Ziziphus mauritiana*	Mota bor	Rhamnaceae	S	+	+
80	*Ziziphus nummularia*	Cheni bor	Rhamnaceae	S	+	+
81	*Capparis aphylla*	Kerdo	Capparaceae	S	-	+
82	*Carissa carandas*	Karonda	Apocynaiece	S	-	+
83	*Withania somnifera*	Ashwagandha	Solanaceae	S	-	+
84	*Lantana camara*	Raimunia	Verbenaceae	S	+	+
85	*Datura metel*	Datura	Solanaceae	S	+	+
86	*Opuntia elatior*	Hathio Thor	Cactaceae	S	-	+
87	*Indigofera tinctoria*	Gadi	Fabaceae	S	+	[illegible]
88	*Agave americana*	Ketki	Agaveaceae	S	+	[illegible]
89	*Vitex negundo*	Nirgundi	Verbenaceae	H	-	+
90	*Martynia annua*	Bichchu	Martyniaceae	H	-	+
91	*Solanum surattense*	Oont kateli	Solanaceae	H	+	+
92	*Argemone mexicana*	Mexican poppy	Papaveraceae	H	+	+
93	*Abrus precatorius*	Chanothi	Fabaceae	C	-	+
94	*Rivaea hypocrateriformis*	Fang	Convolvulaceae	C	-	+
95	*Tinospora cordifolia*	Galo	Meispermaceae	C	-	+
96	*Asparagus gonoclados*	Satavari	Liliaceae	C	+	+
97	*Mucuna prurita*	Koucha	Leguminaceae	C	+	[illegible]
98	*Asparagus racemosus*	Shatavri	Asparagaceae	C	+	[illegible]
99	*Apludo mutica spp. aristata*	Bhangoru	Poacaeae	G	-	+
100	*Bothriochloa intermedia*	Darafdo	Poaceae	G	+	+
101	*Ischaemum rugosum*	Dhodiu	Poaceae	G	+	+
102	*Iseilema laxum*	Ghaulu	Poaceae	G	-	+

એચ. જે. પાંડા
રાઉન્ડ ફોરેસ્ટર
મહુવા

S. No.	Scientific name	Local name	Family	Habit	Core Zone	Buffer Zone
103	*Bambusa bamboo*	Kanti vans	Poaceae	G	+	+
104	*Dinebra retroflexa*	Kharlu	Poaceae	G	-	+
105	*Themeda quaidrivalvis*	Ratad	Poaceae	G	+	+
106	*Cymbpogon martini*	Rosha	Poaceae	G	+	+
107	*Sehima sulcatum*	Sanlar	Poaceae	G	+	+
108	*Bothriochloa ischaemum*	Zinzvo	Poaceae	G	+	+
109	*Seteria glauca*	Ziptighas	Poaceae	G	+	+
110	*Dichanthium annulatum*	Karad, Jagra	Poaceae	G	-	+
111	*Aristida adscensionis*	Lapdu	Poaceae	G	+	+
112	*Desmostachya bipinnata*	Darbha	Poaceae	G	+	+
113	*Eragrostis poacoides*	Chaku Maku	Poaceae	G	-	+
114	*Dendrocalamus strictus*	Bamboo	Poaceae	G	-	+
115	*Cymbopogon jwarancusa*	Gandharu	Poaceae	G	-	+
116	*Heteropogon contortus*	Surwala, Kali lamp	Poaceae	G	-	+
117	*Cynodon dactylon*	Durva	Poaceae	G	+	+

ભેપ. જે. વાંદા
રાઉન્ડ ફોરેસ્ટર
મહુવા

Table No: 2

List of Vegetation in Forest Area

Based on Actual Sighting, based on inputs from locals and Perused from Secondary Literature

Habit: Tree (T), Shrub (S), Herb (H) and Grass (G)

S. No.	Scientific name	Common name	Family	Habit
1	*Acacia nilotica*	Desi Babool	Mimosaceae	T
2	*Ailanthus excelsa*	Aldu	Simaroubaceae	T
3	*Acacia senegal*	Kumta	Mimosaceae	T
4	*Butea monosperma*	Dhak	Fabaceae	T
5	*Balanites aegyptica*	Hingot	Zygophyllaceae	T
6	*Anogeissus latifolia*	Dhaodo	Combretaceae	T
7	*Lannea coromandelica*	Gurjan	Anacardiaceae	T
8	*Sterculia urens*	Karaya	Malvaceae	T
9	*Azadirachta indica*	Neem	Meliaceae	T
10	*Gmelina arborea*	Sevan	Verbenaceae	T
11	*Cassia fistula*	Amaltas	Caesalpiniaceae	T
12	*Albizia lebbeck*	Kala Siris	Mimosaceae	T
13	*Parkinsonia aculeate*	Ram Baval	Caesalpiniaceae	T
14	*Commiphora wightii*	Guggul	Burseraceae	S
15	*Euphorbia spartium*	Kharsani Thor	Euphorbiaceae	S
16	*Solanum nigrum*	Piludi	Solanaceae	S
17	*Aristida adscensionis*	Lapdu	Poaceae	G

Table No. - 3

Inventory of Faunal Diversity in the Core & Buffer Zone of Proposed Mine Site

Based on Actual Sighting, based on inputs from locals and Perused from Secondary Literature

S. No.	Scientific Name	Common Name	Status according to IWPA- 1972	Core Zone	Buffer Zone
		Mammals			
1	*Panthera leopersica*	Asiatic Lion	Sch. I	+	+
2	*Panthera pardus*	Leopard	-	+	+
3	*Hyaena hyaena*	Hyena	Sch. III	+	+
4	*Sus scrofa*	Wild boar	Sch. III	+	+
5	*Gazella gazelle bennetti*	Chinkara	Sch. I	+	+
6	*Axis axis*	Spotted bear	Sch. III	+	+
7	*Funambulus pennantii*	Five- stripped Palm Squirrel	Sch. IV	+	+
8	*Canis aureus*	Jackal	Sch. II	+	+
9	*Vulpes bengalensis*	Common fox	Sch. II	+	+
10	*Hystrix indica*	Indian Porcupine	Sch. IV	+	+
11	*Boselaphus tragocamelus*	Nilgai	Sch.III	+	+
12	*Felis chaus*	Jungle-cat	Sch. II	+	+
13	*Herpestes edwardsii*	Common Mongoose	Sch. II	+	+
14	*Canis lupus*	Wolf	-	+	+

એચ. જે. વાંદા
રાઉન્ડ ફોરેસ્ટર
મહુવા

S. No.	Scientific Name	Common Name	Status according to IWPA-1972	Core Zone	Buffer Zone
		Reptiles			
1	*Typhlops porrectus*	Common blind snake	Sch. IV	+	+
2	*Eryx conicus*	Common sandoba	Sch. IV	+	+
3	*Lycodon aulicus*	Common wolf snake	Sch. IV	+	+
4	*Boiga trigonata*	Common cat snake	Sch. IV	+	+
5	*Cerberus rynchops*	Dog faced water snake	Sch. IV	+	+
6	*Bungaras caerulus*	Common Indian Krait	Sch. IV	+	+
7	*Viper russelli*	Russell's viper	Sch. II	+	+
8	*Echis carinatus*	Saw scaled viper	Sch. II	+	+
9	*Xenochrophis piscator*	Checkered keelback water snake	Sch. II	+	+
10	*Ptyas mucosus*	Indian Rat snake	Sch. II	+	+
11	*Bungarus caeruleus*	Common Indian krait	Sch. IV	+	+
12	*Eryx johnii*	Red sand Boa	Sch. IV	+	+
13	*Naja naja*	Naag/Kobra	Sch. II	+	+
		Amphibians			
1.	*Rana limnocharis*	Indian cricket Frog	Sch. IV	-	+
2.	*Hoplobatrachus tigerinus*	Indian bull frog	Sch. IV	-	+
3.	*Rana tigrina*	Common Frog	Sch. IV	+	+
4.	*Bufo melanostictus*	Common Indian toad	Sch. IV	+	+
		Butterflies			
1	*Danaus chrysippus*	Plain tiger	-	+	+
2	*Papilio polytes*	Common mormon	-	+	+
3	*Ixias pyrene*	Yellow orange tip	-	+	+
4	*Belenois aurota aurota*	Pioneer	-	+	+
5	*Ixias marianne*	White orange tip	-	+	+
6	*Catopsilia pyranthe*	Mottled Emigrant	-	+	+
7	*Vanessa cardui*	Painted lady butterfly	-	+	+
8	*Colotis eucharis*	Plain orange tip	-	+	+
9	*Tarucus nara*	Striped pierrot	-	+	+
10	*Junonia orithya*	Blue pansy	-	+	+
11	*Chilades parrhasius*	Small cupid	-	+	+
12	*Papilio demoleus*	Lime butterfly	-	+	+
13	*Pieris napi*	Green- veined white butterfly	-	+	+
14	*Catopsilia pomona*	Common emigrant	-	+	+
15	*Eurema brigitta*	Small grass yellow	-	+	+
		Arthropods			
1	*Apis indica*	Choti Madhumakkhi	-	+	+
2	*Apis dorsata*	Badi Madhumakkhi	-	+	+
3	*Periplaneta amercana*	Cockroach	-	+	+
4	*Buthus sp.*	Scorpion	-	+	+
5	*Sympetrum fonscolombii*	Red veined darter dragonfly	-	+	+
6	*Diplacodes trivialis*	Ground skimmer dragonfly	-	+	+
7	*Stegodyphus sp.*	Social Spider	-	+	+

એચ. જે. વાંદા
રાઉન્ડ ફોરેસ્ટર
મહુવા

Table No. – 4

Inventory of Avifaunal Diversity in the Core & Buffer Zone of Proposed Mine Site

Based on Actual Sighting, based on inputs from locals and Perused from Secondary Literature

S. No.	Scientific Name	Common Name	Status according to IWPA-1972	Core Zone	Buffer Zone
1.	*Bubulcus ibis*	Cattle Egret	Sch. IV	-	+
2.	*Egretta garzetta*	Little Egret	Sch. IV	+	+
3.	*Ardea intermedia*	Intermediate egret	Sch. IV	-	+
4.	*Vanellus indicus*	Red- wattled Lapwing	Sch. IV	+	+
5.	*Vanellus malabaricus*	Yellow wattled lapwing	Sch. IV	+	+
6.	*Columba livia*	Blue Rock Pigeon	Sch. IV	+	+
7.	*Spilopelia senegalensis*	Laughing Dove	Sch. IV	+	+
8.	*Streptopelia chinensis*	Spotted dove	Sch. IV	-	+
9.	*Halcyon smyrnensis*	White-throated Kingfisher	Sch. IV	+	+
10.	*Ceryle rudis*	Pied kingfisher	Sch. IV	-	+
11.	*Dicrurus macrocercus*	Black drongo	Sch. IV	+	+
12.	*Merops orientalis*	Small Bee Eater	Sch. IV	+	+
13.	*Merops philippinus*	Blue tailed bee- eater	Sch. IV	-	+
14.	*Coracias benghalensis*	Indian Roller	Sch. IV	+	+
15.	*Pseudibis papillosa*	Black ibis	Sch. IV	+	+
16.	*Plegadis falcinellus*	Glossy ibis	Sch. IV	-	+
17.	*Threskiornis melanocephalus*	Oriental White Ibis	Sch. IV	+	+
18.	*Sturnia pagodarum*	Brahminy Starling	Sch. IV	-	+
19.	*Pastor roseus*	Rosy starling	Sch. IV	-	+
20.	*Platalea leucorodia*	Spoonbill	Sch. IV	-	+
21.	*Acridotheres tristis*	Common Myna	Sch. IV	+	+
22.	*Acridotheres ginginianus*	Bank myna	Sch. IV	+	+
23.	*Motacilla maderaspatensis*	White browed wagtail	Sch. IV	+	+
24.	*Motacilla flava*	Yellow wagtail	Sch. IV	-	+
25.	*Upupa epops*	Common Hoopoe	Sch. IV	+	+
26.	*Cinnyris asiaticus*	Purple Sunbird	Sch. IV	-	+
27.	*Pycnonotus cafer*	Red-Vented Bulbul	Sch. IV	+	+
28.	*Corvus splendens*	Common Crow	Sch. V	+	+
29.	*Himantopus himantopus*	Black Winged Stilt	Sch. IV	-	+
30.	*Tringa glareola*	Wood Sandpiper	Sch. IV	-	+
31.	*Tringa stagnatilis*	Marsh sandpiper	Sch. IV	-	+
32.	*Tringa totanus*	Common redshank	Sch. IV	-	+
33.	*Gallinago gallinago*	Common snipe	Sch. IV	-	+
34.	*Copsychus saularis*	Oriental magpie robin	Sch. IV	+	+
35.	*Saxicoloides fulicata*	Indian Robin	Sch. IV	+	+
36.	*Turdoides caudata*	Common babbler	Sch. IV	+	+
37.	*Turdoides striatus*	Jungle babbler	Sch. IV	-	+
38.	*Megalaima haemacephala*	Coppersmith barbet	Sch. IV	-	+

એચ. જે. વાંદા
રાઉન્ડ ફોરેસ્ટર
મહુવા

1.

S. No.	Scientific Name	Common Name	Status according to IWPA-1972	Core Zone	Buffer Zone
39.	*Francolinus pondicerianus*	Grey francollris	Sch. IV	+	+
40.	*Phoenicopterus roseus*	Greater flamingo	Sch. IV	-	+
41.	*Ploceus philippinus*	Baya- weaver	Sch. IV	+	+
42.	*Centropus sinensis*	Greater coucal	Sch. IV	-	+
43.	*Eudynamys scolopacea*	Asian koel	Sch. IV	+	+
44.	*Psittacula krameri*	Rose-ringed parakeet	Sch. IV	+	+
45.	*Anas crecca*	Common teal	Sch. IV	-	+
46.	Microcarbo niger	Little cormorant	Sch. IV	-	+
47.	Pavo cristatus	PEACOCK	Sch.I	+	+

(+) Shows: Presence of the species and (-) Shows: Absence of the species

Table No. – 5

Inventory of Aquatic Diversity in the Buffer Zone of Proposed Mine Site

Based on Actual Sighting, based on inputs from locals and Perused from Literature

S. No.	Scientific name	Local name	Family	Core Zone	Buffer Zone
		Aquatic flora			
1.	*Hydrilla verticillata*	Seval	Hydrocharitaceae		+

Table No. – 6

Inventory of Mangrove Ecosystem with Associated Biodiversity in Buffer Zone of Mine Site

Based on Actual Sighting, based on inputs from locals and Perused from secondary Literature

S. No.	Scientific name	Local name	Family	Habit
		Floral diversity		
1.	*Kandelia candel*	Kandal, Narrow leaved mangrove	Rhizophoraceae	T
2.	*Rhizophora mucronata*	Bhora, Asiatic mangrove	Rhizophoraceae	T
		Faunal diversity		
1.	*Solenocera crassicornis*	Coastal Mud Shrimp	Solenoceridae	Arthropods

એચ. જે. વાંદા
રાઉન્ડ ફોરેસ્ટર
મહુવા

STATEMENT SHOWING THE DETAILS OF AREAS DECLARED AS RESERVE "FORESTS (SECTION 20) OF INDIAN FOREST ACT, 1927.

Sr. No.	Village	Taluka	Range	Area (ha.)	Notification No. & Date
1	Khared	Mahuva	Mahuva	24.28	AKH/220/FLD/1665/37967-P, Dt.04-04-66
2	Katpar	--"--	--"--	32.37	AKH/336/FLD/1666/56145-P, Dt.05/06-09-66
3	Dayal	--"--	--"--	40.47	AKH/245/FLD/1665/40143-P, Dt.15-04-66
4	Kalsar	--"--	--"--	80.94	AKH/347/FLD/1665/56135-P, Dt.14-09-66
5	Kotada Nicha	--"--	--"--	50.58	AKH/347/FLD/1665/56135-P, Dt.14-09-66
6	Vaghnagar	--"--	--"--	20.23	AKH/58/FLD/1667/14094-P, Dt.13-04-67
7	Dudheri	--"--	--"--	30.35	AKH/229/FLD/1667/44019-P, Dt.22-12-68
8	Kotada Uncha	--"--	--"--	32.37	AKH/126/FLD/1671/62790-P, Dt.20-04-71
9	Doliya	--"--	--"--	14.09	AKH/120/FLD/1672/73952-P, Dt.17-05-72
10	Gujarda	--"--	--"--	32.37	AKH/229/FLD/1667/44019-P, Dt.22-12-68
11	Karmadiya	--"--	--"--	238.93	AKH/219/FLD/1671/92758-P, Dt.05-10-71
12	Ratanpar	--"--	--"--	488.74	AKH/219/FLD/1671/92758-P, Dt.05-10-71
13	Moda	--"--	--"--	44.25	AKH/219/FLD/1671/92758-P, Dt.05-10-71
14	Tataniya	--"--	--"--	83.67	AKH/219/FLD/1671/92758-P, Dt.05-10-71
15	Beda	--"--	--"--	730.23	AKH/252/FLD/1671/6799-P, Dt.17-10-71
16	Karjala	--"--	--"--	182.65	AKH/252/FLD/1671/6799-P, Dt.17-11-71
17	Jesar	--"--	--"--	499.79	AKH/16/80/FLD/1676, Dt.29-11-80
TOTAL				**2626.31**	
1	Padari	Talaja	Mahuva	40.47	AKH/335/FLD/1666/56136-P, Dt.05/06-09-66
2	Chopra	--"--	--"--	20.23	AKH/335/FLD/1666/56136-P, Dt.05/06-09-66
3	Madhuvan	--"--	--"--	33.30	AKH/123/FLD/1467/25600-P, Dt.04-08-67
4	Pratapara	--"--	--"--	74.91	AKH/123/FLD/1467/25600-P, Dt.04-08-67
5	Zanzmer	--"--	--"--	26.30	AKH/123/FLD/1467/25600-P, Dt.04-08-67

6	Methala	--"--	--"--	742.90	AKH/123/FLD/1467/25600-P, Dt.04-08-67
7	Khandhera	--"--	--"--	108.46	AKH/410/FLD/1069/54574-P, Dt.06-06-69
8	Sartanpar	--"--	--"--	59.78	AKH/383/FLD/1668/40001-P, Dt.12-03-69
9	Tarsara	--"--	--"--	42.49	AKH/271/75/FLD/1671/83061-P, Dt.15-07-75
10	Aamla	--"--	--"--	80.94	GVN/1998/20/JJM/1690/781-K, Dt.01-06-98
11	Pingali	--"--	--"--	80.94	GVN/2000/21/JJM/1098/4240-K, Dt.16-03-2000
12	Bakhalaka	--"--	--"--	121.48	GVN/1998/21/JJM/1690/781-K, Dt.01-06-98
13	Sakhadasar-2	--"--	--"--	43.02	AKH/484/FLD/1668/80737-P, Dt.18-11-69
14	Hamirpara	--"--	--"--	64.33	AKH/484/FLD/1668/80737-P, Dt.18-11-69
15	Kundhada	--"--	--"--	455.83	AKH/484/FLD/1668/80737-P, Dt.18-11-69
16	Ralgon	--"--	--"--	8.09	GVN/1999/17/JJM/1095/4308-K, Dt.20-05-99
TOTAL				**2003.47**	

Table No. – 3 of letter by DCF dated 05.02.2018 updated as per Act 18 of 2022

Inventory of Faunal Diversity in the Core & Buffer Zone of Proposed Mine Site Based on Actual sighting, based on inputs from local and perused from secondary Literature

Sl. No.	Scientific Name	Common Name	Status according to IWPA-1972 (Schedule)	Reference to schedule as the Wild Life Protection amendment act, 2022			Present in Core Zone	Present in Buffer Zone
				Schedule	Part	Serial		
	Mammals							
1.	*Panthera leo persica*	Asiatic Lion	I	I	A	35	+	+
2.	*Panthera pardus*	Leopard	I	I	A	43	+	+
3.	*Hyaena hyaena*	Striped hyaena	III	I	A	89	+	+
4.	*Sus scrafa*	Wild boar	III	Not listed, (IUCN-LC)			+	+
5.	*Gazella bennettii*	Chinkara	I	I	A	2	+	+
6.	*Axis axis*	Spotted deer/ Cheetal	III	II	A	11	+	+
7.	*Funambulus pennantii*	Five-stripped palm squirrel	IV	Not listed, (IUCN-LC)			+	+
8.	*Canis aureus*	Jackal	II	I	A	22	+	+
9.	*Vulpes bengalensis*	Bengal fox	II	I	A	84	+	+
10.	*Hystrix Indica*	Indian porcupine	IV	I	A	120	+	+
11.	*Boselaphus tragocamelus*	Nilgai	III	II	A	1	+	+
12.	*Felis Chaus*	Jungle cat	II	I	A	42	+	+
13.	*Herpestes edwardsii*	Common mongoose	II	Appendix III		19	+	+
14.	*Canis Lupus*	Grey wolf	-	I	A	21	+	+
	Reptiles							
1.	*Typhlops porrectus*	Common blind snake	IV	II	C	15	+	+
2.	*Eryx conicus*	Common sandoba	IV	Not Listed (IUCN-NT)			+	+
3.	*Lycodon aulicus*	Common wolf snake	IV	Not Listed (IUCN-LC)			+	+
4.	*Bolga trigonata*	Common cat snake	IV	Not Listed (IUCN-LC)			+	+
5.	*Cerberus rynchops*	Dog faced water snake	IV	I	C	27	+	+
6.	*Bungarus caeruleus*	Common Indian Krait	IV	Not Listed (IUCN-LC)			+	+
7.	*Vipera Russelli*	Russell viper	II	I	C	30	+	+
8.	*Echis carinatus*	Saw scaled viper	II	Not Listed (IUCN-LC)			+	+
9.	*Fowlea piscator*	Checkered Keelback	II	I	C	25	+	+
10.	*Ptyas mucosus*	Indian Rat snake	II	I	C	26	+	+
11.	*Bungarus caeruleus*	Common Indian Krait	IV	Not Listed (IUCN-LC)			+	+

ANNEXURE : XIII Contd..

Sl. No.	Scientific Name	Common Name	Status according to IWPA-1972 (Schedule)	Reference to schedule as the Wild Life Protection amendment act, 2022			Present in Core Zone	Present in Buffer Zone
				Schedule	Part	Serial		
12.	*Eryx johnil*	Red sand boa	IV	I	C	1	+	+
13.	*Naja Naja*	Naag/cobra	II	I	C	18	+	+
	Amphibians							
1.	*Fejervarya limnocharis*	Indian cricket Frog	IV	Not Listed (IUCN-LC)			-	+
2.	*Hoplobatrachus tigerinus*	Indian bull frog	IV	II	D	13	-	+
3.	*Rana tigrina*	Common frog	IV	Appendix II		322	+	+
4.	*Duttaphrynus melanostictus*	Common Indian toad	IV	Not Listed (IUCN-LC)			+	+
	Butterflies							
1.	*Danaus chrysippus*	Plain tiger	-				+	+
2.	*Papillo Polytes*	Common Mormon	-				+	+
3.	*Ixias pyrene*	Yellow orange tip	-				+	+
4.	*Belenols aurota aurota*	Pioneer	-				+	+
5.	*Ixias Marianne*	White orange tip	-				+	+
6.	*Catopsilla pyranthe*	Mottled Emigrant	-				+	+
7.	*Vanessa Cardul*	Painted lady butterfly	-				+	+
8.	*Colotis eucharis*	Plain orange tip	-				+	+
9.	*Tarucus nala*	Striped plerrot	-				+	+
10.	*Junonia orithya*	Blue pansy	-				+	+
11.	*Chilades parrhasius*	Small cupid	-				+	+
12.	*Papilio demoleus*	Lime butterfly	-				+	+
13.	*Pleris napi*	Green-veined white butterfly	-				+	+
14.	*Catopsilia Pomona*	Common emigrant	-				+	+
15.	*Eurema brigitta*	Small grass yellow	-				+	+
	Arthropods							
1.	*Apls Indica*	Choti Madhumakkhi	-				+	+
2.	*Apis dorsata*	Badi Madhumakkhi	-				+	+
3.	*Periplarieta amercana*	Cockroach	-				+	+
4.	*Buthus sp.*	Scorpion	-				+	+
5.	*Sympetrum fonscolombii*	Red veined darter dragonfly	-				+	+
6.	*Diplacodes trivjallis*	Ground skimmer dragonfly	-				+	+
7.	*Stegodyphus sp.*	Social Spider	-				+	+

Table No. – 4 of letter by DCF dated 05.02.2018 updated as per Act 18 of 2022.

Inventory of Avifauna Diversity in the Core & Buffer Zone of proposed mine site based on actual sighting, based on inputs from locals and perused from Secondary Literature

Sl. No.	Scientific Name	Common Name	Status according to IWPA-1972 (Schedule)	Reference to schedule as the Wild Life Protection amendment act, 2022			Present in Core Zone	Present in Buffer Zone
				Schedule	Part	Serial		
1.	*Bubulcus Ibis*	Cattle egret	IV	II	B	29	-	+
2.	*Egretta garzetta*	Little egret	IV	II	B	40	+	+
3.	*Ardea Intermedia*	Intermediate egret	IV				-	+
4.	*Vanellus Indicus*	Red-wattled Lapwing	IV	II	B	795	-	+
5.	*Vanellus malabaricus*	Yellow wattled lapwing	IV	II	B	798	-	+
6.	*Columba livia*	Blue rock pigeon	IV	Not Listed (IUCN-LC)			+	+
7.	*Spilopelia senegalensis*	Laughing dove	IV	II	B	742	+	+
8.	*Streptopelia chinnesis*	Spotted done	IV	II	B	753	-	+
9.	*Halcyon smyrnensis*	White-throated Kingfisher	IV	II	B	499	+	+
10.	*Ceryle rudis*	Lesser Pied kingfisher	IV	II	B	496	-	+
11.	*Dicrurus macrocercus*	Black drongo	IV	II	B	223	+	+
12.	*Merops orientalis*	Green bee - eater	IV	II	B	26	+	+
13.	*Merops phillppinus*	Blue tailed bee-eater	IV	II	B	22	-	+
14.	*Coracias benghalensis*	Indian roller	IV	II	B	829	+	+
15.	*Pseudibis papillosa*	Red-naped Ibis	IV	II	B	484	+	+
16.	*Plegadis falcinellus*	Glossy ibis	IV	II	B	483	-	+
17.	*Threskiornis melanocephalus*	Black-headed Ibis	IV	II	B	482	-	+
18.	*Sturnia pagodarum*	Brahminy starling	IV	II	B	951	-	+
19.	*Pastor roseus*	Rosy starling	IV	II	B	963	-	+
20.	*Platalea leucorodia*	Eurasian spoonbill	IV	II	B	59	-	+
21.	*Acridotheres tristris*	Common myna	IV	II	B	955	+	+
22.	*Acridotheres ginginianus*	Bank myna	IV	II	B	950	+	+
23.	*Motacilla maderaspatensis*	Whitebrowed wagtail	IV	II	B	775	+	+
24.	*Motacilla flava*	Western yellow wagtail	IV	II	B	773	-	+
25.	*Upupa epops*	Common hoopoe	IV	II	B	479	+	+

ANNEXURE : XIII Contd..

Sl. No.	Scientific Name	Common Name	Status according to IWPA-1972 (Schedule)	Reference to schedule as the Wild Life Protection amendment act, 2022			Present in Core Zone	Present in Buffer Zone
				Schedule	Part	Serial		
26.	*Cinnyris asiaticus*	Purple sunbird	IV	II	B	983	-	+
27.	*Pycnonotus cafer*	Red-vented bulbul	IV	II	B	63	+	+
28.	*Corvus splendens*	Common crow	V	Not Listed (IUCN-LC)			+	+
29.	*Himantopus Himantopus*	Black winged stilt	IV	II	B	967	-	+
30.	*Tringa glareola*	Wood sandpiper	IV	II	B	874	-	+
31.	*Tringa stagnatilis*	Marsh sandpiper	IV	II	B	857	-	+
32.	*Tringa totanus*	Common redshank	IV	II	B	843	-	+
33.	*Gallinago gallinago*	Common snipe	IV	II	B	845	-	+
34.	*Copychus saularis*	Oriental magpie robin	IV	II	B	384	+	+
35.	*Saxicoloides fulicata*	Indian Robin	IV	II	B	372	+	+
36.	*Argya caudata*	Common babbler	IV	II	B	537	+	+
37.	*Argya striata*	Jungle babbler	IV	II	B	543	-	+
38.	*Psilopogon haemacephalus*	Coppersmith barbet	IV	II	B	11		
39.	*Francolinus pondicerianus*	Grey francolin	IV	II	B	701	-	+
40.	*Phoenicopterus roseus*	Greater flamingo	IV	II	B	326	+	+
41.	*Ploceus Philippinus*	Baya-weaver	IV	II	B	1084	+	+
42.	*Centropus sinenis*	Greater coucal	IV	II	B	201	-	+
43.	*Eudynamys scolopaceus*	Asian Koel	IV	II	B	194	+	+
44.	*Psittacula Krameri*	Rose-ringed parakeet	IV	II	B	693	+	+
45.	*Anas crecca*	Common teal	IV	II	B	236	-	+
46.	*Microcarbo niger*	Little cormorant	IV	II	B	165	-	+
47.	*Pavo cristatus*	Indian peafowl	I	I	B	161	+	+

(+) Shows: Presence of the species and (-) Shows: Absence of the species

No. WLP/32/C/ 826-827 /2021-22
Office of the
Principal Chief Conservator of forests
Block No. B/1, Aranya Bhavan,
Ch-3 Circle, Sector - 10/A,
Gujarat State, Gandhinagar.
Dated: 13 .01.2022

To,
M/s. Nirma Limited,
Nirma House, Ashram road,
Ahmedabad- 380 009

Sub:- Authentication of map showing location of any Protected areas within 10 km of the proposed Limestone Mines of M/s Nirma limited located at Villages- Vangar, Madhiya, Padhiarka, Doliya, Gujarda, Dudheri and Dudhala, Taluka- Mahuva, Dist. Bhavnagar, Gujarat.

Ref :- Chief Conservatoe Of Forest, Junagadh Circle letter No. A/JMN/T.12/1809-10/2021-22, Dt. 18/12/2021

With reference to the subject and letter quoted above, M/s. Nirma Limited requested to issue authentication of map showing location of any Protected areas within 10 km of the proposed Limestone Mines located at Villages- Vangar, Madhiya, Padhiarka, Doliya, Gujarda, Dudheri and Dudhala, Taluka- Mahuva, Dist. Bhavnagar.

Please find enclosed herewith a copy of map showing location of any Protected areas within 10 km of the limestone mining project as ANNEXURE-A, map showing distance between protected areas and proposed limestone mine as ANNEXURE-B.

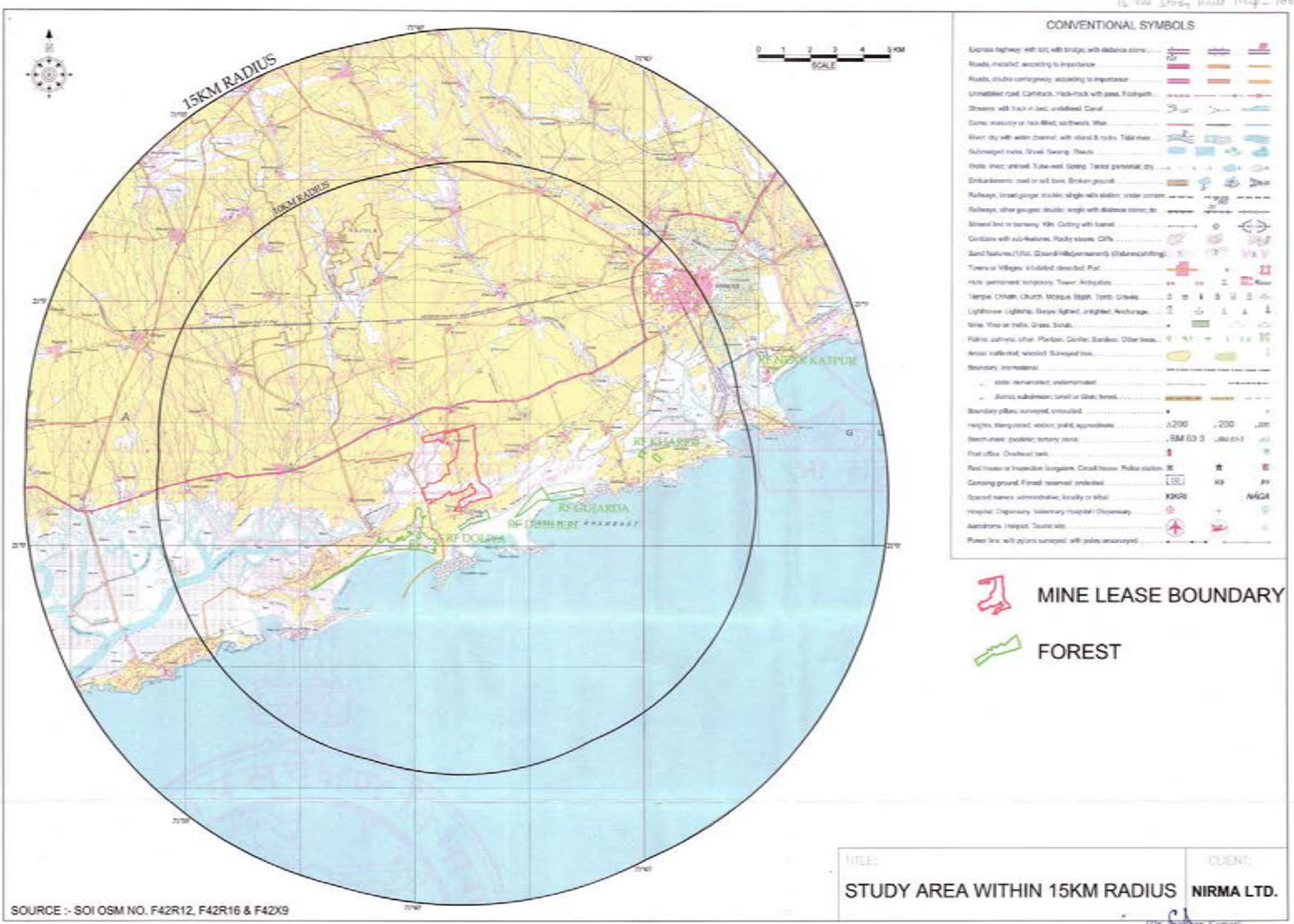
Encl. As above

13/1
(Shyamal Tikadar)
Chief Wildlife Warden
Gujarat State, Gandhinagar

Copy to: Chief Conservator of Forests, Junagadh Circle for information and necessary action.

Annexure – I. A

15 Km Study Area Map – Bedi Area



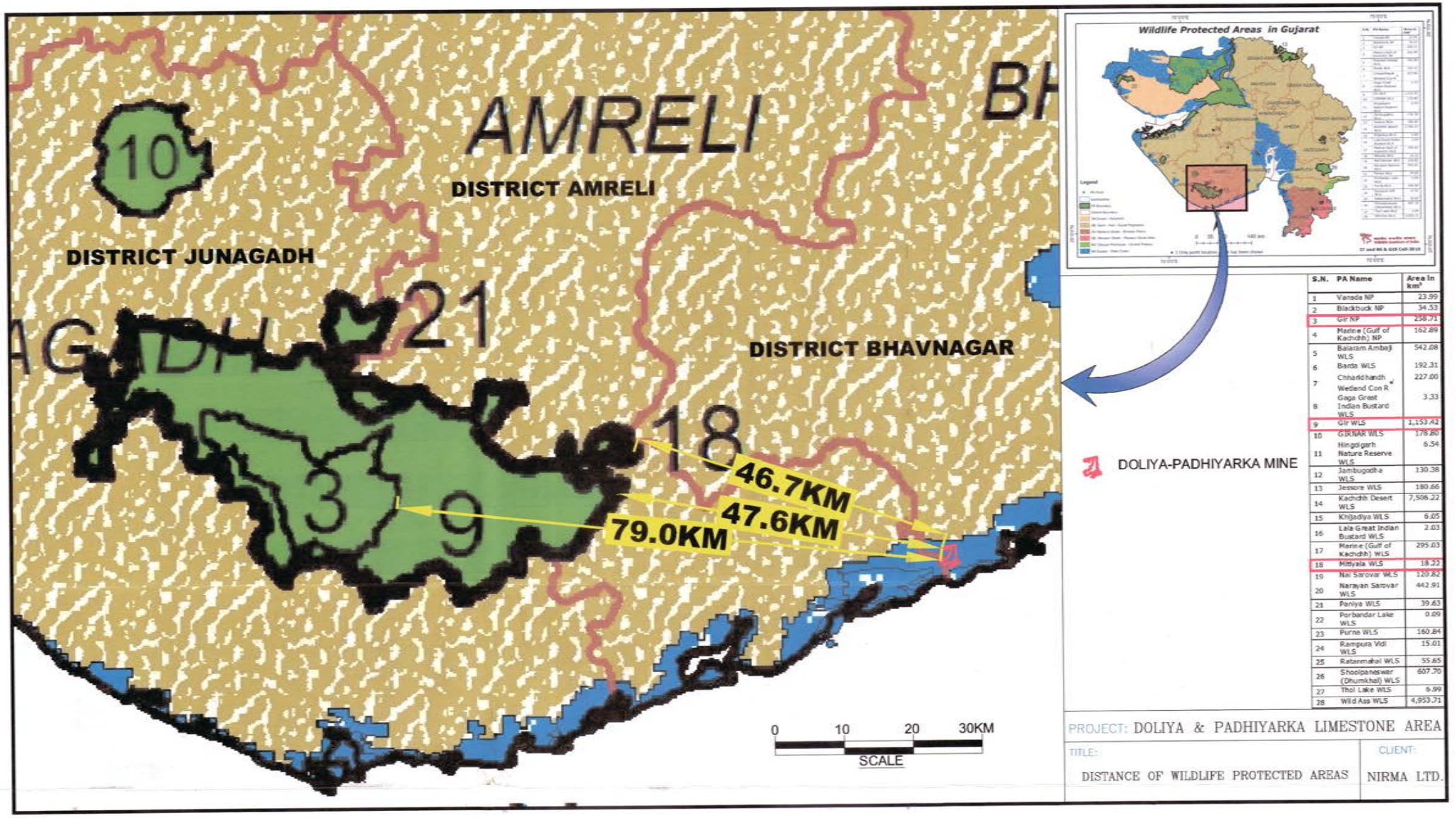
(Dr. Sanjeev Kumar)
Deputy Conservator of Forests
Bhavnagar Forest Division
Bhavnagar

: A-76 :

ANNEXURE : X1153td..

Annexure II A

WLS Doliya & Padhiyarka



S.N.	PA Name	Area in km²
1	Vansda NP	23.99
2	Blackbuck NP	34.53
3	Gir NP	258.71
4	Marine (Gulf of Kachchh) NP	162.89
5	Balaram Ambaji WLS	542.08
6	Barda WLS	192.31
7	Chharidhandh Wetland Con R	227.00
8	Gaga Great Indian Bustard WLS	3.33
9	Gir WLS	1,153.42
10	GIRNAR WLS	178.80
11	Hingolgarh Nature Reserve WLS	6.54
12	Jambugodha WLS	130.38
13	Jessore WLS	180.66
14	Kachchh Desert WLS	7,506.22
15	Khijadiya WLS	6.05
16	Lala Great Indian Bustard WLS	2.03
17	Marine (Gulf of Kachchh) WLS	295.03
18	Mitiyala WLS	18.22
19	Nal Sarovar WLS	120.82
20	Narayan Sarovar WLS	442.91
21	Paniya WLS	39.63
22	Porbandar Lake WLS	0.09
23	Purna WLS	160.84
24	Rampura Vidi WLS	15.01
25	Ratanmahal WLS	55.65
26	Shoolpaneswar (Dhumkhal) WLS	607.70
27	Thol Lake WLS	6.99
28	Wild Ass WLS	4,953.71

PROJECT: DOLIYA & PADHIYARKA LIMESTONE AREA

TITLE: DISTANCE OF WILDLIFE PROTECTED AREAS

CLIENT: NIRMA LTD.

: A-77 :

ANNEXURE 1154 contd.

(Dr. Sandeep Kumar)
Deputy Conservator of Forests
Bhavnagar Forest Division
Bhavnagar

No. WLP/32/C/826-827 /2021-22

Principal Chief Conservator of Forests,

Block No. B/1, Aranya Bhawan,

Ch -3 Circle, Sector -3 A,

Gujarat State, Gandhinagar.

Date: 14.02.2022

To,

M/s Nirma Limited,

Nirma House, Ashram Road,

Ahmedabad – 380 009

Sub: Authentication of map showing location of any Protected areas within 10 km of the proposed Limestone Mines of M/s Nirma limited located at Villages- Vangar, Madhiya, Padhiarka, Doliya, Gujarda, Dudheri and Dudhala, Taluka- Mahuva, Dist. Bhavnagar, Gujarat.

Ref: Our Office letter no WLP/32/C/826-827, dated: 13.01.2022.

With reference to our office letter dated 13.01.2022 issued authenticated map showing location of any Protected areas within 10 km of the Limestone mines at Padhiarka & Dolia, Vangar & Madhiya, Gujarda, Dudhala & Dudheri of Nirma Limited located in Mahuva taluka, District Bhavnagar, Gujarat state.

As shown in issued authenticated maps, the distance between Protected areas and Limestone mines is as shown below.

Protected Areas	**Distance between Limestone Mines and Protected areas.**		
	Vangar & Madhiya Mines	**Gujarda, Dudheri & Dudhala Mines**	**Padhiarka & Doliya Mines**
Gir National Park,	76 km	80.9 km	79 km
Gir Wildlife Sanctuary,	44.2 km,	48.8 km	47.6 km
Mitiyala Wildlife Sanctuary	43.5 km	48.1 km	46.7 km

(Shyamal Tikadar)
Chief Wildlife Warden
Gujarat state, Gandhinagar

Copy to: Chief Conservator of Forests, Junagadh circle for information & necessary action

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. **LTD.**)
A-121, Paryavaran Complex,IGNOU Road, New Delhi – 110 030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at :http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

ANNEXURE : XV

TEST REPORT

Customer's Name & Address
Nirma Ltd.
Nirma House, Ashram Road
Ahemadabad - 380009

Contact Person : Ms. Tejal Patel

Customer Particulars	
Type of Sample	: Soil
Work Order No.	: NNL/CP-43/LOI-095/2020-21/PTV/
Sampling Location	: In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines, District Bhavnagar, Gujarat.
Sampling Procedure	: IS 2720 (Part-1)
Sample Volume/ Quantity	: 1.25 Kg
Sampling Team	: MMRDL (Ravikant)
Sample Reg. No.	: MMS/06-2021/1.1-1.12
Date of Monitoring	: 30/05/2021
Date of Receipt	: 02/06/2021
Date of Testing	: 07/06/2021 to 14/06/2021
Date of Report	: 18-06-2021
Test Report No.	: MMS/06-2021/65
ULR No.	TC633721000000138F
Page	: 1 of 1

Parameters	Protocol	Near Cement Plant at Padhiarka Village	Padhiarka Village	Vangar Village	Madhiya Village	Dudhala Village	Dudheri Village
pH	IS 2720 (P26)	8.0	8.1	7.7	8.0	7.9	8.0
E.C. (mS/cm)	IS 14767:2000	0.525	0.207	1.739	0.373	0.335	0.301
$CaCO_3$ (%by mass)	IS 2720 (P23)	21.5	2.5	32.0	40.5	25.5	28.0
Specific Gravity	IS : 2720 (P 3/Sec 1) -1980	3.30	2.11	2.01	2.13	2.04	1.77
Moisture (%by mass)	IS 2720 (P 2)	25.718	33.82	23.108	21.837	30.845	19.541
Sodium (Kg/ha)	Method no. 14*	1907.4	705.6	2044.0	2038.4	622.7	1086.4
Potassium (Kg/ha)	Method no. 14*	357.0	343.0	233.0	157.0	571.0	468.0

Parameters	Protocol	Dudhala Near NH-8E	South side of Dudhala Mine	Doliya Village	Rabhda Village	Amrutvel Village	Near Devlia Village
pH	IS 2720 (P26)	8.2	8.0	7.9	7.7	7.8	7.9
E.C. (mS/cm)	IS 14767:2000	0.501	0.266	0.329	0.248	0.190	0.597
$CaCO_3$ (%by mass)	IS 2720 (P23)	9.0	40.5	35.5	22.0	27.5	16.5
Specific Gravity	IS : 2720 (P 3/Sec 1) -1980	2.64	1.97	1.91	2.09	2.80	3.22
Moisture (%by mass)	IS 2720 (P 2)	20.661	14.795	13.101	21.927	21.578	11.024
Sodium (Kg/ha)	Method no. 14*	1730.4	501.8	506.2	417.8	378.6	1317.1
Potassium (Kg/ha)	Method no. 14*	845.0	227.0	180.0	458.0	250.0	632.0

Note: – ****Methods Manual, Soil Testing in India, Department of Agriculture & Cooperation, Ministry of Agriculture (MOA), Government of India***

Prepared by

Rashmi Gupta
Administrative Manager

Checked by

Dr. Marisha Sharma
Authorised Signatory

-end of report-

NOTES:

- ***The results indicated only refer to the tested samples and listed parameters and do not endorse any product***
- ***Total liability of the laboratory is limited to the invoice amount***
- ***This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory***
- ***Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified***
- ***This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory***
- ***Complaint register is available with the laboratory, in case required***

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex,IGNOU Road, New Delhi – 110 030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at :http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

ANNEXURE : XV Contd..

TEST REPORT

Customer's Name & Address
Nirma Ltd. Nirma House, Ashram Road Ahemadabad - 380009 Contact Person : Ms. Tejal Patel

Customer Particulars	
Type of Sample	: Soil
Work Order No.	: NNL/CP-43/LOI-095/2020-21/PTV/
Sampling Location	: In and around Doliya & Padhiyarka; Dudhala Dudheri & Gujarda; & Vangar & Madhiya Limestone Mines, District Bhavnagar, Gujarat.
Sampling Procedure	: IS 2720 (Part-1)
Sample Volume/ Quantity	: 1.25 Kg
Sampling Team	: MMRDL (Ravikant)
Sample Reg. No.	: MMS/06-2021/1.1-1.12
Date of Monitoring	: 30/05/2021
Date of Receipt	: 05/06/2021
Date of Testing	: 07/06/2021 to 14/06/2021
Date of Report	: 18-06-2021
Test Report No.	MMS/06-2021/66
Page	: 1 of 3

Parameters	**Protocol**	**Near Cement Plant at Padhiarka Village**		**Padhiarka Village**		**Vangar Village**	
Textural Classification	IS 1498:1970	Medium grained sand		Medium grained sand		Medium grained sand	
Grain size analysis	IS 2720 (P 4)	% retain	% finer	% retain	% finer	% retain	% finer
2.0 mm		26.06	73.94	24.52	75.48	25.53	74.47
425 µm		40.14	33.8	42.06	33.42	45.72	28.75
75 µm		24.47	9.33	23.79	9.63	23.81	4.94
<75 µm		9.33	-	9.63	-	4.94	-
Colour	-	Blackish		Blackish		Blackish	
Organic Carbon (% by mass)	Method no. 9*	0.51		0.45		0.45	
Organic Matter (% by mass)	Method no. 9*	1.13		1.01		1.01	
Phosphorous (mg/kg)	Method no. 13*	0.65		0.73		0.32	
Nitrate-Nitrogen (mg/kg)	Method no. 12*	7.59		5.1		1.01	
Calcium^{2+} me/100 gram Soil	Method no. 16.a*	19.4		11.6		23.9	
Magnesium^{2+} me/100 gram Soil	Method no. 16.b*	6.9		4.6		4.7	

NOTES:

- ***The results indicated only refer to the tested samples and listed parameters and do not endorse any product***
- ***Total liability of the laboratory is limited to the invoice amount***
- ***This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory***
- ***Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified***
- ***This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory***
- ***Complaint register is available with the laboratory, in case required***

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex,IGNOU Road, New Delhi – 110 030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at :http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMN/06-2021/66

ANNEXURE : XV Contd..

Parameters	Protocol	Madhiya Village		Dudhala Village		Dudheri Village	
Textural Classification	IS 1498:1970	Medium grained sand		Medium grained sand		Medium grained sand	
Grain size analysis	IS 2720 (P 4)	% retain	% finer	% retain	% finer	% retain	% finer
2.0 mm		31.15	68.85	27.25	72.75	17.1	82.9
425 µm		40.83	28.02	52.21	20.54	49.05	33.85
75 µm		20.81	7.21	18.37	2.17	29.9	3.95
<75 µm		7.21	-	2.17	-	3.95	-
Colour	-	Blackish		Blackish		Blackish	
Organic Carbon (% by mass)	Method no. 9*	0.90		1.01		0.67	
Organic Matter (% by mass)	Method no. 9*	2.01		2.26		1.51	
Phosphorous (mg/kg)	Method no. 13*	0.16		0.24		0.49	
Nitrate-Nitrogen (mg/kg)	Method no. 12*	2.19		3.8		5.4	
Calcium2^{+} me/100 gram Soil	Method no. 16.a*	17.2		20.3		17.5	
Magnesium2^{+} me/100 gram Soil	Method no. 16.b*	3.1		8.2		6.9	

Parameters	Protocol	Dudhala Near NH-8E		South side of Dudhala Mine		Doliya Village	
Textural Classification	IS 1498:1970	Medium grained sand		Medium grained sand		Fine grained sand	
Grain size analysis	IS 2720 (P 4)	% retain	% finer	% retain	% finer	% retain	% finer
2.0 mm		27.53	72.47	13.66	86.34	10.39	89.61
425 µm		48.35	24.12	44.17	42.17	34.52	55.09
75 µm		21.12	3	39.14	3.03	51.35	3.74
<75 µm		3	-	3.03	-	3.74	-
Colour	-	Blackish		Blackish		Blackish	
Organic Carbon (% by mass)	Method no. 9*	1.01		0.51		0.22	
Organic Matter (% by mass)	Method no. 9*	2.26		1.13		0.50	
Phosphorous (mg/kg)	Method no. 13*	0.65		0.89		0.24	
Nitrate-Nitrogen (mg/kg)	Method no. 12*	12.57		9.73		12.28	
Calcium^{2+} me/100 gram Soil	Method no. 16.a*	17.0		14.6		16.7	
Magnesium^{2+} me/100 gram Soil	Method no. 16.b*	8.4		2.1		3.7	

An ISO 9001 : 2015 approved company

Min Mec R&D Laboratory
(A DIVISION OF MIN MEC CONSULTANCY PVT. LTD.)
A-121, Paryavaran Complex,IGNOU Road, New Delhi – 110 030
Phone: 29532236, 29535891, 29532568
Email: lab.minmec@gmail.com; Visit us at :http://www.minmec.com
Recognised by MOEF&CC (Sl.No.97 of S.O.3744(E) dated 17/10/2019)

Test Report No. : MMN/06-2021/66
Page : 3 of 3

ANNEXURE : XV Contd..

Parameters	Protocol	Rabhda Village		Amrutvel Village		Near Devlia Village	
Textural Classification	IS 1498:1970	Medium grained sand		Medium grained sand		Medium grained sand	
Grain size analysis	IS 2720 (P 4)	% retain	% finer	% retain	% finer	% retain	% finer
2.0 mm		22.1	77.9	20.38	79.62	14.67	85.33
425 µm		62.32	15.58	54.16	25.46	57.79	27.54
75 µm		14.19	1.39	24.23	1.23	24.74	2.8
<75 µm		1.39	-	1.23	-	2.8	-
Colour	-	Blackish		Blackish		Blackish	
Organic Carbon (% by mass)	Method no. 9*	0.39		2.24		0.67	
Organic Matter (% by mass)	Method no. 9*	0.88		5.02		1.51	
Phosphorous (mg/kg)	Method no. 13*	0.16		0.41		0.97	
Nitrate-Nitrogen (mg/kg)	Method no. 12*	4.15		2.85		1.9	
Calcium^{2+} me/100 gram Soil	Method no. 16.a*	23.5		14.0		17.7	
Magnesium^{2+} me/100 gram Soil	Method no. 16.b*	3.9		21.5		6.0	

Note: – *Methods Manual, Soil Testing in India, Department of Agriculture & Cooperation, Ministry of Agriculture (MOA), Government of India

Prepared by

Rashmi Gupta
Administrative Manager

Checked by

Dr. Marisha Sharma
Authorised Signatory

-end of report-

NOTES:

- ***The results indicated only refer to the tested samples and listed parameters and do not endorse any product***
- ***Total liability of the laboratory is limited to the invoice amount***
- ***This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory***
- ***Unused balance of samples received shall be destroyed after one month from the date of issue of test report, unless other wise specified***
- ***This report shall not be used in any advertising media or as evidence in the court of law without prior written consent of the laboratory***
- ***Complaint register is available with the laboratory, in case required***

VILLAGE WISE POPULATION AND LITERACY WITHIN THE STUDY AREA (CENSUS 2011)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	No. of house-holds	Population break-up			Population (0-6 years)			Schedule Caste	Schedule Tribe	Literacy level		
			Total	Male	Female	Total	Male	Female			Total literates	Male literates	Female literates
District	**Amreli**												
Sub Distt.	**Rajula**												
515955	Mobhiyana Mota	54	279	131	148	38	18	20	34	0	194	101	93
515956	Mobhiyana Nana	54	280	147	133	23	9	14	55	0	203	120	83
515957	Rampara No-1	62	342	180	162	57	26	31	0	0	143	91	52
515958	Zinzka	217	1378	703	675	203	99	104	103	0	684	412	272
515959	Dungarparda	125	680	337	343	112	60	52	3	0	450	252	198
515974	Sajanavav	214	1181	597	584	125	53	72	0	0	783	462	321
515975	Rabhda	234	1266	639	627	169	94	75	190	0	830	492	338
515976	Nesdi No -1	67	365	185	180	62	30	32	30	0	164	100	64
515987	Visaliya	445	2958	1511	1447	516	260	256	0	0	1374	940	434
515988	Dantardi	469	2393	1220	1173	322	167	155	140	0	1460	871	589
515989	Samadhiyala No-1	355	2427	1225	1202	390	191	199	56	0	1045	668	377
515990	Patva	253	2013	1039	974	401	217	184	0	0	821	472	349
515991	khera	735	4191	2136	2055	619	326	293	0	0	2259	1395	864
515993	Kathivadar	283	1623	808	815	241	113	128	17	0	931	589	342
	Sub total	**3567**	**21376**	**10858**	**10518**	**3278**	**1663**	**1615**	**628**	**0**	**11341**	**6965**	**4376**
District	**Bhavnagar**												
Sub Distt.	**Mahuva**												
516764	Lusadi	290	1594	824	770	277	143	134	338	0	851	502	349
516765	Gundarani	210	1390	702	688	171	80	91	66	0	1032	576	456
516766	Nana Jadra	391	2200	1101	1099	296	153	143	493	0	1393	810	583
516780	Nesvad	1832	10501	5407	5094	1725	902	823	263	1	6364	3821	2543
516781	Haripara	94	462	242	220	56	30	26	0	0	312	185	127
516782	Visavadar	99	521	282	239	108	61	47	37	0	251	181	70
516783	Dundas	298	1506	764	742	206	121	85	85	0	754	445	309
516784	Mota Pipalva	211	1672	825	847	326	150	176	0	0	806	516	290
516785	Kankot	82	556	297	259	61	34	27	86	0	375	240	135
516786	Nana Pipalva	211	1259	633	626	236	120	116	0	0	645	428	217
516787	Bildi	631	4367	2216	2151	762	389	373	68	0	1649	1060	589
516788	Amrutvel	272	1184	615	569	170	101	69	250	0	654	396	258
516789	Bhanvad	156	864	454	410	121	64	57	67	0	584	349	235
516790	Mota Jadra	488	3297	1670	1627	524	254	270	95	0	1804	1116	688
516791	Maliya	261	2030	1028	1002	298	155	143	91	0	1161	716	445
516794	Devaliya	213	1361	728	633	266	153	113	0	0	699	444	255
516795	Dudhala No.1	236	1405	701	704	252	124	128	30	0	751	462	289
516796	Madhiya	224	1170	592	578	198	107	91	42	0	576	344	232
516797	Vangar	478	2838	1450	1388	427	221	206	44	0	1384	883	501
516798	Padhiyarka	255	1495	762	733	211	105	106	17	0	752	488	264
516799	Doliya	475	3224	1623	1601	584	283	301	0	0	1262	855	407

VILLAGE WISE POPULATION AND LITERACY WITHIN THE STUDY AREA (CENSUS 2011)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	No. of house-holds	Population break-up			Population (0-6 years)			Schedule Caste	Schedule Tribe	Literacy level		
			Total	Male	Female	Total	Male	Female			Total literates	Male literates	Female literates
516800	Dudheri	527	3544	1831	1713	625	335	290	18	0	1548	1044	504
516801	Gujarda	521	3496	1798	1698	625	332	293	44	0	1338	859	479
516802	Khared	682	4250	2201	2049	713	369	344	47	0	1761	1201	560
516803	Gadhada	467	2792	1392	1400	517	259	258	0	0	978	644	334
802557	Mahuva (M + OG)	6380	35701	18332	17369	4545	2374	2171	1246	47	24680	13777	10903
	Sub total	**15984**	**94679**	**48470**	**46209**	**14300**	**7419**	**6881**	**3427**	**48**	**54364**	**32342**	**22022**
	GRAND TOTAL	**19551**	**116055**	**59328**	**56727**	**17578**	**9082**	**8496**	**4055**	**48**	**65705**	**39307**	**26398**
	Percentage		**100.00**	**51.12**	**48.88**	**15.15**	**7.83**	**7.32**	**3.49**	**0.04**	**56.62**	**33.87**	**22.75**

VILLAGE WISE EMPLOYMENT PATTERN IN THE STUDY AREA (CENSUS 2011)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	Employment pattern											
		Total workers	Main workers					Marginal workers					Non workers
			Total	Cultivators	Agri. Labours	HH ind.	Others	Total	Cultivators	Agr. Labours	HH ind.	Others	
District	**Amreli**												
Sub Distt.	**Rajula**												
515955	Mobhiyana Mota	102	91	19	59	0	13	11	0	0	4	7	177
515956	Mobhiyana Nana	135	88	34	47	2	5	47	10	2	0	35	145
515957	Rampara No-1	121	114	99	11	0	4	7	6	1	0	0	221
515958	Zinzka	434	296	210	63	0	23	138	83	47	8	0	944
515959	Dungarparda	263	256	8	241	0	7	7	0	6	0	1	417
515974	Sajanavav	422	415	100	164	0	151	7	2	2	2	1	759
515975	Rabhda	436	434	144	176	0	114	2	0	0	0	2	830
515976	Nesdi No -1	168	127	58	30	0	39	41	28	11	1	1	197
515987	Visaliya	1290	1147	211	728	1	207	143	44	88	0	11	1668
515988	Dantardi	1233	992	249	464	11	268	241	131	99	3	8	1160
515989	Samadhiyala No-1	1170	1168	121	950	0	97	2	0	2	0	0	1257
515990	Patva	1096	1008	460	521	1	26	88	77	11	0	0	917
515991	khera	1834	1222	68	1024	2	128	612	3	563	0	46	2357
515993	Kathivadar	678	652	178	231	3	240	26	1	9	0	16	945
	Sub total	**9382**	**8010**	**1959**	**4709**	**20**	**1322**	**1372**	**385**	**841**	**18**	**128**	**11994**
District	**Bhavnagar**												
Sub Distt.	**Mahuva**												
516764	Lusadi	776	763	158	541	3	61	13	0	6	0	7	818
516765	Gundarani	535	535	176	158	2	199	0	0	0	0	0	855
516766	Nana Jadra	754	731	141	184	17	389	23	13	8	0	2	1446
516780	Nesvad	3963	3635	130	1912	55	1538	328	15	193	10	110	6538
516781	Haripara	154	87	50	13	0	24	67	10	41	0	16	308
516782	Visavadar	336	104	32	72	0	0	232	11	219	0	2	185
516783	Dundas	882	811	122	654	8	27	71	36	31	0	4	624
516784	Mota Pipalva	930	697	40	650	0	7	233	23	208	0	2	742
516785	Kankot	189	189	39	82	0	68	0	0	0	0	0	367
516786	Nana Pipalva	529	268	43	153	0	72	261	24	202	0	35	730
516787	Bildi	1221	1179	205	854	0	120	42	4	20	1	17	3146
516788	Amrutvel	717	561	186	283	7	85	156	16	135	1	4	467
516789	Bhanvad	307	306	113	72	0	121	1	1	0	0	0	557
516790	Mota Jadra	1394	1029	292	411	14	312	365	122	173	15	55	1903
516791	Maliya	803	759	124	312	0	323	44	36	8	0	0	1227
516794	Devaliya	611	595	54	385	2	154	16	2	9	0	5	750
516795	Dudhala No.1	521	519	100	309	0	110	2	1	1	0	0	884
516796	Madhiya	654	358	165	117	7	69	296	173	101	1	21	516
516797	Vangar	1261	1159	351	584	17	207	102	4	93	0	5	1577
516798	Padhiyarka	849	579	105	343	7	124	270	2	261	0	7	646
516799	Doliya	1572	960	470	396	8	86	612	252	306	18	36	1652

VILLAGE WISE EMPLOYMENT PATTERN IN THE STUDY AREA (CENSUS 2011)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	Employment pattern											
		Total workers	Main workers					Marginal workers					Non workers
			Total	Cultivators	Agri. Labours	HH ind.	Others	Total	Cultivators	Agr. Labours	HH ind.	Others	
516800	Dudheri	1692	1541	344	1030	2	165	151	0	147	0	4	1852
516801	Gujarda	1148	1044	204	690	3	147	104	7	75	1	21	2348
516802	Khared	2227	1511	169	1248	4	90	716	4	697	0	15	2023
516803	Gadhada	1384	1384	94	1250	2	38	0	0	0	0	0	1408
802557	Mahuva (M + OG)	11726	10448	172	593	252	9431	1279	19	157	77	1025	23974
	Sub total	**37135**	**31752**	**4079**	**13296**	**410**	**13967**	**5384**	**775**	**3091**	**124**	**1393**	**57543**
	GRAND TOTAL	**46517**	**39762**	**6038**	**18005**	**430**	**15289**	**6756**	**1160**	**3932**	**142**	**1521**	**69537**
	Percentage	**40.08**	**34.26**	**15.19**	**45.28**	**1.08**	**38.45**	**5.82**	**17.17**	**58.20**	**2.10**	**22.51**	**59.92**

AMENITIES AVAILABLE IN VILLAGES WITHIN THE STUDY AREA (CENSUS 2011)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	EDUCATION FACILITIES																									
		PPS		PS		MS		SS		SSS		DCAS		EC		MC		MI		P		VTS/ITI		NFTC		SFD		EO	
		Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.
	District : Amreli																												
	Sub distt.: Rajula																												
515955	Mobhiyana Mota	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515956	Mobhiyana Nana	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515957	Rampara No-1	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515958	Zinzka	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515959	Dungarparda	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515974	Sajanavav	(10+ km)	-	1	-	N.A.	-	(<5 km)	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515975	Rabhda	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515976	Nesdi No -1	(10+ km)	-	1	-	N.A.	-	(<5 km)	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515987	Visaliya	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515988	Dantardi	(10+ km)	-	1	-	N.A.	-	1	-	-	1	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515989	Samadhiyala No-1	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515990	Patva	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515991	khera	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
515993	Kathivadar	(10+ km)	-	2	-	N.A.	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
	District : Bhavnagar																												
	Sub distt.: Mahuva																												
516764	Lusadi	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516765	Gundarani	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516766	Nana Jadra	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516780	Nesvad	(<5 km)	-	4	2	N.A.	-	-	1	(5-10 km)	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(<5 km)	-	(<5 km)	-	(10+ km)	-	N.A.	-
516781	Haripara	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(<5 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516782	Visavadar	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516783	Dundas	(10+ km)	-	3	-	N.A.	-	(10+ km)	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516784	Mota Pipalva	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516785	Kankot	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516786	Nana Pipalva	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516787	Bildi	(10+ km)	-	1	1	N.A.	-	(10+ km)	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516788	Amrutvel	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516789	Bhanvad	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(<5 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516790	Mota Jadra	(5-10 km)	-	2	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516791	Maliya	(<5 km)	-	1	-	N.A.	-	(<5 km)	-	(<5 km)	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(<5 km)	-	(<5 km)	-	(10+ km)	-	N.A.	-
516794	Devaliya	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516795	Dudhala No.1	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516796	Madhiya	(5-10 km)	-	1	-	N.A.	-	1	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516797	Vangar	(10+ km)	-	1	-	N.A.	-	(<5 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516798	Padhiyarka	(5-10 km)	-	1	-	N.A.	-	(<5 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516799	Doliya	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516800	Dudheri	(10+ km)	-	1	-	N.A.	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	N.A.	-
516801	Gujarda	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516802	Khared	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-
516803	Gadhada	(5-10 km)	-	1	-	N.A.	-	(5-10 km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(10+ km)	-	(5-10 km)	-	(5-10 km)	-	(10+ km)	-	N.A.	-

AMENITIES AVAILABLE IN VILLAGES WITHIN THE STUDY AREA (CENSUS 2011)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	MEDICAL FACILITIES																			
		CHC	PHC	PHSC	MCWC	TBC	HA	HAM	D	VH	MHC	FWC	NGMF-OP	NGMF-IOP	NGMF-C	NGMF-MBBS	NGMF-OD	NGMF-ND	NGMF-TPFH	NGMF-MS	NGMF-O
	District : Amreli																				
	Sub distt.: Rajula																				
515955	Mobhiyana Mota	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515956	Mobhiyana Nana	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515957	Rampara No-1	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515958	Zinzka	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515959	Dungarparda	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515974	Sajanavav	(10+ km)	(<5 km)	1	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515975	Rabhda	(10+ km)	(<5 km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515976	Nesdi No -1	(10+ km)	(<5 km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515987	Visaliya	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515988	Dantardi	(5-10 km)	(10+ km)	1	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515989	Samadhiyala No-1	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	1	(10+ km)	-	-	-	-	-	-	-	-	-
515990	Patva	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515991	khera	(10+ km)	1	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
515993	Kathivadar	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(5-10 km)	(10+ km)	1	(10+ km)	-	-	-	-	-	-	-	-	-
	District : Bhavnagar																				
	Sub distt.: Mahuva																				
516764	Lusadi	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516765	Gundarani	(5-10 km)	(5-10 km)	(<5 km)	(10+ km)	(10+ km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	2	-	-
516766	Nana Jadra	(5-10 km)	(5-10 km)	1	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516780	Nesvad	(<5 km)	(<5 km)	(<5 km)	(<5 km)	(<5 km)	(<5 km)	(10+ km)	(<5 km)	(<5 km)	(<5 km)	(<5 km)	-	-	-	-	-	-	-	-	-
516781	Haripara	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516782	Visavadar	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
516783	Dundas	(10+ km)	(5-10 km)	1	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	1	-	-	-	-
516784	Mota Pipalva	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	2	-	-
516785	Kankot	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
516786	Nana Pipalva	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
516787	Bildi	(10+ km)	(5-10 km)	1	(10+ km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	1	-	-	-	-	-	2	-	-
516788	Amrutvel	(5-10 km)	(<5 km)	1	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(<5 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516789	Bhanvad	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516790	Mota Jadra	(5-10 km)	(5-10 km)	1	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516791	Maliya	(<5 km)	(<5 km)	(<5 km)	(5-10 km)	(5-10 km)	(<5 km)	(10+ km)	(<5 km)	(<5 km)	(<5 km)	(<5 km)	-	-	-	-	-	-	-	-	-
516794	Devaliya	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516795	Dudhala No.1	(5-10 km)	(<5 km)	(<5 km)	(5-10 km)	(<5 km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516796	Madhiya	(5-10 km)	1	1	(10+ km)	(10+ km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516797	Vangar	(10+ km)	(<5 km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(<5 km)	(<5 km)	(<5 km)	(10+ km)	-	-	-	-	-	-	-	-	-
516798	Padhiyarka	(5-10 km)	(<5 km)	(<5 km)	(5-10 km)	(<5 km)	(5-10 km)	(10+ km)	(<5 km)	(<5 km)	(5-10 km)	(<5 km)	-	-	-	-	-	-	-	-	-
516799	Doliya	(10+ km)	(<5 km)	(<5 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	-	-	-	-	-	-	-	-	-
516800	Dudheri	(10+ km)	(5-10 km)	(5-10 km)	(10+ km)	(5-10 km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(10+ km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516801	Gujarda	(5-10 km)	(5-10 km)	1	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516802	Khared	(5-10 km)	(5-10 km)	1	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-
516803	Gadhada	(5-10 km)	(5-10 km)	(5-10 km)	(10+ km)	(10+ km)	(5-10 km)	(10+ km)	(5-10 km)	(5-10 km)	(5-10 km)	(5-10 km)	-	-	-	-	-	-	-	-	-

AMENITIES AVAILABLE IN VILLAGES WITHIN THE STUDY AREA (CENSUS 2011)
PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

Town/ village code	Town/village name	DRINKING WATER FACILITY										COMMUNICATION SYSTEM								
		TWT	TWUT	CW	UW	HP	TW/ BW	S	R/C	T/P	WO	PO	SPO	P&T	PIN	T	PCO	MPC	IC/CSC	PCF
	District : Amreli																			
	Sub distt.: Rajula																			
515955	Mobhiyana Mota	N	N	N	N	Y	N	N	N	N	N	(<5 km)	(10+ km)	N.A.	364515	1	(10+ km)	1	1	(10+ km)
515956	Mobhiyana Nana	N	N	N	N	Y	N	N	N	N	N	(<5 km)	(10+ km)	N.A.	364525	1	1	1	1	(10+ km)
515957	Rampara No-1	N	Y	N	N	Y	N	N	N	N	N	(10+ km)	(10+ km)	N.A.	365550	1	(10+ km)	1	1	(10+ km)
515958	Zinzka	N	Y	N	Y	Y	Y	N	N	N	N	(10+ km)	(10+ km)	N.A.	365541	1	(10+ km)	1	1	(10+ km)
515959	Dungarparda	N	N	N	Y	Y	Y	N	N	N	N	(10+ km)	(10+ km)	N.A.	365601	1	(10+ km)	1	1	(10+ km)
515974	Sajanavav	N	Y	N	Y	Y	N	N	Y	N	N	(<5 km)	1	N.A.	365555	1	(<5 km)	1	1	(10+ km)
515975	Rabhda	N	Y	N	Y	Y	N	N	N	N	N	(<5 km)	1	N.A.	365555	1	(<5 km)	1	1	(10+ km)
515976	Nesdi No -1	N	Y	N	Y	Y	N	N	N	N	N	(<5 km)	(<5 km)	N.A.	364522	1	1	1	1	(10+ km)
515987	Visaliya	N	Y	N	N	Y	N	N	Y	N	N	(10+ km)	(5-10 km)	N.A.	365560	1	1	1	1	(10+ km)
515988	Dantardi	N	Y	N	N	Y	N	N	Y	Y	N	(10+ km)	1	N.A.	365555	1	1	1	1	(10+ km)
515989	Samadhiyala No-1	N	N	N	Y	Y	N	N	N	N	N	(10+ km)	1	N.A.	365555	1	1	1	1	(10+ km)
515990	Patva	N	N	N	N	Y	N	N	N	N	N	(10+ km)	(10+ km)	N.A.	365635	1	1	1	1	(10+ km)
515991	khera	N	Y	N	Y	N	N	N	N	N	N	(10+ km)	(10+ km)	N.A.	365630	1	1	1	1	(10+ km)
515993	Kathivadar	N	Y	N	N	Y	N	N	N	N	N	(10+ km)	(5-10 km)	N.A.	365630	1	1	1	1	(10+ km)
	District : Bhavnagar																			
	Sub distt.: Mahuva																			
516764	Lusadi	N	Y	N	Y	Y	N	N	N	N	N	(10+ km)	1	N.A.	364290	1	(10+ km)	1	1	(10+ km)
516765	Gundarani	N	Y	N	Y	Y	N	N	Y	N	N	(5-10 km)	1	N.A.	364290	(5-10 km)	(5-10 km)	1	1	(5-10 km)
516766	Nana Jadra	N	Y	N	Y	Y	Y	N	Y	N	N	(5-10 km)	1	N.A.	364290	1	1	1	1	(5-10 km)
516780	Nesvad	N	Y	N	N	Y	N	N	N	N	N	(<5 km)	1	N.A.	364290	1	1	1	1	(<5 km)
516781	Haripara	N	N	N	N	N	Y	N	Y	N	N	(5-10 km)	(5-10 km)	N.A.	364290	1	1	1	1	(5-10 km)
516782	Visavadar	N	N	N	Y	Y	N	N	N	N	N	(10+ km)	(10+ km)	N.A.	364290	1	(10+ km)	1	1	(10+ km)
516783	Dundas	N	Y	N	N	Y	N	N	N	N	N	(10+ km)	1	N.A.	364290	1	1	1	1	(10+ km)
516784	Mota Pipalva	N	Y	N	Y	Y	N	N	Y	N	N	(10+ km)	(10+ km)	N.A.	364290	(10+ km)	(10+ km)	1	1	(10+ km)
516785	Kankot	N	Y	N	Y	N	N	N	Y	N	N	(10+ km)	(10+ km)	N.A.	364290	1	(10+ km)	1	1	(10+ km)
516786	Nana Pipalva	N	N	N	Y	N	N	N	Y	N	N	(10+ km)	(10+ km)	N.A.	364290	1	1	1	1	(10+ km)
516787	Bildi	N	Y	Y	Y	Y	Y	N	N	N	N	(10+ km)	(10+ km)	N.A.	364290	(10+ km)	(10+ km)	1	1	(10+ km)
516788	Amrutvel	N	Y	N	Y	Y	Y	N	N	N	N	(5-10 km)	(5-10 km)	N.A.	364290	(5-10 km)	(5-10 km)	1	1	(5-10 km)
516789	Bhanvad	N	Y	Y	N	Y	N	N	Y	N	N	(5-10 km)	(5-10 km)	N.A.	364280	1	(5-10 km)	1	1	(5-10 km)
516790	Mota Jadra	N	Y	Y	Y	Y	N	N	Y	Y	N	(5-10 km)	1	N.A.	364290	1	1	1	1	(5-10 km)
516791	Maliya	N	Y	N	Y	Y	N	N	N	N	N	(<5 km)	(<5 km)	N.A.	364290	1	1	1	1	(<5 km)
516794	Devaliya	N	Y	N	N	N	N	N	N	N	N	(5-10 km)	(5-10 km)	N.A.	364240	1	1	1	1	(5-10 km)
516795	Dudhala No.1	N	Y	N	N	Y	N	N	Y	Y	N	(5-10 km)	(5-10 km)	N.A.	364240	1	(5-10 km)	1	1	(5-10 km)
516796	Madhiya	N	Y	N	Y	Y	Y	N	N	Y	N	(5-10 km)	1	N.A.	364290	(5-10 km)	(5-10 km)	1	1	(5-10 km)
516797	Vangar	N	Y	N	Y	N	Y	N	N	N	N	(10+ km)	(10+ km)	N.A.	364210	(10+ km)	(10+ km)	1	1	(10+ km)
516798	Padhiyarka	N	Y	N	Y	Y	Y	N	N	N	N	(5-10 km)	(5-10 km)	N.A.	364290	(5-10 km)	(5-10 km)	1	1	(5-10 km)
516799	Doliya	N	Y	N	N	N	N	N	N	N	N	(10+ km)	(10+ km)	N.A.	364290	(10+ km)	(10+ km)	1	1	(10+ km)
516800	Dudheri	N	Y	N	N	Y	Y	N	N	N	N	(10+ km)	1	N.A.	364290	1	(10+ km)	1	1	(10+ km)
516801	Gujarda	N	Y	N	N	N	N	N	N	N	N	(5-10 km)	(5-10 km)	N.A.	364210	1	1	1	1	(5-10 km)
516802	Khared	N	Y	N	N	N	N	N	N	N	N	(5-10 km)	1	N.A.	364290	1	1	1	1	(5-10 km)
516803	Gadhada	N	Y	N	Y	Y	Y	N	N	Y	N	(5-10 km)	(5-10 km)	N.A.	364290	1	(5-10 km)	1	1	(5-10 km)

SUMMARY OF AMENITIES AVAILABLE (CENSUS 2011) IN VILLAGES WITHIN THE STUDY AREA OF PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

AMENITIES	NOS.	AMENITIES	NOS.	AMENITIES	NOS.
EDUCATION FACILITIES		**DRINKING WATER FACILITY**		**APPROACH TO VILLAGE**	
PPS (Pre-Primary School)	0	TWT (Tap Water-Treated)	0	NH (National Highway)	10
PS (Primary school)	49	TWUT (Tap Water Untreated)	31	SH (State Highway)	4
MS (Middle school)	0	CW (Covered Well)	3	MDR (Major District Road)	10
SS (Secondary school)	3	UW (Uncovered Well)	22	ODR (Other District Road)	30
SSS (Sr. Sec. School)	1	HP (Hand Pump)	30	BTPR (Black Topped (pucca) Road)	37
DCAS (Deg. College Arts & Science only)	0	TW/ BW (Tube Wells/Borehole)	11	GCR (Gravel (kuchha) Roads)	34
EC (Engg. College)	0	S (Spring)	0	WBM (Water Bounded Macadam)	10
MC (Medicine College)	0	R/C (River/Canal)	12	AWR (All Weather Road)	32
MI (Management Institute)	0	T/P (Tank/Pond/Lake)	5	NWR/C (Navigable Waterways (River/Canal))	0
P (Polytechnic)	0	WO (Others)	0	FP (Foot Path)	39
VTS/ITI (Vocational Trg School/ITI)	0				
NFTC (Non Formal Training Centre)	0	**COMMUNICATION SYSTEM**		**BANKS AND COMMERCIAL SOCIETIES**	
SFD (School For Disabled)	0	PO (Post Office)	0	ATM (ATM)	0
EO (Others)	0	SPO (Sub Post Office)	13	CB (Commercial bank)	1
		P&T (Post & Telegraph office)	0	COB (Co-operative bank)	1
MEDICAL FACILITIES		PIN (Village PIN code)	39	ACS (Agricultural Crredit Societies)	28
CHC (Community Health Centres)	0	T (Telephone (landline))	31	SHG (Self-Help Group (SHG))	37
PHC (Primary Health Centre)	2	PCO (Public Call Office/ Mobile PCO)	18	PDS (Public Distribution System (PDS))	27
PHSC (Primary Health Sub-Centre)	10	MPC (Mobile phone coverage)	39	M/RM (Mandis/Regular Market)	1
MCWC (Maternity And Child Welfare Centre)	0	IC/CSC (Internet Cafes/Common Service Centre)	39	WH (Weekly Haat)	1
TBC (TB Clinic)	0	PCF (Private Courier Facility)	0	AMS (Agricultural Marketing Society)	1
HA (Hospital Allopathic)	0			NCICDS (Nutritional Centres-ICDS)	0
HAM (Hospiltal Alternative Medicine)	0	**TRANSPORT SYSTEM**		NCAC (Nutritional Centres-Anganwadi Centre)	39
D (Dispensary)	0	PBS (Public Bus Service)	39	NCO (Nutritional Centres-Others)	39
VH (Veterinary Hospital)	0	PvtBS (Private Bus Service)	5	ASHA (ASHA)	31
MHC (Mobile Health Clinic)	2	RS (Railway station)	2	CC-TV (Community Centre with/without TV)	3
FWC (Family Welfare Centre)	0	MA (Auto/Modified Autos)	11		
NGMF-OP (Non Govt. Med. facilities Out Patient)	1	Taxi (Taxi)	0	**SPORTS AND ENTERTAINMENT**	
NGMF-IOP (Non Govt. Med. facilities In And Out Patient)	0	Van (Vans)	7	SF (Sports Field)	0
NGMF-C (Non Govt. Med. facilities Charitable)	0	T (Tractors)	22	SC/RC (Sports Club/Recreation Centre)	0
NGMF-MBBS (Non Govt. Med. facilities Medical Prctitioner with MBBS Degree)	0	CPR-Man (Cycle-pulled Rickshaws (manual driven))	0	C/VH (Cinema/Video Hall)	0
		CPR-Mec (Cycle-pulled Rickshaws (machine driven))	13	PL (Public Library)	0
NGMF-OD (Non Govt. Med. facilities Medical Prctitioner with other Degree)	1	CDA (Carts Drivens by Animals)	27	PRR (Public Reading Room)	1
		S/R/FS (Sea/River/Ferry Service)	0	DNS (Daily Newspaper Supply)	39
NGMF-ND (Non Govt. Med. facilities Medical Practitioner with no Degree)	0			APS (Assembly Polling Station)	39
		POWER SUPPLY		BDRO (Birth and Death Registration Office)	39
NGMF-TPFH (Non Govt. Med. facilities Traditional Practitioner and Faith Healer)	6	PSDU (Power Supply For Domestic Use)	39		
		PSIAU (Power Supply ForAgriculture Use)	39		
NGMF-MS (Non Govt. Med. facilities Medicine Shop)	0	PSCU (Power Supply For Commercial Use)	0		
NGMF-O (Non Govt. Med. facilities Others)	0	PSALL (Power Supply For All Users)	39		

SUMMARY OF AMENITIES AVAILABLE (CENSUS 2011) IN TOWNS WITHIN THE STUDY AREA OF PADHIARKA AND DOLIYA MINES OF NIRMA LIMITED

AMENITIES	NOS.	AMENITIES	NOS.	AMENITIES	NOS.
EDUCATION		Private-MS Office (Nos.)	0	**WATER SUPPLY AND SANITATION**	
Govt. Primary School (Nos.)	6	Govt.-Desk Top Publishing (Nos.))	0	Latrines-Pit (Nos.)	0
Private Primary School (Nos.)	7	Private-Desk Top Publishing (Nos.)	0	Latrines-Flush/Pour Flush (Nos.)	3527
Govt. Middle School (Nos.)	0	Govt.-Vocational(Others) (Nos.))	0	Latrines-Service (Nos.)	0
Private Middle School (Nos.)	0	Private-Vocational(Others) (Nos.)	0	Latrines-Others (Nos.)	3
Govt. Secondary School (Nos.)	2	Govt.-Non Formal Education (Nos.))	0	Protected Water Supply Source-1	0
Private Secondary School (Nos.)	1	Private-Non Formal Education (Nos.)	0	Capacity Source-1 (KL)	1811.847
Govt. Senior Secondary School (Nos.)	1	Govt.-Special School for Disabled (Nos.))	0	Protected Water Supply Source-2	0
Private Senior Secondary School (Nos.)	1	Private-Special School for Disabled (Nos.)	0	Capacity Source-2 (KL)	0
Govt. Degree College-Art Only (Nos.)	0	Govt.-Others(Specify) (Nos.))	0	Protected Water Supply Source-3	0
Private Degree College-Art Only (Nos.)	0	Private-Others(Specify) (Nos.)	0	Capacity Source-3 (KL)	0
Govt. Degree College-Science Only (Nos.)	0	**MEDICAL**		Protected Water Supply Source-4	0
Private Degree College-Science Only (Nos.)	0	Hospital Allopathic (Nos.)	0	Capacity Source-4 (KL)	0
Govt. Degree College-Commerce Only (Nos.))	0	Hospital Alternative Medicine (Nos.)	0	Protected Water Supply Source-5	0
Private Degree College-Commerce Only (Nos.)	0	Dispensary/Health Centre (Nos.)	0	Capacity Source-5 (KL)	0
Govt. Degree College-Art and Science Only (Nos.))	0	Family Welfare Centre (Nos.)	0	**TRANSPORT**	
Private Degree College-Art and Science Only (Nos.)	0	Maternity and Child Welfare Centre (Nos.)	0	Bus Route Road Distance (in kms.)	0
Govt. Degree College-Art and Commerce Only (Nos.))	0	Maternity Home (Nos.)	0	Pucca Road Length (in kms.)	25.9
Private Degree College-Art and Commerce Only (Nos.)	0	Maternity Home Nearest facility Distance (in kms.)	0	Kutcha Road Length (in kms.)	11.39652
Govt. Degree College-Art,Science and Commerce (Nos.))	0	T.B. Hospital/ Clinic (Nos.)	0	**ENTERTAINMENT AND COMMODITY**	
Private Degree College-Art,Science and Commerce (Nos.)	0	Nursing Home (Nos.)	0	Govt.-Stadium (Nos.))	0
Govt. Degree College-Law (Nos.))	0	Veterinary Hospital (Nos.)	0	Private-Stadium (Nos.)	0
Private Degree College-Law (Nos.)	0	Mobile Health Clinic (Nos.)	0	Govt.-Cinema Theatre (Nos.))	0
Govt. Degree College-University (Nos.))	0	Others (Nos.)	0	Private-Cinema Theatre (Nos.)	1
Private Degree College-University (Nos.)	0	Non-Government Out-Patient (Nos.)	9	Govt.-Auditorium/Community Hall (Nos.))	0
Govt. Degree College-Others (Nos.))	0	Non-Government In and Out Patient (Nos.)	2	Private-Auditorium/Community Hall (Nos.)	1
Private Degree College-Others (Nos.)	0	Non-Government Charitable-Hospital/Nursing Home (Nos.)	6	Govt.-Public Library (Nos.))	0
Govt.-Medical College (Nos.))	0	Non-Government Medicine Shop (Nos.)	17	Private-Public Library (Nos.)	0
Private-Medical College (Nos.)	0	**ELECTRICITY**		Govt.-Public Reading Room (Nos.))	0
Govt.-Engineering College (Nos.))	0	Electricity-Domestic Connection (Nos.)	6291	Private-Public Reading Room (Nos.)	0
Private-Engineering College (Nos.)	0	Electricity-Industrial Connection (Nos.)	259	Manufactured Commodity (First)	0
Govt.-Management Institute (Nos.))	0	Electricity-Commercial Connection (Nos.)	1921	Manufactured Commodity (Second)	0
Private-Management Institute (Nos.)	0	Electricity-Road Lighting Connection (Nos.)	1181	Manufactured Commodity (Third)	0
Govt.-Polytechnic (Nos.))	0	Electricity-Others Connection (Nos.)	8	**HELP HOMES**	
Private-Polytechnic (Nos.)	0	**FINANCIAL**		Govt.-Orphanage Home (Nos.))	0
Govt.-Shorthand (Nos.))	0	Nationalised Bank (Nos.)	3	Private-Orphanage Home (Nos.)	0
Private-Shorthand (Nos.)	0	Private Commercial Bank (Nos.)	1	Govt.-Working Women's Hostel (Nos.))	0
Govt.-Typewriting (Nos.))	0	Co-operative Bank (Nos.)	1	Private-Working Women's Hostel (Nos.)	0
Private-Typewriting (Nos.)	0	Agricultural Credit Society (Nos.)	0	Govt.-Old Age Home (Nos.))	0
Govt.-Shorthand and Typewriting (Nos.))	0	Non-Agricultural Credit Society (Nos.)	3	Private-Old Age Home (Nos.)	1
Private-Shorthand and Typewriting (Nos.)	0	**FIRE FIGHTING**			
Govt.-MS Office (Nos.))	0	Fire Fighting Service (Status A(1)/NA(2))	0		

ANNEXURE : XIX

Ref.No.AU/IRS/CU/211-2019 Dt: 07.11.2019

DEMARCATION OF HIGH TIDE LINE, LOW TIDE LINE AND COASTAL REGULATION ZONE MAPPING FOR THE PROPOSED MINING LEASE AREA IN MAHUVA TALUKA, BHAVNAGAR DISTRICT, GUJARAT

SPONSORED BY

M/s. Nirma Limited.,
Village: Padhiarka, Taluka: Mahuva,
District: Bhavnagar,
Gujarat.

PREPARED BY

INSTITUTE OF REMOTE SENSING

ANNA UNIVERSITY, CHENNAI-600 025

NOVEMBER 2019

DEMARCATION OF HIGH TIDE LINE, LOW TIDE LINE AND COASTAL REGULATION ZONE MAPPING FOR THE PROPOSED MINING LEASE AREA IN MAHUVA TALUKA, BHAVNAGAR DISTRICT, GUJARAT

ABSTRACT

At the request of M/s. Nirma Limited., Village: Padhiarka, Taluka: Mahuva, District: Bhavnagar, Gujarat, a survey was carried out for Demarcation of High Tide Line, Low Tide Line and Coastal Regulation Zone Mapping for the Proposed Mining lease area In Mahuva Taluka, Bhavnagar District, Gujarat. Tide data collected from the various organizations were analysed. The Landsat ETM+, IRS 1D LISS III + PAN merged and Cartosat satellite images (1988-2017) of above site were interpreted for geomorphic features.

The demarcation of High Tide Line and Low Tide line was carried out using differential GPS. The High Tide Line and Low Tide line thus decided was marked on the cadastral map of 1:4,000 scale. The Coastal Regulation Zones (CRZ) such as CRZ IA, CRZ 1B, CRZ III and CRZ IVA have been demarcated. Landuse map of 7 km radius was also prepared on 1:25,000 scale with intensive field work and satellite image. The ecologically sensitive areas like sand dunes and Turtle breeding sites are not in the vicinity of proposed site. However Mangrove areas have been identified and 50m buffer also have been drawn which are away from the proposed mining area. The proposed three mining area of M/s. Nirma Limited at Mahuva is away from the CRZ.

The spherical co-ordinates defining the High Tide Line are Presented in the Annexure II

DEMARCATION OF HIGH TIDE LINE, LOW TIDE LINE AND COASTAL REGULATION ZONE MAPPING FOR THE PROPOSED MINING LEASE AREA IN MAHUVA TALUKA, BHAVNAGAR DISTRICT, GUJARAT

1.0 INTRODUCTION

Anthropological pressures and natural calamities put pressure on the existing ecosystem. Growing industrial areas along the coastlines and discharge of domestic and industrial sewage are polluting these areas. Conservation efforts are being considered and taken up by various control mechanism. Coastal zone regulation act is one such mechanism where legislation to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone is being attempted. The coastal eco systems is to be preserved for sustenance of the flora and fauna specific to that region and the local population that depend on it. Therefore, it is of national importance and economic value. The development of a nation and the sustenance of the eco system are to be balanced for general prosperity by appropriate scrutiny of the prevailing eco system and proposed development plans.

Gujarat state has about 1600 km, long coastline in the country. It supports a variety of habitats such as mangroves, coral reefs, sea grass beds, algae/ sea weeds, gulfs, estuaries, beaches etc. There are number of activities going on along the coast viz. salt industries, cement industries, import of oil & natural gas besides the pressure of growing population. This puts a tremendous pressure on the coastal zone and thus requires a proper Coastal Zone Management Plan.

Gulf of Kachchh, the largest coastal habitat in the West coast of India in the state of Gujarat (20°15' to 23°35' N and 60°05' to 70°22' E) is encompassing over 1000 km long shoreline covering an area of 7350 km². It is a shallow water body with depth extending from 60 m at the mouth to less than 20 m at the head of the Gulf. While the average depth is 30 m, the minimum depth is upto 5 m, around Lushington island. The Gulf is delimited in the north by the Kachchh region and in the south by the Saurashtra region. The Marine National Park and Marine Sanctuary are situated along the southern shore of Gulf from Okha (22°30'N, 69°00'E) and extends eastwards to the vicinity of Khijadia (22°30'N, 70°40'E). This include 42 islands and a complex of fringing reefs backed by mudflats and sandflats, coastal salt marsh and mangrove forests, sand and rocky beaches which support a great diversity of fauna and flora.

Geographically Gulf of Khambhat located between 20° 35'- 22° 20'N and 72° 05'-72° 55'E. An extensive is of estuarine habitats around the periphery of the Gulf of Khambhat. The Tapi, Narmada, Mahi, Sabarmati, and several other rivers have deposited alluvium over large areas as the marince recession has united Saurashtra with mainland of Gujarat. There are extensive areas of intertidal mud and sand flats, coastal salt marshes, and degraded mangrove associations, particularly in the deltas of the Mahi and Sabarmati rivers.

Coastal stretches of bays, estuaries, backwaters, seas, creeks etc., which are influenced by tidal actions. The land between the Low Tide Line (LTL) and the HTL have been declared as Coastal Regulation Zone by the Govt. of India. The coastal zone is the area of interaction between land and sea

The Govt. of India has approved the Institute of Remote Sensing, Anna University as one of the authorized agencies for demarcating the HTL/LTL line as per Lr.No.J17011/8/92-1A III, dated 10.05.99 of Ministry of Environment & Forest, Govt. of India. Guidelines have been issued by the Govt. of India for demarcating the HTL/LTL line. The guidelines are taken into consideration by IRS while demarcating the HTL/LTL.

The Ministry of Environment and Forest and Climate change has issued another coastal regulation zone notification on 2011. After first notification 1991, 20 years later Government of India, a MoEF & CC has issued CRZ 2011 notification which is in effect from 2011 onwards. The areas that are defined as CRZ as per CRZ Notification, 2011 are

i. The land area from High Tide Line (HTL) to 500m on the landward side along the sea front.

ii. CRZ shall apply to the land area between HTL to 100 meters or width of the creek whichever is less on the landward side along the tidal influenced water bodies that are connected to the sea and the distance up to which development along such tidal influenced water bodies is to be regulated shall be governed by the distance up to which the tidal effects are experienced which shall be determined based on salinity concentration of 5 parts per thousand (ppt) measured during the driest period of the year and distance up to which tidal effects are experienced shall be clearly identified and demarcated accordingly in the Coastal Zone Management Plans.

iii. The land area falling between the hazard line and 500 m from HTL on the landward side, in case of seafront and between the hazard line and 100 m line in case of tidal influenced water body the word 'hazard line' denotes the line demarcated by Ministry of Environment and through the Survey of India taking into account tides, waves, sea level rise and shoreline changes.

iv. Land area between HTL and Low Tide Line (LTL) which will be termed as the intertidal zone.

v. The water and the bed area between the LTL to the territorial water limit (12 Nautical miles) in case of sea and the water and the bed area between LTL at the bank to the LTL on the opposite side of the bank, of tidal influenced water bodies.

1.1 Coastal regulation zone

The ministry of Environment and Forestry has notified the regulation rules along the nation's coastline and the gist is presented below.

Coastal regulation zone is the boundary from the high tide line up to 500m in the land -ward side. Area between the low tide line and high tide line. In the case of rivers, creeks and backwaters, the distance from the high tide level shall apply to both sides and this distance shall not be less than 100 meters or the width of the creek, river or backwater whichever is less.(Ministry of Environment and Forests Notification,Feb 1994 & MoEF

revised CRZ notification dated 06.01.11). There are four type of category in coastal regulation zone.

i. Category - I (CRZ I)

Areas that are ecologically sensitive and important such as national parks, marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty. historically important and heritage areas, area rich in genetic diversity, areas likely to be inundated due to rise in sea level consequent upon global warming and such other areas as notified by government from time to time .

ii. Category - II (CRZ II)

Area that have already been developed up to or close to the shoreline. For this purpose ,developed area is referred to as area within the municipal limits or other legally designated urban areas which is already substantially build up ad which has been provided with drainage and approach roads and other infrastructure facilities such as water supply and sewerage lines.

iii. Category - III (CRZ III)

Area that are relatively undisturbed ad those which do not belong to either I or II . These will include coastal zone in the rural areas developed or undeveloped and also areas within municipal limits or in other legally designated urban areas which are not substantially built up.

iv. Category - IV (CRZ IV)

The CRZ Iv consists of the water area from the Low Tide Line to twelve nautical miles on the seaward side and the water area of the tidal influenced water body from the mouth of the water body at the sea up to the influence of tide which is measured as five parts per thousand during the driest season of the year.

vi. Others

Areas requiring special consideration for the purpose of protecting the critical coastal environment and difficulties faced by local communities namely CRZ area falling within municipal limits of Greater Mumbai, the CRZ areas of Kerala including the backwaters and backwater islands and CRZ areas of Goa.

1.2 Definitions

The accepted definitions of the terminology used in the context of coastal zone regulation is necessary to aid the planners.

i. High tide line:

The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the

general height reached by a rising tide. The line encompasses spring high tides and other tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

ii. Mean High Water Line/Mark (MHWL)

The line on the shore in tidal areas established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

iii. Tidal Wetland:

A tidal wetland is a wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line (i.e., spring high tide line) and are inundated by tidal waters two times per lunar month, during spring high tides.

iv. Spring tide

Burst of tide that happens two time during a lunar month due to the reinforced influences of Sun and moon when the sun , moon and earth are aligned. This tide happens around new moon and full moon days.

Govt. of India has issued a notification during January 2011 classifying the Coastal Regulation Zone in order to regulate the various activities in the coastal zone.

v. Mangroves

Mangroves are salt-tolerant plants of tropical and subtropical intertidal regions of the world. The specific regions where these plants occur are termed as 'mangrove ecosystem'. These are highly productive but extremely sensitive and fragile. Besides mangroves, the ecosystem also harbors other plant and animal species. Experiences have proved that the presence of mangrove ecosystems on coastline save lives and property during natural hazards such as cyclones, storm surges and erosion. These ecosystems are also well known for their economic importance. They are breeding, feeding and nursery grounds for many estuarine and marine organisms. Hence, these areas are used for captive and culture fisheries. The ecosystem has a very large unexplored potential for natural products useful for medicinal purposes and also for salt production, apiculture, fuel and fodder, etc.

1.3 Geoinformatics in CRZ

It is important to ascertain the geographical location of a land area to be developed for a specific purpose along the coastline by appropriate technology. Especially because of the escalated land values in recent times, a very accurate assessment of the spatial disposition of the land area in relation to the coastal eco system at a suitably larger scale is warranted. This involves two tasks namely

a. Demarcation of the high tide lines accurately; and

b. Referencing the land to be developed to the high tide line.

The mean high tide line can be delineated by the conjunctive use of modern mapping equipments like GPS capable of getting the accurate geographical locations, remote sensing images indicating the physical and associated tonal information on the stretches tidal influence along the coast and creek, field equipments like salt meters to assess the in-situ pH value as indicator of tidal influence and the closer field inspection. The strengths of these technologies are judiciously adopted by the expert survey team for a dependable demarcation of the coastal features. The strengths of tools used for HTL/LTL demarcation are explained below.

i. GPS : The Global Positioning System (GPS) system of satellites in space orbit and the ground based receivers used for finding out the position of a point anywhere on the unobstructed earth surface having sight of four or more GPS Satellites on continuous basis worldwide, day and night. Depending on the type of GPS

receiver, it is possible to position a point with even sub cm accuracy.

ii. Remote Sensing: This is space borne resource Satellite technology whereby it is possible to map the earth surface in various ranges of EMR spectrum thereby facilitating the picture reading of the earth surfaces in different ways at different intervals of time. The physical characteristics, natural impressions/ land cover footprints and tonal/textural indications can be interpreted with these images for land cover mapping on factual basis.

iii. GIS: This is spatial map environment where the information derived about the topography and thematic information about the tidal influence , land cover, etc. are organized and their spatial relationship features can be represented and analysed. The regulation zone such as 100m buffer from creek can be readily generated and presented to the user in an easily decipherable map form.

Institute of Remote sensing has vast and strong experience in the field modern mapping using the advanced data sources like remote sensing and the modern equipments like GPS. It has a very long experience in modern mapping in the form of field execution, training and the academics, as a result of which an expert team has been developed. IRS has so far executed more than 150 consultancy projects in coastal zone regulation mapping alone across the country.

2.0 DEMARCATION OF HTL LINE ON THE LOCAL LEVEL CZM MAP

Based on the request of M/s. Nirma Limited.,Village: Padhiarka, Taluka: Mahuva, District: Bhavnagar, Gujarat, the work of GPS survey for Demarcation of High Tide Line, Low Tide Line and Coastal Regulation Zone Mapping for the Proposed Mining lease area In Mahuva Taluka, Bhavnagar District, Gujarat was taken up by Institute of Remote Sensing.

2.1 Methodology

As indicated previously, the mean high tide line was delineated by the conjunctive use of modern mapping equipments like GPS capable of getting the accurate geographical locations, remote sensing images indicating the physical and associated tonal information on the tidal influence along the coast and creek, field equipments like salt meters to assess the ppt (part per thousands) value as indicator of tidal influence and the closer field inspection. If the PPT exceeds 5, then the influence of tide is positive.

2.1.1 Field data

In order to prepare the local level map on 1:4,000 scale, the site has been inspected by IRS personnel. The tide level observations for the last 19 years have been studied for port nearer to the site, from the Tide Tables.

2.1.2 Remote sensing analysis

The Landsat ETM+, IRS 1D LISS III + PAN merged and Cartosat satellite images (1988-2017) of above site were interpreted for geomorphic features. The project site is in the hereabouts of the creek and the other land ward vegetation are seen in the area. The exact boundaries of the vegetation are demarcated in consultation with the RS data.

2.1.3 GPS survey

The specification of the GPS instruments used for the survey are listed in annexure I.

The GPS survey was conducted for following tasks.

- For getting the Ground control points for georeferencing the Remote sensing images
- For collecting the position of the High Tide lines around the project site.
- For collecting points along the boundary of Mangroves and other vegetations

Uniformly distributed features in the vicinity of project site that can well distinguished on the RS images were identified around the project site and their position were found out using GPS instruments as control points. The type of GPS instruments their accuracy are found in the Annexure I.

The observed GPS data were downloaded and processed in the Trimble Geomatics Office software. The processed GPS co-ordinates for the coastal stretch and the creek stretch coming under the project site were feed in the ArcGIS software. The entire area has been georeferenced using the GPS control points and the corresponding Image also been rectified using the GPS points. The same were plotted using the same software at the scale of 1:4,000. The processed field GPS data are listed in Annexure II.

2.1.4 MAP Compilation

The project site boundary and the remote sensing image were was georeferenced with control points collected with the GPS. The RMS of the georeferencing was reported to be 1m in planimetry. In this map the HTL, CRZ IA, CRZ 1B, CRZ III and CRZ IVA and the proposed project site have been marked (Annexure IV). The calculated co-ordinates of HTL line in WGS-84 co-ordinate systems are enclosed for ready reference (Annexure II). The Features such as HTL and buffer lines in GIS environment with suitable color scheme and legends and is presented as maps.

3.0 Results and discussion

Based on the request of M/s. Nirma Limited.,Village: Padhiarka, Taluka: Mahuva, District: Bhavnagar, Gujarat, the work of GPS survey for Demarcation of High Tide Line, Low Tide Line and Coastal Regulation Zone Mapping for the Proposed Mining lease area In Mahuva Taluka, Bhavnagar

District, Gujarat was taken up by Institute of Remote Sensing. Tide data collected from the various organizations were analyzed. The mean high tide line was delineated by the conjunctive use of modern mapping equipments like GPS capable of getting the accurate geographical locations, remote sensing images indicating the physical and associated tonal information on the tidal influence along the coast and creek, Field equipments like salt meters to assess the pH value as indicator of tidal influence and the closer field inspection. The demarcation of High Tide Line and Low Tide line was carried out using differential GPS.

The Google image of the proposed site with boundary is shown in Annexure III.The High Tide Line and Low Tide line have also been marked on the cadastral map of 1:4,000 scale for reference. The Coastal Regulation Zones (CRZ) such as CRZ IA, CRZ 1B, CRZ III and CRZ IVA have been demarcated as shown in the maps (Annexure IV). The Landuse map of 7km radius is shown in Annexure V. The area of each landuse category around 7 km radius of the proposed site is shown in table 3.1.

Table 3.1 Area of Each Landuse Category around 7 Km Radius of the Proposed site

Sl.No.	Classification	Area in Hectares (ha.)
1	Aquaculture	122.94
2	Barren Rock	16.38
3	Built-up Land	358.04
4	Cropland	8595.21
5	Educational Institute	7.13
6	Industry	5.89
7	Land with Dense Scrub	348.33
8	Land with Medium Scrub	140.4
9	Land without Scrub	345.12
10	Mangroves	16
11	Plantation	82.87
12	Railway	3.17
13	Reservoir / Lake	350.42
14	River / Creek / Canal	94.82
15	Road	37.11
16	Sandy Area	13.97
17	Sea	4380.1
18	Tank / Pond	24.14
19	Waterlogged Area	399
20	Wetland	52.46
	Total	**15393.5**

4.0 **Conclusion**

It is concluded from the analysis that

i. The HTL and LTL were demarcated based on GPS observation carried out in the field and satellite images as per CRZ notification 2011. The Proposed Mining lease area in Mahuva Taluka, Bhavnagar District, Gujarat was superimposed on Approved CZMP As Per CRZ Notification 2011.

ii. The HTL/LTL map prepared as per the approved CZMP was superimposed on the cadastral map of 1:4,000 scale. Along with HTL, 200m and 500m buffer have also been drawn for HTL. The Coastal Regulation Zones (CRZ) such as CRZ IA, CRZ 1B, CRZ III and CRZ IVA have been demarcated.

iii. The ecologically sensitive areas like sand dunes and Turtle breeding sites are not in the vicinity of proposed site. However Mangrove areas have been identified and 50m buffer also have been drawn which are away from the proposed mining area.

iv. The Landuse map of 7 km radius was also prepared on 1:25,000 scale with intensive field work and satellite image.

v. The proposed three mining areas of M/s. Nirma Limited at Mahuva are away from the CRZ.

DIRECTOR/IRS

Director
Institute of Remote Sensing
Anna University,
Chennai - 600 025

ANNEXURE I

List of GPS Instruments used

GPS MODEL	Type	Accuracy
Trimble 5700	Dual frequency	± 0.5 mm ± 5mm ± 0.5 ppm

ANNEXURE II

GPS coordinates of GPS Survey carried out for

DEMARCATION OF HIGH TIDE LINE, LOW TIDE LINE AND COASTAL REGULATION ZONE MAPPING FOR THE PROPOSED MINING LEASE AREA IN MAHUVA TALUKA, BHAVNAGAR DISTRICT, GUJARAT

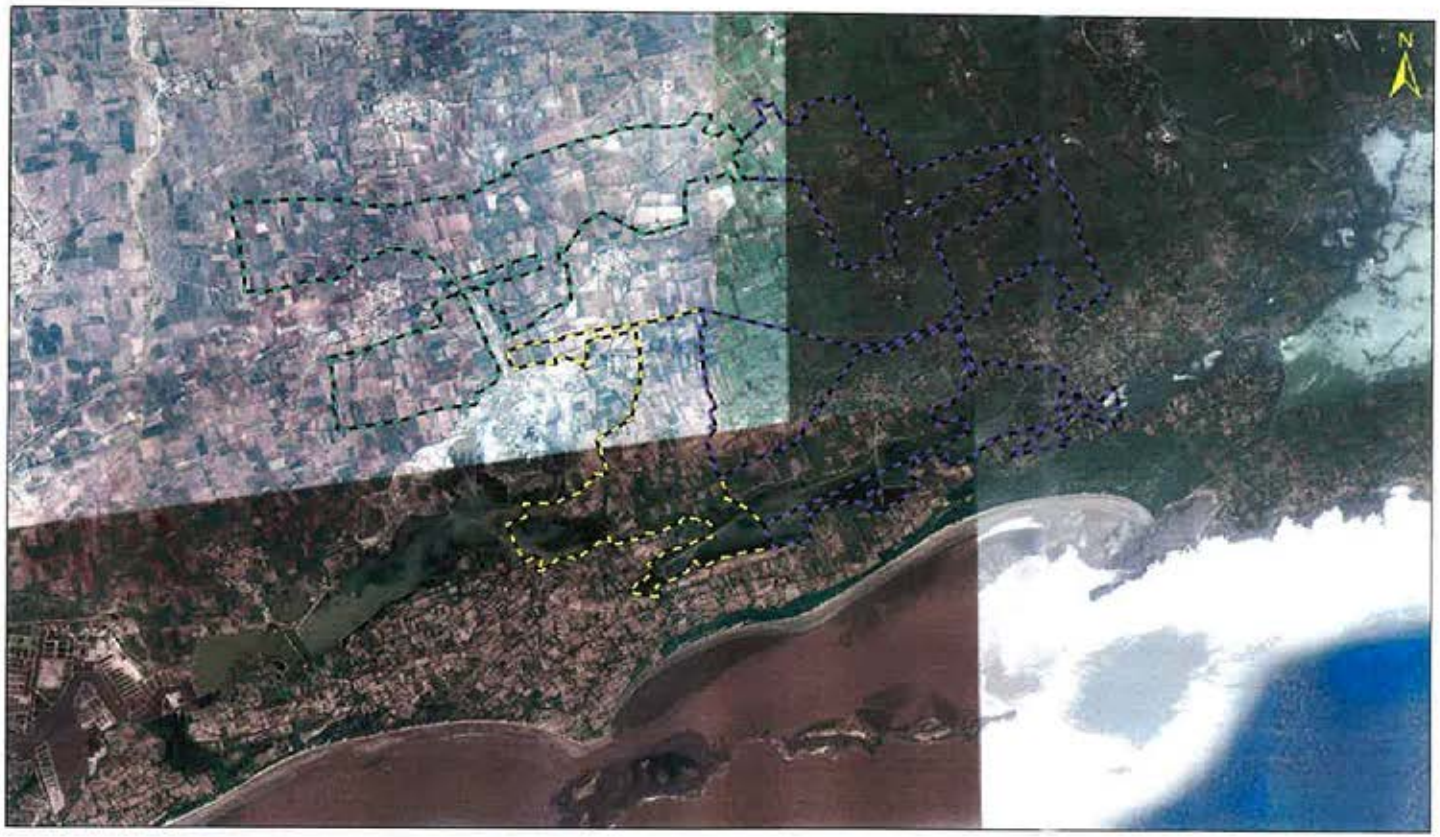
HTL POINTS	LATITUDE	LONGITUDE
1	21° 1' 14.160" N	71° 43' 53.292" E
2	21° 1' 17.616" N	71° 43' 39.288" E
3	21° 1' 18.120" N	71° 43' 16.140" E
4	21° 1' 15.420" N	71° 42' 59.724" E
5	21° 1' 8.184" N	71° 42' 42.480" E
6	21° 1' 1.812" N	71° 42' 31.248" E
7	21° 0' 50.148" N	71° 42' 12.744" E
8	21° 0' 35.604" N	71° 41' 50.568" E
9	21° 0' 30.132" N	71° 41' 22.992" E
10	21° 0' 23.328" N	71° 41' 7.080" E
11	21° 0' 13.140" N	71° 40' 52.500" E
12	20° 59' 59.820" N	71° 40' 42.852" E
13	20° 59' 48.552" N	71° 40' 33.996" E
14	20° 59' 55.248" N	71° 40' 19.128" E
15	20° 59' 57.840" N	71° 40' 1.236" E
16	20° 59' 56.832" N	71° 39' 43.380" E

DIRECTOR/IRS

Director
Institute of Remote Sensing
Anna University,
Chennai - 600 025

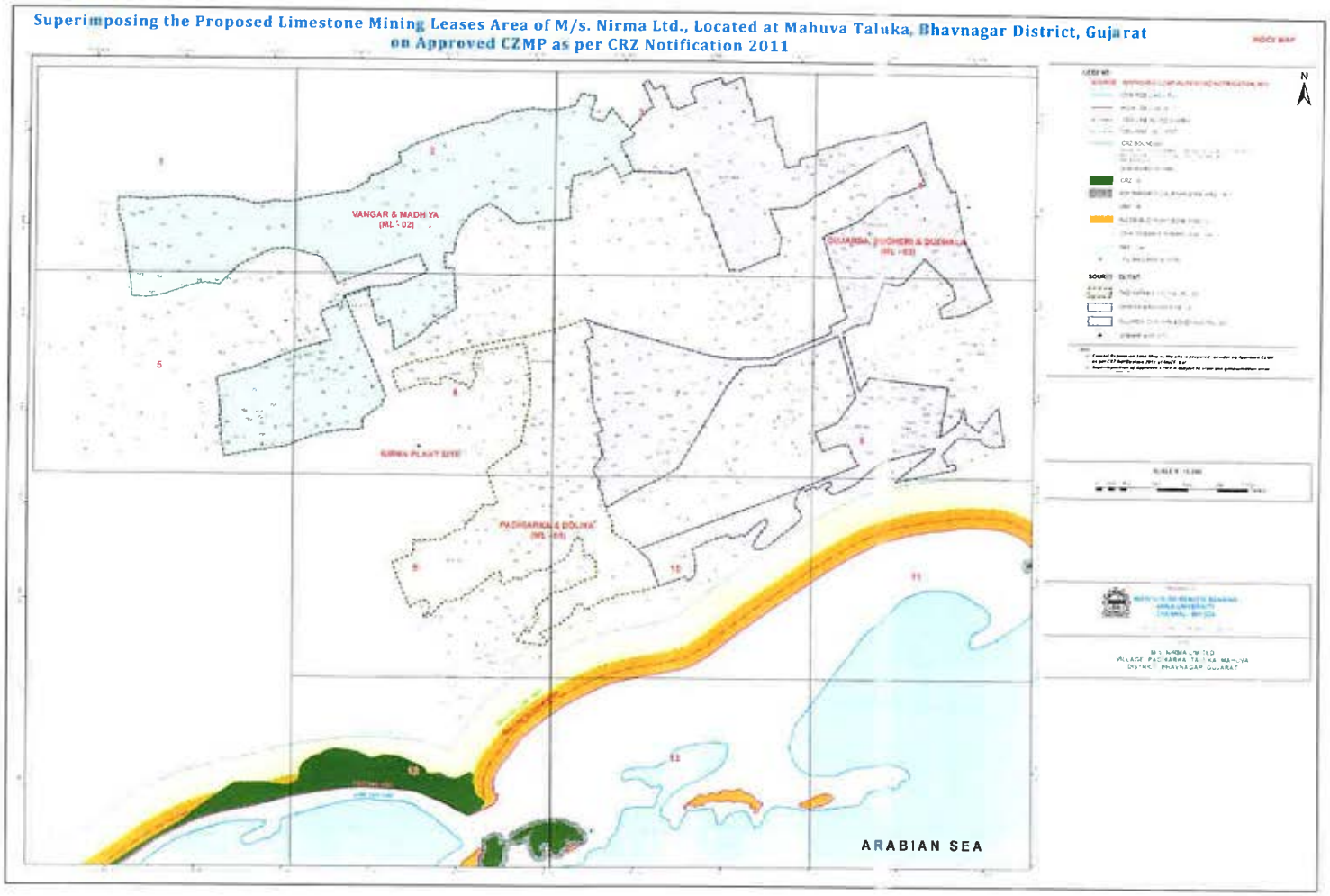
ANNEXURE III

Google image with proposed three mining area of M/s. Nirma Limited at Mahuva Taluka, District: Bhavnagar



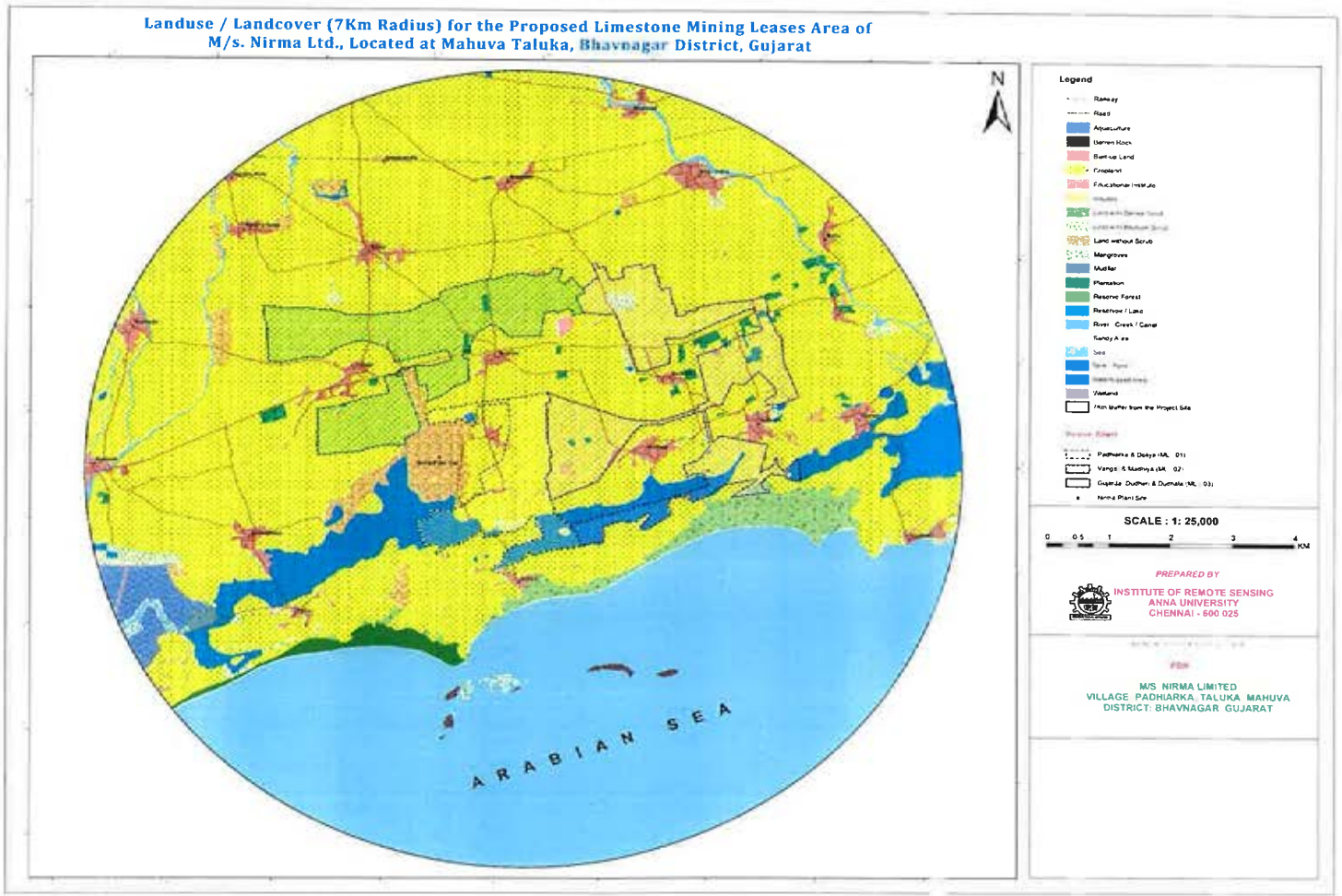
ANNEXURE IV

CRZ Map of the proposed three mining area of M/s. Nirma Limited at Mahuva Taluka, District: Bhavnagar

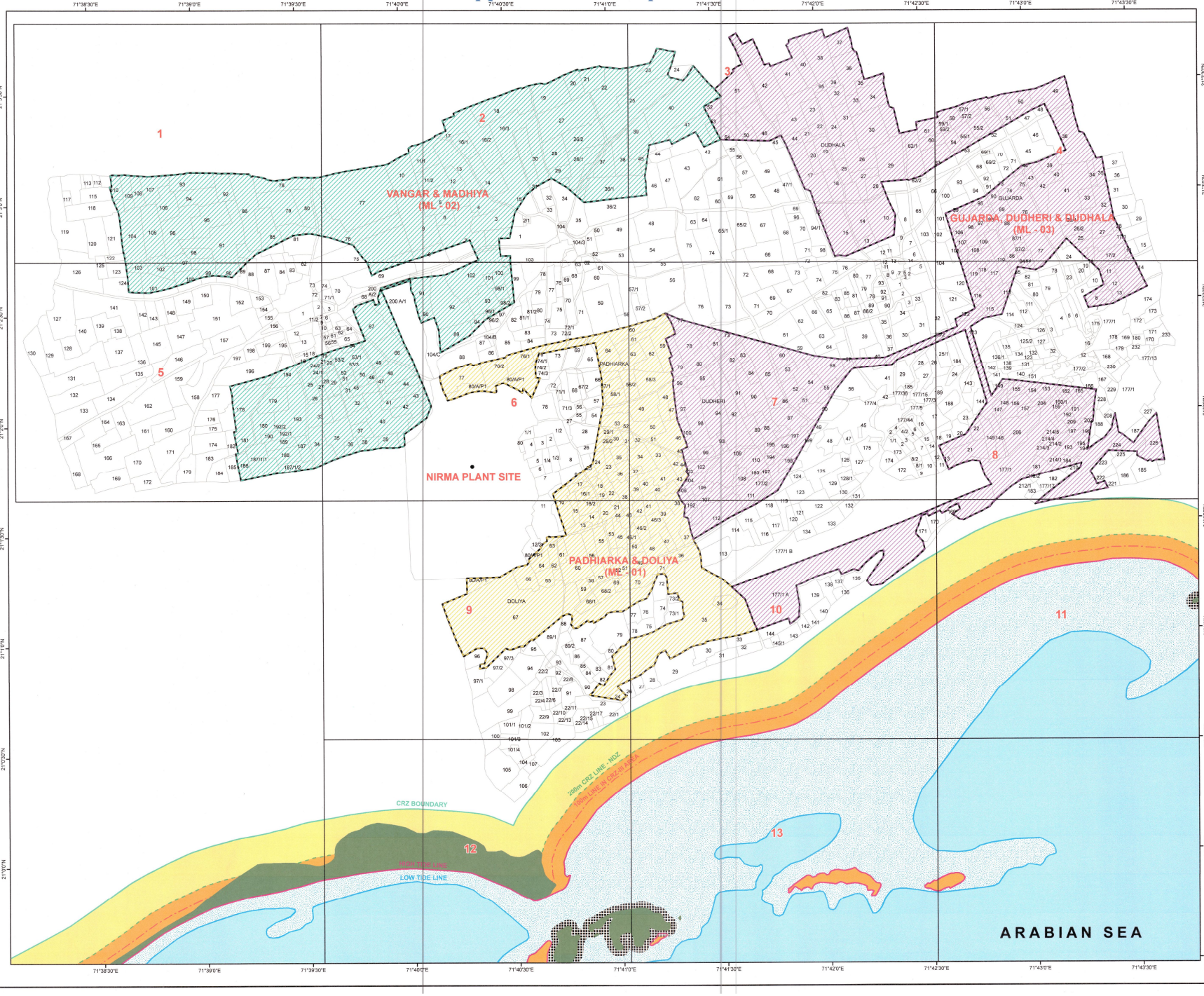


ANNEXURE V

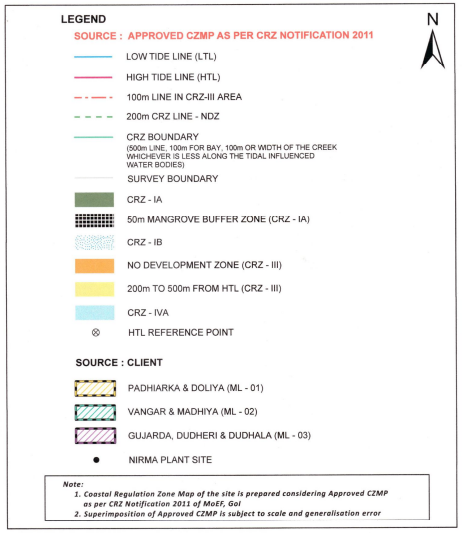
Landuse map of 7km radius of proposed three mining area of M/s. Nirma Limited at Mahuva Taluka, District: Bhavnagar

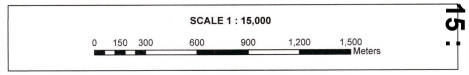


Superimposing the Proposed Limestone Mining Leases Area of M/s. Nirma Ltd., Located at Mahuva Taluka, Bhavnagar District, Gujarat on Approved CZMP as per CRZ Notification 2011



INDEX MAP





PREPARED BY
INSTITUTE OF REMOTE SENSING
ANNA UNIVERSITY
CHENNAI - 600 025

REF NO. AU/IRS/CU/211-2019 DT. 07.11.2019

FOR
M/S. NIRMA LIMITED
VILLAGE: PADHIARKA, TALUKA: MAHUVA
DISTRICT: BHAVNAGAR, GUJARAT

PREPARED BY	
VERIFIED BY	
APPROVED BY	Prof. S.B. Ramakrishnan, B.E(Hons), M.Tech.,Ph.D., Director, Institute of Remote Sensing, Anna University, Chennai-600 025.

: A-115 :

ANNEXURE : XIX Contd..

1192

Landuse / Landcover (7Km Radius) for the Proposed Limestone Mining Leases Area of M/s. Nirma Ltd., Located at Mahuva Taluka, Bhavnagar District, Gujarat

Legend

- Railway
- Road
- Aquaculture
- Barren Rock
- Built-up Land
- Cropland
- Educational Institute
- Industry
- Land with Dense Scrub
- Land with Medium Scrub
- Land without Scrub
- Mangroves
- Mudflat
- Plantation
- Reserve Forest
- Reservoir / Lake
- River / Creek / Canal
- Sandy Area
- Sea
- Tank / Pond
- Waterlogged Area
- Wetland
- 7Km Buffer from the Project Site

Source: Client

- Padhiarka & Doliya (ML - 01)
- Vangar & Madhiya (ML - 02)
- Gujarda, Dudheri & Dudhala (ML - 03)
- Nirma Plant Site

SCALE : 1: 25,000

0 0.5 1 2 3 4 KM

PREPARED BY

INSTITUTE OF REMOTE SENSING
ANNA UNIVERSITY
CHENNAI - 600 025

REF NO. AU/IRS/CU/211-2019 DT. 07.11.2019

FOR

M/S. NIRMA LIMITED
VILLAGE: PADHIARKA, TALUKA: MAHUVA
DISTRICT: BHAVNAGAR, GUJARAT

PREPARED BY	
VERIFIED BY	
APPROVED BY	Prof. S.S. Ramakrishnan, B.E(Hons), M.Tech, Ph.D., Director, Institute of Remote Sensing, Anna University, Chennai-600 025.

: A-116 :

ANNEXURE : XX Contd..

1193

D. M. Thaker
Director (Environment) &
Member Secretary (GCZMA)

Government of Gujarat
Forest & Environment Department
Block No-14/8th Floor,
Sachivalaya,
Gandhinagar
Phone:079- 23255854
E-mail: direnv@gujarat.gov.in

File No: ENV-10-2023-170-T

Date: 19 JUL 2023

To,
Mr. Ashish Desai
The Nirma Ltd
Nirma House, Ashram Road,
Ahmedabad - 380 009

Sub: Opinion regarding applicability of CRZ notification- 2011 for proposed Padhiarka & Doliya mine lease (332.24 ha) located at Village - Padhiarka & Doliya, Taluka - Mahuva & District - Bhavnagar, Gujarat by M/s. Nirma Limited

Ref.: 1) Yours Letter dated 13.12.2022 with reference to ToR granted by MoEFCC dated. 28.11.2022
2) Your letter dated. 22.06.2023

Sir,

With reference to above, regarding opinion of the Gujarat Coastal Zone Management Authority (GCZMA) for your proposed Padhiarka & Doliya mine lease area (332.24 ha) under CRZ Notification, 2011, this office has received a superimposed CRZ map by Institute of Remote Sensing (IRS), Anna University, Chennai which is one of the authorised agencies by the MOFF&CC, GOI.

The said CRZ map in 1:4000 scales along with demarcation of HTL/LTL, and CRZ boundary show that your proposed location does not cover under the CRZ area. This matter was considered in 66th GCZMA meeting held on 03.06.2023 and as per the decision, you have submitted letter dated 22.06.2023 with copy of email from Institute of Remote Sensing, ANNA University stating that they have prepared superimposed CRZ map based on MoEF&CC approved CZMP as per CRZ Notification 2011.

Considering the above, it is hereby clarified that the proposed project of mining at Padhiarka & Doliya mine lease (332.24 ha), District- Bhavnagar is outside CRZ area.

You are further, directed to ensure that no mining activity shall be carried out in CRZ area means outside proposed boundary. Further, you shall provide physical demarcation at the boundary of your proposed project towards seaside before starting any mining activity.

For & On Behalf of
GCZMA

D. M. Thaker
19/7/2023

(D M Thaker)

D. M. Thaker
Director (Environment) &
Member Secretary (GCZMA)

Government of Gujarat
Forest & Environment Department
Block No-14/8th Floor,
Sachivalaya,
Gandhinagar
Phone:079- 23255854
E-mail: direnv@gujarat.gov.in

File No: ENV-10-2023-26-T **Date:** 19 JUL 2023

To,

Mr. Ashish Desai
The Nirma Ltd
Nirma House, Ashram Road,
Ahmedabad - 380 009

Sub: Opinion regarding applicability of CRZ notification- 2011 for proposed Gujarda, Dudheri & Dudhala mine lease area (681.62 ha) located at Village - Gujarda, Dudheri & Dudhala,Taluka -Mahuva & District - Bhavnagar, Gujarat by M/s. Nirma Limited.

Ref.: 1) Yours Letter dated 13.12.2022 with reference to minutes of meeting of 7th EAC (Non-coal mining) dated. 06.12.2022
2) Your letter dated.22.06.2023

Sir,

With reference to above, regarding opinion of the Gujarat Coastal Zone Management Authority (GCZMA) for your proposed Gujarda, Dudheri & Dudhala mine lease area (681.62 ha) under CRZ Notification, 2011, this office has received a superimposed CRZ map by Institute of Remote Sensing (IRS), Anna University, Chennai which is one of the authorised agency by the MOFF&CC, GOI.

The said CRZ map in 1:4000 scales along with demarcation of HTL/LTL, and CRZ boundary show that your proposed location does not cover under the CRZ area. This matter was considered in 66th GCZMA meeting held on 03.06.2023 and as per the decision, you have submitted letter dated 22.06.2023 with copy of email from Institute of Remote Sensing, ANNA University stating that they have prepared superimposed CRZ map based on MoEF&CC approved CZMP as per CRZ Notification 2011.

Considering the above, it is hereby clarified that the proposed project of mining at Gujarda, Dudheri & Dudhala mine lease area (681.62 ha), District- Bhavnagar is outside CRZ area.

You are further, directed to ensure that no mining activity shall be carried out in CRZ area means outside proposed boundary. Further, you shall provide physical demarcation at the boundary of your proposed project towards seaside before starting any mining activity.

For & On Behalf of

GCZMA
D.M.Thaker 19/7/2023
(D M Thaker)

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

CO STARTING
TITLEONE DOLIYA-PADHIYARKA LIMESTONE MINE OF NIRMA LTD. (with 20% over production)
TITLETWO PM_{10} EMISSIONS FROM MINING ACTIVITIES
MODELOPT DFAULT CONC RURAL
AVERTIME 24 PERIOD
POLLUTID PM10
RUNORNOT RUN
CO FINISHED
:
:
:
:
:
:
:

ME STARTING
INPUTFIL Guj\Nirma\Nirma21S.met
SURFDATA 99999 2021 XXX SURFNAME
UAIRDATA 99999 2021 XXX UAIRNAME
ANEMHGHT 10.0 METERS
WDROTATE 180
ME FINISHED

OU STARTING
OU RECTABLE ALLAVE FIRST
OU MAXTABLE ALLAVE 50
OU PLOTFILE 24 ALL FIRST Guj\Nirma\Dol\Do-PM10.PLT
OU FINISHED

****
*** SETUP Finishes Successfully ***
****

*** ISCST3 - VERSION 95250 ***
DOLIYA-PADHIYARKA LIMESTONE MINE OF NIRMA LTD.(20% over production-peak total excavation)
*** PM10 EMISSIONS FROM MINING ACTIVITIES ***
**MODELOPTs: CONC RURAL FLAT DFAULT

*** AREA SOURCE DATA ***
(for peak total excavation)

Source ID	Emission rate (g/s/m2)						Co-ordinates (SW corner) (m)		Base elev.	Rel. Height	Dim of area (m)		Orient, of area	Init. SZ
	PM_{10}		$PM_{2.5}$		SO_2	NO_2					X	Y		
	Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)	X	Y	(m)	(m)			(deg)	(m)
P16	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779041.3	2327783	0	2.5	163.92	38.18	0	0
P17	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779205.3	2327783	0	2.5	140.61	26.34	0	0
P18	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	778951.4	2327236	0	2.5	454.12	546.81	0	0
P19	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327663	0	2.5	74.36	119.55	0	0
P20	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327604	0	2.5	36.74	58.87	0	0
P21	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327331	0	2.5	54.03	118.08	0	0
P22	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327221	0	2.5	86.80	109.95	0	0
P23	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	778951.4	2327117	0	2.5	82.54	119.13	0	0
P24	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779033.9	2327168	0	2.5	70.54	67.88	0	0
P25	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779104.4	2327200	0	2.5	45.56	35.57	0	0
D8	6.37E-7	6.37E-7	2.12E-6	3.67E-7	1.22E-6	6.53E-8	778476.1	2327156	0	2.5	256.77	137.43	81	0
D9	6.37E-7	6.37E-7	2.12E-6	3.67E-7	1.22E-6	6.53E-8	778516.2	2326902	0	2.5	30.68	96.97	81	0
D10	6.37E-7	6.37E-7	2.12E-6	3.67E-7	1.22E-6	6.53E-8	778520.9	2326872	0	2.5	20.54	56.96	81	0
R23	1.69E-4	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.34E-6	778855.8	2327109	0	1.0	10.00	100.00	65	0
R24	1.69E-4	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.34E-6	778779.7	2327040	0	1.0	10.00	100.00	47	0
R25	1.69E-4	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.34E-6	778714.7	2326962	0	1.0	10.00	100.00	40	0
R26	1.69E-4	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.34E-6	778663.1	2326898	0	1.0	10.00	81.36	39	0
R27	1.55E-4	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.34E-6	778626.3	2326842	0	1.0	10.00	53.62	33	0
R28	1.55E-4	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.34E-6	778536.0	2326799	0	1.0	10.00	100.00	65	0
R29	1.55E-4	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.34E-6	778491.4	2326778	0	1.0	10.00	48.99	65	0
R30	1.55E-4	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.34E-6	778486.4	2326670	0	1.0	10.00	100.00	2	0
R31	1.55E-4	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.34E-6	778477.4	2326578	0	1.0	10.00	91.81	6	0
R32	1.37E-5	1.37E-5	5.47E-5	7.86E-6	3.14E-5	1.34E-6	778620.0	2326888	0	1.0	10.72	10.00	14	0
R33	1.37E-5	1.37E-5	5.47E-5	7.86E-6	3.14E-5	1.34E-6	778632.8	2326895	0	1.0	10.00	31.20	85	0

Note: Same emission rate (per unit time) shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: Guj\Nirma\Nirma21S.met FORMAT:
(4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)

SURFACE STATION NO.: 99999 UPPER AIR STATION NO.: 99999
NAME: XXX NAME: XXX
YEAR: 2021 YEAR: 2021

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
21	3	1	12	323.7	2.05	301.1	2	1375.0	1500.0	.0000	.0	.0000	0	.00
21	3	1	13	314.8	2.27	301.3	2	1550.0	1800.0	.0000	.0	.0000	0	.00
21	3	1	14	318.8	3.39	302.0	2	1750.0	2050.0	.0000	.0	.0000	0	.00
21	3	1	15	314.4	2.84	299.7	2	1850.0	2150.0	.0000	.0	.0000	0	.00
21	3	1	16	307.0	3.21	298.5	2	2000.0	2350.0	.0000	.0	.0000	0	.00
21	3	1	17	305.5	5.83	297.5	3	1825.0	2225.0	.0000	.0	.0000	0	.00
21	3	1	18	180.7	6.00	299.9	4	1800.0	2200.0	.0000	.0	.0000	0	.00
21	3	1	19	187.4	3.31	298.4	2	1350.0	1750.0	.0000	.0	.0000	0	.00
21	3	1	20	148.9	5.85	296.2	4	975.0	1525.0	.0000	.0	.0000	0	.00
21	3	1	21	146.5	6.54	293.0	4	300.0	480.0	.0000	.0	.0000	0	.00
21	3	1	22	179.1	4.28	294.1	4	255.0	405.0	.0000	.0	.0000	0	.00
21	3	1	23	149.8	6.16	293.9	4	210.0	400.0	.0000	.0	.0000	0	.00
21	3	1	24	92.3	6.81	294.0	4	200.0	395.0	.0000	.0	.0000	0	.00
21	3	2	1	129.1	.42	294.3	6	200.0	400.0	.0000	.0	.0000	0	.00
21	3	2	2	101.5	4.68	296.0	4	125.0	310.0	.0000	.0	.0000	0	.00
21	3	2	3	130.3	5.31	295.8	4	85.0	275.0	.0000	.0	.0000	0	.00
21	3	2	4	72.8	2.88	296.7	5	50.0	250.0	.0000	.0	.0000	0	.00
21	3	2	5	138.1	5.24	295.3	4	55.0	265.0	.0000	.0	.0000	0	.00
21	3	2	6	230.0	.00	295.1	1	90.0	110.0	.0000	.0	.0000	0	.00
21	3	2	7	311.7	.54	299.9	1	80.0	100.0	.0000	.0	.0000	0	.00
21	3	2	8	186.5	.93	300.9	1	175.0	225.0	.0000	.0	.0000	0	.00
21	3	2	9	234.5	.54	301.9	1	440.0	510.0	.0000	.0	.0000	0	.00
21	3	2	10	192.9	.00	300.1	1	740.0	800.0	.0000	.0	.0000	0	.00
21	3	2	11	180.4	.99	300.0	1	800.0	900.0	.0000	.0	.0000	0	.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

RECEPTOR WISE CALCULATED GROUND LEVEL CONCENTRATIONS (µg/m³) FOR PEAK TOTAL EXCAVATION

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
778882.9	2331207	2.175	3.521	1.250	2.025	0.013	0.464
779670.9	2331144	0.803	2.319	0.462	1.334	0.003	0.084
780161.1	2331358	0.757	2.190	0.435	1.259	0.003	0.075
780887.4	2331533	0.556	1.616	0.320	0.929	0.002	0.060
781329.9	2330773	0.638	1.862	0.367	1.070	0.002	0.062
782229.9	2330996	0.611	1.769	0.351	1.017	0.002	0.060
782856.9	2330648	0.697	2.038	0.401	1.172	0.002	0.067
783216.6	2329753	0.546	1.597	0.314	0.918	0.002	0.053
783064.1	2329025	0.458	1.423	0.263	0.818	0.001	0.037
782650.5	2329499	0.612	1.772	0.352	1.019	0.002	0.060
781990.7	2328898	0.727	2.154	0.418	1.238	0.002	0.068
782724.2	2328525	0.434	1.141	0.250	0.656	0.002	0.053
783306.3	2328240	0.527	1.495	0.303	0.860	0.002	0.062
783320.6	2327706	0.691	1.973	0.397	1.134	0.002	0.071
782740.3	2327417	0.792	2.355	0.455	1.354	0.003	0.073
782138.9	2327407	0.904	2.666	0.520	1.533	0.003	0.085
781523.9	2326980	0.905	3.054	0.520	1.756	0.003	0.082
780713.1	2326787	1.025	3.435	0.590	1.975	0.004	0.129
779194.3	2325974	1.423	5.679	0.818	3.266	0.002	0.015
778650.7	2325983	0.075	0.261	0.043	0.150	0.000	0.013
779349.9	2326559	2.542	9.827	1.461	5.651	0.004	0.052
778496.6	2326322	0.412	0.938	0.237	0.539	0.002	0.061
777671.7	2326021	1.186	4.004	0.682	2.303	0.003	0.082
777550.6	2326765	1.403	4.910	0.807	2.823	0.004	0.119
778286.2	2327271	2.382	9.382	1.370	5.394	0.006	0.187
778649	2328044	7.293	29.022	4.194	16.688	0.009	0.272

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
778331.8	2328600	3.181	12.706	1.829	7.306	0.004	0.153
777690.1	2328285	0.898	3.526	0.517	2.027	0.003	0.100
776928.4	2327825	0.825	2.669	0.474	1.535	0.003	0.117
775962.4	2327590	0.921	2.648	0.529	1.523	0.003	0.092
775605.2	2328291	0.632	2.005	0.363	1.153	0.002	0.067
776329.5	2328773	0.615	2.095	0.353	1.205	0.002	0.066
776775.1	2329339	0.706	2.376	0.406	1.366	0.002	0.068
775944.9	2329456	0.548	1.646	0.315	0.946	0.002	0.050
775044.4	2329133	0.476	1.400	0.274	0.805	0.002	0.052
774661.7	2329871	0.442	1.448	0.254	0.833	0.001	0.041
775180.3	2330314	0.442	1.398	0.254	0.804	0.002	0.046
776167.1	2330278	0.606	1.888	0.349	1.086	0.002	0.049
777107.6	2330508	0.664	2.083	0.382	1.198	0.002	0.067
777929.9	2330978	0.730	2.344	0.420	1.348	0.002	0.067
777809.9	2328852	0.917	3.439	0.527	1.977	0.003	0.097
778347.7	2328900	4.129	16.458	2.374	9.463	0.006	0.151
779550.4	2329074	1.603	4.267	0.921	2.454	0.006	0.197
780514.6	2328809	1.494	4.171	0.859	2.399	0.005	0.160
781479.3	2328927	0.830	2.468	0.478	1.419	0.003	0.085
781600.7	2329721	0.980	2.819	0.563	1.621	0.003	0.098
782220.1	2330346	0.803	2.326	0.462	1.337	0.003	0.079
782056.7	2330447	0.774	2.234	0.445	1.285	0.003	0.077
781307.2	2329963	0.811	2.323	0.466	1.336	0.003	0.082
780688	2329442	0.928	2.649	0.533	1.523	0.003	0.095
780274.1	2330336	0.810	2.214	0.466	1.273	0.003	0.091
779398.2	2330374	0.991	2.821	0.570	1.622	0.004	0.124
778798.2	2329899	2.815	8.307	1.618	4.776	0.009	0.291
778116.8	2329657	0.918	3.230	0.528	1.857	0.003	0.106
778432.5	2331244	3.106	12.343	1.786	7.097	0.005	0.089
779349.3	2331453	0.707	2.096	0.406	1.205	0.003	0.101
780056.4	2331549	0.734	2.142	0.422	1.232	0.002	0.071
780980.9	2331590	0.543	1.570	0.312	0.903	0.002	0.056
781474.1	2330894	0.625	1.823	0.359	1.048	0.002	0.061
782435.7	2331148	0.609	1.769	0.350	1.017	0.002	0.060
783009.6	2330611	0.661	1.946	0.380	1.119	0.002	0.063
783354.1	2329698	0.530	1.566	0.304	0.901	0.002	0.050
783151.9	2328951	0.411	1.292	0.236	0.743	0.001	0.036
782655.8	2329351	0.617	1.815	0.355	1.043	0.002	0.059
782169.7	2328689	0.601	1.860	0.346	1.070	0.002	0.050
783100.6	2328461	0.472	1.278	0.271	0.735	0.002	0.055
783656.3	2327952	0.608	1.697	0.350	0.976	0.002	0.065
783143.7	2327432	0.730	2.176	0.420	1.251	0.002	0.067
782213.8	2327340	0.884	2.663	0.508	1.531	0.003	0.079
781514.4	2326834	0.798	2.750	0.459	1.581	0.003	0.077
780641.1	2326657	1.072	3.312	0.616	1.905	0.004	0.146
779221.6	2325866	1.067	4.260	0.614	2.449	0.001	0.011
778473.5	2325855	0.098	0.164	0.056	0.094	0.001	0.019
778195	2326071	0.840	2.594	0.483	1.492	0.002	0.070
777397.2	2326186	1.278	4.379	0.735	2.518	0.003	0.092
777560.2	2327011	1.628	6.039	0.936	3.472	0.004	0.114
778172.9	2327550	1.339	5.309	0.770	3.052	0.006	0.197
778588.7	2328387	5.655	22.531	3.251	12.955	0.009	0.217
778038.1	2328204	1.160	4.589	0.667	2.639	0.003	0.108
777245.8	2327779	0.840	2.739	0.483	1.575	0.004	0.130
776284.9	2327542	0.978	2.810	0.563	1.616	0.003	0.099
775537.2	2327815	0.754	2.042	0.433	1.174	0.003	0.086

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
775728.4	2328664	0.555	1.698	0.319	0.976	0.002	0.061
776510.1	2329078	0.606	2.099	0.348	1.207	0.002	0.057
776101.3	2329429	0.550	1.798	0.316	1.034	0.002	0.053
775214.9	2329068	0.485	1.462	0.279	0.841	0.002	0.054
774599.9	2329543	0.414	1.331	0.238	0.765	0.001	0.045
774694.9	2330414	0.442	1.324	0.254	0.761	0.001	0.040
775691.6	2330427	0.543	1.783	0.312	1.025	0.002	0.047
776673.6	2330448	0.596	1.982	0.343	1.139	0.002	0.065
777492.2	2330919	0.643	1.925	0.370	1.107	0.002	0.069
778238.9	2329060	1.059	3.902	0.609	2.244	0.004	0.136
778908.9	2329125	3.349	5.763	1.926	3.314	0.019	0.696
780185.6	2329003	1.149	3.267	0.661	1.879	0.004	0.118
781163.2	2328901	1.081	3.196	0.622	1.838	0.003	0.101
781539.8	2329579	1.014	2.924	0.583	1.682	0.003	0.101
781325.1	2329529	1.062	3.038	0.611	1.747	0.004	0.108
780501.1	2329578	0.898	2.594	0.516	1.492	0.003	0.089
779974.6	2330304	0.958	2.705	0.551	1.555	0.003	0.100
779331.4	2329929	1.150	3.250	0.661	1.869	0.008	0.288
778409.3	2329921	3.793	15.059	2.181	8.659	0.007	0.097
778889.2	2331407	2.106	3.308	1.211	1.902	0.013	0.457
779742.6	2331646	0.711	2.070	0.409	1.190	0.002	0.073
780692.9	2331724	0.624	1.764	0.359	1.014	0.002	0.065
781405.2	2331196	0.549	1.615	0.315	0.929	0.002	0.052
782213	2331195	0.545	1.583	0.313	0.910	0.002	0.053
782982.2	2330967	0.674	1.967	0.388	1.131	0.002	0.065
783325.9	2330056	0.512	1.477	0.294	0.849	0.002	0.051
783603.4	2329129	0.369	1.155	0.212	0.664	0.001	0.032
782705.8	2328828	0.484	1.516	0.279	0.872	0.001	0.039
782464.9	2328757	0.527	1.643	0.303	0.945	0.002	0.043
783336.2	2328497	0.461	1.258	0.265	0.723	0.002	0.053
783772.1	2327760	0.637	1.826	0.366	1.050	0.002	0.064
783004.9	2327269	0.730	2.244	0.420	1.290	0.002	0.062
782056.4	2327107	0.849	2.739	0.488	1.575	0.002	0.072
781291.3	2326532	0.771	2.501	0.443	1.438	0.003	0.090
780562.4	2326230	0.929	2.795	0.534	1.607	0.005	0.159
779270.2	2325759	0.903	3.601	0.519	2.071	0.001	0.010
778427.9	2325681	0.075	0.126	0.043	0.072	0.000	0.015
778050.1	2325897	0.817	2.557	0.470	1.470	0.002	0.065
777282.8	2326197	1.282	4.326	0.737	2.487	0.003	0.089
777445.9	2327052	1.557	5.653	0.895	3.250	0.003	0.103
778078.7	2327596	1.193	4.741	0.686	2.726	0.005	0.190
778355.9	2328089	3.249	12.891	1.868	7.412	0.005	0.145
777449.9	2327899	0.828	3.133	0.476	1.802	0.003	0.120
776589.8	2327521	1.016	2.869	0.584	1.650	0.004	0.106
775617.6	2327397	0.960	3.002	0.552	1.726	0.003	0.077
775400.7	2328336	0.610	1.946	0.351	1.119	0.002	0.064
776077.6	2328886	0.577	1.976	0.332	1.136	0.002	0.062
776312.2	2329418	0.573	2.053	0.330	1.180	0.002	0.059
775435.3	2329034	0.486	1.610	0.279	0.926	0.002	0.056
774552.4	2329160	0.464	1.428	0.267	0.821	0.002	0.049
774387.9	2330140	0.429	1.380	0.246	0.793	0.001	0.038
775149.8	2330512	0.427	1.472	0.246	0.846	0.002	0.045
776139.1	2330480	0.589	1.777	0.339	1.022	0.002	0.053
777076.6	2330728	0.659	2.015	0.379	1.159	0.002	0.069
777928.1	2331192	0.709	2.229	0.407	1.281	0.002	0.062
778696.1	2329172	4.360	17.393	2.507	10.001	0.005	0.158

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
780140.8	2329119	1.060	3.049	0.609	1.753	0.004	0.106
781118.1	2328990	1.173	3.416	0.674	1.964	0.004	0.114
781282.9	2329401	1.106	3.168	0.636	1.822	0.004	0.112
780433.5	2329476	0.933	2.690	0.536	1.547	0.003	0.093
779909.4	2330206	0.997	2.819	0.573	1.621	0.003	0.104
779250.6	2329754	2.142	3.437	1.232	1.976	0.015	0.541
778340.8	2329751	3.592	14.281	2.065	8.212	0.006	0.098
778587.7	2331493	2.718	10.167	1.563	5.846	0.005	0.095
779526.4	2331622	0.700	2.040	0.403	1.173	0.003	0.081
780444.1	2331789	0.676	1.943	0.388	1.117	0.002	0.068
781249.3	2331482	0.499	1.432	0.287	0.823	0.002	0.050
782044.4	2331270	0.568	1.653	0.326	0.950	0.002	0.055
782971	2331272	0.637	1.855	0.367	1.067	0.002	0.062
783366.8	2330375	0.497	1.494	0.286	0.859	0.002	0.047
783701.4	2329442	0.433	1.327	0.249	0.763	0.001	0.037
783176.9	2328745	0.370	1.060	0.213	0.610	0.001	0.045
783812.8	2328231	0.516	1.444	0.296	0.831	0.002	0.058
783526.8	2327418	0.678	2.032	0.390	1.169	0.002	0.061
782625.7	2327085	0.735	2.359	0.423	1.356	0.002	0.061
781746.2	2326778	0.705	2.436	0.405	1.401	0.002	0.071
780883.3	2326391	0.928	2.835	0.534	1.630	0.004	0.124
779327.9	2325644	0.783	3.120	0.450	1.794	0.001	0.009
778435.9	2325532	0.047	0.076	0.027	0.044	0.000	0.010
777740.2	2325676	0.919	2.954	0.528	1.699	0.003	0.067
777107.9	2326370	1.249	4.003	0.718	2.302	0.004	0.092
777469.1	2327189	1.453	4.907	0.835	2.822	0.004	0.095
778058.2	2327783	1.156	4.579	0.665	2.633	0.005	0.161
777566.8	2327860	0.897	3.395	0.516	1.952	0.004	0.129
776713.4	2327463	1.075	3.114	0.618	1.791	0.004	0.106
775741.5	2327255	0.997	3.242	0.573	1.864	0.003	0.070
775315.2	2328050	0.602	1.942	0.346	1.117	0.002	0.077
775655	2328852	0.519	1.671	0.298	0.961	0.002	0.060
776317.4	2329312	0.566	1.999	0.325	1.150	0.002	0.057
775439.3	2328929	0.508	1.541	0.292	0.886	0.002	0.057
774511.4	2329013	0.491	1.474	0.282	0.848	0.002	0.048
774307.8	2329983	0.405	1.341	0.233	0.771	0.001	0.040
774834.3	2330615	0.415	1.277	0.239	0.734	0.001	0.043
775831.4	2330621	0.565	1.764	0.325	1.014	0.002	0.046
776813.9	2330674	0.580	1.904	0.334	1.095	0.002	0.060
777639.1	2331193	0.637	2.160	0.366	1.242	0.002	0.063
778661.1	2329267	4.380	17.496	2.519	10.060	0.005	0.147
780095.9	2329235	0.941	2.740	0.541	1.576	0.003	0.102
781073	2329080	1.224	3.520	0.704	2.024	0.004	0.123
780938.4	2329148	1.253	3.553	0.720	2.043	0.004	0.130
780247.6	2329678	0.801	2.248	0.461	1.292	0.003	0.091
779566.1	2330019	1.127	3.172	0.648	1.824	0.004	0.127
778774.8	2329594	3.157	11.076	1.815	6.369	0.007	0.177
778442.6	2331570	2.962	11.734	1.703	6.747	0.005	0.083
779391.4	2331752	0.660	1.956	0.380	1.125	0.003	0.088
780327.1	2331858	0.682	1.978	0.392	1.137	0.002	0.067
781249.3	2331738	0.497	1.436	0.286	0.826	0.002	0.050
781969.3	2331354	0.567	1.654	0.326	0.951	0.002	0.055
782926.9	2331447	0.597	1.733	0.343	0.997	0.002	0.059
783401.4	2330596	0.545	1.625	0.313	0.934	0.002	0.050
783708.7	2329653	0.470	1.417	0.271	0.814	0.002	0.042
783528.4	2328807	0.364	0.964	0.209	0.554	0.001	0.043

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
783896.1	2328331	0.484	1.389	0.278	0.799	0.002	0.055
783765.7	2327407	0.647	1.948	0.372	1.120	0.002	0.058
782868.4	2327035	0.679	2.194	0.391	1.262	0.002	0.057
781912.1	2326829	0.713	2.446	0.410	1.406	0.002	0.071
781114.3	2326270	0.796	2.482	0.457	1.427	0.003	0.110
779623.5	2325738	1.148	4.548	0.660	2.615	0.002	0.023
778788.4	2325325	0.021	0.082	0.012	0.047	0.000	0.001
778022.2	2325631	0.438	1.262	0.252	0.726	0.001	0.044
777173.9	2325958	1.119	3.599	0.643	2.070	0.003	0.081
777033.5	2326897	1.246	4.630	0.716	2.662	0.003	0.087
777848.9	2327380	1.217	4.227	0.700	2.431	0.005	0.141
777612.6	2327770	0.909	3.499	0.523	2.012	0.004	0.145
776756.8	2327372	1.159	3.545	0.666	2.038	0.004	0.099
775786.1	2327154	0.991	3.308	0.570	1.902	0.003	0.062
775229.4	2327850	0.726	1.994	0.417	1.146	0.003	0.081
775290.9	2328778	0.535	1.642	0.308	0.944	0.002	0.055
774398.4	2329007	0.491	1.455	0.282	0.836	0.002	0.046
774204.3	2329982	0.390	1.299	0.224	0.747	0.001	0.040
774677.2	2330713	0.409	1.208	0.235	0.694	0.001	0.042
775674.4	2330727	0.548	1.726	0.315	0.993	0.002	0.043
776660.4	2330750	0.566	1.891	0.326	1.087	0.002	0.060
777499.1	2331247	0.580	1.970	0.334	1.133	0.002	0.062
780257.6	2329377	0.930	2.699	0.534	1.552	0.003	0.091
779677.8	2329950	1.131	3.193	0.651	1.836	0.004	0.121
778529.3	2331690	2.778	10.709	1.597	6.158	0.005	0.080
779752.9	2331977	0.659	1.923	0.379	1.106	0.002	0.067
780725.6	2332030	0.608	1.731	0.350	0.995	0.002	0.062
781494.1	2331540	0.487	1.443	0.280	0.830	0.002	0.045
782397.1	2331570	0.522	1.522	0.300	0.875	0.002	0.051
783219	2331232	0.637	1.861	0.367	1.070	0.002	0.062
783579.9	2330318	0.471	1.381	0.271	0.794	0.002	0.047
783928.2	2329388	0.379	1.176	0.218	0.676	0.001	0.031
783862.4	2328603	0.433	1.200	0.249	0.690	0.002	0.047
784053.2	2327647	0.621	1.816	0.357	1.044	0.002	0.060
783308.4	2327059	0.631	2.015	0.363	1.159	0.002	0.051
782337.3	2326847	0.659	2.233	0.379	1.284	0.002	0.065
781525.1	2326335	0.689	2.269	0.396	1.305	0.003	0.085
780662.3	2325934	0.954	3.180	0.549	1.828	0.004	0.132
779706.7	2325669	1.099	4.346	0.632	2.499	0.002	0.025
778872.2	2325211	0.031	0.123	0.018	0.070	0.000	0.000
778016.1	2325520	0.335	0.928	0.192	0.533	0.001	0.036
777137	2325826	1.076	3.501	0.618	2.013	0.003	0.075
776864.8	2326765	0.966	3.635	0.555	2.090	0.003	0.084
777558.4	2327425	1.132	3.769	0.651	2.167	0.004	0.135
777539.1	2327503	1.031	3.496	0.593	2.010	0.004	0.144
776603.9	2327201	1.215	4.055	0.699	2.331	0.003	0.077
775620.1	2327074	0.925	3.130	0.532	1.800	0.002	0.055
775128.8	2327861	0.718	1.979	0.413	1.138	0.003	0.079
774899.4	2328632	0.553	1.703	0.318	0.979	0.002	0.050
774240.7	2329238	0.452	1.383	0.260	0.795	0.002	0.046
774091.6	2330220	0.400	1.304	0.230	0.750	0.001	0.037
774759.8	2330815	0.389	1.316	0.224	0.757	0.001	0.042
775757.2	2330826	0.551	1.685	0.317	0.969	0.002	0.047
776743.1	2330866	0.563	1.820	0.324	1.047	0.002	0.057
777580.4	2331385	0.612	2.069	0.352	1.190	0.002	0.061
779924.4	2329877	1.053	2.908	0.605	1.672	0.004	0.115

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
778837.3	2331950	2.010	3.586	1.156	2.062	0.011	0.399
779783.3	2332189	0.631	1.847	0.363	1.062	0.002	0.064
780761.9	2332238	0.594	1.697	0.341	0.976	0.002	0.060
781574.4	2331773	0.452	1.344	0.260	0.773	0.002	0.044
782465.2	2331804	0.510	1.490	0.294	0.857	0.002	0.049
783332.7	2331452	0.614	1.791	0.353	1.030	0.002	0.059
783739.8	2330552	0.452	1.332	0.260	0.766	0.002	0.044
784062.3	2329614	0.404	1.235	0.232	0.710	0.001	0.035
784046.7	2328693	0.410	1.132	0.236	0.651	0.002	0.045
784273.3	2327735	0.595	1.728	0.342	0.994	0.002	0.058
783652.2	2327035	0.586	1.869	0.337	1.075	0.002	0.047
782729.8	2326698	0.547	1.814	0.315	1.043	0.002	0.059
781850.6	2326335	0.642	2.102	0.369	1.209	0.002	0.068
780972.2	2325924	0.839	2.601	0.483	1.495	0.004	0.123
780061.1	2325564	1.164	4.473	0.669	2.572	0.002	0.050
779228.7	2325061	0.166	0.662	0.096	0.380	0.000	0.002
778260.7	2325168	0.044	0.085	0.026	0.049	0.000	0.008
777345.6	2325388	0.848	2.715	0.487	1.561	0.002	0.063
776757.4	2326165	1.064	3.393	0.612	1.951	0.003	0.080
775805.6	2326855	0.822	2.907	0.473	1.672	0.002	0.050
775023.6	2327370	0.864	2.732	0.497	1.571	0.003	0.067
774888.1	2328356	0.551	1.805	0.317	1.038	0.002	0.061
774128.4	2328876	0.493	1.521	0.283	0.875	0.002	0.044
773928.4	2329850	0.384	1.122	0.221	0.645	0.001	0.040
774132.5	2330780	0.410	1.237	0.236	0.711	0.001	0.037
775070.5	2331007	0.472	1.543	0.271	0.887	0.001	0.040
776065.9	2330990	0.519	1.712	0.298	0.984	0.002	0.055
776968.9	2331298	0.611	1.823	0.351	1.048	0.002	0.061
777877.4	2331704	0.653	1.991	0.375	1.145	0.002	0.057
778429.4	2332080	2.763	10.870	1.589	6.250	0.004	0.073
780033.3	2332392	0.617	1.817	0.355	1.045	0.002	0.059
781016.8	2332428	0.532	1.508	0.306	0.867	0.002	0.055
781769.6	2331832	0.479	1.416	0.275	0.814	0.002	0.045
782739.9	2332023	0.481	1.407	0.277	0.809	0.002	0.047
783539.3	2331494	0.600	1.755	0.345	1.009	0.002	0.058
783936.9	2330588	0.437	1.287	0.251	0.740	0.002	0.044
784264.4	2329652	0.381	1.172	0.219	0.674	0.001	0.032
784281.4	2328700	0.408	1.137	0.235	0.654	0.001	0.044
784473.4	2327728	0.578	1.686	0.332	0.969	0.002	0.056
783942.2	2326930	0.526	1.695	0.303	0.974	0.001	0.045
783026.9	2326558	0.535	1.570	0.308	0.903	0.002	0.054
782099.3	2326286	0.608	1.981	0.350	1.139	0.002	0.063
781252.6	2325783	0.788	2.378	0.453	1.367	0.003	0.107
780342.8	2325432	1.097	4.061	0.631	2.335	0.003	0.064
779490.4	2324972	0.314	1.241	0.180	0.714	0.000	0.004
778526.4	2324861	0.005	0.007	0.003	0.004	0.000	0.001
777591.7	2325089	0.431	1.294	0.248	0.744	0.001	0.039
776783.2	2325635	0.932	2.980	0.536	1.714	0.003	0.069
776446.2	2326569	0.796	2.374	0.458	1.365	0.003	0.073
775656.4	2326661	0.620	2.232	0.356	1.283	0.002	0.050
774873.3	2327214	0.824	2.685	0.474	1.544	0.002	0.057
774710.4	2328193	0.537	1.688	0.308	0.971	0.002	0.067
773957.9	2328771	0.481	1.523	0.276	0.876	0.001	0.043
773748.9	2329742	0.399	1.183	0.229	0.680	0.001	0.041
773827.4	2330711	0.398	1.245	0.229	0.716	0.001	0.032
774647.1	2331212	0.414	1.377	0.238	0.792	0.001	0.039

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
775644.7	2331228	0.516	1.518	0.297	0.873	0.002	0.049
776626.9	2331272	0.546	1.714	0.314	0.986	0.002	0.056
777479.5	2331775	0.573	1.921	0.330	1.104	0.002	0.056
779113.6	2332459	1.206	1.759	0.694	1.012	0.008	0.293
780703.9	2332634	0.583	1.687	0.335	0.970	0.002	0.058
782540.7	2332222	0.484	1.417	0.278	0.815	0.002	0.046
784059.7	2330843	0.422	1.270	0.243	0.730	0.001	0.041
784457.8	2328795	0.390	1.084	0.224	0.624	0.001	0.042
784038.4	2326755	0.461	1.514	0.265	0.871	0.002	0.046
781977.5	2325931	0.560	1.697	0.322	0.976	0.002	0.076
780574.9	2325267	1.015	3.648	0.583	2.098	0.002	0.067
779113.6	2324620	0.034	0.135	0.019	0.078	0.000	0.000
777501.4	2324902	0.377	1.126	0.217	0.647	0.001	0.034
776372.1	2326053	0.914	2.861	0.526	1.645	0.003	0.073
774768.7	2326995	0.735	2.469	0.422	1.420	0.002	0.045
773727	2328795	0.462	1.473	0.266	0.847	0.001	0.043
773789.9	2331000	0.392	1.187	0.225	0.683	0.001	0.035
776483.6	2331431	0.514	1.631	0.296	0.938	0.002	0.052
777751.1	2332084	0.613	1.887	0.352	1.085	0.002	0.052
779113.6	2332760	1.098	1.690	0.631	0.972	0.007	0.266
780831.7	2332942	0.552	1.597	0.317	0.918	0.002	0.055
782835.3	2332516	0.459	1.347	0.264	0.775	0.002	0.044
784336.9	2330958	0.404	1.191	0.232	0.685	0.001	0.039
784791.6	2328795	0.389	1.094	0.223	0.629	0.001	0.041
784376.4	2326615	0.405	1.315	0.233	0.756	0.001	0.044
782191.4	2325717	0.574	1.604	0.330	0.922	0.002	0.071
780691.7	2324985	0.878	3.215	0.505	1.848	0.002	0.057
779113.6	2324317	0.018	0.071	0.010	0.041	0.000	0.000
777385.2	2324622	0.298	0.877	0.171	0.505	0.001	0.028
776141.1	2325822	0.845	2.669	0.486	1.535	0.002	0.065
774487.5	2326878	0.643	2.177	0.370	1.252	0.002	0.038
773409.2	2328795	0.434	1.398	0.249	0.804	0.001	0.043
773500.5	2331120	0.379	1.160	0.218	0.667	0.001	0.032
776216.4	2331692	0.487	1.577	0.280	0.907	0.002	0.046
777636	2332362	0.585	1.824	0.336	1.049	0.002	0.048
779113.6	2333262	0.941	1.593	0.541	0.916	0.006	0.226
781035.1	2333433	0.507	1.468	0.292	0.844	0.002	0.050
783254.2	2332935	0.427	1.252	0.246	0.720	0.001	0.041
784799.1	2331150	0.381	1.102	0.219	0.634	0.001	0.038
785323.3	2328795	0.381	1.089	0.219	0.626	0.001	0.039
784891.6	2326401	0.398	1.137	0.229	0.654	0.001	0.041
782548.9	2325359	0.573	1.567	0.330	0.901	0.002	0.064
780884.9	2324518	0.660	2.452	0.380	1.410	0.002	0.044
779113.6	2323815	0.007	0.028	0.004	0.016	0.000	0.000
777192.4	2324156	0.213	0.617	0.122	0.355	0.001	0.021
775758.7	2325440	0.720	2.294	0.414	1.319	0.002	0.054
774021.6	2326685	0.507	1.730	0.291	0.995	0.001	0.031
772891.9	2328795	0.401	1.260	0.231	0.725	0.001	0.043
773026.6	2331316	0.357	1.107	0.205	0.636	0.001	0.029
775681.1	2332227	0.445	1.395	0.256	0.802	0.001	0.043
777447.7	2332826	0.538	1.702	0.310	0.979	0.002	0.045
779113.6	2333768	0.809	1.498	0.465	0.861	0.005	0.193
781233.4	2333912	0.470	1.361	0.270	0.782	0.002	0.047
783642.7	2333324	0.400	1.174	0.230	0.675	0.001	0.038
785261.1	2331341	0.368	1.070	0.211	0.615	0.001	0.036
785841.6	2328795	0.369	1.068	0.212	0.614	0.001	0.039

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
785383.3	2326198	0.385	1.121	0.221	0.645	0.001	0.038
782910.4	2324998	0.549	1.561	0.316	0.897	0.002	0.057
781077.3	2324054	0.545	1.860	0.314	1.069	0.001	0.036
779113.6	2323313	0.003	0.012	0.002	0.007	0.000	0.000
777000.1	2323692	0.159	0.456	0.091	0.262	0.001	0.016
775384.2	2325065	0.600	1.920	0.345	1.104	0.002	0.051
773557.3	2326493	0.395	1.354	0.227	0.779	0.001	0.029
772381.8	2328795	0.384	1.168	0.221	0.672	0.001	0.043
772557.6	2331510	0.334	1.046	0.192	0.601	0.001	0.027
775181.3	2332727	0.404	1.297	0.232	0.746	0.001	0.041
777252.7	2333287	0.494	1.577	0.284	0.907	0.001	0.042
779113.6	2334291	0.696	1.414	0.400	0.813	0.005	0.165
781429.3	2334385	0.440	1.275	0.253	0.733	0.002	0.043
784018.4	2333699	0.376	1.104	0.216	0.635	0.001	0.036
785723	2331532	0.353	1.031	0.203	0.593	0.001	0.034
786353.5	2328795	0.356	1.039	0.205	0.597	0.001	0.038
785864.4	2325998	0.369	1.091	0.212	0.628	0.001	0.035
783330.9	2324577	0.507	1.489	0.291	0.856	0.002	0.053
781269.4	2323590	0.471	1.577	0.271	0.907	0.001	0.029
779113.6	2322812	0.001	0.006	0.001	0.003	0.000	0.000
776808.2	2323229	0.123	0.350	0.071	0.201	0.000	0.013
775014.7	2324696	0.550	1.682	0.316	0.967	0.002	0.047
773093.8	2326301	0.310	1.064	0.178	0.612	0.001	0.027
771875.1	2328795	0.370	1.119	0.212	0.643	0.001	0.042
772090.9	2331703	0.312	0.984	0.179	0.566	0.001	0.025
774693.9	2333214	0.360	1.175	0.207	0.676	0.001	0.038
777061	2333750	0.452	1.451	0.260	0.835	0.001	0.040
779113.6	2335318	0.531	1.271	0.306	0.731	0.003	0.124
781817.6	2335322	0.389	1.130	0.224	0.650	0.001	0.038
784752.2	2334433	0.335	0.987	0.193	0.568	0.001	0.032
786646.9	2331915	0.324	0.953	0.186	0.548	0.001	0.031
787368.5	2328795	0.343	0.977	0.197	0.562	0.001	0.035
786811.7	2325606	0.332	1.004	0.191	0.577	0.001	0.030
784161.1	2323747	0.417	1.289	0.240	0.741	0.001	0.046
781653	2322664	0.354	1.199	0.204	0.689	0.001	0.021
779113.6	2321811	0.001	0.002	0.000	0.001	0.000	0.000
776424.8	2322303	0.079	0.223	0.045	0.128	0.000	0.008
774266.9	2323948	0.475	1.464	0.273	0.842	0.001	0.040
772167.9	2325918	0.264	0.792	0.152	0.456	0.001	0.024
770866.8	2328795	0.374	1.050	0.215	0.604	0.001	0.040
771161.3	2332089	0.271	0.861	0.156	0.495	0.001	0.023
773798.8	2334109	0.332	0.947	0.191	0.544	0.001	0.034
776677.9	2334675	0.379	1.223	0.218	0.703	0.001	0.036
779113.6	2336335	0.419	1.151	0.241	0.662	0.003	0.096
782203.6	2336254	0.346	1.005	0.199	0.578	0.001	0.034
785474.9	2335156	0.300	0.885	0.173	0.509	0.001	0.028
787570.9	2332298	0.295	0.874	0.170	0.503	0.001	0.028
788384	2328782	0.330	0.949	0.189	0.546	0.001	0.033
787749.4	2325217	0.296	0.907	0.170	0.522	0.001	0.025
784941.6	2322967	0.364	1.101	0.209	0.633	0.001	0.040
782036.3	2321739	0.270	0.917	0.155	0.527	0.001	0.016
779113.6	2320810	0.000	0.001	0.000	0.000	0.000	0.000
776041.7	2321378	0.054	0.152	0.031	0.088	0.000	0.006
773512.6	2323194	0.404	1.245	0.232	0.716	0.001	0.034
771242.9	2325534	0.235	0.703	0.135	0.404	0.001	0.021
769858.4	2328795	0.369	1.057	0.212	0.608	0.001	0.037

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
770233.9	2332473	0.234	0.751	0.135	0.432	0.001	0.022
772996.2	2334912	0.314	0.909	0.180	0.523	0.001	0.031
776294.9	2335599	0.321	1.034	0.184	0.594	0.001	0.032
779113.6	2338353	0.328	0.973	0.189	0.560	0.002	0.062
782972.8	2338111	0.286	0.834	0.164	0.480	0.001	0.028
786906.8	2336588	0.258	0.765	0.148	0.440	0.001	0.024
789418.7	2333063	0.248	0.740	0.143	0.425	0.001	0.023
790408.4	2328795	0.295	0.862	0.169	0.495	0.001	0.029
789612.9	2324446	0.235	0.731	0.135	0.420	0.001	0.019
786436.6	2321472	0.332	0.971	0.191	0.558	0.001	0.032
782802.3	2319889	0.169	0.572	0.097	0.329	0.000	0.010
779113.6	2318809	0.000	0.000	0.000	0.000	0.000	0.000
775275.8	2319529	0.030	0.087	0.017	0.050	0.000	0.003
772046.6	2321727	0.296	0.910	0.170	0.523	0.001	0.025
769393.8	2324768	0.194	0.578	0.112	0.332	0.001	0.018
767811.9	2328795	0.344	1.009	0.198	0.580	0.001	0.033
768382.2	2333240	0.195	0.592	0.112	0.340	0.001	0.020
771480.4	2336428	0.278	0.822	0.160	0.473	0.001	0.026
775528.4	2337450	0.273	0.786	0.157	0.452	0.001	0.027
779113.6	2341367	0.266	0.792	0.153	0.455	0.001	0.037
784134.9	2340917	0.225	0.657	0.129	0.378	0.001	0.022
789041.3	2338722	0.223	0.660	0.128	0.380	0.001	0.021
792190.3	2334211	0.195	0.586	0.112	0.337	0.001	0.018
793429.2	2328795	0.248	0.735	0.143	0.423	0.001	0.023
792396.2	2323293	0.170	0.532	0.098	0.306	0.001	0.014
788650.7	2319257	0.269	0.806	0.155	0.464	0.001	0.025
783950.8	2317117	0.098	0.329	0.056	0.189	0.000	0.006
779113.6	2315809	0.000	0.000	0.000	0.000	0.000	0.000
774127.4	2316757	0.017	0.048	0.010	0.027	0.000	0.002
769887.4	2319568	0.203	0.622	0.117	0.358	0.001	0.017
766580.7	2323603	0.158	0.470	0.091	0.270	0.001	0.015
764773.9	2328795	0.298	0.888	0.171	0.511	0.001	0.027
765607.6	2334389	0.177	0.516	0.102	0.297	0.001	0.017
769286.8	2338621	0.234	0.701	0.134	0.403	0.001	0.021
774379.2	2340225	0.230	0.671	0.132	0.386	0.001	0.022
Air Quality Stations							
778387.7	2327527	2.650	10.156	1.524	5.840	0.000	0.000
778390.9	2328386	6.217	24.785	3.575	14.251	0.000	0.000
775576.7	2329548	0.529	1.658	0.304	0.954	0.002	0.046
778500.3	2329444	4.105	16.315	2.360	9.381	0.000	0.000
780991.1	2329620	0.909	2.588	0.523	1.488	0.003	0.093
782557.9	2328933	0.566	1.736	0.326	0.998	0.002	0.048
776061.1	2325018	0.696	2.203	0.400	1.267	0.002	0.054
774373.4	2326273	0.407	1.216	0.234	0.699	0.001	0.037
779058.9	2325416	0.199	0.792	0.114	0.455	0.000	0.002
772538.4	2329094	0.389	1.238	0.223	0.712	0.001	0.036
774643.4	2330835	0.393	1.244	0.226	0.715	0.001	0.041
778248.4	2332665	2.327	9.239	1.338	5.312	0.000	0.000
780760.4	2332924	0.558	1.619	0.321	0.931	0.002	0.055
783870.1	2330755	0.451	1.355	0.259	0.779	0.001	0.042
785857.3	2331004	0.354	1.056	0.204	0.607	0.001	0.033
784233.4	2326954	0.510	1.631	0.293	0.938	0.001	0.042
Villages							
776330	2330951	0.540	1.782	0.310	1.025	0.002	0.058
776218	2329221	0.582	1.779	0.334	1.023	0.002	0.052
780840	2328142	1.030	3.156	0.592	1.815	0.003	0.088

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
Forest							
777024	2324722	0.557	1.740	0.320	1.000	0.002	0.045
780387	2325846	1.101	3.568	0.633	2.052	0.003	0.099
MAXIMUM		**7.293**	**29.022**	**4.194**	**16.688**	**0.019**	**0.696**

Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

THE MAXIMUM 10 24-HR AVERAGE CONCENTRATION WITH CONTROL MEASURES (AT PEAK TOTAL EXCAVATION)

	PM10	X	Y	PM2.5	X	Y
1	7.29332	778649.00	2328044	4.19366	778649.00	2328044
2	6.21713	778390.90	2328386	3.57485	778390.90	2328386
3	5.6545	778588.70	2328387	3.25134	778588.70	2328387
4	4.38029	778661.10	2329267	2.51867	778661.10	2329267
5	4.3601	778696.10	2329172	2.50706	778696.10	2329172
6	4.12863	778347.70	2328900	2.37396	778347.70	2328900
7	4.10492	778500.30	2329444	2.36033	778500.30	2329444
8	3.79255	778409.30	2329921	2.18072	778409.30	2329921
9	3.59198	778340.80	2329751	2.06539	778340.80	2329751
10	3.3492	778908.90	2329125	1.92579	778908.90	2329125

	SO2	X	Y	NO2	X	Y
1	0.01925	778908.90	2329125	0.69602	778908.90	2329125
2	0.01677	778646.30	2327549	0.5838	778908.90	2329125
3	0.01618	778908.90	2329125	0.54105	779250.60	2329754
4	0.01448	779250.60	2329754	0.46442	778882.90	2331207
5	0.01398	778646.30	2327549	0.45726	778889.20	2331407
6	0.01278	778882.90	2331207	0.45455	779250.60	2329754
7	0.01254	778889.20	2331407	0.39928	778837.30	2331950
8	0.01221	779250.60	2329754	0.38922	778882.90	2331207
9	0.01118	778646.30	2327549	0.38328	778889.20	2331407
10	0.01111	778837.30	2331950	0.33645	778837.30	2331950

Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

THE MAXIMUM 10 24-HR AVERAGE CONCENTRATION IN WORST CASE (WITH NO CONTROL MEASURES)

	PM_{10}	X	Y	$PM_{2.5}$	X	Y
1	29.02242	778649.0	2328044	16.6879	778649.0	2328044
2	24.78469	778390.9	2328386	14.2512	778390.9	2328386
3	22.53108	778588.7	2328387	12.95537	778588.7	2328387
4	17.49582	778661.1	2329267	10.0601	778661.1	2329267
5	17.39331	778696.1	2329172	10.00116	778696.1	2329172
6	16.45798	778347.7	2328900	9.46334	778347.7	2328900
7	16.31456	778500.3	2329444	9.38087	778500.3	2329444
8	15.05894	778409.3	2329921	8.65889	778409.3	2329921
9	14.2809	778340.8	2329751	8.21152	778340.8	2329751
10	12.89058	778355.9	2328089	7.41208	778355.9	2328089

Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

Dispersion Modelling with ISCST3 model for Doliya & Padhiyarka Limestone Mine

Dust emission from various sources considered while calculating emission rates are summarised below:

Doliya & Padhiyarka Limestone Mine

Sl. No.	**Source**	**Material**	**Amount of dust generation, kg/day**	**Control factor due to water sprays**	**Emission after Control measures (kg/day)**	**Source for model**
A.	**Topsoil dump**					
1	Unloading at TS dump	Top soil	0.507281667	70%	0.1521845	Area
2	Wind erosion of top soil dump	Top Soil	10.0423	70%	3.01269	Area
B.	**Pit area Activities**					
1	Topsoil removal at working pit	Top soil	14.71116833	70%	4.4133505	Area
2	Dumper loading by power shovel at working pit	Top soil	9.13107		9.13107	Area
3	**Limestone extraction**					
3.1	**Using conventional drilling blasting & Excavator dumper dumper**					
i)	Drilling	Limestone	2.2	50%	1.1	Area
ii)	Blasting	Limestone	5.58128E-07		5.58128E-07	Area
iii)	Loading (to send to stock yard/cement plant)	Limestone	70		70	Area
C.	**Transportation**					
1	Transportation in haul road	Top soil	41.0175	75%	10.254375	Line
3	Transportation	Limestone	860.355	75%	215.08875	Line

CALINE4 : CALIFORNIA LINE SOURCE DISPERSION MODEL - VERSION 2.1, DATED JUNE 1989

RUN: RURAL HIGHWAY

I. SITE VARIABLES

U= 3.63 M/S Z0= 10. CM ALT= 0. (M) BRG= 180.0 DEGREES
VD= 0.0 CM/S CLAS= 2 (B) VS= 0.0 CM/S
MIXH= 845. M AMB= 0.0 PPM SIGTH= 10. DEGREES TEMP= 30.25 DEGREE (C)

II. LINK VARIABLES

The modelling has been done for limestone transportation from mine to cement plant by dumpers having carrying capacity of 25 T. The section wise total number of dumpers has been calculated as given below:

Mine	Actual Production (TPD) (Normative)	*20% Over Production (TPD) (Assumed Peak)	Daily dumpers required (25T)	Hourly no. of trips (To & fro)
Doliya & Padhiyarka Limestone mine	5000	6000	240	34**

**** 20% over production have been considered to cover production losses which may incurred due to unwanted circumstances like lock down, natural hazardous, temporary shutdown due to legal issue etc. The mine operation time has also been considered 20% extra from 12 hours of actual operational hours.***

***** For normative production also, the number of trucks per hour have been considered same, only the number of hours of truck movement will reduce***

The emissions calculated for transportation activity have been given below:

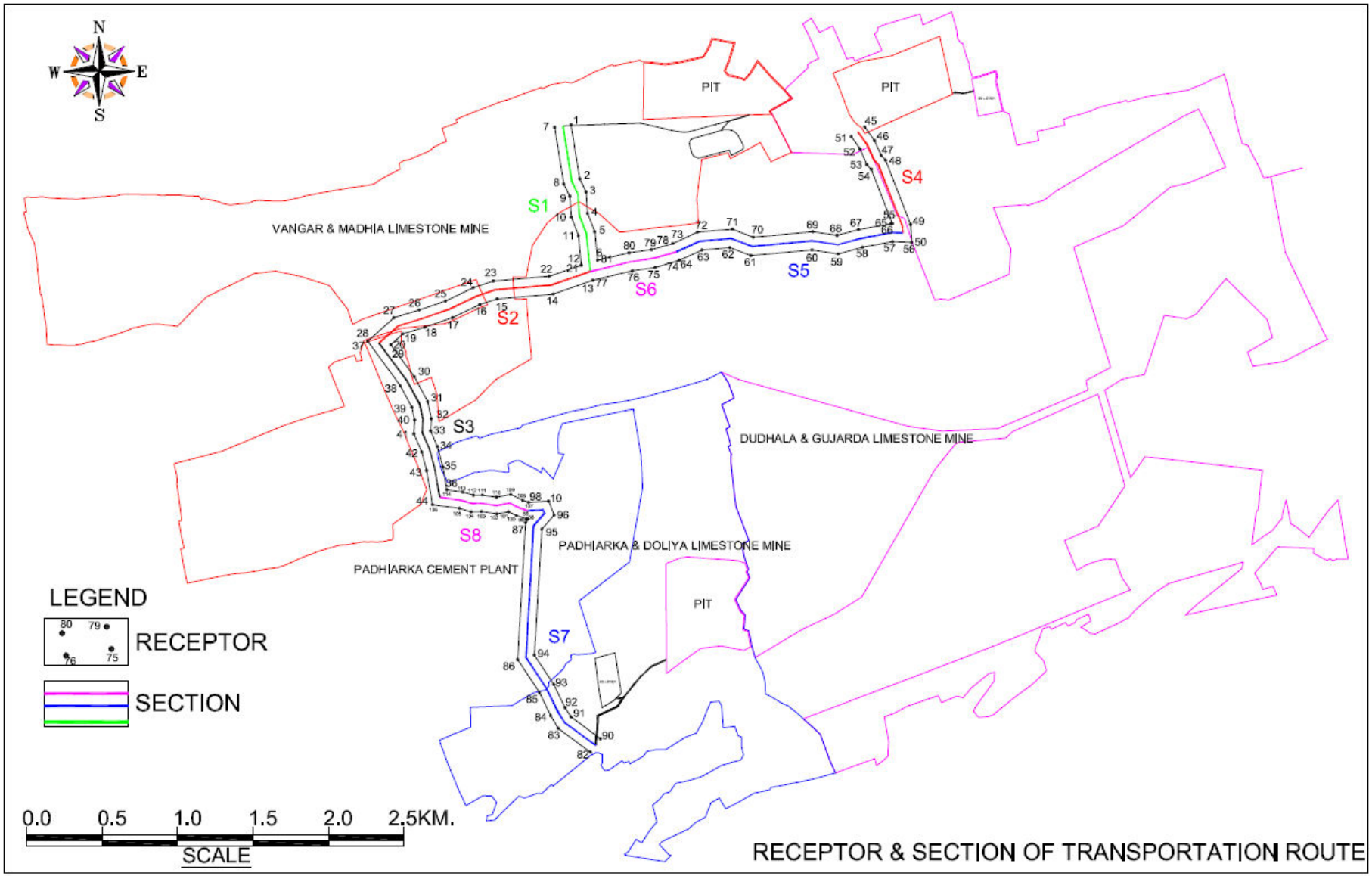
Pollutant	70% Controlled	Without control measures	Unit
PM_{10}	5.0568	16.728	g/mile/truck
$PM_{2.5}$	1.2416	4.065	g/mile/truck
SO_2	0.0363		g/mile/truck
NO_X	2.1889		g/mile/truck

Assumptions:

- The emissions have been considered with 70-75% control measures for PM due to water sprinkling over fugitive emission sources (loading point, unloading point, road surface, etc.) and tyre washing
- PM_{10} & $PM_{2.5}$ includes wheel disturbed road silt
- The CO MODE has been used for calculating SO_2 concentrations.

The road used for transportation of limestone from all the three mines to cement plant has been divided into 8 sections for modelling purpose. The route map with sections wise assumed receptors for modelling are shown in Fig 1.
Of the 8 sections, section no. 7 & 8 fall in the Padhiarka & doliya Limestone Mine.

FIG 1 : ROUTE, SECTION AND RECEPTOR MAP



The input details of each section (S7 to S8) is given below:

Section	Link	LINK COORDINATES (M)				Type	VPH	Emission Factor (g/mile)						Width
		X1	Y1	X2	Y2			PM_{10}		$PM_{2.5}$		SO_2	NO_X	(M)
								C	UC	C	UC			
S07	A.	778482	2326578	778277	2326729	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	778277	2326729	778231	2326802	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	778231	2326802	778157	2326955	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	778157	2326955	778021	2327162	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	778021	2327162	778071	2328034	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	F.	778071	2328034	778144	2328116	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	G.	778144	2328116	778134	2328140	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	H.	778134	2328140	778030	2328135	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
S08	A.	778030	2328135	777977	2328153	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	777977	2328153	777912	2328184	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	777912	2328184	777826	2328169	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	777826	2328169	777728	2328183	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	777728	2328183	777664	2328182	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	F.	777664	2328182	777590	2328204	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	G.	777590	2328204	777447	2328224	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10

Note : C = With control measures; UC = Without control measures; VPH = Vehicle per hour
Same emission rates shall be applicable for normative production since same hourly truck movement has been considered for normative production but for lesser hours.

RECEPTOR WISE RESULTS

The receptors have been assumed at a distance of 50 m from the road and receptor wise results are listed below:

Sec. No.	Receptor No	CO-Ordinates (m)			PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)		SO_2 µg/m³	NO_2 µg/m³
		X	Y	Z	C	UC	C	UC		
S07	82	778449	2326533	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	83	778235	2326691	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	84	778183	2326776	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	85	778109	2326928	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	86	777965	2327147	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	87	778018	2328056	1.5	0.45	1.49	0.11	0.36	0.00	0.22
	88	778039	2328080	1.5	0.76	2.52	0.19	0.61	0.10	0.44
	89	778022	2328079	1.5	0.49	1.62	0.12	0.39	0.00	0.22
	90	778514	2326622	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	91	778318	2326767	1.5	0.59	1.94	0.14	0.47	0.00	0.22
	92	778280	2326829	1.5	0.52	1.71	0.13	0.42	0.00	0.22
	93	778205	2326982	1.5	0.65	2.14	0.16	0.52	0.00	0.44
	94	778077	2327177	1.5	0.65	2.14	0.16	0.52	0.00	0.44
	95	778125	2328012	1.5	0.19	0.62	0.05	0.15	0.00	0.00
	96	778207	2328106	1.5	0.07	0.24	0.02	0.06	0.00	0.00
	97	778171	2328197	1.5	0.12	0.41	0.03	0.10	0.00	0.00
	98	778037	2328190	1.5	1.02	3.37	0.25	0.82	0.10	0.67
	A1	778388	2327527	1.5	0.06	0.18	0.01	0.04	0.00	0.00
	A2	778391	2328386	1.5	0.03	0.10	0.01	0.02	0.00	0.00
S08	99	778022	2328079	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	100	777956	2328102	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	101	777904	2328127	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	102	777826	2328113	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	103	777724	2328128	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	104	777657	2328127	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	105	777578	2328150	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	106	777400	2328175	1.5	0.00	0.00	0.00	0.00	0.00	0.00

Sec. No.	Receptor No	CO-Ordinates (m)			PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)		SO_2 µg/m³	NO_2 µg/m³
		X	Y	Z	C	UC	C	UC		
	107	778037	2328190	1.5	0.08	0.28	0.02	0.07	0.00	0.00
	108	777998	2328204	1.5	0.51	1.69	0.13	0.41	0.00	0.22
	109	777919	2328242	1.5	0.53	1.76	0.13	0.43	0.00	0.22
	110	777825	2328225	1.5	0.50	1.65	0.12	0.40	0.00	0.22
	111	777731	2328238	1.5	0.50	1.66	0.12	0.40	0.00	0.22
	112	777671	2328238	1.5	0.50	1.66	0.12	0.40	0.00	0.22
	113	777601	2328257	1.5	0.51	1.67	0.12	0.41	0.00	0.22
	114	777495	2328273	1.5	0.50	1.65	0.12	0.40	0.00	0.22
	MAX				**1.02**	**3.37**	**0.25**	**0.82**	**0.10**	**0.67**

Note : C = With control measures; UC = Without control measures; VPH = Vehicle per hour
Same GLC shall be applicable for normative production since same hourly truck movement has been considered for normative production but for lesser hours. CALINE4 model gives the same GLC output for same hourly vehicle movement.

SUMMARY OF MAXIMUM RESULTS (AT PEAK TOTAL EXCAVATION)

Section	Incremental GLC (µg/m³)		Receptor No.	Section
	With Control Measures	Without Control Measures		
PM_{10}	1.02	3.37	98	S7
$PM_{2.5}$	0.25	0.82	98	S7
SO_2	0.10		98	S7
NO_X	0.67		98	S7

Note: Same GLC shall be applicable for normative production since same hourly truck movement has been considered for normative production but for lesser hours. CALINE4 model gives the same GLC output for same hourly vehicle movement.

BACKGROUND NOTES

Emissions from trucks as per norms

Emission standards for new heavy-duty engines—applicable as per Bharat Stage IV (applicable nation wide since April 2017).

EU Emission Standards for Heavy-Duty Diesel Engines: Steady-State Testing

Stage	Date	Test	CO	HC	NOx	PM	PN	Smoke
			g/kWh				1/kWh	1/m
Euro III	1999.10 EEV only	ESC & ELR	1.5	0.25	2	0.02		0.15
	2000.1		2.1	0.66	5	0.10a		0.8
Euro IV	**2005.1**		**1.5**	**0.46**	**3.5**	**0.02**		**0.5**
Euro V	2008.1		1.5	0.46	2	0.02		0.5
Euro VI	**2013.01**	**WHSC**	**1.5**	**0.13**	**0.4**	**0.01**	**8.0×1011**	

a- PM = 0.13 g/kWh for engines < 0.75 dm3 swept volume per cylinder and a rated power speed > 3000 min-1

Calculation for Emission from tipping trucks of 25T capacity which will be plying

Truck capacity 25 Te. of 14.4 Hours/day (operational)
vehicle speed 40 Km/hr 180 HP/truck

	Units	NOx	PM	SO_2
Capacity of Diesel Engine		g/kWh (Stage : Euro IV)		
Emission permitted		**0.4**	**0.01**	**0.005%**
Resultant KWH	KWH	136.8	136.8	136.8
Emission from one truck	g/truck/hour	54.72	1.368	0.4536
Emission from 1 truck/km	g/km	1.368	0.0342	0.025
Emission from 1 truck/mile	g/mile	2.1888	0.05472	0.04

As per AP-42, 5th Edition of US EPA, Section 13.2.1.3, the quantity of particulate emissions from re-suspension of loose material on the road surface due to vehicle travel on a dry paved road may be estimated using the following empirical expression:

$E = [k (sL)^{0.91} \times (W)^{1.02}] \times (1-P/4N)$

where: E = particulate emission factor (having units matching the units of k),
k = particle size multiplier for particle size range and units of interest, which will be 0.62 g/VKT for PM_{10} and 0.15 g/VKT for $PM_{2.5}$ as per Table 13.2.1-1 of AP-42, US EPA.
sL = road surface silt loading (grams per square meter) (g/m^2). The average silt content has been taken as 0.6 g/m^2 as per Table 13.2.1-2 of AP-42, US EPA..
W = average weight (tons) of the vehicles travelling the road, which is 24.5T (average of loaded and empty trucks) for the traffic.
P = Total wet days with at least 0.254 mm (0.01 in) of precipitation during the averaging period which is 1 days at IMD Bhavnagar (avg. from 1981-2010), and
N = Number of days in the averaging period which is 90 days

Average vehicle weight	25 T
Total number of days	90
Silt load (g/m^2)	0.6
Total number of wet days	1
Emission factor (PM_{10})	10.3562 g/VKT
Emission factor ($PM_{2.5}$)	2.50553 g/VKT

Standards for Ambient air quality (MoEF Notification G.S. R 826(E) dated 16/11/2009)

Pollutants	**Concentration of ambient air (All concentrations are micro g/m^3) for 24 hours average**	
	Industrial area, Residential, Rural and Other areas	**Ecologically sensitive area (Notified by Central Govt.)**
Sulphur Dioxide (SO_2)	80	80
Oxides of Nitrogen as NO_2	80	80
Particulate Matter (size $\leq$10µm)	100	100
Particulate Matter (size $\leq$2.5µm)	60	60

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

```
CO STARTING
   TITLEONE VANGAR, DUDHALA AND DOLIYA MINES
OF NIRMA LTD.  (with 20% over production)
   TITLETWO PM10 EMISSIONS FROM MINING
ACTIVITIES
   MODELOPT DFAULT CONC RURAL
   AVERTIME 24 PERIOD
   POLLUTID PM10
   RUNORNOT RUN
 CO FINISHED
:
:
:
:
:
:
```

```
ME STARTING
  INPUTFIL  Guj\Nirma\Nirma21S.met
  SURFDATA  99999  2021  XXX       SURFNAME
  UAIRDATA  99999  2021  XXX       UAIRNAME
  ANEMHGHT  10.0 METERS
  WDROTATE  180
ME FINISHED

OU STARTING
OU RECTABLE ALLAVE FIRST
OU MAXTABLE ALLAVE 50
OU PLOTFILE 24 ALL FIRST Guj\Nirma\Cum\CU-
PM10.PLT
OU FINISHED
**********************************
*** SETUP Finishes Successfully ***
**********************************
```

```
                    *** ISCST3 - VERSION 95250 ***
*** VANGAR, DUDHALA AND DOLIYA MINES OF NIRMA LTD. (20% over production-peak total excavation)
          *** PM10 EMISSIONS FROM MINING ACTIVITIES                              ***
              **MODELOPTs: CONC                    RURAL   FLAT          DFAULT
```

*** AREA SOURCE DATA ***
(for peak total excavation)

Source ID	Emission rate (g/s/m2)						Co-ordinates (SW corner) (m)		Base elev.	Rel. Height	Dim of area (m)		Orient, of area	Init. SZ
	PM_{10}		$PM_{2.5}$		SO_2	NO_2								
	Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)	X	Y	(m)	(m)	X	Y	(deg)	(m)
P1	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	779214.2	2331129	0	2.5	140.83	137.38	19	0
P2	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	779109.8	2331089	0	2.5	117.17	30.95	0	0
P3	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	778801.4	2330751	0	2.5	528.26	337.62	0	0
P4	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	779329.6	2330986	0	2.5	78.40	23.04	0	0
P5	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	779329.6	2330765	0	2.5	306.58	221.77	0	0
P6	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	779523.4	2330986	0	2.5	85.89	66.38	0	0
P7	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	779636.2	2330824	0	2.5	52.92	139.93	0	0
P8	2.53E-6	2.91E-6	1.45E-6	1.67E-6	1.54E-8	5.56E-7	779689.1	2330845	0	2.5	40.95	78.23	0	0
P9	2.84E-6	3.15E-6	1.64E-6	1.81E-6	2.14E-8	5.89E-7	780057.8	2331035	0	2.5	61.41	209.43	66	0
P10	2.84E-6	3.15E-6	1.64E-6	1.81E-6	2.14E-8	5.89E-7	780260.7	2331094	0	2.5	33.55	95.28	66	0
P11	2.84E-6	3.15E-6	1.64E-6	1.81E-6	2.14E-8	5.89E-7	780082.9	2330979	0	2.5	156.17	34.12	66	0
P12	2.84E-6	3.15E-6	1.64E-6	1.81E-6	2.14E-8	5.89E-7	780146.2	2330836	0	2.5	130.06	34.22	66	0
P13	2.84E-6	3.15E-6	1.64E-6	1.81E-6	2.14E-8	5.89E-7	780114.0	2330992	0	2.5	386.91	634.88	66	0
P14	2.84E-6	3.15E-6	1.64E-6	1.81E-6	2.14E-8	5.89E-7	780694.3	2331250	0	2.5	161.83	46.22	66	0
P15	2.84E-6	3.15E-6	1.64E-6	1.81E-6	2.14E-8	5.89E-7	780759.9	2331102	0	2.5	77.99	30.17	66	0
P16	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779041.3	2327783	0	2.5	163.92	38.18	0	0
P17	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779205.3	2327783	0	2.5	140.61	26.34	0	0
P18	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	778951.4	2327236	0	2.5	454.12	546.81	0	0
P19	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327663	0	2.5	74.36	119.55	0	0
P20	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327604	0	2.5	36.74	58.87	0	0
P21	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327331	0	2.5	54.03	118.08	0	0
P22	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779405.5	2327221	0	2.5	86.80	109.95	0	0
P23	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	778951.4	2327117	0	2.5	82.54	119.13	0	0
P24	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779033.9	2327168	0	2.5	70.54	67.88	0	0
P25	2.28E-6	2.59E-6	1.31E-6	1.49E-6	1.47E-8	5.49E-7	779104.4	2327200	0	2.5	45.56	35.57	0	0
D1	6.42E-7	2.14E-6	3.69E-7	1.23E-6	7.98E-9	6.43E-8	779108.3	2330571	0	2.5	79.80	35.15	76	0
D2	6.42E-7	2.14E-6	3.69E-7	1.23E-6	7.98E-9	6.43E-8	779136.8	2330602	0	2.5	131.14	220.80	76	0
D3	6.42E-7	2.14E-6	3.69E-7	1.23E-6	7.98E-9	6.43E-8	779353.3	2330646	0	2.5	34.04	37.67	76	0
D4	6.42E-7	2.14E-6	3.69E-7	1.23E-6	7.98E-9	6.43E-8	779361.8	2330613	0	2.5	86.49	65.45	76	0
D5	6.42E-7	2.14E-6	3.69E-7	1.23E-6	7.98E-9	6.43E-8	779374.7	2330527	0	2.5	25.19	54.62	76	0
D6	6.35E-7	2.12E-6	3.65E-7	1.22E-6	1.38E-8	6.82E-8	780980.2	2330998	0	2.5	245.57	151.17	80	0
D7	6.35E-7	2.12E-6	3.65E-7	1.22E-6	1.38E-8	6.82E-8	781079.4	2331025	0	2.5	10.26	60.20	80	0
D8	6.37E-7	2.12E-6	3.67E-7	1.22E-6	7.47E-9	6.53E-8	778476.1	2327156	0	2.5	256.77	137.43	81	0
D9	6.37E-7	2.12E-6	3.67E-7	1.22E-6	7.47E-9	6.53E-8	778516.2	2326902	0	2.5	30.68	96.97	81	0
D10	6.37E-7	2.12E-6	3.67E-7	1.22E-6	7.47E-9	6.53E-8	778520.9	2326872	0	2.5	20.54	56.96	81	0

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

Source ID	Emission rate (g/s/m2)						Co-ordinates (SW corner) (m)		Base elev. (m)	Rel. Height (m)	Dim of area (m)		Orient, of area (deg)	Init. SZ (m)
	PM_{10}		$PM_{2.5}$		SO_2	NO_2								
	Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)	X	Y			X	Y		
R1	1.55E-4	6.20E-4	8.92E-5	3.57E-4	1.2E-7	8.39E-7	779396.2	2330734	0	1.0	10.00	100.00	74	0
R2	1.55E-4	6.20E-4	8.92E-5	3.57E-4	1.2E-7	8.39E-7	779371.8	2330727	0	1.0	10.00	25.32	75	0
R3	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	779275.4	2330700	0	1.0	10.00	100.00	74	0
R4	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	779179.0	2330673	0	1.0	10.00	100.00	74	0
R5	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	779098.9	2330651	0	1.0	10.00	83.05	74	0
R6	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	779071.2	2330650	0	1.0	10.00	27.77	85	0
R7	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	779012.8	2330645	0	1.0	57.75	10.00	6	0
R8	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778914.0	2330668	0	1.0	100.00	10.00	13	0
R9	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778816.7	2330692	0	1.0	100.00	10.00	14	0
R10	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778779.4	2330701	0	1.0	38.41	10.00	14	0
R11	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778679.0	2330708	0	1.0	10.00	100.00	88	0
R12	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778579.1	2330705	0	1.0	10.00	100.00	88	0
R13	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778479.1	2330701	0	1.0	10.00	100.00	88	0
R14	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778379.1	2330697	0	1.0	10.00	100.00	88	0
R15	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778279.2	2330692	0	1.0	10.00	100.00	88	0
R16	1.39E-4	5.56E-4	7.99E-5	3.19E-4	1.2E-7	8.39E-7	778265.5	2330692	0	1.0	10.00	13.71	88	0
R17	1.62E-5	6.50E-5	9.34E-6	3.74E-5	1.2E-7	8.39E-7	779324.3	2330679	0	1.0	10.00	46.40	44	0
R18	1.62E-5	6.50E-5	9.34E-6	3.74E-5	1.2E-7	8.39E-7	779314.9	2330662	0	1.0	10.00	16.50	28	0
R19	2.34E-4	9.38E-4	1.35E-4	5.39E-4	1.51E-6	6.43E-6	780226.9	2330655	0	1.0	10.00	31.51	80	0
R20	1.76E-5	7.03E-5	1.01E-5	4.04E-5	1.51E-6	6.43E-6	780847.7	2330910	0	1.0	10.00	20.05	79	0
R21	1.76E-5	7.03E-5	1.01E-5	4.04E-5	1.51E-6	6.43E-6	780870.1	2330904	0	1.0	59.54	10.00	5	0
R22	1.76E-5	7.03E-5	1.01E-5	4.04E-5	1.51E-6	6.43E-6	780930.1	2330910	0	1.0	10.00	59.54	78	0
R23	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.76E-7	1.34E-6	778855.8	2327109	0	1.0	10.00	100.00	65	0
R24	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.76E-7	1.34E-6	778779.7	2327040	0	1.0	10.00	100.00	47	0
R25	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.76E-7	1.34E-6	778714.7	2326962	0	1.0	10.00	100.00	40	0
R26	1.69E-4	6.75E-4	9.7E-5	3.88E-4	1.76E-7	1.34E-6	778663.1	2326898	0	1.0	10.00	81.36	39	0
R27	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.76E-7	1.34E-6	778626.3	2326842	0	1.0	10.00	53.62	33	0
R28	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.76E-7	1.34E-6	778536.0	2326799	0	1.0	10.00	100.00	65	0
R29	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.76E-7	1.34E-6	778491.4	2326778	0	1.0	10.00	48.99	65	0
R30	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.76E-7	1.34E-6	778486.4	2326670	0	1.0	10.00	100.00	2	0
R31	1.55E-4	6.20E-4	8.91E-5	3.57E-4	1.76E-7	1.34E-6	778477.4	2326578	0	1.0	10.00	91.81	6	0
R32	1.37E-5	5.47E-5	7.86E-6	3.14E-5	1.76E-7	1.34E-6	778620.0	2326888	0	1.0	10.72	10.00	14	0
R33	1.37E-5	5.47E-5	7.86E-6	3.14E-5	1.76E-7	1.34E-6	778632.8	2326895	0	1.0	10.00	31.20	85	0

Note: Same emission rate (per unit time) shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: Guj\Nirma\Nirma21S.met FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)

SURFACE STATION NO.: 99999 NAME: XXX YEAR: 2021

UPPER AIR STATION NO.: 99999 NAME: XXX YEAR: 2021

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
21	3	1	12	323.7	2.05	301.1	2	1375.0	1500.0	.0000	.0	.0000	0	.00
21	3	1	13	314.8	2.27	301.3	2	1550.0	1800.0	.0000	.0	.0000	0	.00
21	3	1	14	318.8	3.39	302.0	2	1750.0	2050.0	.0000	.0	.0000	0	.00
21	3	1	15	314.4	2.84	299.7	2	1850.0	2150.0	.0000	.0	.0000	0	.00
21	3	1	16	307.0	3.21	298.5	2	2000.0	2350.0	.0000	.0	.0000	0	.00
21	3	1	17	305.5	5.83	297.5	3	1825.0	2225.0	.0000	.0	.0000	0	.00
21	3	1	18	180.7	6.00	299.9	4	1800.0	2200.0	.0000	.0	.0000	0	.00
21	3	1	19	187.4	3.31	298.4	2	1350.0	1750.0	.0000	.0	.0000	0	.00
21	3	1	20	148.9	5.85	296.2	4	975.0	1525.0	.0000	.0	.0000	0	.00
21	3	1	21	146.5	6.54	293.0	4	300.0	480.0	.0000	.0	.0000	0	.00
21	3	1	22	179.1	4.28	294.1	4	255.0	405.0	.0000	.0	.0000	0	.00
21	3	1	23	149.8	6.16	293.9	4	210.0	400.0	.0000	.0	.0000	0	.00
21	3	1	24	92.3	6.81	294.0	4	200.0	395.0	.0000	.0	.0000	0	.00
21	3	2	1	129.1	.42	294.3	6	200.0	400.0	.0000	.0	.0000	0	.00
21	3	2	2	101.5	4.68	296.0	4	125.0	310.0	.0000	.0	.0000	0	.00
21	3	2	3	130.3	5.31	295.8	4	85.0	275.0	.0000	.0	.0000	0	.00
21	3	2	4	72.8	2.88	296.7	5	50.0	250.0	.0000	.0	.0000	0	.00
21	3	2	5	138.1	5.24	295.3	4	55.0	265.0	.0000	.0	.0000	0	.00
21	3	2	6	230.0	.00	295.1	1	90.0	110.0	.0000	.0	.0000	0	.00
21	3	2	7	311.7	.54	299.9	1	80.0	100.0	.0000	.0	.0000	0	.00
21	3	2	8	186.5	.93	300.9	1	175.0	225.0	.0000	.0	.0000	0	.00
21	3	2	9	234.5	.54	301.9	1	440.0	510.0	.0000	.0	.0000	0	.00
21	3	2	10	192.9	.00	300.1	1	740.0	800.0	.0000	.0	.0000	0	.00
21	3	2	11	180.4	.99	300.0	1	800.0	900.0	.0000	.0	.0000	0	.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

RECEPTOR WISE CALCULATED GROUND LEVEL CONCENTRATIONS(µg/m^3)FOR PEAK TOTAL EXCAVATION

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
778882.9	2331207	17.021	42.400	9.787	24.380	0.068	2.064
779670.9	2331144	5.402	12.657	3.106	7.278	0.029	0.950
780161.1	2331358	7.811	13.801	4.491	7.936	0.058	1.288
780887.4	2331533	2.263	5.472	1.301	3.147	0.075	0.410
781329.9	2330773	3.366	8.732	1.936	5.021	0.032	0.420
782229.9	2330996	2.119	5.285	1.219	3.039	0.012	0.256
782856.9	2330648	1.370	3.771	0.788	2.168	0.007	0.158
783216.6	2329753	1.013	2.909	0.582	1.673	0.005	0.110
783064.1	2329025	1.060	2.632	0.610	1.513	0.005	0.126
782650.5	2329499	1.136	2.802	0.653	1.611	0.007	0.155
781990.7	2328898	1.315	3.539	0.756	2.035	0.006	0.153
782724.2	2328525	1.077	2.887	0.619	1.660	0.006	0.143
783306.3	2328240	0.915	2.550	0.526	1.466	0.006	0.126
783320.6	2327706	1.046	2.716	0.601	1.562	0.005	0.116
782740.3	2327417	0.992	3.018	0.571	1.735	0.004	0.097
782138.9	2327407	1.029	3.059	0.592	1.759	0.003	0.095
781523.9	2326980	0.977	3.293	0.562	1.894	0.003	0.089
780713.1	2326787	1.037	3.531	0.596	2.030	0.004	0.129
779194.3	2325974	1.423	5.679	0.818	3.266	0.002	0.015
778650.7	2325983	0.084	0.261	0.048	0.150	0.000	0.014
779349.9	2326559	2.542	9.828	1.462	5.651	0.004	0.052
778496.6	2326322	0.432	0.971	0.248	0.559	0.002	0.065
777671.7	2326021	1.237	4.012	0.711	2.307	0.004	0.094
777550.6	2326765	1.405	4.910	0.808	2.823	0.004	0.120
778286.2	2327271	2.382	9.382	1.370	5.394	0.006	0.186
778649	2328044	7.412	29.212	4.262	16.797	0.011	0.211
778331.8	2328600	3.454	13.233	1.986	7.609	0.006	0.136
777690.1	2328285	0.898	3.526	0.517	2.027	0.004	0.106
776928.4	2327825	0.890	2.801	0.512	1.611	0.003	0.117
775962.4	2327590	0.921	2.648	0.529	1.523	0.003	0.092
775605.2	2328291	0.941	2.695	0.541	1.549	0.004	0.090
776329.5	2328773	1.175	3.453	0.676	1.985	0.004	0.101
776775.1	2329339	1.388	4.145	0.798	2.383	0.005	0.123
775944.9	2329456	1.251	3.618	0.719	2.081	0.005	0.111
775044.4	2329133	1.008	2.884	0.579	1.658	0.004	0.092
774661.7	2329871	0.719	2.041	0.413	1.174	0.003	0.067
775180.3	2330314	0.907	2.715	0.521	1.561	0.003	0.075
776167.1	2330278	1.044	2.994	0.601	1.721	0.004	0.095
777107.6	2330508	1.601	5.110	0.921	2.938	0.005	0.128
777929.9	2330978	3.348	9.439	1.925	5.428	0.013	0.316
777809.9	2328852	0.917	3.439	0.527	1.977	0.004	0.097
778347.7	2328900	4.466	17.180	2.568	9.879	0.008	0.149
779550.4	2329074	1.630	4.371	0.938	2.514	0.006	0.189
780514.6	2328809	1.818	5.330	1.045	3.065	0.006	0.173
781479.3	2328927	1.542	4.566	0.886	2.625	0.005	0.131
781600.7	2329721	1.627	4.448	0.935	2.557	0.009	0.228
782220.1	2330346	1.427	3.931	0.821	2.260	0.008	0.165
782056.7	2330447	1.555	4.195	0.894	2.412	0.009	0.183
781307.2	2329963	1.615	4.133	0.928	2.377	0.010	0.259
780688	2329442	2.251	6.904	1.294	3.970	0.006	0.176
780274.1	2330336	2.273	6.833	1.307	3.929	0.008	0.219

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
779398.2	2330374	8.251	28.546	4.745	16.414	0.020	0.408
778798.2	2329899	3.365	9.862	1.935	5.671	0.011	0.314
778116.8	2329657	1.353	4.097	0.778	2.356	0.006	0.128
778432.5	2331244	10.257	40.332	5.898	23.191	0.013	0.307
779349.3	2331453	12.230	33.431	7.032	19.223	0.045	1.256
780056.4	2331549	3.055	8.636	1.756	4.966	0.014	0.313
780980.9	2331590	2.149	5.200	1.236	2.990	0.025	0.332
781474.1	2330894	3.107	7.645	1.787	4.396	0.034	0.461
782435.7	2331148	1.927	4.748	1.108	2.730	0.011	0.234
783009.6	2330611	1.287	3.572	0.740	2.054	0.007	0.150
783354.1	2329698	0.950	2.733	0.546	1.572	0.005	0.105
783151.9	2328951	1.040	2.602	0.598	1.496	0.005	0.122
782655.8	2329351	1.157	2.751	0.665	1.582	0.006	0.147
782169.7	2328689	1.260	3.262	0.724	1.876	0.005	0.141
783100.6	2328461	0.942	2.688	0.542	1.546	0.006	0.131
783656.3	2327952	0.873	2.349	0.502	1.351	0.005	0.116
783143.7	2327432	1.009	2.854	0.580	1.641	0.004	0.099
782213.8	2327340	1.007	3.047	0.579	1.752	0.003	0.089
781514.4	2326834	0.861	2.964	0.495	1.704	0.003	0.082
780641.1	2326657	1.104	3.345	0.635	1.923	0.004	0.147
779221.6	2325866	1.067	4.260	0.614	2.449	0.001	0.011
778473.5	2325855	0.110	0.183	0.063	0.105	0.001	0.022
778195	2326071	0.868	2.641	0.499	1.519	0.003	0.075
777397.2	2326186	1.279	4.381	0.735	2.519	0.004	0.094
777560.2	2327011	1.628	6.039	0.936	3.472	0.004	0.115
778172.9	2327550	1.339	5.309	0.770	3.052	0.006	0.197
778588.7	2328387	5.835	22.827	3.355	13.125	0.011	0.200
778038.1	2328204	1.160	4.589	0.667	2.639	0.004	0.112
777245.8	2327779	0.882	2.800	0.507	1.610	0.004	0.130
776284.9	2327542	0.978	2.810	0.563	1.616	0.003	0.099
775537.2	2327815	0.790	2.403	0.454	1.382	0.003	0.086
775728.4	2328664	1.000	2.953	0.575	1.698	0.004	0.098
776510.1	2329078	1.290	3.854	0.742	2.216	0.005	0.109
776101.3	2329429	1.306	3.776	0.751	2.171	0.005	0.116
775214.9	2329068	1.058	3.027	0.608	1.740	0.004	0.097
774599.9	2329543	0.775	2.201	0.445	1.265	0.003	0.072
774694.9	2330414	0.972	2.885	0.559	1.659	0.004	0.082
775691.6	2330427	1.118	3.378	0.643	1.942	0.004	0.090
776673.6	2330448	1.298	4.043	0.747	2.325	0.004	0.108
777492.2	2330919	3.094	9.325	1.779	5.362	0.011	0.248
778238.9	2329060	1.328	4.640	0.764	2.668	0.004	0.136
778908.9	2329125	3.604	6.172	2.072	3.549	0.021	0.694
780185.6	2329003	1.394	4.778	0.802	2.747	0.004	0.127
781163.2	2328901	1.727	5.423	0.993	3.118	0.005	0.133
781539.8	2329579	1.526	4.287	0.877	2.465	0.008	0.214
781325.1	2329529	1.617	4.454	0.930	2.561	0.007	0.199
780501.1	2329578	2.393	7.440	1.376	4.278	0.007	0.179
779974.6	2330304	3.378	10.622	1.942	6.108	0.014	0.355
779331.4	2329929	2.214	7.960	1.273	4.577	0.011	0.337
778409.3	2329921	4.592	17.449	2.641	10.033	0.009	0.133
778889.2	2331407	12.624	31.998	7.259	18.399	0.049	1.499
779742.6	2331646	2.779	7.757	1.598	4.460	0.012	0.297
780692.9	2331724	5.653	7.588	3.250	4.363	0.042	1.081
781405.2	2331196	2.805	6.430	1.613	3.697	0.018	0.372
782213	2331195	2.007	4.872	1.154	2.801	0.011	0.249

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
782982.2	2330967	1.645	4.232	0.946	2.434	0.009	0.188
783325.9	2330056	1.177	3.179	0.677	1.828	0.005	0.123
783603.4	2329129	0.866	2.048	0.498	1.178	0.005	0.115
782705.8	2328828	1.057	2.960	0.608	1.702	0.007	0.145
782464.9	2328757	1.120	3.112	0.644	1.790	0.006	0.152
783336.2	2328497	0.945	2.584	0.543	1.486	0.005	0.118
783772.1	2327760	0.895	2.251	0.514	1.294	0.005	0.114
783004.9	2327269	0.950	2.830	0.546	1.627	0.004	0.095
782056.4	2327107	0.949	3.053	0.546	1.756	0.003	0.080
781291.3	2326532	0.838	2.694	0.482	1.549	0.003	0.090
780562.4	2326230	0.939	2.816	0.540	1.619	0.004	0.159
779270.2	2325759	0.903	3.602	0.520	2.071	0.001	0.010
778427.9	2325681	0.085	0.143	0.049	0.082	0.001	0.017
778050.1	2325897	0.848	2.608	0.487	1.500	0.003	0.071
777282.8	2326197	1.283	4.328	0.738	2.489	0.003	0.092
777445.9	2327052	1.557	5.653	0.895	3.250	0.003	0.104
778078.7	2327596	1.199	4.741	0.689	2.726	0.005	0.190
778355.9	2328089	3.425	13.193	1.969	7.586	0.006	0.146
777449.9	2327899	0.858	3.187	0.493	1.832	0.003	0.120
776589.8	2327521	1.016	2.869	0.584	1.650	0.004	0.106
775617.6	2327397	0.960	3.002	0.552	1.726	0.003	0.077
775400.7	2328336	0.913	2.640	0.525	1.518	0.004	0.094
776077.6	2328886	1.121	3.353	0.645	1.928	0.004	0.103
776312.2	2329418	1.356	3.910	0.780	2.248	0.005	0.122
775435.3	2329034	1.106	3.160	0.636	1.817	0.004	0.102
774552.4	2329160	0.870	2.476	0.500	1.424	0.003	0.081
774387.9	2330140	0.696	2.057	0.400	1.183	0.003	0.060
775149.8	2330512	1.155	3.453	0.664	1.985	0.004	0.095
776139.1	2330480	1.285	3.926	0.739	2.257	0.005	0.100
777076.6	2330728	2.415	7.614	1.389	4.378	0.008	0.169
777928.1	2331192	2.305	7.245	1.325	4.166	0.011	0.290
778696.1	2329172	4.656	17.934	2.677	10.312	0.007	0.146
780140.8	2329119	1.461	5.074	0.840	2.917	0.004	0.116
781118.1	2328990	1.813	5.640	1.042	3.243	0.005	0.149
781282.9	2329401	1.680	4.629	0.966	2.662	0.007	0.179
780433.5	2329476	2.375	7.661	1.366	4.405	0.006	0.158
779909.4	2330206	3.686	11.028	2.119	6.341	0.013	0.323
779250.6	2329754	2.612	5.057	1.502	2.908	0.017	0.574
778340.8	2329751	4.322	16.428	2.485	9.446	0.008	0.123
778587.7	2331493	8.055	31.303	4.632	17.999	0.011	0.249
779526.4	2331622	3.850	10.820	2.214	6.221	0.020	0.677
780444.1	2331789	4.896	6.895	2.815	3.964	0.036	0.937
781249.3	2331482	1.858	3.907	1.068	2.246	0.014	0.296
782044.4	2331270	1.995	4.890	1.147	2.811	0.011	0.245
782971	2331272	1.596	3.991	0.918	2.295	0.009	0.189
783366.8	2330375	1.173	2.977	0.674	1.712	0.006	0.139
783701.4	2329442	0.760	2.228	0.437	1.281	0.004	0.095
783176.9	2328745	1.009	2.662	0.580	1.530	0.006	0.118
783812.8	2328231	0.873	2.362	0.502	1.358	0.005	0.103
783526.8	2327418	1.005	2.681	0.578	1.542	0.004	0.106
782625.7	2327085	0.887	2.714	0.510	1.560	0.003	0.086
781746.2	2326778	0.787	2.665	0.453	1.532	0.003	0.078
780883.3	2326391	0.964	2.963	0.554	1.704	0.004	0.124
779327.9	2325644	0.783	3.121	0.450	1.794	0.001	0.009
778435.9	2325532	0.055	0.091	0.032	0.053	0.000	0.011

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
777740.2	2325676	0.961	3.026	0.553	1.740	0.003	0.075
777107.9	2326370	1.252	4.008	0.720	2.305	0.004	0.093
777469.1	2327189	1.453	4.907	0.835	2.822	0.004	0.097
778058.2	2327783	1.156	4.579	0.665	2.633	0.005	0.161
777566.8	2327860	0.921	3.436	0.529	1.975	0.004	0.129
776713.4	2327463	1.075	3.114	0.618	1.791	0.004	0.106
775741.5	2327255	0.997	3.242	0.573	1.864	0.003	0.070
775315.2	2328050	0.872	2.525	0.501	1.452	0.004	0.090
775655	2328852	1.078	3.036	0.620	1.745	0.004	0.103
776317.4	2329312	1.311	3.753	0.754	2.158	0.005	0.120
775439.3	2328929	1.090	3.097	0.627	1.781	0.004	0.102
774511.4	2329013	0.891	2.521	0.512	1.450	0.003	0.084
774307.8	2329983	0.645	1.831	0.371	1.053	0.003	0.060
774834.3	2330615	1.198	3.544	0.689	2.038	0.004	0.102
775831.4	2330621	1.455	4.385	0.837	2.522	0.005	0.117
776813.9	2330674	2.035	6.360	1.170	3.657	0.007	0.147
777639.1	2331193	2.067	6.392	1.189	3.675	0.011	0.267
778661.1	2329267	4.703	18.133	2.704	10.427	0.008	0.138
780095.9	2329235	1.555	5.458	0.894	3.138	0.004	0.107
781073	2329080	1.888	5.815	1.085	3.344	0.005	0.160
780938.4	2329148	2.020	6.273	1.161	3.607	0.006	0.167
780247.6	2329678	2.562	8.315	1.473	4.781	0.006	0.165
779566.1	2330019	3.292	11.626	1.893	6.685	0.010	0.206
778774.8	2329594	3.525	11.890	2.027	6.836	0.009	0.202
778442.6	2331570	7.921	31.395	4.555	18.052	0.010	0.212
779391.4	2331752	7.172	21.973	4.124	12.635	0.021	0.552
780327.1	2331858	4.715	7.316	2.711	4.207	0.035	0.892
781249.3	2331738	1.773	4.304	1.020	2.475	0.011	0.280
781969.3	2331354	1.926	4.628	1.107	2.661	0.010	0.239
782926.9	2331447	1.441	3.621	0.829	2.082	0.008	0.170
783401.4	2330596	1.186	3.285	0.682	1.889	0.006	0.133
783708.7	2329653	0.886	2.514	0.509	1.446	0.004	0.096
783528.4	2328807	0.967	2.399	0.556	1.380	0.005	0.116
783896.1	2328331	0.886	2.328	0.509	1.339	0.004	0.096
783765.7	2327407	0.968	2.499	0.557	1.437	0.005	0.109
782868.4	2327035	0.875	2.638	0.503	1.517	0.004	0.088
781912.1	2326829	0.813	2.699	0.468	1.552	0.003	0.079
781114.3	2326270	0.839	2.636	0.483	1.516	0.003	0.111
779623.5	2325738	1.148	4.550	0.660	2.616	0.002	0.023
778788.4	2325325	0.021	0.082	0.012	0.047	0.000	0.001
778022.2	2325631	0.462	1.302	0.266	0.749	0.002	0.048
777173.9	2325958	1.132	3.622	0.651	2.083	0.003	0.084
777033.5	2326897	1.246	4.630	0.716	2.662	0.003	0.089
777848.9	2327380	1.217	4.239	0.700	2.437	0.005	0.141
777612.6	2327770	0.928	3.531	0.534	2.030	0.004	0.145
776756.8	2327372	1.159	3.545	0.666	2.038	0.004	0.099
775786.1	2327154	0.991	3.308	0.570	1.902	0.003	0.066
775229.4	2327850	0.827	2.312	0.476	1.329	0.004	0.087
775290.9	2328778	1.045	2.942	0.601	1.692	0.004	0.100
774398.4	2329007	0.871	2.467	0.501	1.418	0.003	0.082
774204.3	2329982	0.630	1.787	0.362	1.028	0.002	0.059
774677.2	2330713	1.253	3.685	0.720	2.119	0.005	0.108
775674.4	2330727	1.546	4.610	0.889	2.651	0.006	0.128
776660.4	2330750	2.089	6.424	1.201	3.694	0.007	0.158
777499.1	2331247	1.874	5.919	1.077	3.404	0.010	0.246

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
780257.6	2329377	2.097	7.087	1.206	4.075	0.005	0.115
779677.8	2329950	2.941	10.278	1.691	5.910	0.010	0.202
778529.3	2331690	7.312	28.728	4.205	16.518	0.009	0.194
779752.9	2331977	2.566	7.282	1.476	4.187	0.010	0.247
780725.6	2332030	3.205	5.795	1.843	3.332	0.026	0.601
781494.1	2331540	1.628	3.644	0.936	2.095	0.012	0.229
782397.1	2331570	1.386	3.427	0.797	1.970	0.007	0.165
783219	2331232	1.534	3.872	0.882	2.227	0.008	0.180
783579.9	2330318	1.127	2.884	0.648	1.658	0.006	0.130
783928.2	2329388	0.726	2.124	0.418	1.221	0.004	0.088
783862.4	2328603	0.908	2.276	0.522	1.309	0.005	0.107
784053.2	2327647	0.821	2.167	0.472	1.246	0.005	0.106
783308.4	2327059	0.913	2.645	0.525	1.521	0.004	0.091
782337.3	2326847	0.843	2.555	0.485	1.469	0.003	0.076
781525.1	2326335	0.759	2.506	0.436	1.441	0.003	0.086
780662.3	2325934	0.968	3.198	0.557	1.839	0.004	0.132
779706.7	2325669	1.100	4.349	0.633	2.500	0.002	0.025
778872.2	2325211	0.031	0.123	0.018	0.071	0.000	0.001
778016.1	2325520	0.356	0.963	0.205	0.554	0.001	0.040
777137	2325826	1.087	3.521	0.625	2.025	0.003	0.077
776864.8	2326765	0.966	3.635	0.555	2.090	0.003	0.086
777558.4	2327425	1.132	3.793	0.651	2.181	0.004	0.135
777539.1	2327503	1.031	3.514	0.593	2.021	0.004	0.144
776603.9	2327201	1.215	4.055	0.699	2.331	0.003	0.077
775620.1	2327074	0.925	3.130	0.532	1.800	0.003	0.066
775128.8	2327861	0.829	2.332	0.477	1.341	0.004	0.089
774899.4	2328632	0.992	2.773	0.571	1.594	0.004	0.096
774240.7	2329238	0.776	2.202	0.446	1.266	0.003	0.073
774091.6	2330220	0.752	2.209	0.432	1.270	0.003	0.065
774759.8	2330815	1.343	3.929	0.772	2.259	0.005	0.117
775757.2	2330826	1.680	4.982	0.966	2.864	0.006	0.141
776743.1	2330866	2.310	6.987	1.328	4.018	0.008	0.183
777580.4	2331385	1.753	5.271	1.008	3.031	0.009	0.210
779924.4	2329877	2.838	9.587	1.632	5.513	0.008	0.178
778837.3	2331950	8.657	22.656	4.978	13.027	0.032	0.982
779783.3	2332189	2.427	6.925	1.396	3.982	0.009	0.231
780761.9	2332238	2.054	5.740	1.181	3.301	0.025	0.316
781574.4	2331773	1.623	3.853	0.933	2.215	0.011	0.228
782465.2	2331804	1.073	2.773	0.617	1.595	0.006	0.120
783332.7	2331452	1.363	3.435	0.784	1.975	0.007	0.159
783739.8	2330552	1.076	2.987	0.619	1.718	0.005	0.120
784062.3	2329614	0.846	2.378	0.486	1.368	0.004	0.085
784046.7	2328693	0.854	2.092	0.491	1.203	0.005	0.105
784273.3	2327735	0.764	2.137	0.439	1.228	0.004	0.097
783652.2	2327035	0.932	2.594	0.536	1.492	0.004	0.090
782729.8	2326698	0.823	2.356	0.473	1.355	0.003	0.076
781850.6	2326335	0.729	2.385	0.419	1.371	0.002	0.069
780972.2	2325924	0.847	2.629	0.487	1.512	0.004	0.124
780061.1	2325564	1.165	4.479	0.670	2.575	0.002	0.050
779228.7	2325061	0.167	0.664	0.096	0.382	0.000	0.002
778260.7	2325168	0.052	0.099	0.030	0.057	0.000	0.010
777345.6	2325388	0.906	2.819	0.521	1.621	0.003	0.073
776757.4	2326165	1.069	3.402	0.615	1.956	0.003	0.081
775805.6	2326855	0.822	2.907	0.473	1.672	0.003	0.064
775023.6	2327370	0.864	2.732	0.497	1.571	0.003	0.079

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
774888.1	2328356	0.947	2.590	0.544	1.489	0.004	0.097
774128.4	2328876	0.837	2.352	0.481	1.352	0.003	0.080
773928.4	2329850	0.604	1.709	0.347	0.982	0.002	0.057
774132.5	2330780	1.180	3.438	0.678	1.977	0.005	0.104
775070.5	2331007	1.523	4.396	0.876	2.528	0.006	0.137
776065.9	2330990	1.912	5.571	1.099	3.203	0.007	0.168
776968.9	2331298	1.793	4.765	1.031	2.740	0.009	0.211
777877.4	2331704	1.668	5.243	0.959	3.015	0.007	0.168
778429.4	2332080	6.407	25.405	3.684	14.608	0.008	0.160
780033.3	2332392	1.956	5.591	1.125	3.215	0.011	0.246
781016.8	2332428	1.723	5.125	0.991	2.947	0.013	0.249
781769.6	2331832	1.544	3.645	0.888	2.096	0.010	0.196
782739.9	2332023	0.942	2.287	0.542	1.315	0.006	0.120
783539.3	2331494	1.294	3.273	0.744	1.882	0.007	0.150
783936.9	2330588	1.078	2.971	0.620	1.708	0.005	0.113
784264.4	2329652	0.848	2.350	0.488	1.351	0.004	0.084
784281.4	2328700	0.785	1.907	0.452	1.097	0.004	0.098
784473.4	2327728	0.762	2.086	0.438	1.199	0.004	0.090
783942.2	2326930	0.914	2.489	0.526	1.431	0.004	0.093
783026.9	2326558	0.798	2.297	0.459	1.321	0.003	0.077
782099.3	2326286	0.703	2.285	0.404	1.314	0.002	0.065
781252.6	2325783	0.798	2.414	0.459	1.388	0.003	0.109
780342.8	2325432	1.100	4.073	0.633	2.342	0.003	0.065
779490.4	2324972	0.315	1.247	0.181	0.717	0.000	0.004
778526.4	2324861	0.009	0.013	0.005	0.008	0.000	0.002
777591.7	2325089	0.460	1.344	0.264	0.773	0.002	0.044
776783.2	2325635	0.949	3.010	0.546	1.731	0.003	0.072
776446.2	2326569	0.817	2.412	0.470	1.387	0.003	0.077
775656.4	2326661	0.626	2.232	0.360	1.283	0.003	0.063
774873.3	2327214	0.825	2.685	0.474	1.544	0.003	0.076
774710.4	2328193	0.923	2.507	0.531	1.442	0.004	0.096
773957.9	2328771	0.829	2.324	0.477	1.336	0.003	0.080
773748.9	2329742	0.590	1.665	0.339	0.957	0.002	0.056
773827.4	2330711	1.084	3.157	0.623	1.815	0.004	0.095
774647.1	2331212	1.417	3.998	0.815	2.299	0.006	0.134
775644.7	2331228	1.669	4.659	0.960	2.679	0.007	0.162
776626.9	2331272	1.844	4.880	1.060	2.806	0.008	0.198
777479.5	2331775	1.441	4.602	0.828	2.646	0.006	0.158
779113.6	2332459	6.900	17.458	3.968	10.039	0.029	0.833
780703.9	2332634	1.861	4.811	1.070	2.767	0.020	0.370
782540.7	2332222	1.250	3.066	0.719	1.763	0.007	0.153
784059.7	2330843	1.225	3.256	0.705	1.872	0.006	0.132
784457.8	2328795	0.703	1.739	0.404	1.000	0.004	0.090
784038.4	2326755	0.881	2.453	0.507	1.411	0.004	0.088
781977.5	2325931	0.619	1.937	0.356	1.114	0.002	0.077
780574.9	2325267	1.019	3.666	0.586	2.108	0.003	0.068
779113.6	2324620	0.034	0.136	0.020	0.078	0.000	0.000
777501.4	2324902	0.405	1.174	0.233	0.675	0.001	0.039
776372.1	2326053	0.923	2.876	0.531	1.654	0.003	0.075
774768.7	2326995	0.735	2.469	0.422	1.420	0.003	0.072
773727	2328795	0.779	2.178	0.448	1.252	0.003	0.076
773789.9	2331000	1.204	3.456	0.692	1.987	0.005	0.110
776483.6	2331431	1.519	4.016	0.873	2.309	0.007	0.178
777751.1	2332084	1.379	4.439	0.793	2.552	0.005	0.133
779113.6	2332760	6.328	16.001	3.638	9.201	0.026	0.765

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
780831.7	2332942	1.677	4.268	0.964	2.454	0.025	0.235
782835.3	2332516	1.197	3.019	0.688	1.736	0.006	0.140
784336.9	2330958	1.206	3.175	0.693	1.826	0.006	0.132
784791.6	2328795	0.618	1.616	0.355	0.929	0.004	0.080
784376.4	2326615	0.855	2.386	0.492	1.372	0.004	0.088
782191.4	2325717	0.622	1.840	0.358	1.058	0.002	0.073
780691.7	2324985	0.883	3.231	0.507	1.858	0.002	0.058
779113.6	2324317	0.018	0.072	0.010	0.041	0.000	0.000
777385.2	2324622	0.324	0.922	0.186	0.530	0.001	0.033
776141.1	2325822	0.853	2.685	0.491	1.544	0.003	0.067
774487.5	2326878	0.682	2.177	0.392	1.252	0.003	0.071
773409.2	2328795	0.723	2.014	0.416	1.158	0.003	0.071
773500.5	2331120	1.174	3.343	0.675	1.922	0.005	0.109
776216.4	2331692	1.288	3.859	0.741	2.219	0.006	0.139
777636	2332362	1.305	4.113	0.751	2.365	0.005	0.125
779113.6	2333262	5.636	14.336	3.241	8.243	0.023	0.675
781035.1	2333433	1.465	3.639	0.843	2.092	0.009	0.197
783254.2	2332935	1.097	2.852	0.631	1.640	0.006	0.121
784799.1	2331150	1.143	2.992	0.657	1.720	0.006	0.126
785323.3	2328795	0.572	1.473	0.329	0.847	0.003	0.067
784891.6	2326401	0.798	2.224	0.459	1.279	0.004	0.086
782548.9	2325359	0.628	1.817	0.361	1.045	0.002	0.066
780884.9	2324518	0.684	2.467	0.393	1.419	0.002	0.046
779113.6	2323815	0.007	0.028	0.004	0.016	0.000	0.000
777192.4	2324156	0.235	0.656	0.135	0.377	0.001	0.025
775758.7	2325440	0.728	2.310	0.419	1.328	0.003	0.064
774021.6	2326685	0.689	1.919	0.396	1.103	0.003	0.070
772891.9	2328795	0.647	1.800	0.372	1.035	0.003	0.064
773026.6	2331316	1.108	3.112	0.637	1.790	0.005	0.106
775681.1	2332227	1.125	3.155	0.647	1.814	0.005	0.110
777447.7	2332826	1.186	3.959	0.682	2.276	0.005	0.114
779113.6	2333768	5.037	12.955	2.896	7.449	0.020	0.593
781233.4	2333912	1.325	3.233	0.762	1.859	0.008	0.173
783642.7	2333324	0.995	2.639	0.572	1.518	0.006	0.120
785261.1	2331341	1.058	2.764	0.608	1.589	0.005	0.117
785841.6	2328795	0.528	1.513	0.304	0.870	0.003	0.062
785383.3	2326198	0.735	2.031	0.423	1.168	0.004	0.081
782910.4	2324998	0.630	1.793	0.362	1.031	0.002	0.065
781077.3	2324054	0.582	1.936	0.335	1.113	0.001	0.037
779113.6	2323313	0.003	0.013	0.002	0.007	0.000	0.000
777000.1	2323692	0.179	0.491	0.103	0.282	0.001	0.020
775384.2	2325065	0.643	1.936	0.370	1.113	0.003	0.061
773557.3	2326493	0.688	1.922	0.395	1.105	0.003	0.069
772381.8	2328795	0.578	1.598	0.332	0.919	0.002	0.058
772557.6	2331510	1.033	2.874	0.594	1.652	0.004	0.101
775181.3	2332727	0.926	2.615	0.533	1.504	0.004	0.100
777252.7	2333287	1.159	3.781	0.666	2.174	0.004	0.104
779113.6	2334291	4.486	11.680	2.580	6.716	0.018	0.516
781429.3	2334385	1.223	2.971	0.703	1.708	0.007	0.156
784018.4	2333699	0.971	2.453	0.559	1.411	0.005	0.117
785723	2331532	0.974	2.547	0.560	1.465	0.005	0.107
786353.5	2328795	0.541	1.525	0.311	0.877	0.003	0.055
785864.4	2325998	0.679	1.837	0.391	1.056	0.003	0.076
783330.9	2324577	0.629	1.763	0.362	1.014	0.002	0.064
781269.4	2323590	0.506	1.703	0.291	0.979	0.001	0.031

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
779113.6	2322812	0.002	0.006	0.001	0.003	0.000	0.000
776808.2	2323229	0.140	0.382	0.081	0.220	0.001	0.016
775014.7	2324696	0.618	1.824	0.355	1.049	0.002	0.059
773093.8	2326301	0.679	1.902	0.391	1.094	0.003	0.068
771875.1	2328795	0.527	1.455	0.303	0.837	0.002	0.053
772090.9	2331703	0.956	2.634	0.550	1.514	0.004	0.095
774693.9	2333214	0.807	2.215	0.464	1.274	0.004	0.086
777061	2333750	1.129	3.612	0.649	2.077	0.004	0.102
779113.6	2335318	3.512	9.180	2.019	5.278	0.014	0.400
781817.6	2335322	1.070	2.677	0.615	1.539	0.006	0.132
784752.2	2334433	0.951	2.450	0.547	1.409	0.005	0.111
786646.9	2331915	0.812	2.128	0.467	1.224	0.004	0.089
787368.5	2328795	0.547	1.506	0.315	0.866	0.002	0.055
786811.7	2325606	0.574	1.496	0.330	0.860	0.003	0.066
784161.1	2323747	0.614	1.697	0.353	0.976	0.002	0.063
781653	2322664	0.387	1.313	0.222	0.755	0.001	0.022
779113.6	2321811	0.001	0.002	0.000	0.001	0.000	0.000
776424.8	2322303	0.093	0.249	0.053	0.143	0.000	0.011
774266.9	2323948	0.545	1.616	0.313	0.929	0.002	0.058
772167.9	2325918	0.658	1.844	0.378	1.060	0.003	0.066
770866.8	2328795	0.503	1.418	0.289	0.815	0.002	0.052
771161.3	2332089	0.807	2.187	0.464	1.258	0.004	0.083
773798.8	2334109	0.683	2.059	0.393	1.184	0.003	0.066
776677.9	2334675	1.042	3.239	0.599	1.862	0.004	0.093
779113.6	2336335	2.731	7.039	1.570	4.047	0.011	0.318
782203.6	2336254	0.951	2.503	0.547	1.439	0.005	0.114
785474.9	2335156	0.924	2.422	0.531	1.393	0.005	0.104
787570.9	2332298	0.682	1.796	0.392	1.032	0.003	0.074
788384	2328782	0.533	1.446	0.306	0.831	0.002	0.055
787749.4	2325217	0.510	1.404	0.293	0.808	0.003	0.057
784941.6	2322967	0.593	1.719	0.341	0.988	0.002	0.061
782036.3	2321739	0.301	1.022	0.173	0.588	0.001	0.017
779113.6	2320810	0.000	0.001	0.000	0.000	0.000	0.000
776041.7	2321378	0.066	0.176	0.038	0.101	0.000	0.008
773512.6	2323194	0.531	1.461	0.305	0.840	0.002	0.055
771242.9	2325534	0.632	1.773	0.363	1.020	0.003	0.063
769858.4	2328795	0.515	1.468	0.296	0.844	0.002	0.051
770233.9	2332473	0.680	1.823	0.391	1.048	0.003	0.072
772996.2	2334912	0.649	1.897	0.373	1.091	0.002	0.057
776294.9	2335599	0.948	2.893	0.545	1.664	0.003	0.080
779113.6	2338353	1.693	4.220	0.974	2.427	0.007	0.208
782972.8	2338111	0.794	2.179	0.457	1.253	0.004	0.090
786906.8	2336588	0.847	2.268	0.487	1.304	0.004	0.092
789418.7	2333063	0.522	1.388	0.300	0.798	0.002	0.056
790408.4	2328795	0.481	1.391	0.277	0.800	0.002	0.051
789612.9	2324446	0.474	1.276	0.273	0.733	0.002	0.050
786436.6	2321472	0.557	1.678	0.320	0.965	0.002	0.055
782802.3	2319889	0.196	0.662	0.112	0.380	0.000	0.011
779113.6	2318809	0.000	0.000	0.000	0.000	0.000	0.000
775275.8	2319529	0.040	0.107	0.023	0.061	0.000	0.005
772046.6	2321727	0.494	1.377	0.284	0.792	0.002	0.050
769393.8	2324768	0.578	1.620	0.332	0.932	0.002	0.057
767811.9	2328795	0.514	1.491	0.296	0.857	0.002	0.049
768382.2	2333240	0.490	1.348	0.282	0.775	0.002	0.053
771480.4	2336428	0.565	1.586	0.325	0.912	0.002	0.055

ANNEXURE : XXI Contd..

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

X	Y	PM_{10}		$PM_{2.5}$		SO_2	NO_2
		Control case	Worst case (No control measures)	Control case	Worst case (No control measures)	Worst case (No control measures)	Worst case (No control measures)
775528.4	2337450	0.807	2.396	0.464	1.378	0.003	0.070
779113.6	2341367	0.992	2.366	0.571	1.360	0.005	0.129
784134.9	2340917	0.651	1.801	0.374	1.036	0.003	0.069
789041.3	2338722	0.733	1.989	0.421	1.144	0.003	0.077
792190.3	2334211	0.394	1.055	0.227	0.607	0.002	0.042
793429.2	2328795	0.438	1.266	0.252	0.728	0.002	0.043
792396.2	2323293	0.412	1.104	0.237	0.635	0.002	0.044
788650.7	2319257	0.488	1.471	0.281	0.846	0.002	0.047
783950.8	2317117	0.120	0.401	0.069	0.231	0.000	0.007
779113.6	2315809	0.000	0.000	0.000	0.000	0.000	0.000
774127.4	2316757	0.024	0.062	0.014	0.036	0.000	0.003
769887.4	2319568	0.433	1.215	0.249	0.699	0.002	0.043
766580.7	2323603	0.504	1.415	0.290	0.813	0.002	0.050
764773.9	2328795	0.484	1.412	0.278	0.812	0.002	0.045
765607.6	2334389	0.438	1.244	0.252	0.716	0.002	0.043
769286.8	2338621	0.460	1.254	0.265	0.721	0.002	0.048
774379.2	2340225	0.672	1.943	0.386	1.117	0.002	0.062
Air Quality	**Stations**						
778387.7	2327527	2.748	10.317	1.580	5.932	0.032	0.218
778390.9	2328386	6.435	25.172	3.700	14.474	0.012	0.146
775576.7	2329548	1.086	3.131	0.624	1.800	0.004	0.098
778500.3	2329444	4.560	17.456	2.622	10.037	0.010	0.107
780991.1	2329620	1.774	5.013	1.020	2.882	0.007	0.189
782557.9	2328933	1.096	3.068	0.630	1.764	0.007	0.152
776061.1	2325018	0.721	2.248	0.414	1.292	0.003	0.065
774373.4	2326273	0.585	1.640	0.336	0.943	0.003	0.060
779058.9	2325416	0.199	0.793	0.114	0.456	0.000	0.002
772538.4	2329094	0.537	1.517	0.309	0.873	0.002	0.053
774643.4	2330835	1.328	3.876	0.763	2.228	0.005	0.116
778248.4	2332665	4.930	19.647	2.835	11.297	0.007	0.143
780760.4	2332924	1.731	4.264	0.996	2.452	0.023	0.239
783870.1	2330755	1.218	3.270	0.700	1.881	0.006	0.129
785857.3	2331004	0.944	2.510	0.543	1.443	0.005	0.101
784233.4	2326954	0.892	2.345	0.513	1.348	0.004	0.097
Villages							
776330	2330951	2.050	6.036	1.179	3.470	0.008	0.175
776218	2329221	1.257	3.584	0.723	2.061	0.005	0.116
780840	2328142	1.182	3.671	0.679	2.111	0.003	0.095
Forest							
777024	2324722	0.607	1.830	0.349	1.052	0.002	0.054
780387	2325846	1.107	3.579	0.636	2.058	0.003	0.099
MAXIMUM		**17.021**	**42.400**	**9.787**	**24.380**	**0.070**	**2.064**

Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

THE MAXIMUM 10 24-HR AVERAGE CONCENTRATION WITH CONTROL MEASURES (AT PEAK TOTAL EXCAVATION)

	PM_{10}	X	Y	$PM_{2.5}$	X	Y
1	17.02117	778882.90	2331207	9.78717	778882.90	2331207
2	12.62392	778889.20	2331407	7.25875	778889.20	2331407
3	12.22972	779349.30	2331453	7.03209	779349.30	2331453
4	10.25675	778432.50	2331244	5.89763	778432.50	2331244
5	8.65688	778837.30	2331950	4.9777	778837.30	2331950
6	8.25132	779398.20	2330374	4.74451	779398.20	2330374
7	8.05515	778587.70	2331493	4.63171	778587.70	2331493
8	7.92141	778442.60	2331570	4.55481	778442.60	2331570
9	7.81094	780161.10	2331358	4.49129	780161.10	2331358
10	7.41232	778649.00	2328044	4.26209	778649.00	2328044

	SO_2	X	Y	NO_2	X	Y
1	0.06996	780887.40	2331533	2.06424	778882.90	2331207
2	0.0628	778882.90	2331207	1.49885	778889.20	2331407
3	0.05293	780161.10	2331358	1.28843	780161.10	2331358
4	0.04577	778889.20	2331407	1.25589	779349.30	2331453
5	0.04238	779349.30	2331453	1.0811	780692.90	2331724
6	0.0394	780692.90	2331724	0.9818	778837.30	2331950
7	0.03394	780444.10	2331789	0.95006	779670.90	2331144
8	0.03391	781474.10	2330894	0.93739	780444.10	2331789
9	0.03244	780327.10	2331858	0.89194	780327.10	2331858
10	0.03205	781329.90	2330773	0.83308	779113.60	2332459

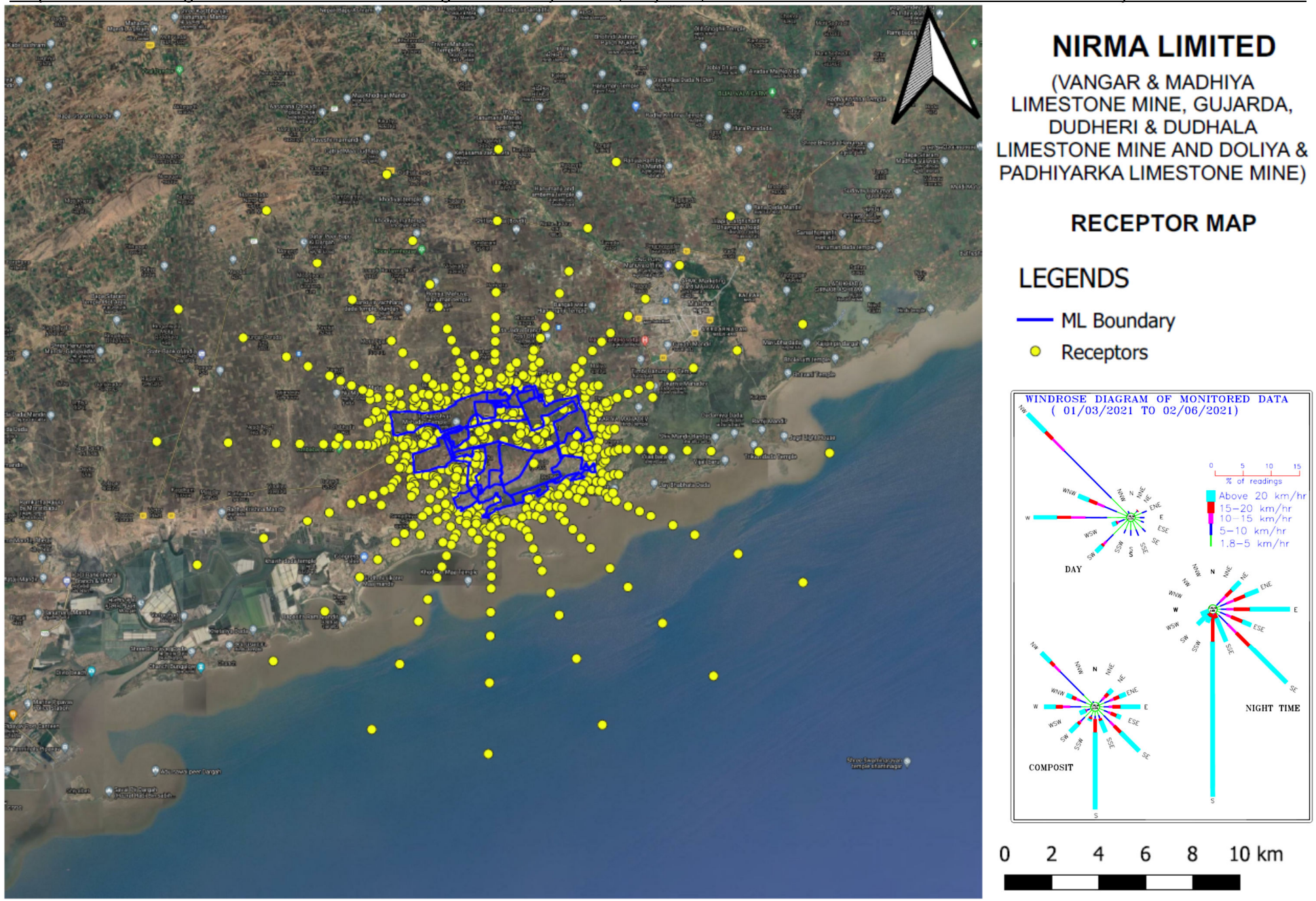
Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

THE MAXIMUM 10 24-HR AVERAGE CONCENTRATION IN WORST CASE (WITH NO CONTROL MEASURES)

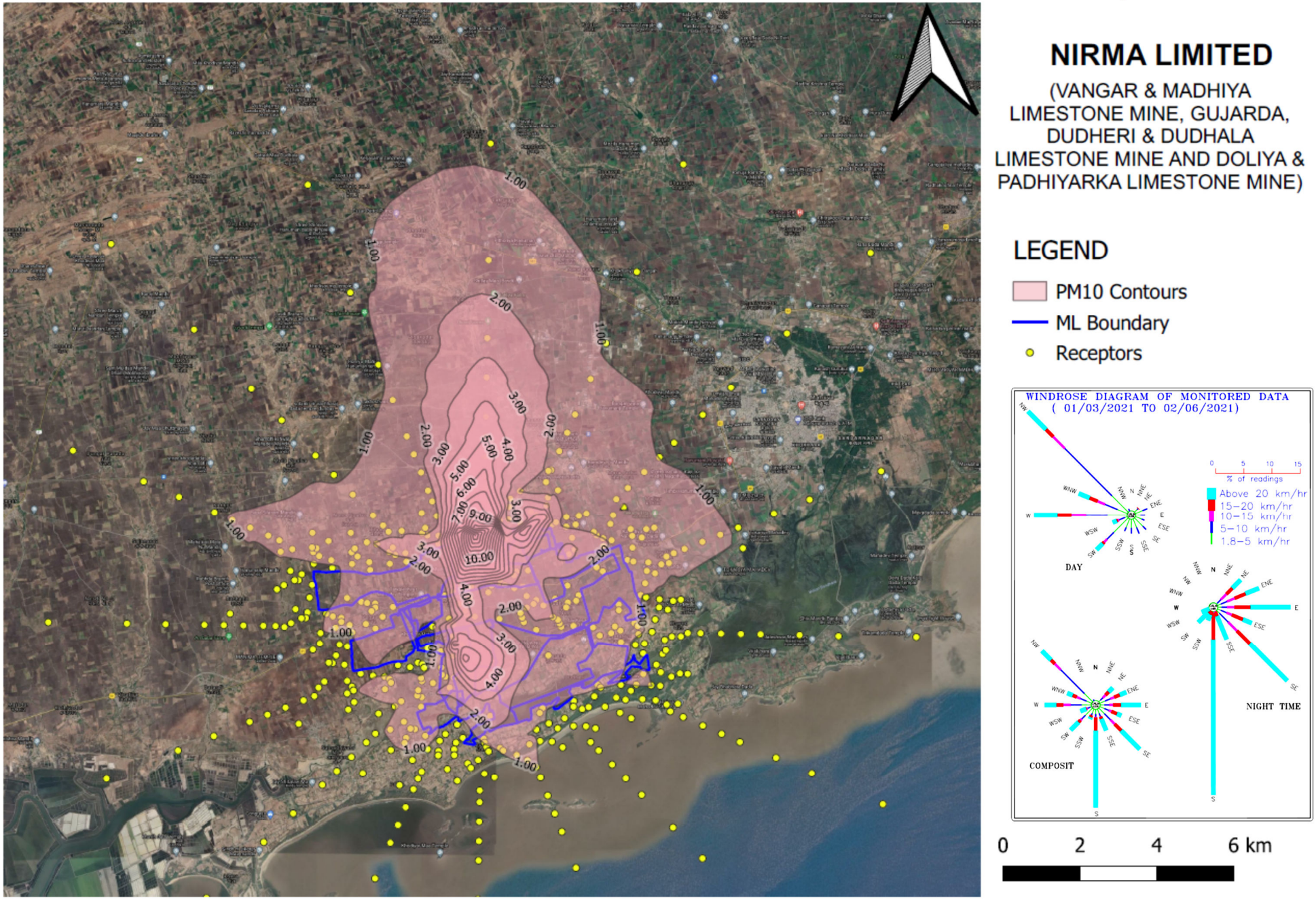
	PM_{10}	X	Y	$PM_{2.5}$	X	Y
1	42.39989	778882.90	2331207.0	24.37994	778882.90	2331207
2	40.33161	778432.50	2331244.0	23.19067	778432.50	2331244
3	33.43061	779349.30	2331453.0	19.2226	779349.30	2331453
4	31.99759	778889.20	2331407.0	18.39861	778889.20	2331407
5	31.39538	778442.60	2331570.0	18.05234	778442.60	2331570
6	31.30346	778587.70	2331493.0	17.99949	778587.70	2331493
7	29.21219	778649.00	2328044.0	16.79701	778649.00	2328044
8	28.72753	778529.30	2331690.0	16.51833	778529.30	2331690
9	28.54553	779398.20	2330374.0	16.41368	779398.20	2330374
10	25.40519	778429.40	2332080.0	14.60798	778429.40	2332080

Note: Same GLC shall be applicable for normative production since 20% less time and 20% less production shall take place compared to peak, but at the same rate

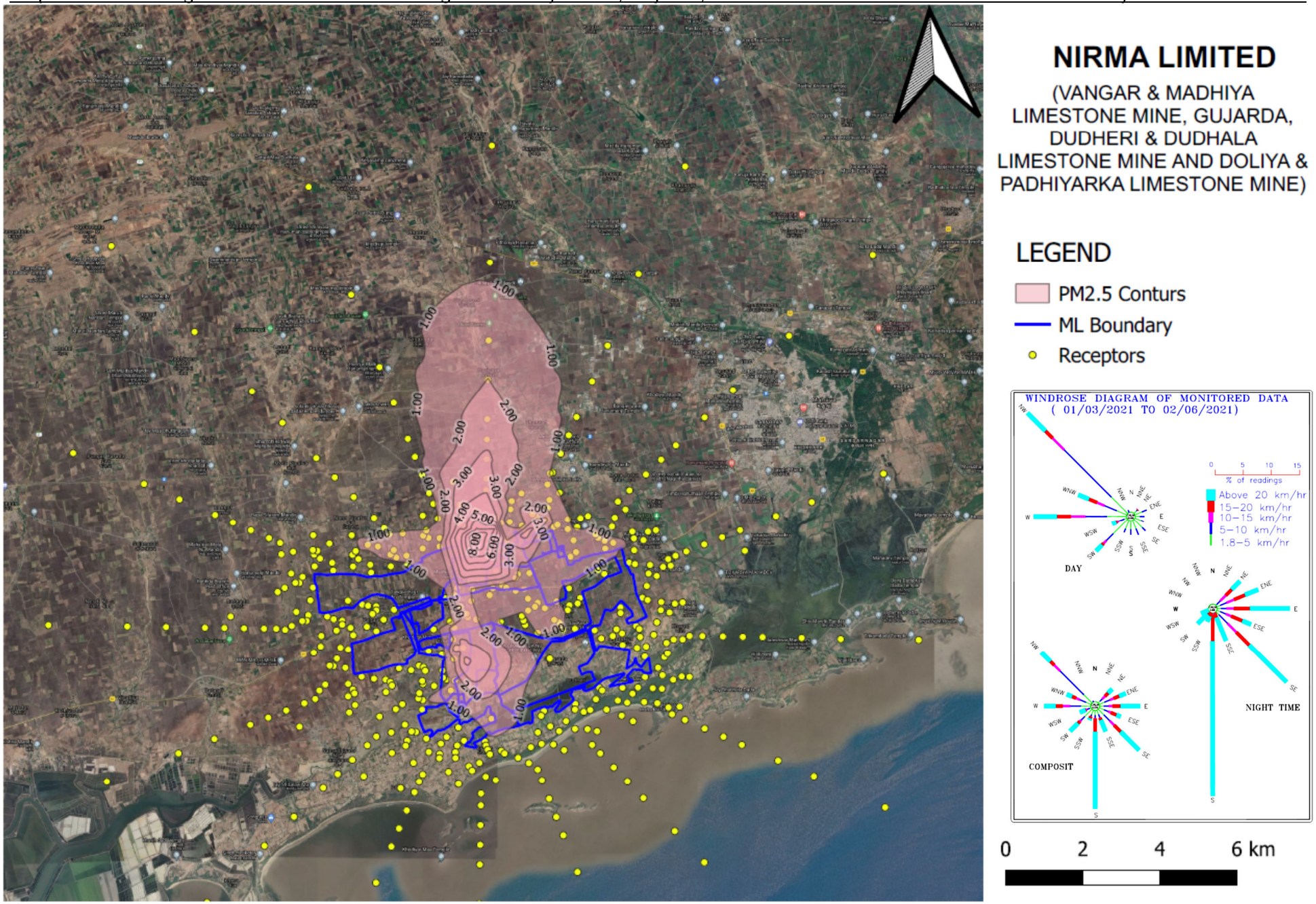
Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine



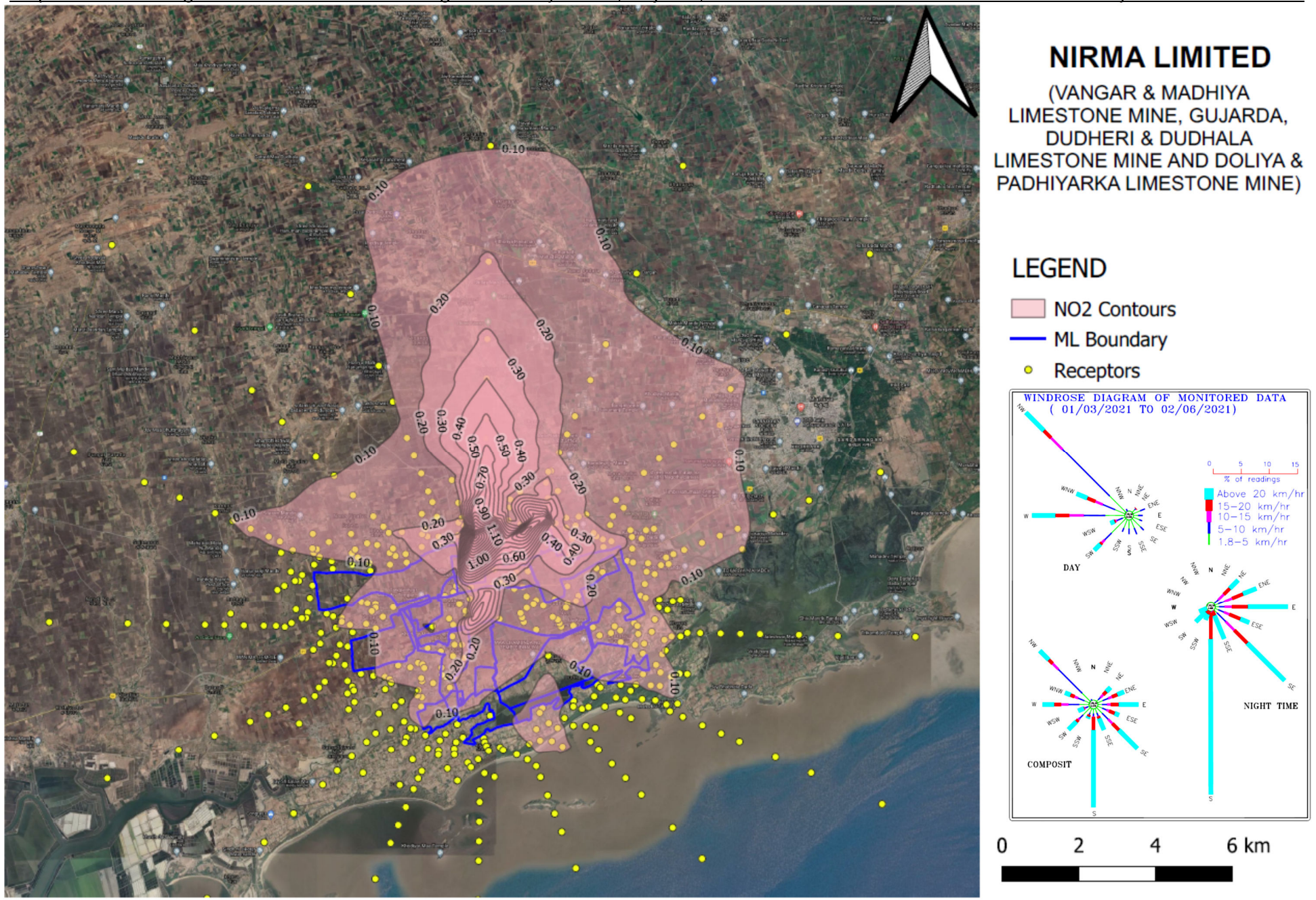
Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine



Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine



Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine



Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

Dust emission from various sources considered while calculating emission rates are summarised below:

Vangar & Madhiya Limestone Mine

Sl. No.	Source	Material	Amount of dust generation, kg/day	Control factor due to water sprays	Emission after Control measures (kg/day)	Model source
A.	**Topsoil dump**					
1	Unloading at TS dump	Top soil	0.623793333	70%	0.187138	Area
2	Wind erosion of top soil dump	Top Soil	10.7879	70%	3.23637	Area
B.	**Pit area Activities**					
1	Topsoil removal at working pit	Top soil	18.09000667	70%	5.427002	Area
2	Dumper loading by power shovel at working pit	Top soil	11.22828		11.22828	Area
4	**Limestone extraction**					
4.1	**Using conventional drilling blasting & Excavator dumper dumper**					
4.1.1	Drilling	Limestone	2.2	50%	1.1	Area
4.1.2	Blasting	Limestone	6.14861E-07		6.14861E-07	Area
4.1.3	Loading (to send to stock yard/cement plant)	Limestone	74.66666667		74.66666667	Area

C.	**Transportation**					
1	Transportation in haul road	Top soil	24.3652374	75%	6.09130935	Line
3	Transportation	Limestone	1204.7247	75%	301.181175	Line

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

Doliya & Padhiyarka Limestone Mine

Sl. No.	Source	Material	Amount of dust generation, kg/day	Control factor due to water sprays	Emission after Control measures (kg/day)	Model source
A.	**Topsoil dump**					
1	Unloading at TS dump	Top soil	0.507281667	70%	0.1521845	Area
2	Wind erosion of top soil dump	Top Soil	10.0423	70%	3.01269	Area
B.	**Pit area Activities**					
1	Topsoil removal at working pit	Top soil	14.71116833	70%	4.4133505	Area
2	Dumper loading by power shovel at working pit	Top soil	9.13107		9.13107	Area
4	**Limestone extraction**					
4.1	**Using conventional drilling blasting & Excavator dumper dumper**					
4.1.1	Drilling	Limestone	2.2	50%	1.1	Area
4.1.2	Blasting	Limestone	5.58128E-07		5.58128E-07	Area
4.1.3	Loading (to send to stock yard/cement plant)	Limestone	70		70	Area

C.	**Transportation**					
1	Transportation in haul road	Top soil	41.0175	75%	10.254375	Line
3	Transportation	Limestone	860.355	75%	215.08875	Line

Dispersion Modelling with ISCST3 model for Vangar & Madhiya Mine, Gujarda, Dudheri & Dudhala Mine and Padhiarka & Doliya & Limestone Mine

Gujarda, Dudheri & Dudhala Limestone Mine

Sl. No.	Source	Material	Amount of dust generation, kg/day	Control factor due to water sprays	Emission after Control measures (kg/day)	Model source
A.	**Topsoil dump**					
1	Unloading at TS dump	Top soil	0.67383	70%	0.202149	Area
2	Wind erosion of top soil dump	Top Soil	14.446	70%	4.3338	Area
B.	**Pit area Activities**					
1	Topsoil removal at working pit	Top soil	19.54107	70%	5.862321	Area
2	Dumper loading by power shovel at working pit	Top soil	12.12894		12.12894	Area
4	**Limestone extraction**					
4.1	**Using conventional drilling blasting & Excavator dumper dumper**					
4.1.1	Drilling	Limestone	3.9	50%	1.95	Area
4.1.2	Blasting	Limestone	1.34785E-06		1.34785E-06	Area
4.1.3	Loading (to send to stock yard/cement plant)	Limestone	126		126	Area

C.	**Transportation**					
1	Transportation in haul road	Top soil	17.73	75%	4.4325	Line
3	Transportation	Limestone	58.32	75%	14.58	Line

CALINE4 : CALIFORNIA LINE SOURCE DISPERSION MODEL - VERSION 2.1, DATED JUNE 1989

RUN: RURAL HIGHWAY

I. SITE VARIABLES

U= 3.63 M/S Z0= 10. CM ALT= 0. (M) BRG= 180.0 DEGREES
VD= 0.0 CM/S CLAS= 2 (B) VS= 0.0 CM/S
MIXH= 845. M AMB= 0.0 PPM SIGTH= 10. DEGREES TEMP= 30.25 DEGREE (C)

II. LINK VARIABLES

The modelling has been done for limestone transportation from mine to cement plant by dumpers having carrying capacity of 25 T. The section wise total number of dumpers has been calculated as given below:

Mine	Actual Production (TPD)	*20% Over Production (TPD)	Daily dumpers required (25T)	**Hourly No. of trips (To & fro)
Vangar Mine	5333	6400	256	36
Dudhala	9000	10800	432	60
Doliya	5000	6000	240	34

**** 20% over production have been considered to cover production losses which may incurred due to unwanted circumstances like lock down, natural hazardous, temporary shutdown due to legal issue etc. The mine operation time has also been considered 20% extra from 12 hours of actual operational hours.***
***** For normative production also, the number of trucks per hour have been considered same, only the number of hours of truck movement will reduce***

The emissions calculated for transportation activity have been given below::

Pollutant	70% Controlled	Without control measures	Unit
PM_{10}	5.0568	16.728	g/mile/truck
$PM_{2.5}$	1.2416	4.065	g/mile/truck
SO_2	0.0363		g/mile/truck
NO_X	2.1889		g/mile/truck

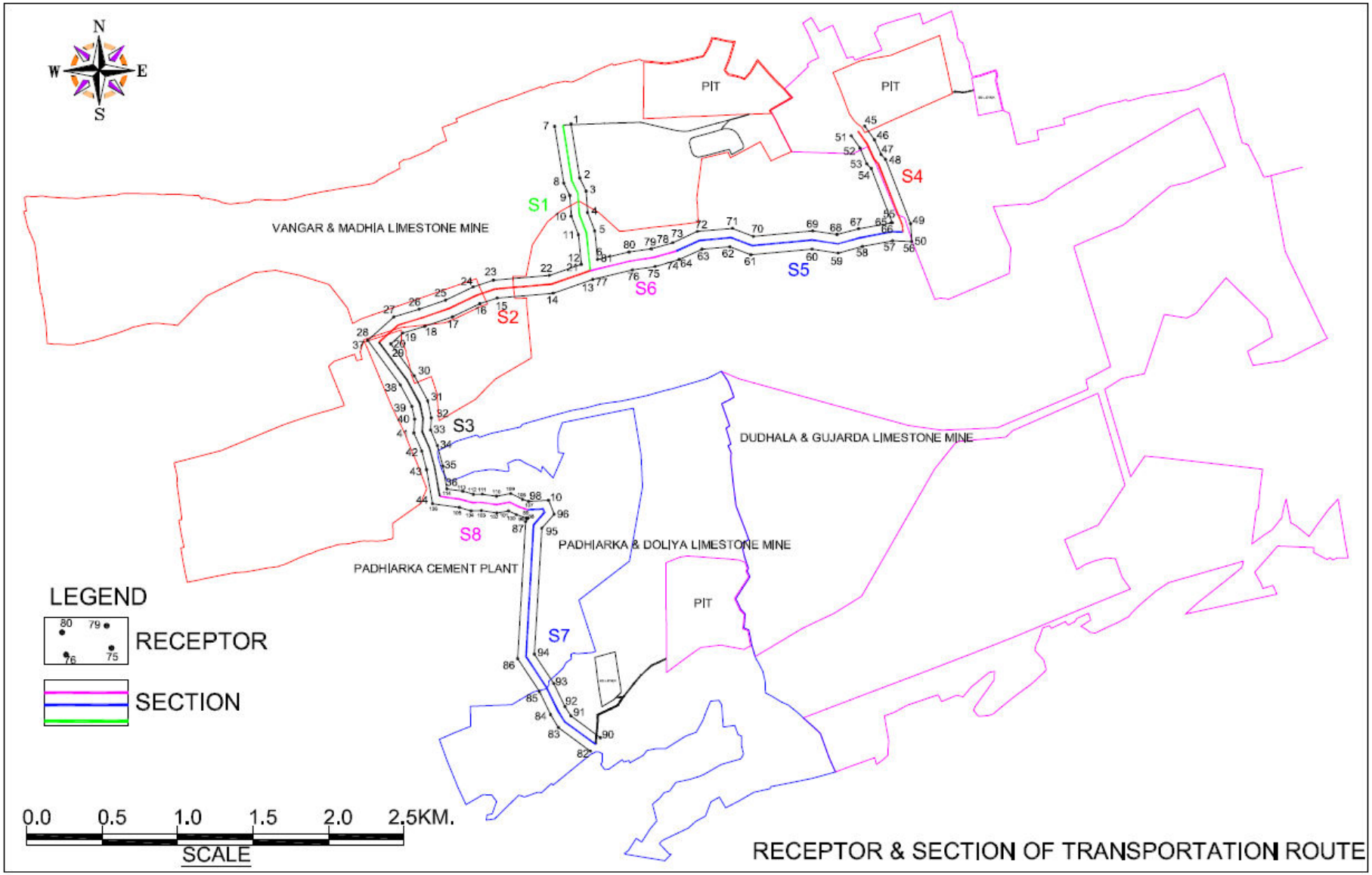
Assumptions:

- The emissions have been considered with 70-75% control measures for PM due to water sprinkling over fugitive emission sources
- PM_{10} & $PM_{2.5}$ includes wheel disturbed road silt
- The CO MODE has been used for calculating SO_2 concentrations.

The road used for transportation of limestone from all the three mines to cement plant has been divided into 8 sections for modelling purpose. Section S1 having traffic load of Vangar mine, sections S4 to S6 is having traffic load of Dudhala, Section S2 & S3 has traffic load of Vangar and Dudhala both mines and section S7 & S8 have the traffic load of Doliya mine.

The Route map and assumed receptors map is shown in Fig 1.

FIG 1 : ROUTE, SECTION AND RECEPTOR MAP



ANNEXURE : XXI Contd..

The input details of each section (S1 to S8) is given below:

Section	Link	LINK COORDINATES (M)				Type	VPH	Emission Factor (g/mile)						Width
		X1	Y1	X2	Y2			PM_{10}		$PM_{2.5}$		SO_2	NO_X	(M)
								C	UC	C	UC			
S01	A.	778266	2330687	778324	2330319	AG	36	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	778324	2330319	778365	2330234	AG	36	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	778365	2330234	778374	2330095	AG	36	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	778374	2330095	778422	2329971	AG	36	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	778422	2329971	778447	2329721	AG	36	5.06	16.73	1.24	4.07	0.036	2.189	10
S02	A.	778447	2329721	778188	2329631	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	778188	2329631	777817	2329599	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	777817	2329599	777692	2329558	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	777692	2329558	777509	2329470	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	777509	2329470	777330	2329408	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	F.	777330	2329408	777173	2329361	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	G.	777173	2329361	777045	2329247	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
S03	A.	777045	2329247	777232	2328994	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	777232	2328994	777316	2328839	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	777316	2328839	777337	2328740	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	777337	2328740	777332	2328654	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	777332	2328654	777381	2328542	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	F.	777381	2328542	777415	2328412	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
	G.	777415	2328412	777447	2328224	AG	96	5.06	16.73	1.24	4.07	0.036	2.189	10
S04	A.	780224	2330648	780286	2330561	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	780286	2330561	780330	2330460	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	780330	2330460	780359	2330430	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	780359	2330430	780519	2330021	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	780519	2330021	780522	2329976	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
S05	A.	780522	2329976	780449	2329979	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	780449	2329979	780241	2329940	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	780241	2329940	780089	2329899	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	780089	2329899	779921	2329925	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	779921	2329925	779521	2329887	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	F.	779521	2329887	779382	2329941	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	G.	779382	2329941	779173	2329922	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	H.	779173	2329922	779016	2329850	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
S06	A.	779016	2329850	778865	2329807	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	778865	2329807	778716	2329785	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	778716	2329785	778447	2329721	AG	60	5.06	16.73	1.24	4.07	0.036	2.189	10
S07	A.	778482	2326578	778277	2326729	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	778277	2326729	778231	2326802	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	778231	2326802	778157	2326955	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	778157	2326955	778021	2327162	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	778021	2327162	778071	2328034	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	F.	778071	2328034	778144	2328116	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	G.	778144	2328116	778134	2328140	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	H.	778134	2328140	778030	2328135	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
S08	A.	778030	2328135	777977	2328153	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	B.	777977	2328153	777912	2328184	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	C.	777912	2328184	777826	2328169	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	D.	777826	2328169	777728	2328183	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	E.	777728	2328183	777664	2328182	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	F.	777664	2328182	777590	2328204	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10
	G.	777590	2328204	777447	2328224	AG	34	5.06	16.73	1.24	4.07	0.036	2.189	10

Note : C = With control measures; UC = Without control measures; VPH = Vehicle per hour
Same emission rates shall be applicable for normative production since same hourly truck movement has been considered for normative production but for lesser hours.

RECEPTOR WISE RESULTS

The receptors have been assumed at a distance of 50 m from the road and receptor wise results are listed below:

Sec. No.	Receptor No	CO-Ordinates (m)			PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)		SO_2 µg/m³	NO_2 µg/m³
		X	Y	Z	C	UC	C	UC		
S01	1	778320	2330695	1.5	0.61	2.02	0.15	0.15	0.00	0.22
	2	778377	2330336	1.5	1.02	3.36	0.25	0.25	0.10	0.44
	3	778419	2330249	1.5	0.49	1.62	0.12	0.12	0.00	0.22
	4	778429	2330107	1.5	0.87	2.89	0.21	0.21	0.10	0.44
	5	778476	2329984	1.5	0.15	0.49	0.04	0.04	0.00	0.00
	6	778495	2329794	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	7	778211	2330678	1.5	0.01	0.03	0.00	0.00	0.00	0.00
	8	778271	2330302	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	9	778311	2330220	1.5	0.00	0.01	0.00	0.00	0.00	0.00
	10	778320	2330083	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	11	778368	2329958	1.5	0.00	0.01	0.00	0.00	0.00	0.00
	12	778387	2329763	1.5	0.00	0.00	0.00	0.00	0.00	0.00
S02	13	778464	2329663	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	14	778200	2329572	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	15	777829	2329540	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	16	777714	2329502	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	17	777532	2329415	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	18	777348	2329351	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	19	777203	2329308	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	20	777122	2329235	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	21	778387	2329763	1.5	2.00	6.60	0.49	0.49	0.10	1.11
	22	778175	2329690	1.5	1.99	6.57	0.49	0.49	0.10	1.11
	23	777805	2329658	1.5	1.96	6.49	0.48	0.48	0.10	1.11
	24	777669	2329614	1.5	2.03	6.70	0.50	0.50	0.10	1.11
	25	777487	2329526	1.5	1.98	6.56	0.49	0.49	0.10	1.11
	26	777311	2329465	1.5	1.96	6.49	0.48	0.48	0.10	1.11
	27	777143	2329415	1.5	2.29	7.58	0.56	0.56	0.10	1.11
	28	776969	2329258	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	A4	778457	2329254	1.5	0.00	0.00	0.00	0.00	0.00	0.00
S03	29	777122	2329235	1.5	1.82	6.04	0.45	1.47	0.10	0.89
	30	777279	2329023	1.5	2.17	7.16	0.53	1.74	0.10	1.11
	31	777368	2328858	1.5	1.39	4.58	0.34	1.11	0.10	0.67
	32	777392	2328744	1.5	1.44	4.77	0.35	1.16	0.10	0.67
	33	777388	2328664	1.5	2.34	7.75	0.58	1.88	0.10	1.11
	34	777433	2328560	1.5	1.57	5.19	0.39	1.26	0.10	0.89
	35	777469	2328424	1.5	0.42	1.38	0.10	0.33	0.00	0.22
	36	777495	2328273	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	37	776969	2329258	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	38	777185	2328964	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	39	777263	2328820	1.5	0.00	0.01	0.00	0.00	0.00	0.00
	40	777281	2328735	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	41	777277	2328644	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	42	777329	2328524	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	43	777361	2328401	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	44	777400	2328175	1.5	0.00	0.00	0.00	0.00	0.00	0.00
S04	45	780269	2330680	1.5	1.23	4.06	0.30	0.99	0.00	0.44
	46	780334	2330589	1.5	1.03	3.42	0.25	0.83	0.00	0.22
	47	780377	2330491	1.5	1.60	5.28	0.39	1.28	0.10	0.44
	48	780407	2330459	1.5	1.18	3.90	0.29	0.95	0.00	0.44
	49	780573	2330033	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	50	780580	2329914	1.5	0.00	0.00	0.00	0.00	0.00	0.00

ANNEXURE : XXI Contd..

Sec. No.	Receptor No	CO-Ordinates (m)			PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)		SO_2 µg/m³	NO_2 µg/m³
		X	Y	Z	C	UC	C	UC		
	51	780179	2330616	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	52	780238	2330534	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	53	780284	2330430	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	54	780312	2330400	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	55	780453	2330039	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	A5	780991	2329620	1.5	0.00	0.00	0.00	0.00	0.00	0.00
S05	56	780580	2329914	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	57	780454	2329919	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	58	780255	2329882	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	59	780093	2329838	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	60	779920	2329865	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	61	779513	2329826	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	62	779374	2329880	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	63	779189	2329863	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	64	779037	2329794	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	65	780453	2330039	1.5	1.24	4.10	0.30	1.00	0.00	0.44
	66	780445	2330039	1.5	1.22	4.02	0.30	0.98	0.00	0.44
	67	780228	2329999	1.5	1.21	4.01	0.30	0.98	0.00	0.44
	68	780086	2329960	1.5	1.25	4.13	0.31	1.00	0.00	0.44
	69	779923	2329985	1.5	1.24	4.10	0.30	1.00	0.00	0.44
	70	779530	2329948	1.5	1.23	4.07	0.30	0.99	0.00	0.44
	71	779391	2330002	1.5	1.23	4.07	0.30	0.99	0.00	0.44
	72	779158	2329981	1.5	1.24	4.09	0.30	0.99	0.00	0.44
	73	778995	2329907	1.5	0.01	0.04	0.00	0.01	0.00	0.00
S06	74	779037	2329794	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	75	778878	2329749	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	76	778727	2329726	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	77	778464	2329663	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	78	778995	2329907	1.5	1.24	4.11	0.30	1.00	0.00	0.44
	79	778853	2329866	1.5	1.25	4.13	0.31	1.00	0.00	0.44
	80	778705	2329844	1.5	1.23	4.06	0.30	0.99	0.00	0.44
	81	778495	2329794	1.5	1.24	4.10	0.30	1.00	0.00	0.44
S07	82	778449	2326533	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	83	778235	2326691	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	84	778183	2326776	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	85	778109	2326928	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	86	777965	2327147	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	87	778018	2328056	1.5	0.45	1.49	0.11	0.36	0.00	0.22
	88	778039	2328080	1.5	0.76	2.52	0.19	0.61	0.10	0.44
	89	778022	2328079	1.5	0.49	1.62	0.12	0.39	0.00	0.22
	90	778514	2326622	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	91	778318	2326767	1.5	0.59	1.94	0.14	0.47	0.00	0.22
	92	778280	2326829	1.5	0.52	1.71	0.13	0.42	0.00	0.22
	93	778205	2326982	1.5	0.65	2.14	0.16	0.52	0.00	0.44
	94	778077	2327177	1.5	0.65	2.14	0.16	0.52	0.00	0.44
	95	778125	2328012	1.5	0.19	0.62	0.05	0.15	0.00	0.00
	96	778207	2328106	1.5	0.07	0.24	0.02	0.06	0.00	0.00
	97	778171	2328197	1.5	0.12	0.41	0.03	0.10	0.00	0.00
	98	778037	2328190	1.5	1.02	3.37	0.25	0.82	0.10	0.67
	A1	778388	2327527	1.5	0.06	0.18	0.01	0.04	0.00	0.00
	A2	778391	2328386	1.5	0.03	0.10	0.01	0.02	0.00	0.00
S08	99	778022	2328079	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	100	777956	2328102	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	101	777904	2328127	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	102	777826	2328113	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	103	777724	2328128	1.5	0.00	0.00	0.00	0.00	0.00	0.00

Sec. No.	Receptor No	CO-Ordinates (m)			PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)		SO_2 µg/m³	NO_2 µg/m³
		X	Y	Z	C	UC	C	UC		
	104	777657	2328127	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	105	777578	2328150	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	106	777400	2328175	1.5	0.00	0.00	0.00	0.00	0.00	0.00
	107	778037	2328190	1.5	0.08	0.28	0.02	0.07	0.00	0.00
	108	777998	2328204	1.5	0.51	1.69	0.13	0.41	0.00	0.22
	109	777919	2328242	1.5	0.53	1.76	0.13	0.43	0.00	0.22
	110	777825	2328225	1.5	0.50	1.65	0.12	0.40	0.00	0.22
	111	777731	2328238	1.5	0.50	1.66	0.12	0.40	0.00	0.22
	112	777671	2328238	1.5	0.50	1.66	0.12	0.40	0.00	0.22
	113	777601	2328257	1.5	0.51	1.67	0.12	0.41	0.00	0.22
	114	777495	2328273	1.5	0.50	1.65	0.12	0.40	0.00	0.22
	MAX				**2.34**	**7.75**	**0.58**	**1.88**	**0.01**	**1.11**

Note : C = With control measures; UC = Without control measures; VPH = Vehicle per hour
Same GLC shall be applicable for normative production since same hourly truck movement has been considered for normative production but for lesser hours. CALINE4 model gives the same GLC output for same hourly vehicle movement.

SUMMARY OF MAXIMUM RESULTS (AT PEAK TOTAL EXCAVATION)

Section	Incremental GLC (µg/m³)		Receptor No.	Section
	With Control Measures	Without Control Measures		
PM_{10}	2.34	7.75	33	S3
$PM_{2.5}$	0.58	1.88	33	S3
SO_2	0.01		33	S3
NO_X	1.11		33	S3

Note: Same GLC shall be applicable for normative production since same hourly truck movement has been considered for normative production but for lesser hours. CALINE4 model gives the same GLC output for same hourly vehicle movement.

INCREMENTAL GLC ON AMBIENT AIR QUALITY STATIONS

Receptor No	CO-Ordinates (m)			PM_{10} (µg/m³)		$PM_{2.5}$ (µg/m³)		SO_2 µg/m³	NO_2 µg/m³
	X	Y	Z	With Control Measures	Without Control Measures	With Control Measures	Without Control Measures		
A1	778388	2327527	1.5	0.06	0.18	0.01	0.04	0.00	0.00
A2	778391	2328386	1.5	0.03	0.10	0.01	0.02	0.00	0.00
A4	778457	2329254	1.5	0.00	0.00	0.00	0.00	0.00	0.00
A5	780991	2329620	1.5	0.00	0.00	0.00	0.00	0.00	0.00

BACKGROUND NOTES

Emissions from trucks as per norms

Emission standards for new heavy-duty engines—applicable as per Bharat Stage IV (applicable nation wide since April 2017).

EU Emission Standards for Heavy-Duty Diesel Engines: Steady-State Testing

Stage	Date	Test	CO	HC	NOx	PM	PN	Smoke
			g/kWh				1/kWh	1/m
Euro III	1999.10 EEV only	ESC & ELR	1.5	0.25	2	0.02		0.15
	2000.1		2.1	0.66	5	0.10a		0.8
Euro IV	**2005.1**		**1.5**	**0.46**	**3.5**	**0.02**		**0.5**
Euro V	2008.1		1.5	0.46	2	0.02		0.5
Euro VI	**2013.01**	**WHSC**	**1.5**	**0.13**	**0.4**	**0.01**	**8.0×1011**	

a- PM = 0.13 g/kWh for engines < 0.75 dm^3 swept volume per cylinder and a rated power speed > 3000 min-1

Calculation for Emission from tipping trucks of 25T capacity which will be plying

Truck capacity 25 Te. of 14.4 Hours/day (operational)
vehicle speed 40 Km/hr 180 HP/truck

	Units	NOx	PM	SO_2
Capacity of Diesel Engine		g/kWh (Stage : Euro IV)		
Emission permitted		0.4	0.01	0.005%
Resultant KWH	KWH	136.8	136.8	136.8
Emission from one truck	g/truck/hour	54.72	1.368	0.4536
Emission from 1 truck/km	g/km	1.368	0.0342	0.025
Emission from 1 truck/mile	g/mile	2.1888	0.05472	0.04

As per AP-42, 5th Edition of US EPA, Section 13.2.1.3, the quantity of particulate emissions from re-suspension of loose material on the road surface due to vehicle travel on a dry paved road may be estimated using the following empirical expression:

$E = [k (sL)^{0.91} \times (W)^{1.02}] \times (1-P/4N)$

where: E = particulate emission factor (having units matching the units of k),
k = particle size multiplier for particle size range and units of interest, which will be 0.62 g/VKT for PM_{10} and 0.15 g/VKT for $PM_{2.5}$ as per Table 13.2.1-1 of AP-42, US EPA.
sL = road surface silt loading (grams per square meter) (g/m^2). The average silt content has been taken as 0.6 g/m^2 as per Table 13.2.1-2 of AP-42, US EPA..
W = average weight (tons) of the vehicles travelling the road, which is 24.5T (average of loaded and empty trucks) for the traffic.
P = Total wet days with at least 0.254 mm (0.01 in) of precipitation during the averaging period which is 1 days at IMD Bhavnagar (avg. from 1981-2010), and
N = Number of days in the averaging period which is 90 days

Average vehicle weight	25 T
Total number of days	90
Silt load (g/m^2)	0.6
Total number of wet days	1
Emission factor (PM_{10})	10.3562 g/VKT
Emission factor ($PM_{2.5}$)	2.50553 g/VKT

Standards for Ambient air quality (MoEF Notification G.S. R 826(E) dated 16/11/2009)

Pollutants	Concentration of ambient air (All concentrations are micro g/m^3) for 24 hours average	
	Industrial area, Residential, Rural and Other areas	Ecologically sensitive area (Notified by Central Govt.)
Sulphur Dioxide (SO_2)	80	80
Oxides of Nitrogen as NO_2	80	80
Particulate Matter (size $\leq$10µm)	100	100
Particulate Matter (size $\leq$2.5µm)	60	60

Email/Regd Post

भारत सरकार
खान मंत्रालय
भारतीय खान ब्यूरो
क्षेत्रीय खान नियंत्रक का कार्यलय
कर्मयोगी भवन, चतुर्थ माला, ब्लॉक-2 , सी विंग, सेक्टर-10A
गांधीनगर, गुजरात, 382010

Government of India
Ministry of Mines
Indian Bureau of Mines
Office of Regional Controller of Mines
Karmayogi Bhavan, 4th Floor, Block-2, Sector 10A,
Gandhinagar, Gujarat-382010

Tel- 079 29750358 /29750359; ई –मेल/ E-mail: ro.gandhinagar@ibm.gov.in

फाईल संख्या File No: 684(4)(1)/MP-349(195)/2021-22 GNR /1129 दिनाक 5 /08/ 2021

सेवा में To, नोमिनेटेड ओनर
मै. निरमा लिमिटेड,
निरमा हाउस, आश्रम रोड,
अहमदाबाद, गुजरात 380009
E-mail : mines@nirma.co.in

Nominated Owner
M/s Nirma Limited.
Nirma House, Ashram Road,
Ahmedabad - 380009

विषय Sub: Approval of Review and updation of Mining Plan along-with Progressive Mine Closure Plan (PMCP) including supporting documents in respect of Padhiarka & Doliya Limestone Mine of M/s Nirma Ltd. over an area of 332.24 hectare in Village- Padhiarka & Doliya, Tehsil-Mahuva, District –Bhavnagar, submitted under Rule 17(2) of Minerals (Other than Atomic & Hydro Carbons Energy Minerals) Concession Rules, 2016 & 23 of MCDR 2017..

संदर्भ /Ref:
1. Your letter no. NL/HBS/NL-30/1638/2020-21 received in the office on dated 24.05.2021
2. Our office letter of even number dated 12.07.2021
3. Your QP letter no. Nil dated 24.07.2021 received in this office on dated 26.07.2021

महोदय/Sir,

With reference to above and in exercise of the power conferred by Clause (b) of Sub-Section (2) of section 5 of Mines & Minerals (Development & Regulation) Act, 1957 read with Government of India order no. S.O. 445 (E) dated 28.04.1987 & Government of India Order No- S.O. 1857 (E) dated 18.05.2016; I hereby approve the aforesaid Review & Updation of Mining Plan (Including Progressive Mine Closure Plan). This approval is subject to the following conditions:

1. The Review & Updation of Mining Plan along with Progressive Mine Closure Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
2. The proposals shown on the plates and/or given in the document is based on the lease map /sketch submitted by the lessee and is applicable from the date of approval. Proposed scale of production is subjected to environmental clearance by competent authority.
3. It is clarified that the approval of aforesaid Review and Updation of Mining Plan along with Progressive Mine Closure Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Minerals (Other than Atomic & Hydro Carbon Energy Minerals) Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under, The Occupational Safety, Health and Working Conditions Code, 2020/The Mines Act 1952 and Rule & Regulations made there under.
4. Indian Bureau of Mines has not undertaken verification of the mining lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the precise area as furnished by the lessee.
5. At any stage, if it is observed that the information/details/drawing furnished, data incorporated, geo-referenced special configuration of lease/proposal in the document, are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
6. This approval is restricted in respect of the prospective proposals contained therein within the valid mining lease area of this Review and Updation of Mining Plan for the period commencing from the date of issue of this letter for the financial year 2021-22 upto financial year 2025-26 with validity up to 31 March 2026 and subject to submission of appropriate and requisite amount of Bank Guarantee etc. to the appropriate competent authority, against performance security as stipulated in Mine Development and Production Agreement (MDPA), in prescribed format covering the plan period and all other statutory compliances and clearances for the mining activities to be carried out within the mining leasehold area.
7. The performance security shall be updated time to time as per the MDPA and the copy of same shall be provided to this office immediately.
8. Adequate measures shall be taken to prevent any inadvertent access to the mined out area/water logged pits, if any. Adequate fencing/check dams/retaining walls shall be made and maintained in good condition to check any detrimental impact on water regime.

9. Wherever side/benches have finalized or reached to its ultimate limit, immediate steps shall be taken for stabilization/ restoration of sides/benches/terraces appropriately like plantations suitable species/vegetation.
10. Sufficient safety Berm shall be maintained with respect to public road/village roads/river bed/nallah etc.
11. In addition to the PMCP proposals mining lease holder shall comply the Order of Hon'ble Supreme Court dated 08.01.2020 in the matter of Writ petition(C) No.114/2014(common Cause vs Union of India & Ors.) to undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. **Compliance status of the same shall be furnished every year under rule 26(2) of MCDR 2017.**
12. This approval is restricted to the proposals only for the ensuing mining plan period and this approval shall not be interpreted as a compliance of any of the violations made to the statutory provisions.
13. Mining operations shall be carried out strictly as per provisions of MCDR 2017 and other rules made under MM(D&R) Act 1957.
14. The inventory of mineral/ore stock above the limit prescribed in the threshold values of minerals and below the cut-off grade shall be maintained in a bound register indicating the quantity and quality of material stacked. The month wise inventory of such materials shall be updated, and the annual summary shall be submitted to Regional Controller of Mine, IBM, Gandhinagar before 30th June of every year.

भवदीय

(पुष्पेन्द्र गौड़/ Pushpender Gaur)
क्षेत्रीय खान नियंत्रक /Regional Controller of Mines

प्रतिलिपि सूचनार्थ प्रेषित / Copy for kind information to:-

1. The Commissioner, Department of Geology & Mining, Govt. of Gujarat, Gandhinagar, Gujarat, Email-commissioner-cgm@gujarat.gov.in . Along-with copy of approved review of mining plan along with PMCP. Kindly refer our letter no 684(4)(1)/MP-349/2021-22 GNR dated 29.06.2021 in this matter.
2. Sh. Rakesh Purohit, (Mining Engineer), (Qualified Person) (E-mail-rkconsultabtsjodhpur@gmail.com & Sh. S K Soni, (Geologist), (Qualified Person) E-mail soni.sarnar.shailendra@gmail.com

क्षेत्रीय खान नियंत्रक /Regional Controller of Mines

No. WLP/32/C/ 670-672 /2021-22
Office of the
Principal Chief Conservator of forests
Block No. B/1, Aranya Bhavan,
Ch-3 Circle, Sector - 10/A,
Gujarat State, Gandhinagar.
Dated:- 20 .12.2021

To,
M/s. Nirma Limited,
Nirma House, Ashram road,
Ahmedabad- 380 009

Sub:- Authentication of conservation plan for proposed Limestone Mines of M/s Nirma limited located at Villages- Vangar, Madhiya, Padhiarka, Doliya, Gujarda, Dudheri and Dudhala, Taluka- Mahuva, Dist. Bhavnagar, Gujarat.

Ref :- 1. M/s Nirma Ltd. letter No. NL/BH/MIN/Forest/1445, Dt. 08/06/2020
2. Chief Conservatoe Of Forest, Junagadh Circle letter No. A/JMN/T.12/1674-75/2021-22, Dt. 30/11/2021

With referenct to the subject and letter quoted above, the Wildlife Conservation plan proposed Limestone Mines of M/s Nirma limited located at Villages- Vangar, Madhiya, Padhiarka, Doliya, Gujarada, Dudheri and Dudhala, Taluka- Mahuva, Dist. Bhavnagar, Gujarat.

The Wildlife Conservation Plan of Rs 19.9 Lacs has been approved. All works of the plan will have to be done by User Agency. The Forest department will not have to take any fund. A copy of the Wildlife Conservation Plan is enclosed herewith.

Encl. As above

(Shyamal Tikadar)
Chief Wildlife Warden
Gujarat State, Gandhinagar

Copy to: Chief Conservator of Forests, Junagadh Circle, Junagadh for information and necessary action.

Copy to: Deputy Conservator of Forests, Bhavnagar Forest Division, Bhavnagar for information and necessary action.

Forest Division and the user agency (Nirma) shall make payment directly towards wages, materials, transportation & vehicle & equipment hiring costs etc. as per approved budget and unit cost.

6. Six-monthly monitoring report prepared by third-party shall be submitted by the user agency to the DCF Bhavnagar, which would be forwarded to the Chief Wildlife Warden, Gujarat State after verification of the quantities and qualities of the work carried out.

7. The present Wildlife Conservation/Mitigation Plan is prepared for 3 years. After completion of 100% works recommended in the plan, DCF Bhavnagar, Bhavnagar Division shall verify the quality and quantity of the works carried out and a completion certificate would be submitted by him to the Chief Wildlife Warden, Gujarat after 3 years.

4.10 MONITORING OF MITIGATION & COMPLIANCES

Since the proposed project area falls under the jurisdiction of Bhavnagar Forest Division, the overall monitoring of the implementation of activities recommended in the mitigation plan would be carried out by the Bhavnagar Division, Bhavnagar. Therefore, as per guidelines issued by the Chief Wildlife Warden, Gujarat State vide letter no: WLP/T-32/B/1014-33/2020-21. Dated 24th June, 2020, user agency shall submit a six-monthly monitoring report prepared by third-party or prepared by the DCF Bhavnagar to the Chief Wildlife Warden, Gujarat State after verification of the quantities and qualities of the works carried out. The present Wildlife Conservation/Mitigation Plan is prepared for 3 years. After completion of 100% works recommended in the plan i.e. after 3 years, DCF Bhavnagar will verify total quantity and quality of the works carried out and submit a completion certificate to the Chief Wildlife Warden, Gujarat.

4.11 FINANCIAL LAYOUT FOR CONSERVATION ACTIVITIES

Following is the proposed financial layout for conservation activities in the project site and surrounding area (Table-4.2).

Table- 4.2: Proposed financial layout for wildlife conservation plan after discussion with DCF Bhavnagar.

No	Activity	Rate/ unit (Lakh)	Phy-sical	Year-21-22	Year-22-23	Year-23-24	Total for 3 years (Lakh)
A	**Lion Population survey of GIR NP, GIR Sanctuary, Mitiyala WLS**						
1	Hiring services of NGO/experts for carrying out annual survey at GIR NP, GIR Sanctuary, Mitiyala WLS	0.5	3 years	0.5	0.5	0.5	1.5

B	**Plantation Activities at Locations Suggested by DCF, Bhavnagar**						
1	Assisting Plantation activities to be carried out by Forest Department, Bhavnagar	0.5	3 years	0.5	0.5	0.5	1.5
C	**Promoting eco-tourism at GIR NP, GIR Sanctuary, Mitiyala WLS**						
	Nature guide & hospitality training 20 persons	2.5	1	2.5	-	-	2.5
D	**Engagement of Van Sahayak round the year**						
1	Van Sahayak 1 nos. on contract basis	1.2	3 years	1.2	1.2	1.2	3.6
E	**Vaccination of cattles**						
1	Assisting vaccination programme by Forest Department	1.2	3 Year	1.2	1.2	1.2	3.6
F	**Miscellaneous**						
1	Maintenance of shallow ponds/rainwater harvesting structures	1.0	3 Year	1.0	1.0	1.0	3.0
2	Public education and awareness programmes for the following - Avoiding plastic, Recycle and reuse, Reduce usage of pesticide and weedicide, Conservation of Wildlife, Garbage control	1.0	3 Year	1.0	1.0	1.0	3.0
F	**Monitoring of mitigation plan**						
1	Six-monthly third-party monitoring report preparation	0.25	06	0.2	0.5	0.5	1.2
	Grand Total (in lakh Rs.)			8.1	5.9	5.9	19.9

FOR NIRMA LTD.

AUTHORISED SIGNATORY

(Dr. Sandeep Kumar)
Deputy Conservator of Forests
Bhavnagar Forest Division
Bhavnagar

Chief Wildlife Warden
Gujarat State
Gandhinagar

Chief Conservator of Forests
Junagadh Circle, Junagadh

GWIL

Gujarat Water Infrastructure Limited

(A Govt. of Gujarat Undertaking)

Dr. Jivraj Mehta Bhavan, Block No. 1, 1st Floor, Gandhinagar - 382 010.
Phone : (079) 23224176 / 23239537 Fax : 23222396
e-mail : gwilcompany@rediffmail.com

GWIL/Bhavnagar/Ind.conn./1257 Date : 4th June 2008

Nirma Limited.
Nirma House,
Ashram Road,
Ahmedabad – 380 009

Sub: Request for supply of Raw Water
Ref: Your letter dated 7th April 2008

Sir,

As requested by you vide your above letter for requirement of raw water 1.00 MLD is here by granted for your unit situated in Bhavnagar district, raw water available from of NC-4 (Budhel - Borda section) project with the following terms and conditions:

1. You have to enter into an agreement with GWIL within 45 days from the date of this letter.
2. Please note that connection will be release after 1st July 2008
3. GWIL will supply raw water, Necessary all treatment before use of water shall have to be given by you at your cost.
4. The rate of water will be Rs. 15/- (Rupees Fifteen only) per 1000 ltrs which is tentative. The final rate as decided by the Govt. will make applicable and binding to pay by your Company.
5. You have to make your own arrangement for drawing water to your unit from the connection point.
6. You have to make your own arrangement to install flow meter and valves near the connection point with locking arrangements and GWIL will be in charge of the same.
7. All the costs for flow meter, valves, laying pipeline, storage required etc from the connection point to your sump shall have to be borne by your Company.
8. It will be your responsibility to ensure that the Flow meter remains in working condition & duly calibrated time to time.
9. Six months water charges i.e. **Rs.27,00,000/-** (Rupees twenty seven lacs only) shall have to be paid by you in advance as security deposit at the time of agreement.
10. You have to bring documents likes Stamp Paper of Rs. 100/- (Blank) - 1 No, Authority letter to sign & Seal the Agreement, Common Seal, Round Seal and Copy of Memorandum of Association & Articles of Association at the time of agreement.

You are requested to contact this office for execution of water sale agreement, within stipulated time limit as stated above.

Further GWIL shall be free to change draft agreement when required.

Thanking you,
Yours truely,

(V G Papaiyawala)
General Manager - II

Copy submitted to: 1) MD, GWIL
2) Chief General Manager(C),GWIL-for information please.
Copy to: Sr. Manager(C), GWIL,Barwala.

E:\Dipak - 2008\DATA OF DIPAK\Water Sales Agreement sanction letter\Bhavnagar\Nirma ltd. 04.05.08.doc

Office of The Deputy Chief Conservator of Forest, Bhavnagar
Bahumali Bhavan Annexe Building,Bhavnagar
Tel No:0278-2428644
Email:forestnormalbvnd@gmail.com

SR. No 2946 Dt. 29/7/2023
SHILPA P. SHAH, NOTARY
GOVT. OF INDIA
29-7-23

Letter No: K/JMN/T-11/2075/2022-23

Date:27/01/2023

NOTARY SHILPA P. SHAH AHMEDABAD CITY GUJARAT STATE REGD. NO. 4269 GOVT. OF INDIA

To,
Authorized Signatory,
M/s. Nirma Limited,
Nirma House, Ashram Road,
Ahmedabad-380009

Subject: Request to provide distance of nearby Turtle breeding sites from our limestone mining located at Villages: Padhiyarka, Doliya, Vangar, Madhiya, Gujarada, Dudheri & Dudhala, Ta: Mahuva, Dist.: Bhavnagar, Gujarat

Reference: Your Letter No: NL/BH/MIN/Forest/1940A/202, dated 12.12.2022

This is to inform with Jai Bharat for the above subject and reference letter that application for Environment Clearance was submitted for the villages Padhiyarka, Doliya, Vangar, Madhiya, Gujarada, Dudheri & Dudhala. Accordingly, Terms of Reference(ToR) had been issued vide letter dated 28/12/2022 by Government of India. As per ToR condition no. A(v), provision has to be made in conservation plan for turtle breeding site. Pursuant to which the details of the distance from the mining site to the nearest turtle breeding site have been sought.

In the said matter, it is to state that there is a turtle rearing/breeding center at Moje Hathab in Bhavnagar taluka at a distance of approximately 70 km from your said leases. Which is requested to be informed.

Deputy Chief Conservator of Forest
Bhavnagar Forest Department
Bhavnagar

This is the true & correct English Translation of the Original Document in Gujarati
SHILPA P. SHAH
NOTARY
GOVT. OF INDIA
29-7-23

સત્યમેવ જયતે

નાયબ વન સંરક્ષકશ્રીની કચેરી, ભાવનગર વન વિભાગ, ભાવનગર

બહુમાળી ભવન એનેક્ષી બિલ્ડીંગ, એફ-૯/૧૦, ભાવનગર

ફોન નં. ૦૨૭૮-૨૪૨૮૬૪૪

Email :- forestnormalbvnd@gmail.com

ક્રમાંક:- ક/જમન/ટે-૧૧/૨૦૭૫ /૨૦૨૨-૨૩ તા:- ૨૭/૧/૨૦૨૩

પ્રતિ,

અધિકૃત સહીકર્તાશ્રી,

એમ/એસ નિરમા લી.,

નિરમા હાઉસ, આશ્રમ રોડ,

અમદાવાદ-૩૮૦૦૦૯

વિષય:- Request to Provide distance of nearby Turtle breeding sites from our Limestone Mining located at Villages: Padhiarka, Doliyam Vangar, Madhiya, Gujarda, Dudheri & Dudhala, Taluka Mahuva, Dist.Bhavnagar, Guj.

સંદર્ભ:- આપના પત્રાંક:- NL/BH/MIN/Forest/1940A/202, Dt.12/12/2022

જય ભારત સાથ ઉપરોક્ત વિષય અને સંદર્ભપત્ર અન્વયે જણાવવાનું કે, આપની કંપની હસ્તકની વાંગર & માઢીયા માઈન્સ, ગુજરડા, દુધેરી & દુધાળા માઈન્સ અને પઢીયારકા & ડોળીયા માઈન્સ માટે ઈન્વાયરમેન્ટ ક્લીયરન્સ મેળવવા માટે આપના દ્વારા અરજી કરવામાં આવેલ હતી. જેમાં ભારત સરકારશ્રી દ્વારા તા.૨૮/૧૧/૨૦૨૨ ના પત્રથી ટર્મ ઓફ રેફરન્સ (ToR) આપવામાં આવેલ છે. જેની શરત નં.A(v) અન્વયે કાચબા ઉછેર/સંવર્ધન સ્થળ માટે કન્ઝર્વેશન પ્લાનમાં જોગવાઇ કરવાની થાય છે. જેના અનુસંધાને માઈનીંગ સ્થળથી નજીકના કાચબા ઉછેર/સંવર્ધન સ્થળના અંતરની વિગતો માંગવામાં આવેલ છે.

ઉક્ત બાબતે જણાવવાનું કે, આપની ઉક્ત લીઝોથી અંદાજે ૭૦ કિ.મી. ના અંતરે ભાવનગર તાલુકાના મોજે.હાથબ ખાતે કાચબા ઉછેર/સંવર્ધન કેન્દ્ર આવેલ છે. જેની જાણ થવા વિનંતી છે.

નાયબ વન સંરક્ષક

ભાવનગર વન વિભાગ

ભાવનગર

NIRMA LIMITED

DETAILS OF LAND

Limestone Mining Lease, in Village: Padhiarka & Doliya, Taluka: Mahuva, District: Bhavnagar

DETAILS OF SURVEY NOS FALLING IN ML AREA - 332.24 HA
OF VILLAGE: PADHIARKA, TALUKA: MAHUVA, DIST.BHAVNAGAR

Sr.No.	Survey No.	Total Area in Ha			Land status - Govt. land (S.P) / Pvt. Land (P)	Full / Part	Area fall in ML Area (In Ha.)	Remarks
1	9/1	1	45	69	P	Part	0.4552	
2	9/2	1	45	69	P	Part		
3	10	5	22	5	P	Part	2.9218	
4	13	1	12	30	S.P.	Full	1.123	
5	14	1	31	52	P	Full	1.3152	
6	15	1	33	55	P	Full	1.3355	
7	16/1	1	57	83	P	Full	1.5783	
8	16/2	1	89	19	P	Full	1.8919	
9	17	1	63	90	S.P.	Full	1.6390	
10	18	0	87	1	P	Full	0.8701	
11	19	0	41	48	S.P.	Full	0.4148	
12	20/P1	0	89	3	P	Full	0.8903	
13	20/P2	0	88	2	P	Full	0.8802	
14	21	0	51	60	P	Full	0.5160	
15	22	2	15	50	P	Full	2.1550	
16	23/P1	0	80	94	P	Full	0.8094	
17	23/P2	0	80	94	P	Full	0.8094	
18	24	1	69	97	P	Part	1.2841	
19	25	1	87	17	P	Part	0.5719	
20	26/1	0	97	13	P	Part	0.4348	
21	26/2	0	96	11	P	Part		
22	28/1	0	80	94	P	Part	0.3423	
23	28/2	0	80	94	P	Part		
24	28/3	0	63	74	P	Part		
25	28/4	1	11	29	P	Part		
26	28/5	1	11	28	P	Part		
27	29/1	0	51	60	S.P.	Full	0.5160	
28	29/2	0	2	2	S.P.	Full	0.0202	
29	30/1	0	96	11	P	Full	0.9611	
30	30/2	0	96	12	P	Full	0.9612	
31	31	1	32	54	P	Full	1.3254	
32	32	0	47	55	P	Full	0.4755	
33	33/1	1	45	69	P	Full	1.4569	
34	33/2	1	11	29	P	Full	1.1129	
35	34/1	1	99	31	P	Full	1.9931	
36	34/2	0	99	15	P	Full	0.9915	
37	34/3	0	99	15	P	Full	0.9915	
38	35/1	1	15	33	P	Full	1.1533	
39	35/2	0	80	94	P	Full	0.8094	
40	36	2	26	63	P	Full	2.2663	
41	37	0	76	89	S.P.	Full	0.7689	
42	38	2	72	15	P	Full	2.7215	
43	39/1	0	84	98	P	Full	0.8498	
44	39/2	0	84	99	P	Full	0.8499	
45	40/1	0	51	60	P	Full	0.516	
46	40/2	0	52	61	P	Full	0.5261	
47	40/3	0	52	61	P	Full	0.5261	

48	41/1	2	42	81	P	Full	2.4281	
49	41/2	0	95	10	P	Full	0.9510	
50	42	1	70	98	P	Full	1.7098	
51	43	0	80	94	P	Full	0.8094	
52	44	0	75	88	P	Full	0.7588	
53	45	0	25	29	P	Full	0.2529	
54	46/1/P1	1	1	17	P	Full	1.0117	
55	46/1/P2	1	1	17	P	Full	1.0117	
56	46/2	0	93	8	P	Full	0.9308	
57	46/3	0	80	94	P	Full	0.8094	
58	46/4	0	80	94	P	Full	0.8094	
59	46/5	0	80	94	P	Full	0.8094	
60	47	1	17	36	P	Full	1.1736	
61	48	3	25	77	P	Full	3.2577	
62	49/1	3	18	69	P	Full	3.1869	
63	49/2/P1	2	66	8	P	Full	2.6608	
64	49/2/P2	0	52	61	P	Full	0.5261	
65	50/1/P1	1	33	55	P	Full	1.3355	
66	50/1/P2	1	33	55	P	Full	1.3355	
67	50/1/P3	0	91	5	P	Full	0.9105	
68	50/1/P4	0	80	94	P	Full	0.8094	
69	50/2/P1	0	94	9	P	Full	0.9409	
70	50/2/P2	0	90	4	P	Full	0.9004	
71	51	0	47	55	P	Full	0.4755	
72	52	0	37	43	P	Full	0.3743	
73	53/1	0	2	3	P	Full	0.0203	
74	53/2	0	2	2	P	Full	0.0202	
75	54	1	91	21	P	Part	0.1358	
76	57/1	0	89	3	P	Part	0.0644	
77	57/2	0	89	3	P	Part		
78	58/1	2	6	39	P	Full	2.0639	
79	58/2	3	19	70	P	Full	3.1970	
80	58/3/1/P1	1	52	77	P	Full	1.5277	
81	58/3/1/P2	1	53	78	P	Full	1.5378	
82	58/3/2/P1	0	59	69	P	Full	0.5969	
83	58/3/2/P2	0	59	69	P	Full	0.5969	
84	58/3/P3	0	21	25	P	Full	0.2125	
85	58/3/P4	0	21	25	P	Full	0.2125	
86	59/1/P1 & P	1	17	36	P	Full	1.1736	
87	59/1/P2	0	59	69	P	Full	0.5969	
88	59/1/P3	0	58	68	P	Full	0.5868	
89	59/2/P1	0	57	67	P	Full	0.5767	
90	59/2/P2	0	89	3	P	Full	0.8903	
91	59/2/P3	0	89	3	P	Full	0.8903	
92	60/P1	1	11	29	P	Full	1.1129	
93	60/P2	1	11	28	P	Full	1.1128	
94	60/P3	1	10	28	P	Full	1.1028	
95	60/P4 & P1	1	10	28	P	Full	1.1028	
96	61/P1	1	21	41	P	Full	1.2141	
97	61/P2	1	21	40	P	Full	1.2140	
98	62/1	0	97	12	P	Full	0.9712	
99	62/2 & P1	1	12	30	P	Full	1.1230	
100	62/3/P1	1	13	31	P	Full	1.1331	
101	62/3/P2	0	97	13	P	Full	0.9713	
102	63/P1	1	6	24	P	Full	1.0624	
103	63/P2	1	2	18	P	Full	1.0218	
104	63/P3	1	2	18	P	Full	1.0218	

105	64/1/P1	0	92	6	P	Part	5.3171	
106	64/1/P2	1	85	15	P	Part		
107	64/2/P1	1	4	21	P	Part		
108	64/2/P2	0	51	60	P	Part		
109	64/2/P3	1	21	40	P	Part		
110	65	3	23	75	P	Part	0.0142	
111	66/1	1	72	0	P	Part	0.8146	
112	66/2	0	84	98	P	Part		
113	66/3	0	84	98	P	Part		
114	67/1/A/P1	0	61	71	P	Part	1.3978	
115	67/1/A/P2	0	56	66	P	Part		
116	67/1/B/P1	0	58	68	P	Part		
117	67/1/B/P2	0	58	68	P	Part		
118	69/1	2	20	55	P	Part	1.0471	
119	69/2	1	11	29	P	Part		
120	73/P1	2	51	92	P	Part	1.5681	
121	73/P2	0	80	94	P	Part		
122	75/1	0	75	88	P	Part	1.0600	
123	75/2	0	76	89	P	Part		
124	76/1/P1	1	59	85	P	Full	1.5985	
125	76/1/P2	1	59	85	P	Full	1.5985	
126	76/2/P1	0	64	75	P	Full	0.6475	
127	76/2/P2	1	53	78	P	Full	1.5378	
128	76/2/P3	1	53	78	P	Full	1.5378	
129	77/1/P1	0	97	13	P	Full	0.9713	
130	77/1/P2	2	29	66	P	Full	2.2966	
131	77/2	3	31	84	P	Full	3.3184	
132	80/A/P1	13	92	98	Salinity Dept./S.P.	Part	12.2136	1.7162 Ha. left out near village for public purpose as safety zone
TOTAL							140.2137	

FOR NIRMA LTD.

AUTHORISED SIGNATORY

પાના નં. ૨૫૫૩ ની અધિકરણ

અરજ નંબર ૪૫૪૬

કબજા તારીખ ૩/૨૦૧૯

રોપો કાઢવા રકમ ₹.....

NIRMA LIMITED

DETAILS OF LAND

Limestone Mining Lease, in Village: Padhiarka & Doliya, Taluka: Mahuva, District: Bhavnagar

DETAILS OF SURVEY NOS FALLING IN ML AREA - 332.24 HA

OF VILLAGE: DOLIYA, TALUKA: MAHUVA, DIST.BHAVNAGAR

Sr.No.	Survey No.	Total Area in Ha			Land status - Govt. land (S.P) / Pvt. Land (P)	Full / Part	Area fall in ML Area (In Ha.)	Remarks
1	24	1	10	28	S.P.	Part	0.8327	
2	34	1	76	4	P	Full	1.7604	
3	35	53	76	28	S.P.	Part	53.4228	0.34 Ha. left out for Public purpose road
4	36/P1	0	68	80	P	Full	0.6880	
5	36/P2 & P1	2	6	29	P	Full	2.0629	
6	37/P1	1	53	0	P	Full	1.5300	
7	37/P2	0	50	36	P	Full	0.5036	
8	38/P1	0	68	29	P	Full	0.6829	
9	38/P2	0	68	29	P	Full	0.6829	
10	38/P3	2	2	34	P	Full	2.0234	
11	38/P4	2	2	35	P	Full	2.0235	
12	39/P1	1	47	20	P	Full	1.4720	
13	39/P2	1	46	20	S.P.	Full	1.4620	
14	40	0	46	54	S.P.	Full	0.4654	
15	41/P1	0	80	94	P	Full	0.8094	
16	41/P2	0	81	95	P	Full	0.8195	
17	42/P1	0	61	21	P	Full	0.6121	
18	42/P2	0	61	21	P	Full	0.6121	
19	43	1	42	65	P	Full	1.4265	
20	44	0	25	29	S.P.	Full	0.2529	
21	45/P1	0	98	14	P	Full	0.9814	
22	45/P2	0	98	13	P	Full	0.9813	
23	46/1	1	57	83	P	Full	1.5783	
24	46/2/P1	1	52	77	P	Full	1.5277	
25	46/2/P2	0	51	60	P	Full	0.5160	
26	46/3/P1	0	44	31	P	Full	0.4431	
27	46/3/P2	0	44	31	P	Full	0.4431	
28	46/3/P3	0	44	31	P	Full	0.4431	
29	46/3/P4	0	44	32	P	Full	0.4432	
30	46/3/P5	0	44	32	P	Full	0.4432	
31	47	1	50	57	P	Full	1.5057	
32	48/P1	0	94	9	P	Full	0.9409	
33	48/P2	0	94	9	P	Full	0.9409	
34	48/P3	0	94	9	P	Full	0.9409	
35	49/P1	0	43	50	P	Full	0.4350	
36	49/P2	0	43	50	P	Full	0.4350	
37	49/P3	0	43	51	P	Full	0.4351	
38	49/P4	0	42	49	P	Full	0.4249	
39	50	0	99	15	P	Full	0.9915	
40	51/P1	1	7	24	P	Full	1.0724	
41	51/P2	0	80	94	P	Full	0.8094	
42	52	1	30	51	P	Full	1.3051	
43	53	1	71	99	P	Full	1.7199	
44	54	0	93	8	S.P.	Full	0.9308	
45	55	3	79	39	P	Full	3.7939	
46	56/P1	0	63	74	P	Full	0.6374	
47	56/P2	0	62	73	P	Full	0.6273	
48	56/P3	0	42	49	P	Full	0.4249	
49	56/P4	0	42	49	P	Full	0.4249	

50	56/P5	0	41	48	P	Full	0.4148	
51	57/P1	0	73	86	P	Full	0.7386	
52	57/P2	0	73	85	P	Full	0.7385	
53	58	0	69	81	P	Full	0.6981	
54	59/P1	0	64	75	P	Full	0.6475	
55	59/P2	0	80	94	P	Full	0.8094	
56	60/P1	1	29	50	P	Full	1.2950	
57	60/P3	0	96	11	P	Full	0.9611	
58	60/P4	0	64	75	P	Full	0.6475	
59	60/P5	0	64	75	P	Full	0.6475	
60	60/P6	0	95	10	P	Full	0.9510	
61	60/P7	0	64	75	P	Full	0.6475	
62	60/P8	0	64	75	P	Full	0.6475	
63	60/P9	1	29	50	P	Full	1.2950	
64	61	1	23	43	P	Full	1.2343	
65	62	1	64	91	P	Full	1.6491	
66	63	0	50	59	S.P.	Full	0.5059	
67	64/P1	1	4	20	P	Full	1.0420	
68	64/P2	1	4	21	P	Full	1.0421	
69	65/P1	0	49	7	P	Full	0.4907	
70	65/P2	0	49	7	P	Full	0.4907	
71	65/P3	0	98	13	P	Full	0.9813	
72	66/P1	0	92	7	P	Full	0.9207	
73	66/P2	0	92	7	P	Full	0.9207	
74	66/P3	0	92	7	P	Full	0.9207	
75	66/P4	0	92	6	P	Full	0.9206	
76	67	58	47	74	Salinity Dept./S.P.	Part	58.4474	
77	68/1/P1	0	54	29	P	Full	0.5429	
78	68/1/P2	0	54	29	P	Full	0.5429	
79	68/1/P3	0	54	30	P	Full	0.5430	
80	68/2	2	25	61	P	Full	2.2561	
81	69	0	61	71	P	Full	0.6171	
82	70	4	56	29	P	Full	4.5629	
83	71	1	23	47	P	Full	1.2347	
84	72	2	45	85	P	Part	0.2736	
85	88/P1	0	57	67	P	Part	0.0066	
86	88/P2	0	57	67	P	Part		
TOTAL							192.0263	

FOR NIRMA LTD.

AUTHORISED SIGNATORY

MONITORING STATIONS PHOTOGRAPHS-AIR & MICRO METEOROLOGY

Location: Padhiarka near Cement Plant
Longitude: 71˚40'05.3"E, Date: 01.03.2021
Latitude: 21˚01'46.9"N Time: 8:10 AM

Location: Padhiarka
Longitude: 71˚40'55.3"E, Date: 02.03.2021
Latitude: 21˚01'56.2"N Time: 9:15 AM

Location: Vangar
Longitude: 71˚39'12.6"E, Date: 01.03.2021
Latitude: 21˚02'25.1"N Time: 9:05 AM

Location: Madhiya
Longitude: 71˚40'48.3"E, Date: 03.03.2021
Latitude:21˚02'49.01"N Time: 10:50 AM

Location: Dudhala No. 1
Longitude: 71˚42'16.2"E, Date: 01.03.2021
Latitude: 21˚02'44.9"N Time: 10:00 AM

Location: Gujarda
Longitude: 71˚42'34.7"E, Date: 01.03.2021
Latitude: 21˚03'01.6"N Time: 11:05 AM

Location: Patva
Latitude: 21˚00’12.6”N **Date: 02.03.2021**
Longitude: 71˚39’14.6”E, **Time: 1:30 PM**

Location: Samdhiala No. 1
Longitude: 71˚38’38.4”E, **Date: 01.03.2021,**
Latitude: 21˚01’04.6”N **Time: 12: 05 PM**

Location: Doliya
Longitude: 71˚40’52.0”E, **Date: 01.03.2021**
Latitude: 21˚01’30.1”N **Time: 1:15 PM**

Location: Rabhada
Longitude: 71˚40’52.4”E, **Date: 02.03.2021**
Latitude: 21˚01’31.6”N **Time: 10:20 AM**

Location: Pipalva Nana
Longitude:71˚40’52.4” E, **Date: 03.03.2021**
Latitude: 21˚01’31.6” N **Time: 12:02 PM**

Location: Amratvel
Longitude: 71˚40’43.50”E, **Date: 02.03.2021**
Latitude: 21˚0425.71”N **Time: 11:20 AM**

Location: Mota jadra
Longitude: 71˚42'38.6"E, Date: 03.03.2021
Latitude: 21˚04'35.9"N Time: 1:00 PM

Location: Devlia
Longitude: 71˚43'53.3"E, Date: 02.03.2021
Latitude: 21˚03'25.2"N Time: 12:18 PM

Location: Khared
Longitude: 71˚44'58.9"E, Date: 03.03.2021
Latitude: 21˚03'28.6"N Time: 3:00 PM

Location: Gadhada
Longitude: 71˚44'03.4"E, Date: 02.03.2021
Latitude: 21˚01'20.6"N Time: 2:32 PM

MONITORING STATIONS PHOTOGRAPHS- MICRO METEOROLOGY

Location: Near all three mines (Admin Block, Cement Plant area)
Longitude: 71˚40'05.3"E, Date: 01.03.2021
Latitude: 21˚01'46.9"N Time: 11:06 AM

MONITORING STATIONS PHOTOGRAPHS-GROUND WATER

Location: Near Cement Plant, Padhiarka
Longitude: 71˚40'14.9"E, Date: 30.05.2021
Latitude: 21˚02'07.5"N Time: 8:00 AM

Location: Padhiarka village
Longitude: 71˚40'54.5"E, Date: 30.05.2021
Latitude: 21˚01'56.4"N Time: 8:42 AM

Location: Vangar
Longitude: 71˚39'12.0"E, Date: 30.05.2021
Latitude: 21˚02'25.11" N Time: 3:20 PM

Location: Madhiya
Longitude: 71˚40'23.1"E, Date: 30.05.2021
Latitude: 21˚02'47.6"N Time: 2:47 PM

Location: Dudhala No. 1
Longitude: 71˚42'16.2"E, Date: 30.05.2021
Latitude: 21˚02'44.9" N Time: 10:40 AM

Location: Dudheri
Longitude: 71˚42'25.8" E, Date: 30.05.2021
Latitude: 21˚02'24.9" N Time: 9:20 AM

Location: Dudhala near NH-8E
Longitude: 71˚42'34.7"E, Date: 30.05.2021
Latitude: 21˚03'01.6"N Time: 11:22 AM

Location: Gujarda
Longitude: 71˚42'49.8" E, Date: 30.05.2021
Latitude: 21˚02'20.02"N Time:10:05 AM

Location: Doliya
Longitude: 71˚40'52.4"E, Date: 30.05.2021
Latitude: 21˚01'31.6" N Time: 5:32 PM

Location: Rabhada
Longitude: 71˚37'26.3"E, Date: 30.05.2021
Latitude: 21˚02'51.4" N Time: 4:27 PM

Location: Amrutvel
Longitude: 71˚40'35.1"E, Date: 30.05.2021
Latitude: 21˚04'37.0"N Time: 1:40 PM

Location: Near Devlia village
Longitude: 71˚44'58.9"E, Date: 30.05.2021
Latitude: 21˚03'28.6"N Time: 12:05 PM

MONITORING STATIONS PHOTOGRAPHS-SURFACE WATER

Location: Malan Bandhara near Khared
Longitude: 71˚44'31.4"E, Date: 31.05.2021
Latitude: 21˚02'13.9"N Time: 10:17 AM

Location: Malan River near Barpara, Mahuva
Longitude: 71˚46'15.9" E, Date: 31.05.2021
Latitude: 21˚04'07.2" N Time: 9:10 AM

Location: Arabian Sea near Doliya
Longitude: 71˚40'58.8"E, Date: 31.05.2021
Latitude: 21˚00'16.1"N Time: 11:35 AM

MONITORING STATIONS PHOTOGRAPHS-SOIL & TRAFFIC

Location: Near Cement Plant, Padhiarka
Longitude: 71˚40'14.9"E, Date: 30.05.2021
Latitude: 21˚02'07.5"N Time: 8:10 AM

Location: Padhiarka
Longitude: 71˚40'59.2"E, Date: 30.05.2021
Latitude: 21˚01'56.3"N Time: 8:50 AM

Location: Vangar
Longitude: 71˚39'12.0"E, Date: 30.05.2021
Latitude: 21˚02'25.11"N Time: 3:25 PM

Location: Madhiya
Longitude: 71˚40'23.1"E, Date: 30.05.2021
Latitude: 21˚02'47.6"N Time: 2:55 PM

Location: Dudhala No. 1
Longitude: 71˚42'15.5"E, Date: 30.05.2021
Latitude: 21˚02'45.3"N Time: 10:51 AM

Location: Dudheri
Longitude: 71˚42'25.8"E, Date: 30.05.2021
Latitude: 21˚02'24.9"N Time: 9:30 AM

Location: Dudhala near NH-8E
Longitude: 71˚42'34.7"E, Date: 30.05.2021
Latitude: 21˚03'01.6"N Time: 11:34 AM

Location: Dudhala near NH-8E
Longitude: 71˚42'34.7"E, Date: 30.05.2021
Latitude: 21˚03'01.6"N Time: 11:34 AM

Location: Doliya
Longitude: 71˚40'52.4"E, Date: 30.05.2021
Latitude: 21˚01'31.6"N Time: 5:45 PM

Location: Rabhada
Longitude: 71˚37'40.5"E, Date: 30.05.2021
Latitude: 21˚02'42.6"N Time: 4:40 PM

Location: Amratvel
Longitude: 71˚40'33.8"E, Date: 30.05.2021
Latitude: 21˚04'36.5"N Time: 1:55 PM

Location: Near Devlia village
Longitude: 71˚44'58.9"E, Date: 30.05.2021
Latitude: 21˚03'28.6"N Time: 12:20 PM

MONITORING STATIONS PHOTOGRAPHS- TRAFFIC

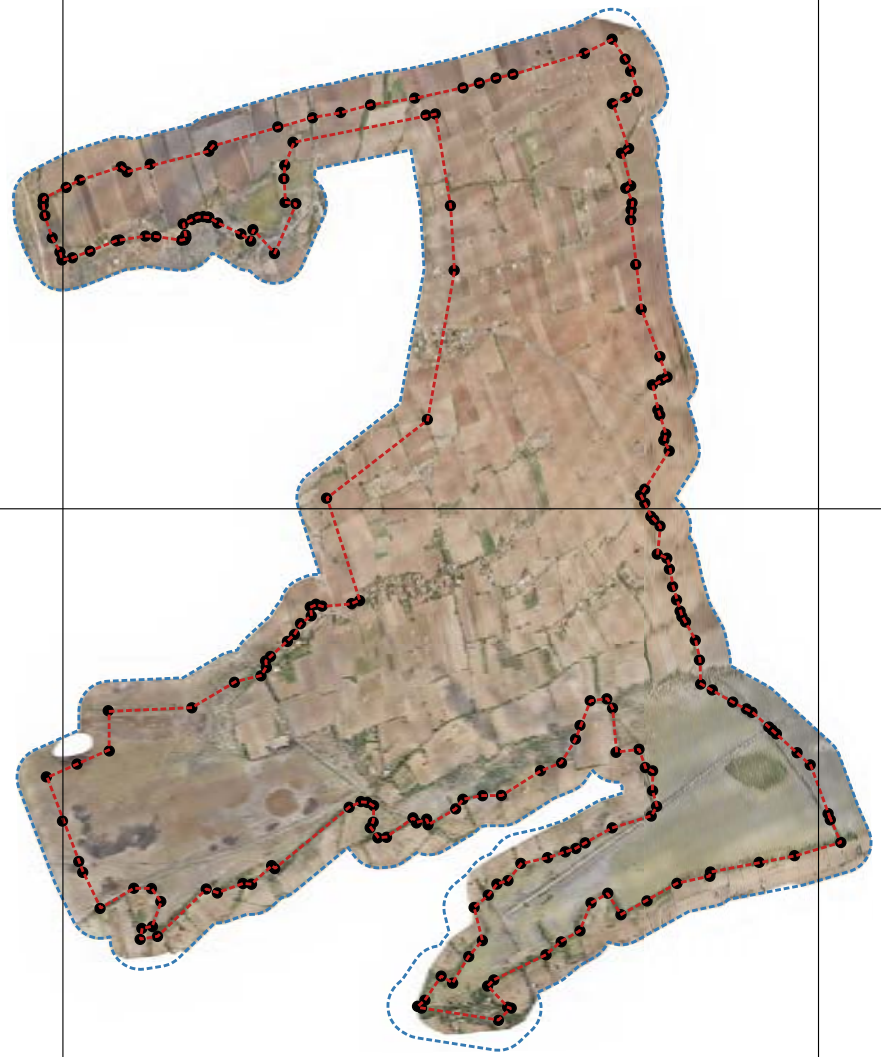
Location: Near Vangar Village, NH-8E
Longitude: 71˚39'56.19"E, Date: 27.05.2021
Latitude: 21˚02'35.21"N Time:7:00 AM

ORTHO IMAGE FOR PADHIARKA AND DOLIYA LIMESTONE MINE

777500.000E

780000.000E

2327500.000N



N

E

S

W

Legend

- Boundary
- Buffer 100 m
- Boundary Pillars

0 1 2 km

AERIAL PHOTOGRAMMETRY SURVEY FOR MAHUA MINES

CLIENT DETAILS
NAME OF OWNER: Nirma Limited, Ahamedabad
NAME OF MINE : Padhiarka and Doliya Limestone Mine,
Village: Padhiarka and Doliya,
Taluka: Mahuva, Dist: Bhavnagar

PAPER SIZE - A2	SCALE : 1:12500
MAP PROJECTION WGS 84 UTM 42 N	SURVEY DATE : 16-5-23 TO 24-05-23

: A-183 :

ANNEXURE : XXVIII

1260

ANNEXURE : XXVIII Contd..

PHOTOGRAPHS OF PROPOSED TRANSPORT ROUTE

	
NH51 passing through Dudhala village	**NH51 passing through Dudhala village**
	
Padhiarka & Doliya village road	**GDD village road-2**

ANNEXURE : XXVIII Contd..

	
Vangar & Madhia village road-1	**Vangar & Madhia village road-2**
	
NH51 passing through Dudhala village	**Towards plant from NH 51**
	
GDD village road	**NH 51 passing through Vangar & Madhia village**

SAMPLE CONSENT LETTER FROM A LAND OWNER

भारतीय गैर न्यायिक

भारत

पचास रुपये रु.50

FIFTY RUPEES Rs.50

सत्यमेव जयते

INDIA

INDIA NON JUDICIAL

ગુજરાત ગુજરાત GUJARAT

SR.No. 31 Date 25/1/2019 AE 825521

SHILPA P. SHAH, NOTARY
GOVT. OF INDIA

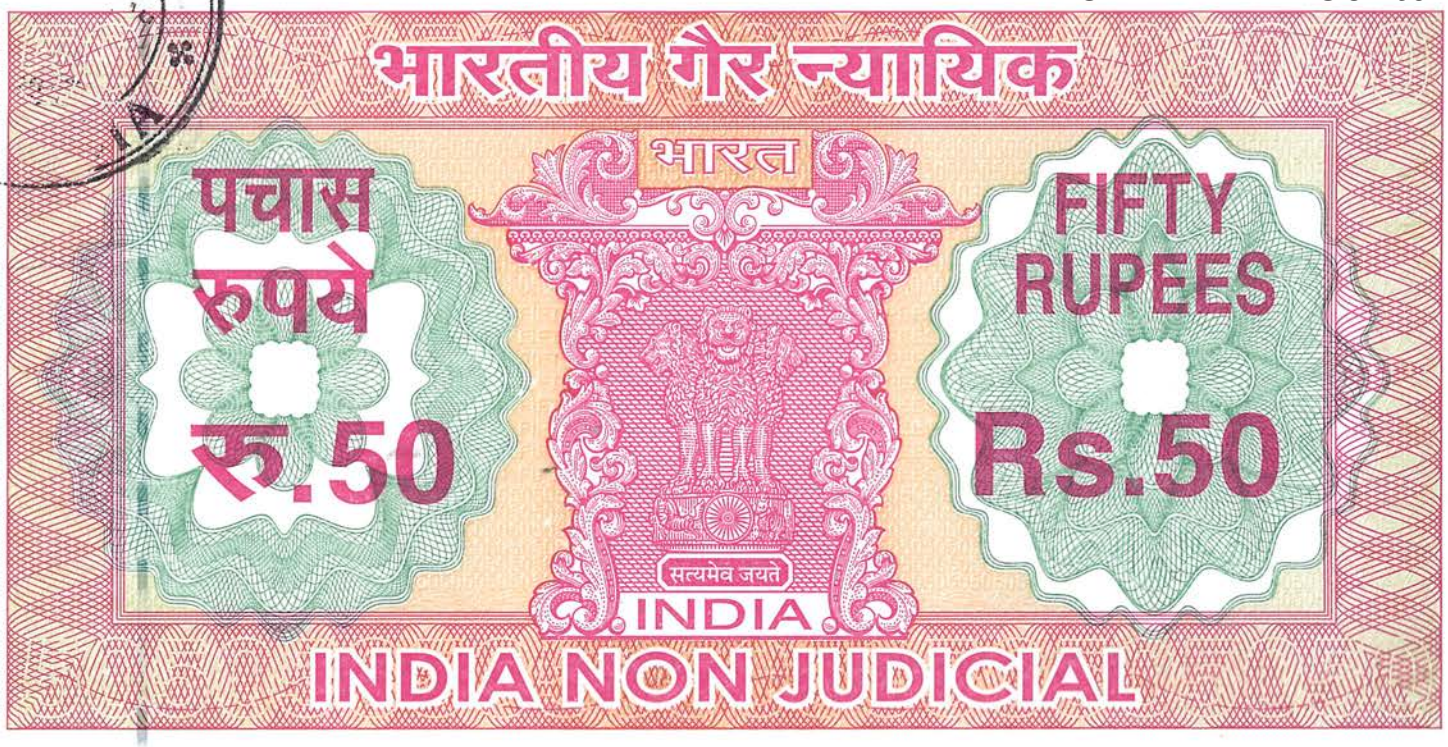
NOTARIAL NOTARIAL NOTARIAL NOTARIAL

Consent Letter

I, Manubhai S/o Narshibhai Padsala, Aged: 58 Years, residing at 401, Morya Atriya Opp. Atithi Dining Hall lane Pakwan Char Rasta, Bodakdev, Ahmedabad, Taluka & District: Ahmedabad, agriculture land owner give this consent letter in favor of M/s Nirma Limited, company registered under company act having its registered office at Nirma House, Ashram Road, Ahmedabad-380009 that,

1. I am the sole owner and having surface rights of agriculture land of Survey Numbers and area in Village –Dudhala as under.

Sr. No.	Survey No.	Village	Taluka	District	Area (In Ha.)
1	43	Dudhala	Mahuva	Bhavnagar	6.7482
2	95	Dudhala	Mahuva	Bhavnagar	0.7183
3	38p4p1	Dudhala	Mahuva	Bhavnagar	0.4806
Total					7.9471



ગુજરાત ગુજરાત GUJARAT

AE 825522

નંબર ૨૩૧૮૬ રૂ. ૫૦
તારીખ: ૧૧ માર્ચ ૨૦૧૮
નામ મનુભાઈ નરશિંહ પડશાળા વતી
ઠેકાણું 401 નીલમ ટ્રાપિયા ભાવનગર

દિનેશ એસ. પરમાર
લા.નં.એસ.બી. / ૩૯૮ / ૩૯૯ / ૧૯૯
સબ રજીસ્ટાર ઓફીસના સણંદી, અમદાવાદ.
લેનારની સહી M.N. Padsala

NOTARY
SHAH
CITY
STATE
4239
DATE
03/07/2022
GOVT. OF INDIA

2. My said land is rich in limestone mineral.
3. That M/s Nirma Limited has been granted the Mining Lease of Limestone mineral in an area of 681.62 Ha. in village: Dudhala, Gujarda & Dudheri, Taluka: Mahuva, Dist: Bhavnagar, vide Govt. of Gujarat, Industries and Mines Department order MCR-102004-1943-CHH dated 08.01.2017 and executed by District Collector, Bhavnagar on 11.01.2017 for the Cement plant under establishment in village: Padhiarka, Taluka: Mahuva, Dist: Bhavnagar (hereinafter referred as the Mining Lease).
4. My said agriculture land as mentioned above falls under the granted Mining Lease area of M/s Nirma Limited and the Lessee is required to obtain surface right for mining operation as per MCR 2016.
5. I hereby give surface rights for the mining operation of Limestone mineral to M/s Nirma Limited in my ownership land and I do not have any objection for mining operation by M/s Nirma Limited.

6. I and my family members and heirs hereby abide by this consent for carrying out mining operation in my said land.
7. I have not given consent / sale agreement / gift to anybody for this land here before and I will not give consent / sale agreement / gift to any other person / party in future.
8. This consent for mining is given with my full pleasure and without any undue pressure or fear for the consent.

Place: Ahmedabad
Date:

Manubhai Narshibhai Padsala
Name of Land Owner

NOTARY
SHILPA P. SHAH
AHMEDABAD CITY
GUJARAT STATE
REGD. No. 4269
EXPIRY DATE
05/07/2022
GOVT. OF INDIA

BEFORE ME
SHILPA P. SHAH
NOTARY
GOVT. OF INDIA
25-1-19

NOTARY
SHILPA P. SHAH
AHMEDABAD CITY
GUJARAT STATE
REGD. NO.
4269
GOVT. OF INDIA

ANNEXURE : XXX

1266

01C

GUJARAT POLLUTION CONTROL BOARD
Paryavaran Bhavan, Sector 10 A, Gandhinagar 382 010
Phone: 079 – 23232152, 23241514 Fax: 079 – 23222784 Website: www.gpcb.gujarat.gov.in

19 MAY 2023

No. GPCB/PH/2023-24/BHV-41/242571

Time Limit
By RPAD/H.D.

To,
The Director,
I.A. Division,
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhavan,
Aliganj, Jorbagh Road,
New Delhi-110003.

23/5/23

Sub: To furnish a copy of the Public Hearing proceeding.

Ref: [1] Notification no. S.O. 1533 (E) dated September 14, 2006 published by the Ministry of Environment, Forest & Climate Change, Government of India, New Delhi.
[2] MoEF&CC's Notification no. S.O.948 dated 12.6.2007 and the Forest and Environment Department, Government of Gujarat's GR no. ENV/10.2006/176/P, dated 25.7.2007
[3] Request Application of from **M/s Nirma Limited (Mine lease Area: 332.24 Ha).** to organize Public Hearing.

Sir,

Based on request received for public hearing **M/s Nirma Limited (Mine lease Area: 332.24 Ha) for Proposed Padhiarka-Doliya Limestone Mining – Rate Of Mining 1.5 MTPA, at Villages: Padhiarka & Doliya, Taluka. Mahuva, Dist: Bhavnagar,** Public hearing was organized **28/04/2023 at 13:00 Hrs, Venue: Nirma Cement Plant Area, NH 8 E/51, Survey No. 80, Village: Padhiarka, Ta. Mahuva, Dist: Bhavnagar.**

The Public Hearing proceeding along with CD and VCD is enclosed herewith for your information and further necessary action please.

This order is issued after approval of competent authority.

For and on behalf of
Gujarat Pollution Control Board,

DPShah
(Smt. D. P. Shah)
Senior Environmental Engineer

Encl: As above.(Original copy)

Copy to:

1. District Collector, Collector Office,
   District: **Bhavnagar**... for information Please.
2. The Unit Head, **Bhavnagar**
   …along with the original case file of aforesaid applicant for further suitable action.
3. The Regional Officer, **Bhavnagar**….. For further suitable action, if any.
4. **M/s Nirma Limited (Mine lease Area: 332.24 Ha).**
   At Villages: Padhiarka & Doliya, Taluka. Mahuva, Dist: Bhavnagar... Along with a copy of Public Hearing proceeding.
5. File copy.

REGIONAL OFFICE
GUJARAT POLLUTION CONTROL BOARD
PLOT NO: 1616/1617, SWASTIK COMPLEX, NR- VIR MOKHADAJI CIRCLE,
GHOGHA ROAD, BHAVNAGAR-364 001
PHONE: 2566108

PUBLIC HEARING PROCEEDINGS

It is informed that as per the Ministry of Environment, Forests and Climate Change, Government of India, New Delhi vide its notification no. S.O. 1533(E) dated 14/09/2006 and its subsequent amendment S.O. 3067(E) dated 01/12/2009, Public hearing is arranged for M/s. Nirma Ltd. for proposed Lime Stone Mining (Mine Lease Area: 332.24 Ha. 1.5 MTPA R.O.M) at Village: Padhiyarka & Doliya, Taluka: Mahuva, Dist.: Bhavnagar which is covered under category A. The public Hearing is held on 28.04.2023 at 13:00 hrs. at the premises of Nirma Cement Plant Area, NH 8 E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist.: Bhavnagar.

A copy of the draft Environment Impact Assessment report and the Summary of Environment Impact Assessment Report was sent to the following authorities or offices to make available the draft EIA report for inspection to the public during normal office hours, till the Public Hearing is over.

1. The District Collector Office, Bhavnagar
2. District Development Office, Bhavnagar
3. District Industry Centre, Bhavnagar
4. Taluka Development Office, Tal: Mahuva, Dist.: Bhavnagar.
5. Regional Officer,
   Integrated Regional Office, Ministry of Environment, Forests and Climate Change, Room No. 407, Aranya Bhawan, Near CH-3 Circle, Sector – 10A, Gandhinagar, Gujarat – 382010.
6. Regional Office, Gujarat Pollution Control Board, Swastik Complex, Vir Mokhadaji Circle, Bhavnagar-364002.

Other concerned persons having plausible stake in the environmental aspects were requested to send their responses in writing to the concerned regulatory authorities.

The Public Hearing was scheduled on 28.04.2023 at 13:00 hrs. in the premises Nirma Cement Plant Area, NH 8 E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist: Bhavnagar.

An advertisement in English was published in "The Indian Express" on 26/03/2023 and that in Gujarati in "Sandesh" dated 26/03/2023.

Shri R.K.Mehta (IAS), District Collector and District Magistrate, Bhavnagar presided over and supervised the entire public hearing process.

All arrangements for the public hearing were made in strict compliance of Covid-19 prevention guideline.

A statement showing participants present during the public hearing is enclosed as **Annexure-A**.

REGIONAL OFFICE
GUJARAT POLLUTION CONTROL BOARD
PLOT NO: 1616/1617, SWASTIK COMPLEX, NR- VIR MOKHADAJI CIRCLE,
GHOGHA ROAD, BHAVNAGAR-364 001
PHONE: 2566108

A statement highlighting issues raised by the participants and responded by the representative of the applicant during the public hearing in English and Gujarati Language is enclosed as **Annexure B & B-1** respectively.

Copies of responses received in written from persons having plausible and written representation received before and during Public Hearing in environmental aspects are enclosed herewith collectively as **Annexure C-1 to C-104** and the replies by applicant to the same are enclosed herewith collectively as Annexure **D-1 to D-104**.

Venue: Nirma Cement Plant Area, NH 8 E/51, Survey No. 80, Village: Padhiarka, Ta. Mahuva, Dist: Bhavnagar
Date: 28/04/2023

A.J. Rathod
Regional Officer,
GPCB, Bhavnagar

R. K. Mehta (IAS)
District Collector &
District Magistrate,
Bhavnagar

Encl:

1. **Annexure A, B, B1, C-1 to C-104, D-1 to D-104 (Hard Copy & Soft Copy).**
2. **Video CD of Public Hearing**

REGIONAL OFFICE
GUJARAT POLLUTION CONTROL BOARD
PLOT NO: 1616/1617, SWASTIK COMPLEX, NR- VIR MOKHADAJI CIRCLE,
GHOGHA ROAD, BHAVNAGAR-364 002
PHONE: 2566108

Annexure-A

A Statement showing participants present during the Public Hearing

As per the Ministry of Environment, Forest and Climate Change Government of India, New Delhi vide its Notification no. S.O. 1533 dated Sept.14, 2006; and its subsequent amendment S.O. 3067(E) dated 01/12/2009, Environment Public Hearing is arranged for M/s Nirma Limited (Mine Lease Area 332.24 Ha) for proposed of Padhiarka-Doliya Limestone Mining- Rate of Mining 1.5 MTPA at Village: Padhiarka & Doliya, Taluka: Mahuva, Dist: Bhavnagar covered under Category "A" as mentioned in their application.

The Environment Public Hearing is being held on 28.04.2023 at 13:00 hours onwards at Nirma Cement Plant Area. NH 8 E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. : Bhavnagar.

The statement showing participants present during the Public Hearing is as under:

ભારત સરકાર ના પર્યાવરણ વન અને જળવાયુ પરિવર્તન મંત્રાલય, નવી દિલ્હી ના જાહેરનામા ક્રમાંક : S.O. 1533 તા: 14/09/2006 અને તેના પછીના સુધારા ક્રમાંક એસ.ઓ.૩૦૬૭ (ઈ), તા.૦૧/૧૨/૨૦૦૯ના તેમજ વખતો વખત થયેલ સુધારા તથા જાહેરનામા અંતર્ગત કેટેગરી "એ" માં સમાવિષ્ટ મેસર્સ નિરમા લિમિટેડ (ખાણ લીઝ એરિયા ૩૩૨.૨૪ હેક્ટર)ની ગામ: પઢિયારકા-ડોળીયા, તા.મહુવા, જી.ભાવનગર ખાતે પ્રસ્તાવિત ગામ: પઢિયારકા અને ડોળીયા, લાઈમસ્ટોન માઈનિંગ – રેટ ઓફ માઈનીંગ – ૧.૫ એમ.ટી.પી.એ. માઈનિંગ માટેની અરજી અન્વયે પર્યાવરણીય લોકાસુનાવણીનું આયોજન કરવામાં આવેલ.

પર્યાવરણીય લોકસુનાવણી નિરમા સિમેન્ટ પ્લાન્ટ વિસ્તાર, નેશનલ હાઈવે ૮ ઈ/૫૧, સર્વે નં. ૮૦, ગામ: પઢિયારકા, તા. મહુવા, જીલ્લો.ભાવનગર ખાતે તા. ૨૮/૦૪/૨૦૨૩ના રોજ ૧૩:૦૦ કલાકે રાખવામાં આવેલ.

જાહેર લોક સુનાવણી દરમ્યાન હાજર રહેલ લોકોની યાદી નીચે મુજબ છે.

Sr. No. ક્રમાંક.	Name & Address નામ અને સરનામું	Signature સહી
1.)	Baldaniya Keejal J. Mahuva	Keejal.
2.)	Bhatt Jhenee P. mahuva	Jhenee

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
3.	[illegible]	[illegible]
4.	[illegible]	[illegible]
5.	[illegible]	[illegible]
6.	[illegible]	K.G.S
7.	[illegible]	[illegible]
8.	[illegible]	V.D DOLASIYA
9.	[illegible]	[illegible]
10.	[illegible]	[illegible]
11.	[illegible]	[illegible]
12.	[illegible]	[illegible]
13.	[illegible]	[illegible]
14.	[illegible]	[illegible]
15.	[illegible]	[illegible]
16.	Mahadeval Kansi	R.B.M
17.	[illegible]	[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
	આચમિંગ વિરોધીઓ	
18.	શિયાળ વેંકટભાઈ પુંજાભાઈ	
19.	ભરંયા ઉમંશભાઈ મધુભાઈ	U.M.D
20	દિનેશભાઈ મણીભાઈ	
21.	બાલુભાઈ ગમાર રહેવાસી	
22.	Shyal Bhagen. M	
23.		
24.	જોશી બાબુ સુખાભાઈ	
25.	બી. કે. મકવાણા.	બી. કે. મકવાણા
26.	માધુ ભાઈ રાંતુ ભાઈ	
27.	ચરવંયા હિંમતભાઈ ભાઈ	d.k.s ગુજરડા સમાજ વિરોધ
28.	ચૌહાણ મહેશભાઈ મુળાભાઈ	M.B.C ગુજરડા સમાજવિરોધ
29.	ગોવિંદ કનકસિંહ બી.	ગુજરડા Kanaksinh
30.	ચરવંયા દિનેશ જેરામભાઈ	S.D.J ગુજરડા
31.	ભરંભા અશોકભાઈ ઉકાભાઈ દુધેરી	A.U.B
32.	buliya Rajesh-d	buliya Rajesh-d

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
	માયનંગ	પિરોધીઓની
33.	બાંભણીયા ખીમજી.જી	માયનંગ પિરોધીઓ
34.	ચોકાણ ગોપિદભાઈ.કે	માયનંગ પિરોધી
35.	બાંભણીયા નાનજીભાઈ.	માયનંગ પિરોધી
36.	નાનજી માધ બાંભણીયા	માયનંગ પિરોધી સાથે
37.	બાંભણીયા દિનેશભાઈ B	
38.	મકવાણા જે. સંમ	
39.	મકવાણા રમેશ. એમ	
40	મેર કુરજી નાથ	
41.	ગઢીયાદ મુળુભાઈ	
42.	બાદલભાઈ	
43.	ના મા માટ થા પર મા ટ	ના મા નથ થા પર માટ
44.	કિશન માર મકવાણા	
45.	ગાંભેર ભાવેા	
46.	વજીભાઈ સાકળભાઈ	
47.	લાપે ડાયાદ મુળુભાઈ	જોનાયા

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
48.	મોહનપ્રસાદ હરીપ્રસાદ	ડોણીયા
49.	[illegible]	ડોણીયા
50.	[illegible]	દુધેરી
51	[illegible]	દુધેરી
52.	[illegible]	
53.	[illegible]	
54.	[illegible]	દુધેરી
55.	[illegible]	ડીંડિયા
56.	[illegible]	
57	[illegible]	દુધેરી
58	[illegible]	દુધેરી 
59	[illegible]	
60	[illegible]	
61	[illegible]	
62	[illegible]	દુધેરી

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
63	પાંડોળ વસુરામ નવાબ	C. N. C
64.	મકવાણા રમેશ જેરામ	M. M. J
65	પ્રોફેસર - જે - પ્રાણપુર.	
66	[illegible]	
67	[illegible]	
68	પંડ્યા જે [illegible]	
69	Rumi Chuk	R. KC.
70	[illegible]	
71	[illegible] M.	
72	[illegible]	
73.	[illegible]	
74.	[illegible]	
75	[illegible]	
76	[illegible]	
77.	[illegible]	Bhailal. Vithal. Y.

[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
78.	ડુધેરી ભાલિયા ગોતમ ગોપાલભાઈ	G.G.B
79	ડુધેરી ભાલાયા રાહુલ શામજીભાઈ	B. R. S.
80.	ડુધેરી શામજી ડુદા ભાલીયા	S. D. Bhalodiya
81.	ડુધેરી ભાલીયા ગોપાલ ડી	ગોપાલ ડી.
82.	ડુધેરી. ડુદાભાઈ	ડુદાભાઈ
83	ડુધેરી વિઠ્ઠલભાઈ લવજીભાઈ ભેળાયા	વી.એ.ભેળાયા
84.	ડુધેરી પોપટભાઈ કેવલભાઈ ભેળાયા	પી.કે.ભેળાયા
85	ડુધેરી લવજીભાઈ કેવલભાઈ ભેળાયા	એલ.કે.ભેળાયા
86	ડુધેરી ડુદાભાઈ પ્રવીણભાઈ ભેળાયા	આર.પી.ભેળાયા
87		
88		
89		
90		
91	Kalpesh. V. Trivedi - Bhavnagar	Kvtrivedi
92.	Hitesh J. Bhavsar Nirma Ltd. Porbunder	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
93.	Dr KC PATHAK NIRMA BHAVNAGAR	
94.	Govind G. Khatri Nirma Ltd, Ahmedabad	
95.	Shailendra Kumar Soni Geologist, Mining Consultant Jodhpur	
96	Gaurav Gadani, Nirma Ltd Ahmedabad	
97.	GAUTAM PATEL NIRMA LTD A'BAD	
98	Sudharsan Kumar Das CEMC Pvt. Ltd.	
99	Rishabh kumar Min Mic R&D Laboratory, Delhi	
100	Dr. G. Megha shyam GWMICC. PLtd	
101	Dr. S. K. Tiwari M.D. GWMICC (P) Ltd	
102	Khushali Oza Nirma Limited, Ahmedabad	K.D.OZA
103	UMESH BHAVSAR NIRMA LTD, A'BAD	
104	Tejal Patel, Nironi Ltd.	
105	AJAY KHUSHU NIRMA LTD	
106	G.J. ADROJA Nirma Ltd.	
107	D.G. Jakhade	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
108	K. N. Patel consultant mining Nirma Ltd.	
109	Mehul Sharma, Geologist Nirma Ltd., Ahmedabad	M. Sharma
110	Ashish Desai. Nirma Ltd.	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
111 ~~૧૦૧~~	Bhanuben. Mer	
112 ~~૧૦૨~~	વીરૂબા જી ચાવડા	
113 ~~૧૦૩~~	Jal vas Chesu kalam)	
114 ~~૦૪~~	દુધેરી. તા. મહુવા. વિઠ્ઠલભાઈ વાઘાભાઈ ભાલીયા	Bhalia. vithal. V.
115 ૦૫	દુધેરી. તા. મહુવા. માવજીભાઈ સોમાભાઈ ગોહિયા	
116 ~~૦૬~~	દુધેરી	
117 ~~૦૭~~	ભોરીયાદુધેરી બાબુભાઈ જીવાભાઈ તામકુવા	JOLIYA, B,
118 ~~૦૮~~	કોળીયા ચોહાણ ભાવજી. ડા.	
119 ~~૦૯~~	કોળીયા મહેશ્વા ગોમ જેઠવા	M. MG
120 ~~૧૦~~	આશા પિકઅપ રાજેશભાઈ. કે. મેરીયા વાંગર	S/Jowaya
121 ~~૧૧~~	નિરમા પિકઅપ વજુ જી. શાંખટ વાંગર	BSankhA
122 ~~૧૨~~	માવજંગ પરમોપી મીત મનીષ માવજી	
123 ~~૧૩~~	માર્કિંગ પિકઅપ વાઘુ બાબુ ભાલીયા	
124 ~~૧૪~~	રામ ભાઈ કાદુળ ભાઈ	
125 ~~૧૫~~	પોંગાર મોકે ભઠ્ઠી મા	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ વિરોધીઓ	Signature સહી
126	લવજી ગોપિંદ ડોબરિયા	લવજીભાઈ ગોવિંદભાઈ
127	ગોવિંદભાઈ દામજીભાઈ ડોબરિયા	ગોવિંદભાઈ દામજીભાઈ
128	રવજીભાઈ બોરિયા	રવજીભાઈ બોરિયા
129	બટુક ગોવિંદ બોરિયા	બટુકભાઈ ગોવિંદ બોરિયા
130	પરશોતમ ખીમા બોરિયા	પરશોતમ ખીમા
131	મગનભાઈ ગોવિંદભાઈ બોરિયા	મગનભાઈ ગોવિંદભાઈ
132	હરિયાણી/બોરિયા ડોબરિયા	હરિયાણી બોરિયા
133	હીમત સોંડા મકવાણા	હીમત સોંડા મકવાણા
134	વાલા ભાઈ મુળી ભાઈ ડોબરિયા	
135	ખીમા ભાઈ માવજી ધાધા ડોબરિયા	ખીમા ભાઈ માવજીભાઈ
136	ડી. એમ મકવાણા	ડી. એમ મકવાણા
137	મફા ભાઈ મુળા ભાઈ	
138	નથા ભાઈ	
139	મેર મેરુભાઈ ગોપાભાઈ	MCL. K. d
140	ઉકા ભાઈ રાણા ભાઈ	ઉકાભાઈ રાણાભાઈ

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
141	કુંવરજી ડાયાભાઈ વાડોદરા	કુંવરજી ડાયાભાઈ
142	નાનજીભાઈ ખોડાભાઈ ગોધાણી	નાનજીભાઈ ખોડાભાઈ
143	કરશનભાઈ	
144	રાજેશ ભાઈ	
145	પરબતભાઈ સાકળાભાઈ	
146	ભાવેશ ભાઈ મોહનભાઈ ગોયા	બી.સી. ગોયા
147	ભગવાનજી ગોવા ભાઈ ફિરોજા	M. G.
148	મકવાણા ઘનશ્યામ ભાઈ	ડાંગોદરા ઘનશ્યામ
149	ફિરોજા મધુભાઈ બાબુભાઈ	M. G.
150	ફિરોજા ખોડા રામજીભાઈ	ડાંગોદરા
151	પરસોત્તમ	પરસોત્તમ
152	મકવાણા જયંતિભાઈ મોહનભાઈ	જે. મો. મકવાણા
153	મકવાણા વાલજીભાઈ	
154	[illegible]	Jafri
155	કાળુભાઈ	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
156 31	રમેશ. અન વેગડીયા	કુંઢેરા
157 32	પ્રવીન ભાગીક	કુંઢેરા
158 33	મોડાભાઈ દેશાવશીભાઈ	કુંઢેરી
159 34	મોરવભાઈ રામશીભાઈ	કુંઢેરી
160 35	વીરાભાઈ નરશાભાઈ	કુંઢેરો
161 36	કસાભાઈ નાનભાઈ	કુંઢેરી
162 37	રાજુભાઈ	કુંઢારો
163 38	લખાભાઈ	
164 39	રવજીભાઈ	કુંઢેરો
165 40	મેરામભાઈ ગોવિંદભાઈ	કુંઢેરો
166 41	વેલજીભાઈ મેઘાભાઈ	કુંઢેરી
167 42	ગાલકુવિયા જયસુખભાઈ કેશુભાઈ કુંઢેરી	
168 43	પાંચાભાઈ વીરાભાઈ ગામ:- ડોંડિયા	
169 44	લવજીભાઈ લાવાનભાઈ ગામ:- ડોંડિયા	
170 45	બચુભાઈ બાબુભાઈ	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
171 46	અજુર ભાઈ રાઠોડ ભાઈ	અજુર ભાઈ રાઠોડ ભાઈ
172 47	મનસુખ ભાઈ	
173 48	દિપક ભાઈ	
174 49	રમેશભાઈ આપાભાઈ	રમેશભાઈ
175 50	ભગવાન ભાઈ કાળાભાઈ	ભગવાનભાઈ
176 51	રવજી ભાઈ સુખા ભાઈ	[illegible]
177 52	વિપુલ ચાવડા.	વિપુલ. ચાવડા
178 53	જેસંગ ભાઈ મોડ ભાઈ	ડાંગોદરા
179 54	ખોડા ભાઈ મેરૂ ભાઈ	
180 55	શિવાભાઈ વસ્તા ભાઈ/દેવશી ભાઈ	શિવાભાઈ વસ્તા ભાઈ દેવશી ભાઈ [illegible]
181 56	શિવાભાઈ અરવિંદ ભાઈ વેલજી ભાઈ	એ. પી. શિવાભાઈ
182 57	મેરૂ ભા / વેલજી ભા ગા	મેરૂ ભા / વેલજી ભા ગા
183 58	શિવાભાઈ રવજી ભાઈ [illegible] ભાઈ	
184 59	ભાલાળા મોહન ભાઈ ધારશી ભાઈ	
185 60	જોબન ભાઈ [illegible]	[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
186	ચાવડા પોપટ જાદવ.	ચાવડા.
187	વિનાભાઇ ભચુભાઇ ગોહેલ.	
188	ભાણજી ભારમલ રાઠોડ	B.M. Bhudia
189	વેલાભાઇ ખોડાભાઇ મકવાણા માધવપુર પરાંધિમાં	
190	જયંતિભાઇ રામાભાઇ મકવાણા માધવપુર પરાંધિમાં	J.K. Makwana
191	ભાયજીભાઇ ખોડાભાઇ ભાનુભાઇ ડાંગરિયા માધવપુર પરાંધિમાં	
192	પ્રેમજી ભાઇજીભાઇ સોલંકી	પ્રેમજી
193	ખીમાભાઇ વીરાભાઇ ભાનુભાઇ	એસ.વી. ભાનુભાઇ
194	ધુધાભાઇ વેલાભાઇ સોલંકી	G G ધુધેરી
195	ડાયાભાઇ) રામાભાઇ સોલંકી	B.S.
196	ગગા ભાઇ ભીમા ભાઇ	મકવાણા.
197	ભારાભાઇ ખીમાભાઇ-ગોવિંદભાઇ	ડેરિયા
198	સોમાભાઇ	
199	કાનુભાઇ ભારાભાઇ ભીખા ભાઇ	વા
200	પ્રેમજી ભાઇ ધનજી ભાઇ	વીરોધ

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
201		
202		
203		
204		
205		
206		
207		
208		
209		
210		
211		
212	Bhuliya Rakesh	
213		M.V. Bhuliya
214	Bhuliya Laljibhai V.	V.V. Bhuliya
215	Bhuliya Vishal V.	V.V. Bhuliya

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
216 ~~૧૧~~	Bhaliya shailesh k.	S.K. Bhaliya
217 ~~૧૨~~	Bhaliya Hitesh V.	H.V. Bhaliya
218 ~~૧૩~~	Bhaliya pravin M.	P.M. Bhaliya
219 ~~૧૪~~	Bhaliya hitesh v.	Bhaliya
220 ~~૧૫~~	Bhaliya Nanji v.	Bhaliya N.V.
221 ~~૧૬~~	Bhaliya Nagji B	BNB
222 ~~૧૭~~	Bhaliya Lalji v.	Lalji
223 ~~૧૮~~	Bhaliya. vishu m.	Bhaliya
224 ~~૧૯~~	બાલિયા વશરામ બાઇ	વશરામ બાઇ
225 ~~૧૦૦~~	બાલિયા કાંજી. વી.	કાંજી વ.
226 ~~૧૦૧~~	બાલિયા ખુશા વી	ખુશા
227 ~~૧૦૨~~	Bhaliya Rajesh	R.V Bhaliya
228 ~~૧૦૩~~	bambhaniya. Pravin	Pravin
229 ~~૧૦૪~~	Shubham gill	Bhaliya
230 ~~૧૦૫~~	બાલિયા ભોળાભાઈ જુ.	Bholabhai

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
231 106	Joiiya shailesh nagajiBhai	
232 107	Joiiyea nagajiBhai.	
233 108	Dayabhai JivanBhai	D. J. Joiiya
234 109	manuBhai JivanBhai	M. J. Joiiya
235 110	SumitaBen nagajiBhai	S. N. Joiiya
236 111	~~કાંમાધુભાઇ~~ શંકરભાઇ ઓળિયા	
237 112	વશરામભાઇ ~~વશરામભાઇ~~ માધુભાઇ	વ. કાં. ઓળિયા
238 113	કરમશીભાઇ વશરામભાઇ	કાં. વ. ઓળિયા
239 114	Harish	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
240	[illegible]	[illegible]
241	[illegible]	[illegible]
242	[illegible]	[illegible]
243	[illegible]	[illegible]
244	[illegible]	[illegible]
245	[illegible]	[illegible]
246	[illegible]	[illegible]
247	[illegible]	[illegible]
248	Chauhan Vishal B.	Vishal Chauhan
249	[illegible]	[illegible]
250	[illegible]	[illegible]
251	Ramji Chauhan	[illegible]
252	Chauhan Vishal B.	Vishal Chauhan
253	[illegible]	[illegible]
254	[illegible]	[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
255	Chauhan Manojsinh B	
256	Yadav Sanjay	Sanjay
257	જય ચુનાડા દાદા ખારા વાળા	વાળાર
258	V. H. Jadav	
259	Bhaliya Raju K.	Jai Hind
260	Chauhan Sanjay H.	
261	Bhaliya Sanjay H.	
262	Chauhan Shailesh K.	
263	Dabhiya Kalpesh V.	
264	Solanki Bharat M.	
265	Jayesh Solanki J.	
266	જય મુરાજી (-)	
267	Bhalia Rakesh Ramabhai	
268	રોયાળ ગામ મધવાળાદ	ધુધેરી
269	બારિયા ગોપાલ જેતાભાઈ	ધુધેરી

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
270	Manish Jitubhai Joliya	M. J. Joliya
271		
272		
273		
274		
275		
276		
277		MR
278		
279		
280		
281		
282		
283		
284		

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
285	[illegible]	[illegible]
286	[illegible]	[illegible]
287	[illegible]	
288	[illegible]	[illegible]
289	Ashok C. [illegible]	[illegible]
290	MAHAVIR VIPUL P	[illegible]
291	[illegible]	
292	[illegible]	[illegible]
293	[illegible]	[illegible]
294	[illegible]	[illegible]
295	[illegible]	[illegible]
296	[illegible]	[illegible] માનિંગ વિરોધી
297	[illegible]	[illegible]
298	[illegible]	[illegible]
299	[illegible]	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
300	ગાંધીનગર પધુર ગજેરા ભાઈ	ગજેરા ભાઈ
301	મકવાણા વશિષ્ઠભાઈ/ચકુરભાઈ	મકવાણા વશિષ્ઠભાઈ
302	મકવાણા જયસુખભાઈ/રેવાભાઈ	
303	[illegible]	
304	[illegible]	
305	મકવાણા મગન ભાણુ ભાઈ	
306	ભમરા વિનયચન્દ્ર ભાણજી	
307	[illegible]	
308	ભાંભણીયા કુળ જે.	ભાંભણિયા
309	ભટ્ટ ભાઈ પરમાર	પરમાર
310	વિજય. રમેશ. ભાંભણીયા	ભાંભણિયા
311	હસુભાઈ ચાર્જ	મકવા
312	ભરતભાઈ સરવૈયા	સગતરીયા
313	ધુધાભાઈ ભોળાયા	ડોડીયા
314	મકવાણા [illegible]	[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
315	માળીબેન મકુભા રાઠોડ સરનં. ચકુરમાંડ	
316	જેઠવા મહેશ એમ	વાંગાર
317	મહેશ પોપટ રાઠોડ	વાંગાર
318	રાકુલ જી.	R.K.
319	ચાવડા જ	
320	કટારા. જી	
321	કાળાભાઈ ભારેલા	
322	જીગા મેપાભાઈ કાકુપુનત	
323	મકવાણા કાજલ	
324	ગોરસ મર્	
325	આર. એસ ગોપ	પ્રકરણકાર
326	એમ. આર જી.	
327	માલુબેન કુંઢરી	
328	કુંવરબેન કુંઢરી	
329	અમરાબેન કુંઢરી	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
330	Makavana Rajeshkumar M.	Makavana.
331	ભાલોડિયા ચેતન પ્રેમ	ઇ ઘેરી
332	[illegible]	[illegible]
333	અશોક કાંત ઠાકર	ASHOK. N. THAKER
334	[illegible]	[illegible]
335	[illegible]	[illegible]
336	જે. બી. [illegible]	[illegible]
337	[illegible]	[illegible]
338	[illegible]	[illegible]
339	જે. બી. ગોરિયા	ઇ ઘેરી
340	[illegible]	[illegible]
341	જી. ટી. ચાંડાણા.	ઇ ઘેરી.
342	Shri Jatin H.	[illegible]
343	[illegible]	[illegible]
344	[illegible]	[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
345	પી.ઇ. એન્જી	ડોકટર
346	Retired Retired	Retired
347	[illegible]	KGS.
348	Postmaster Junior	BG.
349	[illegible]	[illegible]
350	Bhadheshar mansukhbhai	[illegible]
351	[illegible]	[illegible]
352	VIJAY B. DOLASHIYA	V. B. DOLASHIYA
353	[illegible]	[illegible]
354	MISBHA MANJERA [illegible]	[illegible]
355	[illegible]	[illegible]
356	Rimbhumiben Kailas Padhariya	[illegible]
357	[illegible]	[illegible]
358	[illegible]	[illegible]
359	[illegible]	[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
360	માઈક્રિ વિકૃપ કુમારભાઈ કાર. શિયાળ:- વાંગરા	
361	ગોપીપરાનમામે મગનભાઈ	
362	ભુપા ભાઈ લોદા ભાઈ	
363	મકવાણા જેંગાભાઈ રમેન	રમે. સેન મકવાણા
364	રમેન કી	ગોળીયા
365	જીકુભાઈ વીરાભાઈ મેર	જી. વી. મેર
366	વિઠ્ઠલભાઈ માધુભાઈ મકવાણા	વી. એમ. મકવાણા
367	ભાનીયા ભાલાભાઈ ખોડાભાઈ	
368	HR Mistry	
369	Bmeshery	
370	M. P. L	
371	ભોપા ડી ર	
372	ભાગ. જટ્યાદ ઈ મુભાઈ	
373	ધી રૂવાદ ભા પુભાઈ	
374	ગોવિન્દ	

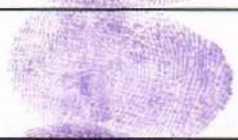
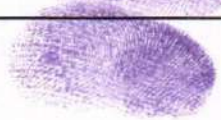
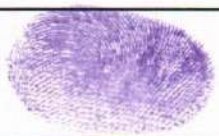
Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
375	માઈનિંગ વિરોધી	
376		
377		
378		V. U. Bellariya
379		
380		
381		
382	Bhuriyan Shailesh	
382		
383		
384		
385		
386		
387		
388		

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
389	માઈનિગા [illegible]	
390	[illegible]	ગુજરડા
391	[illegible]	11
392	[illegible]	[illegible]
393	[illegible]	[illegible]
394	માઈનીગા [illegible]	ડોબરીયા
395	માઈનાગા [illegible]	પટોપટી
396	[illegible]	કુદરેરી
397	[illegible]	કુદરેરી
398	[illegible]	કુદરેરી
399	[illegible]	કુદરેરી
B400	[illegible]	કુદરેરી
401	[illegible]	કુદરેરી
402	[illegible]	કુદરેરી
403	[illegible]	કુદરેરી

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
	માઈનોરિટી વિસ્તાર	
404	કુલદીપ ભારતભાઈ	કુ ચંદ્રી
405	રમેશ લીમા ચારોલિયા	
406	પ્રકાશ નાથ ખોડાનાથ શિયાળ	
407	પરમારકિશોર માધુભાઈ	પરમ
408	ભગવાનદાસ રામા માધા	પરમાર
409	ઉદેરામાર ભગવાનમાર	પરમારક
410	ખીમા ભાદુ	પરમારક
411	કરણા ભણા	પરમારક
412	ભરત ભાઈ	
413	નાથા રૂપા ના ગામારા વાસ્તુ	કોળીપ
414	મેપા નાથ પાયા નાથ કરાર	પરમારક
415	લખમણ નાથ રામા નાથ પરમાર	પરમારક
416	ગોવા લખમણ નાથ	પરમારક
417	ભાયજી નાથ ભરતજી નાથ ચાવડા	પરમારક
418	મુખત નાથ કરશન નાથ ચૌહાણ	પરમારક

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
૫૧૭	હરીભાઈ જીવરાજભાઈ જોગિયા	
૫૨૦	ભગવાનભાઈ કાનાભાઈ	દુધરેજી
૫૨૧		
૫૨૨	રમેશ કે. શિયાળ	દુધરેજી
૫૨૩	વેલજીભાઈ રાઘાભાઈ	દુધરી
૫૨૪	ઈશ્વરભાઈ લાલાભાઈ	ડોબરીયા
૫૨૫	માધાભાઈ ખોડાભાઈ	દુધરેજ
૫૨૬	મુનાભાઈ ભાણાભાઈ	ડોબરીયા
૫૨૭	રમેશ કે શિયાળ	દુધરેજી.
૫૨૮	શિયાળ રાજા ભગવંત	દુધરેજ
૫૨૯	શિયાળ રાજેશ દેવજીભાઈ	દુધરેજી
૫૩૦	લાખાભાઈ મુનાભાઈ	દુધરેજ
૫૩૧	જોગિયા અજીવન રાઘવજીભાઈ	ડોબરિયા
૫૩૨	ભેડાયા જેરામભાઈગોકળભાઈ	ડોબરીયા
૫૩૩	વેપળ જીતેંદ્રભાઈ પીંગળ	

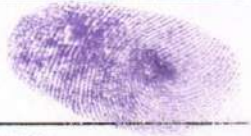
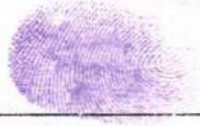
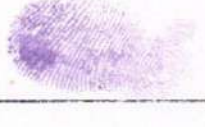
Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
૫૩૪	[illegible]	
૫૩૫	[illegible]	
૫૩૬	[illegible]	
૫૩૭	[illegible]	
૫૩૮	[illegible]	
૫૩૯	[illegible]	
૫૪૦	[illegible]	
૫૪૧	[illegible]	
૫૪૨	[illegible]	
૫૪૩	[illegible]	
૫૪૪	[illegible]	
૫૪૫	[illegible]	
૫૪૬	[illegible]	
૫૪૭	[illegible]	
૫૪૮	[illegible]	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
449	શિયાળ મનુભાઈ પરષોત્તમદાસ	
450	મેળીયા રાકેશભાઈ રમેશભાઈ	
451	શિયાળ પૈચાદભાઈ મયુરભાઈ	
452	શિયાળ વસનભાઈ સુખાભાઈ	
453	શિયાળ આશા બેન રાજુભાઈ	
454	સોલંકી રાધા ભીમા	
455	સોલંકી જયા રમેશ	
456	સોલંકી હમુ પ્રવિણ	
457	શિયાળ મધુ જુવાન	
458	શિયાળ આનું ગોવિંદ	

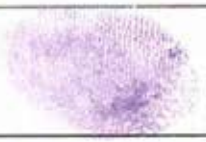
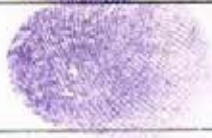
Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
459	પુંજાભાઈ કાનજી. શિયાળ- પાંગારા	Shiyal
460	નિમ્બણા કે. શિયાળ પાંગારા	
461	કાનજીભાઈ રણછોડભાઈ. દુધરેજ	
462	શિયાળ મગનભાઈ ખરચણ કુંડલા	
463	ભગવાન ભાદરભાઈ દામજીભાઈ	ભાદરા કે. મકવાણા
464	રવજીભાઈ પોપટભાઈ ગાંધેડા. Padhiyarka	
465	ઘુઘરાળા દિલીપ. ભીખાભાઈ પાંગારા	D.D.K.
466	ઠાકરશીભાઈ રામા ભાઈ ભોરણિયા કોળીયા	ઠાકરશી. ભોરણિયા
467	મકવાણા ખોડાભાઈ ગોવિંદ પાંગારા	KND.
468	રામજી ખોડા ઘુઘરાળા પાંગારા	
469	પરેશ જે ઝોલાળા પાંગારા	
470	ભોરણિયા કિરણ જી. કોળિયા	
471	પાંગારા શીંગાળા વીરમભાઈ ખરામણ	S A Sheyal
472		
473	ભાવ ભાવેશભાઈ સાકળભાઈ	

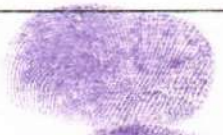
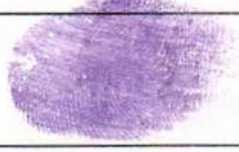
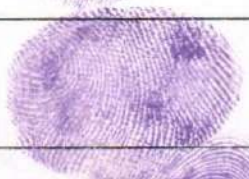
Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
474 16	મકવાણા પરશોત્તમભાઈ	
475 17	મકવાણા પ્રતાપ નરશી (બાકી)	
476 18	Bhanu R. Mehta	
477 19	ભરત કાંતિ રાણેકાળ	
478 20	ભોળાદાસભગવાનદાસ/માધવજી માધવજી પંડ્યા	ભગવાનજી
479 21	K. B. Makwana	
480 22	પ્રભાશંકર કેશવજી દવે	P. K. Mehta
481 23	પુરુષોત્તમ/રામજી પરશોત્તમ	પુરુષોત્તમ
482 24	Laxmi Medical Agency	
483 25	ગોરધનદાસ વલ્લભ મકવાણા	
484 26	ગોરધનદાસ વલ્લભ મકવાણા	ધનજી ભાવજી ભા
485 27	જોશીપુરા ધોરી સરપંચશ્રી	S. A. Joshipura
486 28	ધુધલવા ભચુભાઈ રતનશીભાઈ	Dhundhalvaja
487 29	છગન ભાઈ ભગવાન ભાઈ ડોળાસા	છગનભાઈ
488 30	ચોથરા ગામ	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
489 31	ઉકાભાઈ ગોપાભાઈ	ઉકાભાઈ
490 32	પરિયારક્ષ ગાંડુભાઈ વાગજીભાઈ	ગાંડુભાઈ વાગજીભાઈ
491 33	પરમાર મુકેશ કુવરજીભાઈ પરિયારક્ષ	
492 34	ગોવાંદભાઈ, કુંઘરી	
493 35	નરેશ કાના જોજ પરિયારક્ષ	
494 36	~~વિજાન~~ વિકાસ સમિતિ પ્રમુખ વિદુતમજરી ગોસ્વામી ~~ગામ આગેવાન વિદ્યા પ્રમુખ~~	
495 37	(પરિયારક્ષ) બાંધા લુપત સુખાભાઈ	
496 38	કુંઘરા (ખા)-૨ કિશોર. એન	કિશોર. એન
497 39	કરશનભાઈવલ્લભ ~~ભાઈ~~ ભાઈ	કરશનભાઈ/કરશનભાઈ
498 40	ઘાઘાભાઈ, પરિયારક્ષ	
499 41	ગોવાંદભાઈ, પરિયારક્ષ	
500 42	જીકુભાઈ/ભીખાભાઈ ડોબાય	જીકુભાઈ/ભીખાભાઈ
501 43	બેચી જાનીયામાં ચુ.	~~બેચુબેન~~ મહિલાંગ વિસ્તારમાં
502 44	કારકુન ~~ભાઈ~~ ચાંપરાજભાઈ	મદદનીશ ડીઈઓશ્રી
503 45	નકુમાભાઈ ગગાભાઈ	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
504 46	મથુરભાઈ સામંતભાઈ, કાળીયા	
505 47	ધુધાભાઈ માધાપભાઈ, કાળીયા	
506 48	પ્રવેશ મત્ત [illegible] કુંઢેરી	[illegible]
507 49	શીવરભાઈ ગોવાંદભાઈ, કુંઢેરી	
508 50	[illegible] કુંઢેરી	[illegible]
509 51	ખોડાભાઈ, માધાભાઈ સમઢિયાળા	
510 52	સિંધાભાઈ લીંબાભાઈ, કાળીયા	
511 53	[illegible] વાંગાર	Adv. Jadav
512 54	હરીભાઈ વાંગાર	હરીભાઈ
513 55	પરશોતમ જશા ડોબરીયા	પરશોતમ જશા
514 56	દેવશી લીંબા ડોબરીયા	દેવશી લીંબા
515 57	ધીરૂ ભાઈ, કાળીયા	ધીરૂ ભાઈ
516 58	ધરમાભાઈ લીંબાભાઈ, વાંગાર	
517 59	મોંઘાભાઈ સામંતભાઈ, કુંઢેરી	
518 60	[illegible] ભાણાભાઈ, કાળીયા	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
519	[illegible]	[illegible]
520	[illegible]	[illegible]
521	[illegible]	[illegible]
522	[illegible]	[illegible]
523	[illegible]	[illegible]
524	[illegible]	[illegible]
525	[illegible]	[illegible]
526	[illegible]	[illegible]
527	[illegible]	[illegible]
528	[illegible]	[illegible]
529	[illegible]	[illegible]
530	[illegible]	[illegible]
531	[illegible]	[illegible]
532	[illegible]	[illegible]
533	[illegible]	[illegible]

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
534 ~~76~~	આનંદ કી મત્યાળા	કાંગાયા
535 ~~77~~	ગોવીંદ ભાઇલા ચુનારા	
536 ~~78~~	બાબાભાઈ પુંજાભાઇ , પરિયારડા	
537 ~~79~~	ગોવાભાઇ ભાકુ ચકુભાઇ	ચકુભાઇ
538 ~~80~~	ખોડાભાઇ, કુંઘરી	
539 ~~81~~	માધવભાઇ મોહનભાઇ, કુંઘાળા	
540 ~~82~~	ભોનભાઇ બાબાભાઇ, કુંઘરી	
541 ~~83~~	બાબુભાઇ પ્રભાભાઇ - કુંઘળા-૧	બાબુભાઇ
542 ~~84~~	મહીનગર વિસ્તરણ અંગે ઠરાવ બાબરિયા	અંગે ઠરાવ બાબરિયા
543 ~~85~~	રામભાઇ સોમાતભાઇ	કુંઘેરી
544 ~~86~~	મોહન કુંઘરી	કુંઘેરી
545 ~~87~~	બાઘાભાઇ . કુંઘરી	
546 ~~88~~	બાબુભાઇ, પરિયારડા	
547 ~~89~~	કેશુભાઇ નરશાભાઇ	કેશુભાઇ નરશાભાઇ પટેલ
548 ~~90~~	રાણા ભાઇ કુમારભાઇ	ઉપર રાણાભાઇ કુમારભાઇ

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
549 ક	પ્રવીણભાઈ, દુધરી	પ્રવિણભાઈ
550 ખ	ભાણાભાઈ, દુધરી	
551 ગ	ખીમાભાઈ, દુધરી	
552 ઘ	રામજીભાઈ, લીંબાભાઈ, કાળીયા	
553 ક	ભુરાભાઈ પોપટભાઈ, કાળીયા	
554 ચ	ભોલાભાઈ કાનાભાઈ, દુધરી	
555 છ	રમેશભાઈ નટવરભાઈ	દુધરી
556 જ	ભાલિયા પ્રવિણ નરશીભાઈ	દુધરી
557 ઝ	ભાલીયા નાગજી ભાઈ ભગવાન ભાઈ	દુધરી
558 ઞ	ચરણા ભરત ભગવાન ભાઈ	માઠીયા
559 ટ	ઠેસાત રોશન પ્રવીણભાઈ	માઠીયા
560 ઠ	ગાદેચા જંતી. લીમાભાઈ	પરિયરા
561 ડ	ગાદેચા માધુર દેવળ ભાઈ	પરિયારકા
562 ઢ	ભલીયા શૈલેષ કરશનભાઈ	શૈલેષ દુધરી
563 ણ	સોંદાગા અમરુભા	દુધરી

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
564 167	પરિમલભાઈ ડાયાભાઈ.કે	પરિમલભાઈ
565 168	ભાવેશ વલ્લભ કાકુમાર	ભાવેશભાઈ ઉકાભાઈ
566 169	મકવાણા પંકજ માધાભાઈ માર	પંકજ
567 170	બાલધાયા હરી માધા વશરામભાઈ	પંકજ
568 171	ભોજીયા અરવિંદ રમેશ. દુધરેજ માઈનિંગ વિશેષ	તા-૨૮/૪/૨૦૨૩ રમેશ રમે. રમેશ. ભોજીયા
569 172	મકવાણા હિરાભાઈ વિક્રમભાઈ માઈનિંગ વિશેષ	28/4/2023 12:30 PM હિરાભાઈ
570 173	Doliya. Dheeraben. Jeevam. L.	
571 174	માધા માધા માર ચોકીદાર	માધા માર
572 175	જીવણ માધા માર મજૂર	
573 176	ભાવેશ વિઠ્ઠલભાઈ મકવાણા ગામ દુધરેજ	
574 177	ઉમરાણીયા જી. દુધરેજ	
575 178	Bhayad Nirav "	
576 179	Chauhan Bhupendra "	Bhupendra C.
577 180	Chauhan Pintu "	Chauhan Pintu
578 181	Yadav Ajay "	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામું	Signature સહી
579	પાઠપારા ગારૈયા વેલજીભાઈ ચુનારાભાઈ	
580	ગોહિલ પિયુષ બી.	
581	ધનજીભાઈ બોઘાભાઈ મકવાણા	ડોળીયા
582	ગારૈયા મનુભાઈ ખોડાભાઈ	
583	ગોહિલ ફુલાભાઈ ભગાભાઈ	
584	ગારૈયા લાલજી ખીમજી ભાઈ	લાલજી ડી ગારૈયા
585	Joliya kuldip bhagatbhai	કે.જી. જોળીયા
586	મકવાણા પરશોત્તમભાઈ મસાભાઈ ડોળીયા	
587	ડોળરિયા શિવજીભાઈ લાધારામભાઈ કુંઢેચ	
588	મકવાણા પંકજભાઈ જયંતીભાઈ દુ ઘેરા	પિ. જી ઓ મકવાણા
589	Beriwonix Kapurshubhai Joshi	કે કે. જી
590	વિમાણ જુવાનભાઈ ખીમ	વિમાણ ઓ.ચંપ
591	ચૌહાણ મનુભાઈ ફુલાભાઈ	મનપના
592	સાંગાણી ભરત બરફી	ભરત બરફી
593	વિજયભાઈ બારૈયા ભાઈ	વિજેન્દ્ર બારૈયા

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
594	બારૈયા મંગાભાઈ . કે	બારૈયા મંગાભાઈ . કે
595	વજશી ભગાભાઈ બારૈયા	બારૈયા વજશીભાઈ
596	નાગજીભાઈ ભુખાભાઈ ભોપા	ભોપા નાગજી-ભી
597	જેની ભાઈ રામજી ભાઈ ભોજપા	ભોજપા જેની ભાર
598	નારાગ ભાઈ દેવજીભાઈ ભોળીયા	ભોળીયા
599	ભોળીયા વિક્રમ ભાઈ દેવજી ભાઈ	ભોળીયા વિક્રમ. કે
600	બારૈયા વિક્રમ ભાઈ ખોડાભાઈ ભાઈ	બારૈયા વિક્રમ કે
601	બારૈયા ધર્મશ્રમ બાવકભા ખા બાલ	બાબુભાર ખા
602	વાળા રતનસિંહ ભરતસિંહ	RB Vala
603	જેન્તીભાઈ વસ્તુભાઈ ચૌપા	જેન્તી ર ચૌપા
604	ઈદ્યાપા-૨ ગોવાભાઈ રામજી ભાઈ ગોવાભાઈ	
605	પાદરી ખોડાજી ભાઈ ફુલાજી ભા નાગજી ભાઈ	જોગજી નાગજી
606	વાળા ભરત સિંહ ભેખડાભા વરેડી ખેડુત સહકારી ગુજરાત	ભરતસિંહ જી વાળા
607	અરજણભાઈ રણમલભાઈ	
608	બાપાલાલ ખોડાભાઈ રાયણી	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
609	Bheliya Vijay M.	
610	મોણપરા પરશોતમ કાનજીભાઈ	P.S. Jotangiya
611	ગોરધન પ્રાગજી. પી.	
612	કરશન લાધ	
613	[illegible]	
614	ભોળાભા વનરાજ	
615	ડુંઘરેજી ભાલિયા મનસુખ વિક્રા	મારીનિંગ વિરોધી અમે વિલાપીયા
616	ડુંઘરેજી ભાલિયા મંજુલા પી	મારીનિંગ વિરોધી મંજુલા વિલાપીયા
617	ડુંઘરેજી રવજી ગોવિંદ ભાલિયા	મારીનિંગ વીરોધી રવજી ગોવિંદ
618	ડુંઘરેજી ચાવડા પ્રેમજી ભાલીયા	મારીનિંગ વિરોધી
618	વિપુલ અમે ભાલિયા	મારીનિંગ વિરોધી પી અમે ભાલિયા
620	ડુંઘરેજી ચંદુ ચોથર ભાલિયા	મારીનિંગ વિરોધી ચાર પી ભાલિયા
621	ડુંઘરેજી મગાભા અમે ભાલિયા	મારીનિંગ વિરોધી અમે અમે ભાલિયા
622	ચોથા પ્રેમજી ડુંઘરેજી	ચાવડા
623	મારીનિંગ વિરોધી પુંજા પ્રેમજી ડુંઘરેજી	પુંજા ભાઈ

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
624	ગોવિંદ ભાઈ દુધેરી	ગોવિંદભાઈ
625	માધનિંગા વિરોધી વાલજી ભાઈ	વાલજીભાઈ
626	દુધેરી કરશન ભીખુ	કરશનભાઈ
627	માધનિંગ વિરોધી દેવાણ રાઘવ	દેવાણભાઈ
628	માધનિંગા વિરોધી જેરામ દેવાણ	જે ડી ભાલિયા
629	ભાલિયા હરિ ભમ	HMBhaliya
630	હિંમત માંડણ	હિંમત ભાંમ
631	માધનિંગા વિરોધી માધુ ગોવિંદ	મદનભાઈ
632	માધનિંગા વિરોધી રમેશ ભાઈ નરશીભાઈ	રાજ ભાંમ
633	માધનિંગા વિરોધી રામણ ખુમા	રામણભાઈ
634	માધનિંગા વિરોધી અમૃત ખુમા ભાલિયા	SBBhaliya
635	Bhaliya Ravji ✓	Bhaliya RV
636	ભાલિયા વિનુ દેવશી	વિનુ દેવશી
637	માધનિંગા વિરોધી દિનેશ દેવશી	DDBhaliya
638	કાળુ ભાણ	કે ભાંમ

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
639	ચૌહાણ કનીભાઈ કટારા હુંદરી	JJC
640	ચૌહાણ વ્યસુખ ઈદાભ હુંદરી	જટાયુભ
641	ચૌહાણ અક્ષય જેનાભાઈ હુંદરી	AKch
642	ચોધરા વિપુલભ કાબાભાઈ હુંદરી	Vijoy
643	ચૌધરા અનિલભ કાબાભાઈ હુંદરી	અનીલ.કે.ચૌધ
644	ચૌધરા ગણેશભ કાબાભ હુંદરી	ગણેશ.
645	જેભ. માધુ ભાલિયા હુંદરી	જેભી
646	મહેશ રાઘવ હુંદરી	મહેશભાઈ
647	વશરામ ભાભર	વશરામભાઈ
648	શૈલેશ ભાનુ	એસ બી
649	દશરથ વિરાભાઈ	દશરથભાઈ
650	ભાનુભ વિરા ભાલિયા	ભીન વિ ભાલિયા
651	મુકેશ ઘનજ ભાલિયા	એમ કે
652	ભાલિયા વિપુલ - ભ	P. M
653	ચૌહાણ રમેશભાઈ રેભાભાઈ હુંદરી	રમેશ

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
654	ચૌહાણ જગદીશભાઈ રામાભાઈ કુદાણી	જગદીશ
655	ભાયાણી હીમતભાઈ ભોકળભાઈ રૂપેરા	હીમતભ
656	પાપા મુકેશભાઈ	માંધણદરા
657	વિરીજભાઈ જુવાનભાઈ	પરિવારજ
658	વિક્રમભાઈ અરજણભાઈ ડોળીયા	V.A. [illegible]
659	ભરત ભાઈ ચોથા ભાઈ ડોળીયા	Bharat
660	વિક્રાભાઈ ભીમાભાઈ દૂધરેટ	
661	વેલજીભાઈ કુદાભાઈ	વેલજીભાઈકુદાભાઈ
662	શિયાળ. પ્રાથ.શા. વેરાવળ	શિયાળ.પ્રા.શા.
663	ભાનુભાઈ રૂપાભાઈ	ભાનુભાઈ રૂપાભાઈ
664	રામજીભાઈ રાણાભાઈ	
665	મંતરા ભાઈ લખમણભાઈ	બારૈયા ડોળીયા
666	જગદીશભાઈ રાઘવભાઈ	બારૈયા ડોળીયા
667	કપરા ભાઈ રમેશ ભાઈ	જોળીયા ડોળીયા
668	ભના ભાઈ ભગવન ભાઈ	જોળીયા ડોળીયા

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
669	વિઠલભાઈ લખમણભાઈ	કોળીયા ભાડેથા
670	રાકેશભાઈ રાજુભાઈ	કોળીયા ભાડેથા
671	નયનભાઈ વિઠલભાઈ	કોળીયા ભાડેથા
672	ગોપાલભાઈ રાજુભાઈ	કોળીયા ભાડેથા
673	રાજદીપ ભાઈ રમેશ ભાઈ	કોળીયા મોળીયા
674	ઈશ્વરભાઈ બાબુભાઈ	કોળીયા ભાડેથા
675	જીગ્નેશ ટી રાઠવા	BB Rathwa
676	Jaresh Rathod	Jaresh
677	વસણ મુળા શિયાળ	
678	મુકુ રમેશ મોળીયા	
679	મગુ પરવિણ શિયાળ	
680	રાધા ભીમા મોલડી	
681	મુકેશ રમેશ મોળીયા	મુકેશ મોળીયા
682	પ્રદિપ મોળીયા	પ્રદિપ મોળીયા
683	કલ્પેશ રમેશ મોળીયા	કલ્પેશ મોળીયા

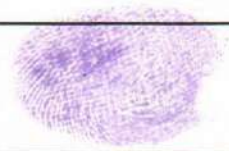
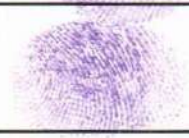
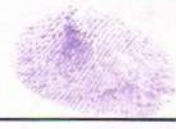
Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
684	મ્યા રમેશ શીલંડી	
685	શિયાળ ભારતી ગોવિંદભાઈ	
686	દમુજને પરવિણભાઈ શીલંદ્રી	
687	શિયાળ દક્ષા રમણુભાઈ	શિયાળ ડી. રમે.
688	શિયાળ રમીલા ભુવનભાઈ	શિયાળ આર ડ
689	શિયાળ આશા રવજુભાઈ	
690	શિયાળ મધુજને ભુવનભાઈ	
691	શિયાળ ભાનુજને ગોવિંદભાઈ	
692	શિયાળ કૈલાસ ગોવિંદભાઈ	Shiyal Kailas G.
693	જાંબુચિયા સંગીતા વિઠાભાઈ	જાંબુચિયા સંગીતા
694	જાંબુચિયા પુનીતા લીંબાભાઈ	જાંબુચિયા પુનીતા
695	જાંબુચિયા વસંતજને મોડાભાઈ	
696	ખેતીયા રાધાજને માવજીભાઈ	
697	ભાલિયા કડવીજને રામજીભાઈ	કડવીબેન
698	મકવાણા જ્યાજને કાળાભાઈ	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
699	વિજુબેન મગાભાઈ બારૈયા	
700	સાકુ રાજુ ખાલિયા	
701	સાકુ ખોડા ખિયાળી	
702	જેવલ ખાગા બારિયા	
703	રમજુ ઝારા ખાલિયા	
704	મધુ રામજી ખાલિયા	
705	રૈયા માવજી ખાલિયા	
706	રમકુબેન ખાગા ખાલિયા	
707	જીવુ. નરશી ખાલિયા	
708	સાનકુ મરજા ભેળીયા	
709	દેવુ વસરામ ભેળીયા	
710	દુદીબેન સાકુભાઈ ઈકવા	
711	સીકુર ખગા ભેળીયા	
712	નકુબેન મગાભાઈ કોળાદિયા	
713	દેવુ બેન વજારામભાઈ ખાલિયા	દેવુ. બારૈયા

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
714	મકુભાઇ ગરાભાઇ બાંભણિયા	
715	~~કાન~~ અમરતભાઇ રૂખા મેળીયા	
716	પાનુભાઇ અમુભાઇ બાંભણિયા	
717	વજુભાઇ નાથાભાઇ ભાલિયા	
718	વઘાભાઇ કરશુભાઇ ભાલિયા	
719	રામાભાઇ શામજીભાઇ ભાલિયા	
720	મગાભાઇ રામાંડે ભાલિયા	
721	ભાનુભાઇ વસરામભાઇ મેળીયા	
722	કપરાભાઇ ભીમાભાઇ કોળાદિયા	
723	અમરતભાઇ સવાભાઇ કોળાદિયા	
724	દેશુભાઇ કરશનભાઇ વિંઝવાડી	
725	રણજીતભાઇ વિજયભાઇ ગોહીલ	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
726 ~~25~~	M.V.E મેડિકલ ઓફિસર	
727 ~~26~~	[illegible]	
728 ~~27~~	[illegible]	
729 ~~28~~	મકવાણા અંકિતા એમ	અંકિતા
730 ~~29~~	[illegible]	
731 ~~30~~	[illegible]	
732 ~~31~~	[illegible]	
733 ~~32~~	[illegible]	
734 ~~33~~	[illegible]	
735 ~~34~~	[illegible]	
736 ~~35~~	[illegible]	
737 ~~36~~	[illegible]	
738 ~~37~~	[illegible]	
739 ~~38~~	[illegible]	
740	[illegible]	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
741 35	ચુનારીયા ભાલણી રમેશ	
742 35	વિપાળ પ્રભુ દિ.	
743 33	ભાંભર જગદિશ રમેશ	
744 38	ભાંભર રમેશ ચુ. મમરીયા૰	
34 745	ચોહાણ રમેશ જં.	
746 39	રાંભર ધીકુભા મગનીયા	
747 39	ગોંજર ભાલા મકાભાઈ રોળાયા	ગોંજર ભાલા મકાભાઈ
48 748	નરશ્રીલાળ લાખાલાખા મકવાડા રોળાયા	નરશ્રી
49 749	બાબુલાળ લાખાલાખા મકવાડા રોળાયા	
50 750	મોરી માધવજીભાઈ ભાણજી	માધવ પાલાભાઈ
51 751	જયુભાઈ ધાલાયા દુધીબા	
52 752	ઉમાભાઈ જયુભાઈ પઢેરીયા	
53 753	બાલા માધા નારણ પઢેરીયા	બાલા ગોરુ
54 754	મગન ભાઈ માધા ભાઈ	મગન ભા
55 755	રમણભાઈ ભગાભાઈ	રમણ ભા

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
૭૬ ૪૬	રમેશભાઈ બાબુ હુદીગ	
૭૭ ૪૭	લક્ષ્મણભાઈ જેમાયા હુદીલ	
૭૮ ૪૮	કેશુભાઈ મનસુખભાઈ	
૭૯ ૪૯	અર્જુનભાઈ પુનાભાઈ હુદેરી	
૮૦ ૫૦	માવજીભાઈ નારણભાઈ હુદીગ	
૮૧ ૫૧	ચિંતનભાઈ બચુભાઈ હુદીગ	
૮૨ ૫૨	જેકાભાઈ કાળાભાઈ હુદેગ	
૮૩ ૫૩	જેન્તીભાઈ નારણભાઈ હુદેગ	
૮૪ ૫૪	જેચરભાઈ ખોડાભાઈ હુધેરી	જેચરભાઈ
૮૫ ૫૫	સવજીભાઈ શિવાભાઈ હુદીગ	
૮૬ ૫૬	ભાગા વા વસાદ ગામ[illegible]	ભગા વા વસ્યાદગામ
૮૭ ૫૭	નથુ મકા ભાઈ ભાડગા	હુ ઘેરી
૮૮ ૫૮	દાનાભાઈ બચુ ભાઈ માંડલીગા. વીરોધ	ડો. પીપા દાનાબચુ
૮૯ ૫૯	સવજીભાઈ ભીખા	
૯૦ ૬૦	બાબુભાઈ બાવાભાઈ	

Sr. No. અનુક્રમાંક નં.	Name & Address નામ અને સરનામુ	Signature સહી
771	નારણભાઈ વાલાભાઈ કુ કોળીયા	નારણ વાલા
772	પુનમ. માધા ગગાભાઈ કોળિયા	પુનમ J. Y.

Annexure-B (ENGLISH)

A statement showing issues raised by the participants and responses by the representative of the applicant during the public hearing

It is hereby informed that as per the Ministry of Environment, Forest & Climate Change, Government of India, New Delhi vide its notification no. S.O. 1533 dated 14th September 2006 and its subsequent amendment S.O. 3067 (E) dated 1st December 2009, Public Hearing is Fixed for M/s Nirma Limited (Mine lease Area: 332.24 Ha) for Proposed Padhiyarka & Doliya Limestone Mining – Rate of Mining 1.5 MTPA, at Villages: Padhiyarka & Doliya, Taluka. Mahuva, Dist: Bhavnagar, covered under Project Category "A" at Nirma Cement Plant Area, NH 8 E/51, Survey No. 80, Village: Padhiarka, Ta. Mahuva, Dist: Bhavnagar on 28/04/2023 at 13:00 hrs under the chairmanship of Shri R.K. Mehta, IAS, District Collector and District Magistrate, Bhavnagar.

Shri A. J. Rathod, Regional officer, Gujarat Pollution Control Board, Bhavnagar and representative of the Member Secretary, Gujarat Pollution Control Board, Gandhinagar welcomed all people present during the Public Hearing. He outlined various provisions of the EIA Notification and briefed the procedural details for conducting this Public Hearing. He informed that for establishment of new industries and for expansion or change in production or modernization of existing industries/projects, it is mandatory to obtain environmental clearance as per notifications published by Ministry of Environment Forests & Climate Change, New Delhi. He also informed that as per provisions of notifications published by Ministry of Environment Forests & Climate Change, New Delhi, locally affected people would be able to make oral representations at this public hearing whereas other individuals having plausible stake, have to submit their representation in writing which would be included in the proceedings. He also clarified that all the representations made during the public hearing would be included in the proceedings of the hearing.

He mentioned the advertisement for this public hearing was published in Gujarati Daily News Paper "Sandesh" and in English News Paper "Times of India" dated 26/03/2023. He also stated that the copies of executive summary of this proposed project was distributed in the villages within 10 km radius of the proposed limestone mining project.

He further stated that following persons/organizations have submitted objections and suggestions related to the proposed project prior to the public hearing. He said that these objections and suggestions along with reply made by the project proponent will be included in the minutes of the proceedings.

- Shri Mahuva Bandhara Khetiwadi Paryavaran Bachav Samiti, Po:Vangar, Ta: Mahuva, Dist: Bhavnagar
- Vangar Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Madhiya Gram Panchayat Office , Ta: Mahuva, Dist: Bhavnagar
- Padiyaraka Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Doliya Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Dudhala No-1 Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Dudheri Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Gujarda Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Devaliya Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Khared Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Katpar Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Samdhiyala-1 Gram Panchayat Office, Ta: Rajula, Dist: Amreli
- Patwa Gram Panchayat Office, Ta: Rajula, Dist: Amreli
- Gadhda Gram Panchayat Office, Ta: Mahuva, Dist: Bhavnagar
- Sushri Shantuben Narshibhai Chauhan, Member, District Panchayat Electoral Board, Dist: Bhavnagar
- Shri Mohanbhai Hamirbhai Makwana, President, Shri Mahuva Taluka (Rural), BJP, Dist: Bhavnagar
- Sushri Anjuben Ghelabhai Makwana, President, Taluka Panchayat, Ta: Mahuva, Dist: Bhavnagar
- Shri Vitthalbhai Madhubhai Vadhela, Chairman, Executive Committee, Ta: Mahuva, Dist: Bhavnagar
- Shri Bharatbhai Naranbhai Shiyal, Member, 9-Dudheri Taluka Panchayat Constituency, Ta: Mahuva, Dist: Bhavnagar
- Shri Chhaganbhai Nanbhai Bhalia, Member, 8-Doliya Taluka Panchayat Constituency, Ta: Mahuva, Dist: Bhavnagar
- Shri Ramjibhai Chitharbhai Dolashiya, 14- Katpar, Taluka Panchayat Constituency, Ta: Mahuva, Dist: Bhavnagar
- Shri Mahesh Pandya, Pariyavarn Mitra, Dist: Ahmedabad
- Shri Vitthalbhai B Solanki, President (Mahuva), Kisan Ekta Samiti, Dist: Bhavnagar
- Shri Sagar Rabari, Trustee, Gujarat Farmers Ekta Manch, Dist: Bhavnagar
- Shri Nitish Bambhaniya, President, Jatayu Nature Club, Mahuva, Dist: Bhavnagar

Then Shri A. J. Rathod, Regional Officer, GPCB, Bhavnagar & Representative of the Member Secretary, GPCB, Gandhinagar has asked representative of project proponent to make the presentation of their proposed project in local language (i.e. Gujarati) after due permission from Shri R. K. Mehta, I.A.S. District Collector & District Magistrate and Chairman of this public hearing.

On behalf of the project proponent, Shri G. J Adroja, Vice President, M/s. Nirma Ltd welcomed all present in public hearing. Thereafter, Mrs. Khushali Oza, Environment Engineer, Environment Dept at Nirma Ltd has given an outline of the proposed project through a power point presentation in Gujarati language. In this presentation, she briefed all present about details of project introduction, background, project details, product information, environmental management system, its impacts and proposed controls, project benefits, socio-economic development plan.

After completion of above mentioned presentation, Shri A. J. Rathod, Regional Officer, GPCB, Bhavnagar & Representative of the Member Secretary, GPCB, Gandhinagar has declared the forum open for local public for submissions/objections/suggestions after due permission from Shri R. K. Mehta, I.A.S. District Collector & District Magistrate and Chairman of this public hearing. During the public hearing, public remained present raised questions/suggestions/objections/opinions. The statement showing these representations during public hearing and responses given by Shri Ashish Desai, President (Project), Representative of project proponent, are as under.

Sr No	Name & Village of the person	Issue raised	Response made by representative of project
1	**Name:** Shiyal Bharatbhai Naranbhai **village:** Dudheri	Written submission of Mahuva Bandhara Khetiwadi Paryavaran Bachav Samiti dated 28/04/2023 was read out literally by him. The written submission is enclosed herewith as Annexure-C24.	Reply was given by the representative of the project as follows: On submission of draft EIA report, prepared as per TOR approved by MoEF&CC, New Delhi, Gujarat Pollution Control Board have fixed date of public hearing for environmental clearance of our above 3

			limestone mining leases on 28.04.2023. As per the representation of Shri Mahuva Bandhara Khetivadi Paryavaran Bachav Samiti, Vangar dated: 26.04.2023, point wise reply as follow. (1) The report of Professor C.R.Babu Committee and Professor C.K.Vashney Committee constituted by the Ministry of Environment, Forest and Climate Change Environment, in which the land in this area was shown as wetland. This report has not been considered by the Hon'ble NGT and the Hon'ble NGT vide Order dated 14/01/2015 has dismissed the cancellation order of EC issued by Ministry of Environment, Forests and Climate Change, Government of India, New Delhi. Further, the Deputy Conservator of Forests has certified by his letter dated 09.11.2020 that "No National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant within 15 km of the mining lease area ". A copy of DCF's letter covering the area of all three mines is attached along with

			detail reply enclosed as Annexure-D 24**.** Also, as per the latest Ramsar Convention site released in Nov'22, the core zone and buffer zone of the proposed mining lease area are not covered as wetlands in the latest report. A copy is attached along with detail reply enclosed as Annexure-D 24**.** (2) The State Government grants mining leases in limestone bearing areas with the prior approval of the Central Government through the Department of Industries and Mines. Mineral rights in all types of land are held by the government. According to which the State Government has approved the mining lease. However, the company will not acquire agricultural land for mining without consent of farmers. If the farmers want to sell/consent their land for mining at market rates/commercial negotiation, the project proponent may, accordingly, purchase the land/take consent of the land owner to mine that land. Thus, mining will be done in that land only after getting the consent of the land owner.

			(3) Malan Bandhara and Samdhiyala Salinity ingress control bund are located within 10 km of the mining lease area and the mining lease is granted as per existing Acts and Rules. The water catchment area of Malan and Nikol Bandhara as well as the benefited areas do not include in the granted mining lease area. The purpose of the Samdhiyala Salinity Ingress Control Bund is to prevent the rising of salty sea water towards the land. In which the rain water is collected, it has been planned to increase the storage capacity of the bund and to facilitate the flow of water in the salinity control bund, three canals will be constructed around the cement plant. As per suggestion/advice of Irrigation Department the company will deepen the proposed land towards the bandhara to increase water storage. No reservoir is located in any mining lease area. Apart from this, environment and all related rules will be followed during mining. (4) No 'Bruhadgir Vistar' has been declared as Reserve Forest in resolution of the Department of Forest

			and Environment, Gandhinagar. Further, the Deputy Conservator of Forests has certified by his letter dated 09.11.2020 that "No National Park, Sanctuary, Biosphere Reserve, Wildlife Corridor, Ramsar Site, Tiger/Elephant within 15 km of the mining lease area". A copy of DCF's letter covering the area of all three mines is attached herewith in reply enclosed as Annexure-D24. (5) Mining leases are granted by the Government after obtaining a land availability and recommendation report from the District Revenue Department on government land falling within the sanctioned mining lease areas. (6) None of the mining lease areas fall within the Coastal Regulatory Zone (natural wall-buffer zone) and no excavation are to be carried out in this natural wall. Mining of limestone in the mining lease areas is planned to be carried out above the ground water level. Mining activities shall not in any way intersect the ground water. So there is no possibility of intrusion of sea water due to mining activities. In fact some of the pits from mining will be

			used as artificial recharge structures and this will improve the groundwater quality and prevent the intrusion of more salinity and reduce the increased salinity. (7) The Company itself handed over the approved connection of Narmada Pipeline to GWIL vide letter dated 01.07.2011 for conservation of water source. A copy of the same is annexed herewith in reply enclosed as Annexure-D24. GWIL has not cancelled the same. Once we receive environmental clearance, we will revive or re-contract the above GWIL permit. (8) The land area of all the three mining leases and the land area of the cement plant are different. Also, the Hon'ble NGT vide its judgment dated 14.01.2015 has cancelled the EC cancellation order of MoEF&CC. Mining & Cement Plant Project is not included in EIA as both the EC applications are different.
2	**Name:** Cholia Manish Jitubhai **Village:** Dudheri	1. Environment Action Plan is outlined. In all of them, it is said that water pollution, noise pollution, air pollution and land pollution will be controlled,	Representative of Project said that there is no life without agriculture and there is no life without wild animals. Even there is no

		which means that pollution will happen, right? That's why it has to be controlled. 2. Often referred as Ramsar site is actually not here. Yes, it is true that there are only four Ramsar sites in Gujarat. If the pollution due to this project will be so much then there will not be any hope to comply UNESCO rules to declare as Ramsar site in future. 3. Regarding the limestone stone, my note is that the limestone stone is mostly available from Kutch and it is also a desert area so it should be taken from there as well. Why is there an effort to destroy human life and extract stones from here? 4. If you don't see animals like elephants and tigers here, then you don't see humans here either? Lions are also found here. And if there is God's grace, those tigers and elephants will also be seen. 5. World Sparrow Day has just been celebrated for few days ago and we are proud to hear the chirping of sparrows. If network waves cause this much loss, how much loss would this distortion and noise cause? Also we see peacocks there. Development is necessary for the country's GDP but where to go after developing so much, then our humble request is that for us this is our world and let us be happy. Our earth is our mother.	life without birds and there is no life without industries, so if we keep everyone together and work in a way that causes the least damage to the environment, it is called sustainable development and the whole world runs on sustainable development principle. Mobile towers also harm birds and that waves cause damage us too still not a single one of us can live without a mobile. Again the same thing about the Ramsar site is that the Ramsar site has not declared any wetland. I don't know when this site will be declared a wetland. When it comes to extracting limestone from Kutch, like your representation should also be the representation of their farmers also because that is their motherland too. That's why Pollution Control Board has framed rules/limits. So if we work within the limits and within the rules, we always get approval for it.

2-A	Bharatbhai Naranbhai Shiyal Village- Dudheri	It was submitted by Bharatbhai that the company called our land is wasteland and we have the Babu Committee and Vashaney Committee reports made by the Supreme Court. After that report, the environment certificate of the company was cancelled in 2011 and now the case is in the Supreme Court. The cancelled report in the Hon'ble National Green Tribunal has been challenged in the Supreme Court and the case is currently pending in the Supreme Court for the Environment Certificate.	Representative of Project replied that Prof.Babu Committee and Prof. Vashaney Committee is formed by MoEF and the report given by them has not been accepted by Hon'ble National Green Tribunal and requested to read once the order passed by Hon'ble National Green Tribunal. In response to the argument, it is said that you are right but it is for plant and this hearing is for Mining.
3	**Name:** Mohanbhai Hamirbhai Makwana **Village:** Gujarda (President - Mahuva Taluka Rural Bharatiya Janata Party)	He read his representation dated 28/04/2023 verbatim which is enclosed herewith as **Annexure – C46.**	A copy of the reply given by the project representative is enclosed as **Annexure – D46.** Mohanbhai, I would like to inform you that the MoEF&CC had cancelled Cement Plant EC on the report given by Prof. Babu Committee and Prof. Vashaney Committee. Which was not accepted by Hon'ble NGT & Hon'ble NGT has set-aside/revived cement plant EC. And supreme court has not given any stay on Hon'ble NGT order. So the environment clearance of the company is in the same condition as it was. The project proponent has not talked about reservoirs, wetlands or wastelands. The High Court has ordered to give back 100 Ha. for Samdhiyala Bund and we have to undertake deepening when the plants

			come so that we can increase the storage of more rain water, Due to which the capacity of the bund will increase by 200%. Company is willing to giving land for school at Dudheri village. Also we are ready to give our contribution for the same. Letter regarding our commitment is already inwarded to Collector Sir on 24/02/2023.
3-A	Bharatbhai Naranbhai Shiyal Village: Dudheri	Bharatbhai Shiyal submitted as follows in the argument to this answer. We are not aware that the company submitted the letter to the Collector on 24/02/2023. On 24/11/2022 we have requested Survey No 55 to build school for Dudheri village.	Bharatbhai's argument has been answered by the representative of Project Proponent as follows: Survey no. 55 of Government land lying within the mining lease area. That company cannot give to build a school. Apart from this, any other survey number of Dudheri village is ready to be given by the company and the letter for that has been given to the Collector as mentioned above. Additionally, in past, company has given land for Madhiya Govt. School as requested by Madhiya Villagers when the school land was deducted / reduced due to road.
4	**Name:** Bhalya Vijaybhai Mansukhbhai **Village:** Dudheri (Deputy Sarpanch Dudheri Village)	About 650 people of our villagers are deprived from plots and all the waste lands are given to mining, people of our village are requesting that they should give us plots but from where we should give plots, we don't have any other place. All the waste lands have been given in mining lease on rent of 50 years. So we are unable to reply villagers.	It is the responsibility of government to allot the land to landless people. And it does not cover under our purview. Habitation of lions are not observed and the same has been reported in conservation plan approved by Forest Department.

		Officers of forest department and mining lease are also sitting here and I want to ask them whether the lions come here or not? And if yes, then why you have not considered in your studies?	
5	**Name:** Ravjibhai Waghjibhai Baraiya on behalf of Gita Ben Rameshbhai Makwana (President Mahuva Nagarpalika) **Village:** Padhiyarka	His written submission dated 28/04/2023 was read out verbatim by him. The written submission is enclosed herewith as **Annexure - C100.**	The project proponent stated that questions asked by presenter are similar to those of Mahuva Bandhara Khetivadi Paryavaran Bachav Samiti and answer to the above question is already given earlier in detail. A written reply is enclosed herewith as per **Annexure D-100.**
6	**Name:** Makwana Jasubhai Veljibhai **Village:** Doliya	As you are talking about industrial development by GDP that is looking like cheating us. Within India, 60 percent of people are involved in agriculture and I am connected to agricultural scheme. - Gram Nirman Samaj at Devadia,which is functioning within all the villages of the Mahuva. I have been doing development work there for three years within the Devadia cluster and I am directly associated with the farmers and I am also a farmer's son. This year the Prime Minister has declared the millet year. He is trying to ensure that people in foreign countries do not eat millets, so that people in foreign countries eat them and farmers get good prices and develop millets within the sea shore area. This millet is not grown in other areas because Mahuva was considered as Kashmir of Saurashtra so why not now and	Representative of Project replied that there was only one project in 2008 that was responded to by the project proponent And it belonged to a Cement Plant. In 2008, the Gujarat government issued three separate mining lease L.O.I. to mining project. It was for 3400 hectares of land of L.O.I. On submission, the Ministry of Environment Forest, Delhi gave permission for only 1600 hectares out of 3400 hectares and the deed was done for 1600 hectares of land. In 2008 also there were three leases and three L.O.I. You are misleading the people by talking about only one lease. In response to the argument, it has been said that, as per the plan of Mining passed by the Indian Bureau of Mines, Mining will be started from a minimum of

		why no effort is being made by the government? If all the land is mined, then the people of this area have to go to another place to feed themselves, then what is the future of the next generation? Three mining projects have been undertaken by the same company in seven villages of Mahuwa taluka. That entire mining area is continuous in 2008-10 and was considered entire area as one area. But now it has been divided into three parts, what could be the reason for this area was divided into three parts now? At present, sand is being dredged from the sea without the permission of the government. Vehicles moves for sea sand at night due to this lion may be harmed. We completely boycott Mining. In response, it is argued that, if this mining takes place, how far into it should be mined? It is argued that in existing construction of Nirma Cement plant, you can see salty water and if you are mining here then sea water will intersect here. And also after Mining, all mining pit will also get filled with sea water and we cannot have farming here.	one meter to maximum mining up to 15 meters will be done. In response to the argument, we will not intersect the ground water where there is sea water. Now because of the water that you draw from the bore/well for farming, the saline water level has increased. If the pit is filled with sweet water, the level of fresh water will rise. We can see an example of Ambuja cement where all mining pits are full of sweet water & farmers are farming sugarcane successfully. And also because of this ground water table of sweet water has increased. In this project also rain water will be collected in the mining pit. So the level of fresh water will rise and salinity will decrease.
7	**Name:** Baraiya Punabhai Rambhai **Village:** Padiyarka	We don't want to do Mining under any circumstances.	The submission has been heard. Mining will be done in compliance with environmental and Mining laws/rules.
8	**Name:** Joliya Kasabhai **Village:** Doliya	My main issue is animal husbandry. My village has a population of 4102 and 3516 cattle breeders, that means 70 to 80 percent of the population is with animal husbandry. Our village goucher land was given	The submission has been heard. Care will be taken to ensure that farmers and livestock are not affected.

		for bund & now we have zero goucher. If waste land is given to a company for mining but the first right comes to the cattle breeder and then to all others. 2. All the traders have taken Millet from our village which has been sold up to 2500 Rs./20 Kg. The price of cotton was Rs.1500/20 Kg and the price of desi millet was Rs.2500/Kg. Similarly nutritious grains are grown within this mine area. While another business is vegetables and this nutritious food grain does not grow anywhere else and if this goucher is also going in mines then where should we go to graze our animals? The first right in waste land is that of the cattle breeder not of industries. That point is to be considered. Today our village is moving by animal husbandry to white revolution. That's why we don't want this mining in nearby villages.	
9	**Name:** Joliya Vikrambhai Arjanbhai **Village:** Dodiya	A total of 7,000 to 8,000 cattle of cattle breeder live in these seven villages and the State Government and the Central Government ask to increase the milk production capacity as these are goucher lands, even though if the State Government has given for the mining to Nirma Company but government has to gives back to the Gram Panchayat for grazing and no mining should be done for any reason. The 7000 to 8000 cattle will starved due to mining. Every day we produced 10,000 liters milk which will be loss to us. Therefore we are totally against this Mining. At the same time, daily income of	This is not a question related to the environment of the project. Your submission is related to land and this question can be decided only by the Government. No farmers will lose their land and care will be taken to ensure that livestock are not affected.

		five thousand liters in the morning and evening time is being done in that way, the total income of ten thousand liters of milk is being done daily, and then the current income is about 6 to 7 lakhs. This mining will result in loss of revenue. Therefore, we are totally against this Mining.	
10	**Name:** Khimjibhai Lakhabhai Baraiya **Village:** Padhiyarka	I want to say to the Collector sir that if the Government of India says that there is no goucher in any village, it is the Government's duty to give the goucher land allotted for bandhara scheme should not be changed to other purpose. Even though there are government rules, the government should tell for what purpose it has been changed. The government says that it is not fertile land. So what is the reason for telling such a lie? The soil here is fertile. But the company says that nothing is growing in this agriculture land and land is barren and saline. As they say, if you see here once, you will know how much vegetables are grown. You can eat vegetables, but you can't eat cement? If you live by eating cement, then build a factory tomorrow. Whatever you write should be correct do not write wrong things.	Representative of project informed that the waste land for the project has been allotted by the Government for Mining. Care will be taken to ensure that farmer's land is not affected.
11	**Name:** Rameshbhai Khatabhai Gohil **Village:** Waghnagar	How much waste land will be left by Nirma Company for facilities like Primary, Secondary School, Anganwadi and Health Center?	All the three mines together have 280 hectares of Government waste land. And how much to release will be decide by the Government.
12	**Name:** Chhaganbhai Nanbhai Bhalia	Doliya village is a village with a population of 7000. Our village is on coast line. Nature has given so many blessing to	The submission has been heard. Mining will be done in compliance with environmental and health

	Village: Doliya	Doliya. If you want to eat chemical free vegetables, come to Doliya. The reason why there was not been a single case in our village during the Corona period is the good environment and the preservation of the environment given by nature. All kinds of plants grow in Doliya village. Such a place will not be seen anywhere. We are satisfied with what God has given us so let us enjoy what God has given us.	related laws/rules.
13	**Name:** Narsinhbhai Mohanbhai Joliya. **Village:** Doliya	Narsinhbhai has opposed of mining in this area.	The submission has been heard. Mining will be done in compliance with environmental and mining laws/rules.
14	**Name:** Samast Dudheri Samaj **Village:** Dudheri	The farmers sitting here have come here after leaving their cattle starved. We don't need anything else. Collector sir, if there was a pit here, you would not be sitting here. Industry will built a wall on all sides. We don't want Nirma or even a single plant.	The submission has been heard by project proponent & ensured that no farmers will lose their land and care will be taken to ensure that livestock are not affected.
15	**Name:** Hamirbhai Shiyal on behalf of Vangar Shantuben Narsihbhai Chauhan (Katpar Zilla Panchayat Member)	They opposed the Mining. Written application is submitted as per **Annexure- C44.**	A reply to the written application has been submitted as per **Annexure - D44.** Mining will be done in compliance with Environmental and Mining Laws/Rules.
16	**Name:** Bhalia Gopalbhai Jayantibhai	If you will do Mining then what will we do during rest of our life? If we talk with reference to Environment then the only Asiatic lion of World is found in our Gir forest and not anywhere else in World and	The submission has been heard by project proponent & stated that questions asked by presenter have been answer to the above question is already given earlier in detail.

		chances of lions falling in the pits increases due to mining will be high so what about it ?	We will work as per the conservation plan approved by the forest department. Mining will be done in compliance with Environmental and Mining Laws/Rules. We will work as per the conservation plan approved by the forest department. Mining will be done in compliance with Environmental and Mining Laws/Rules.
17	**Name:** Makwana Rajeshbhai **Village:** Dudheri	Airborne particulates generated during mining enter the respiratory track and damage the lungs, due to which many diseases are caused like Malaria, Typhoid, Dengue And Diarrhea-Vomiting etc. Mention the advantages & disadvantages of health due to mining.	Representative of project proponent said that we are going to do mining according to all the rules for health. Even the workers involved in mining will also take necessary precautions by use of adequate PPEs. Mining will be done in compliance with Environmental and Mining Laws/Rules.
18	**Name:** Baraiya Bhupatbhai Sukhabhai **Village:** Padhiyarka	Sir, you have just said that you will take our land with willingness only; otherwise you will not take it, Which you have already informed in first session. He told that as the British had ruled and occupied the entire country of India and for any reason and by guile if someone gives this land for mining and makes pits, then what to do with the neighbors and if their total land is given for mining. So their source of income is gone. We have question to Collector Shri whether you can allot a wasteland as goucher land as we have no goucher land in our village. If you can give this goucher land to Nirma then why not to us? Which land will be	Project proponent stated that no goucher land is allotted to Nirma for mining. The private land will be purchased from the persons at market price with their willingness only.

		allotted by Panchayat for sports activity for development of our children? We don't want Mining and Nirma Plant and if Nirma comes then we will protest with violent agitation as we strongly oppose both.	
19	**Name:** Bharwad Palabhai Gobarbhai **Village:** Padiyarka	Sir, we want to know are you going to establish Nirma Cement Plant or Mines, as the people here are not aware of it. They don't know about Nirma Cement plant so please let us know the actual fact about this. So will you tell us the truth about it?	Representative of Project replied that Everyone knows that Nirma Cement Plant is about to come and this mining is to be done for that only. The case is pending with Supreme Court and once case is completed then Nirma Cement Plant will also come.
19-A	Bharatbhai Naranbhai Shiyal Village: Dudheri	In the argument, it was inform by Bharatbhai that Nirma Company has been given a stay in the Supreme Court.	In response to the said argument, it is requested that you should not spread wrong information to mislead the people. Because, the Supreme Court has not given any stay.
20	**Name:** Bhikhabhai Valabhai Bhil **Village:** Padhiyarka	Sir, as you have said that you will give irrigation water for farming but where we will use the irrigation water if the farming itself will not exist due to mining activity? The only request I have is that you should have some mercy on us. Our children will suffer if you do this Mining. And previous submissions made by the people are correct.	Project proponent stated that care will be taken to ensure that the land of the farmers is not affected.
21	**Name:** Kadviben **Village:** Dudheri	Our people are sitting here since morning. We have enough strength to fight and protest against Mining. We have walked down to Gandhinagar in the past to protest against Nirma. The questions will arise for education of people and their future will be in trouble.	Project proponent noted the verbal submission by the presenter.

During the public hearing, Shri Bhalya Vijaybhai Mansukhbhai publically asked opinion of the present villagers that whether the land is to be given for mining project of M/s Nirma Ltd & the permission is to be granted to the mining project or not ? In response of that majority of people present in Public Hearing expressed their opposition by raising their hands and voice to give the land to M/s Nirma Ltd and to grant permission.

Shri A.J. Rathod, Regional Officer, repeatedly asked the people present from villages to do representations, if any. However, no further representations were made. He added that during public hearing too some written representations are received which all written representations and replied by project proponent will be included in the proceedings of the hearing. He summarized the entire Public Hearing proceedings.

Then after he thanked all present villagers and with due permission of District Collector and District Magistrate, Bhavnagar, he declared Public Hearing process as completed.

Venue: Nirma Cement Plant Area, NH 8 E/51, Survey No. 80, Village: Padhiarka, Ta. Mahuva, Dist: Bhavnagar
Date: 28/04/2023

A.J. Rathod
Regional Officer,
GPCB, Bhavnagar

R. K. Mehta (IAS)
District Collector &
District Magistrate,
Bhavnagar

એનેક્ષર – બી- ૧ (ગુજરાતી)

લોક સુનાવણીમાં ભાગ લેનાર અસરગ્રસ્ત લોકો દ્વારા ઉઠાવાયેલ મુદ્દા અને પ્રોજેકટના પ્રતિનિધિ દ્વારા આપવામાં આવેલ પ્રત્યુતર.

ભારત સરકારના પર્યાવરણ, વન અને જળવાયુ પરીવર્તન મંત્રાલય, નવી દિલ્હીના જાહેરનામા ક્રમાંક: એસ.ઓ. ૧૫૩૩ તા.૧૪/૦૯/૨૦૦૬ અને તેના પછીના સુધારા ક્રમાંક એસ. ઓ. ૩૦૬૭ (ઈ), તા. ૦૧/૧૨/૨૦૦૯ ના તેમજ વખતોવખત થયેલ સુધારાના અનુસંધાને મેસર્સ નિરમા લિમીટેડ (માઈનીંગ લીઝ એરીયા- ૩૩૨.૨૪ હેક્ટર) ની પ્રોજેક્ટ કેટેગરી 'એ' અંતર્ગતની પ્રસ્તાવિત પઢિયારકા અને ડોળીયા લાઈમસ્ટોન માઈનિંગ (પ્રસ્તાવિત રેટ ઓફ માઈનીંગ-૧.૫ એમ. ટી. પી. એ.) પ્રોજેક્ટની લોક સુનાવણી તા.૨૮/૦૪/૨૦૨૩ ના રોજ ૧૩:૦૦ કલાકે, સ્થળ: નિરમા સિમેન્ટ પ્લાન્ટ વિસ્તાર, નેશનલ હાઈવે- ૮ ઈ/૫૧, સર્વે નં. ૮૦, ગામ: પઢિયારકા, તા: મહુવા, જિલ્લો: ભાવનગર ખાતે માન. જીલ્લા કલેકટર અને જીલ્લા મેજિસ્ટ્રેટશ્રી આર. કે. મહેતા (આઈ.એ.એસ.), ભાવનગરની અધ્યક્ષતા હેઠળ યોજવામાં આવેલ.

શ્રી એ.જે.રાઠોડ, પ્રાદેશિક અધિકારી, જી.પી.સી.બી., ભાવનગર અને સભ્ય સચિવશ્રી, ગુજરાત પ્રદૂષણ નિયંત્રણ બોર્ડ, ગાંધીનગરના પ્રતિનિધિએ લોક સુનાવણી દરમ્યાન હાજર રહેલ સૌને આવકાર્યા અને ઈ.આઈ.એ. નોટીફિકેશન અંતર્ગત વિવિધ જોગવાઈઓ અને લોક સુનાવણી પ્રક્રિયા અંગે માહિતી આપી. તેઓએ ભારત સરકારના પર્યાવરણ, વન અને જળવાયુ પરીવર્તન મંત્રાલય, નવી દિલ્હીના જાહેરનામાઓ અંતર્ગત સમાવિષ્ટ ઉદ્યોગો/ પ્રવૃત્તિઓ માટે, નવા ઉદ્યોગો માટે તથા તેમાં વિસ્તૃતીકરણ કે ઉત્પાદનમાં ફેરફાર કે આધુનીકરણ માટે પર્યાવરણીય મંજુરી મેળવવી જરૂરી છે, તે માહિતી આપેલ. તેઓએ જાહેરાત કરેલ કે ભારત સરકારના પર્યાવરણ, વન અને જળવાયુ પરીવર્તન મંત્રાલય, નવી દિલ્હીના જાહેરનામાઓની જોગવાઈઓ અનુસાર સ્થાનિક અસરગ્રસ્ત લોકો સૌપ્રથમ આ સુનાવણીમાં મૌખિક રજૂઆત કરી શકશે, જ્યારે વ્યાજબી હીત ધરાવતા અન્ય વ્યક્તિઓ તેઓની રજૂઆત લેખિતમાં કરી શકશે જેનો કાર્યવાહી નોંધમાં સમાવેશ કરવામાં આવશે. તેઓએ સ્પષ્ટતા કરી કે આ લોક સુનાવણી સમિતિ, સુનાવણી દરમ્યાન રજુ થયેલ બાબતોને આવરી લઈને કાર્યનોંધમાં સમાવેશ કરવામાં આવશે.

તેમણે આજની લોક સુનાવણીની જાહેરાત ગુજરાતી દૈનિક સમાચાર પત્ર "સંદેશ" તેમજ અંગ્રેજી દૈનિક સમાચાર પત્ર "ઈન્ડિયન એકસપ્રેસ"માં તા. ૨૬/૦૩/૨૦૨૩ના રોજ આપવામાં આવેલ તે બાબતે માહિતી આપેલ. વધુમાં તેઓએ જણાવેલ કે, સદર પરીયોજનાની કાર્યકારી સારાંશની નકલ પ્રસ્તાવિત લાઈમસ્ટોન માઈનિંગ પ્રોજેક્ટની ૧૦ કિલોમીટર ત્રિજ્યામાં આવતા ગામોમાં આપવામાં આવેલ.

તેમણે વધુમાં જણાવેલ કે, આ લોકસુનાવણી પહેલા પ્રસ્તાવિત પ્રોજેક્ટને સંબંધિત નીચે મુજબના વ્યક્તિઓ/સંસ્થાઓ દ્વારા વાંધા-સુચનો રજૂ કરવામાં આવેલ છે જેનો તથા તેના પ્રોજેકટ પ્રોપોનેન્ટ દ્વારા કરવામાં આવેલ પ્રત્યુત્તરને આવરી લઈને કાર્યનોંધમાં સમાવેશ કરવામાં આવશે.

- શ્રી મહુવા બંધારા ખેતીવાડી પર્યાવરણ બચાવ સમિતિ, મુ. વાંગર, તા. મહુવા, જી.ભાવનગર
- વાંગર ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- માઢીયા ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- પઢીયારકા ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- ડોળીયા ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- દુધાળા નંબર-૧ ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- દુધેરી ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર

- ગુજરડા ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- દેવળીયા ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- ખરેડ ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- કતપર ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- સમઢીયાળા-૧ ગ્રામ પંચાયત કચેરી, તા. રાજુલા, જી.અમરેલી
- પટવા ગ્રામ પંચાયત કચેરી, તા. રાજુલા, જી.અમરેલી
- ગઢડા ગ્રામ પંચાયત કચેરી, તા. મહુવા, જી.ભાવનગર
- સુશ્રી શાંતુબેન નરશીભાઈ ચૌહાણ,સભ્ય, જીલ્લા પંચાયત મતદાર મંડળ, ભાવનગર,
- શ્રી મોહનભાઈ હમીરભાઈ મકવાણા, પ્રમુખ શ્રી મહુવા તાલુકા ગ્રામ્ય, ભાજપ, જી. ભાવનગર
- સુશ્રી અંજુબેન ઘેલાભાઈ મકવાણા, પ્રમુખ શ્રી તાલુકા પંચાયત, મહુવા, જી. ભાવનગર
- શ્રી વિઠ્ઠલભાઈ માધુભાઈ વાઘેલા, ચેરમને શ્રી કારોબારી સમિતિ, મહુવા, જી. ભાવનગર
- શ્રી ભરતભાઈ નારણભાઈ શિયાળ, સદસ્ય શ્રી, ૯-દુધેરી તાલુકા પંચાયત મતવિસ્તાર, જી. ભાવનગર
- શ્રી છગનભાઈ નાનભાઈ ભાલીયા, સદસ્ય, ૮-ડોળીયા તાલુકા પંચાયત મતવિસ્તાર, જી. ભાવનગર
- શ્રી રામજીભાઈ ચીથરભાઈ ડોળાશીયા, ૧૪- કતપર, તાલુકા પંચાયત મતવિસ્તાર, જી. ભાવનગર
- શ્રી મહેશ પંડ્યા, પર્યાવરણ મિત્ર, જી. અમદાવાદ.
- શ્રી વિઠ્ઠલભાઈ બી. સોલંકી, પ્રમુખશ્રી (મહુવા), કિસાન એકતા સમિતિ, જી. ભાવનગર
- શ્રી સાગર રબારી, ટ્રસ્ટીશ્રી, ગુજરાત ખેડૂત એકતા મંચ, જી. ભાવનગર
- શ્રી નીતીશ બાંભણીયા, પ્રમુખશ્રી, જટાયુ નેચર ક્લબ, મહુવા, જી. ભાવનગર

ત્યારબાદ માન. જીલ્લા કલેકટર અને જીલ્લા મેજીસ્ટ્રેટશ્રી તેમજ આ લોક સુનાવણીના અધ્યક્ષશ્રી આર.કે.મહેતા (IAS)ની મંજુરીથી શ્રી એ. જે. રાઠોડ, પ્રાદેશિક અધિકારી, જી.પી.સી.બી., ભાવનગર અને સભ્ય સચિવશ્રી, ગુજરાત પ્રદૂષણ નિયંત્રણ બોર્ડ, ગાંધીનગરના પ્રતિનિધિ એ પ્રોજેક્ટ પ્રોપોનન્ટને તેમની સૂચિત પરીયોજના વિશે સ્થાનિક ભાષા એટલે કે ગુજરાતીમાં રૂપરેખા રજુ કરવા જણાવેલ.

પ્રોજેકેટ પ્રોપોનન્ટ વતી શ્રી જી.જે.અટ્રોજા, વાઈસ પ્રેસીડન્ટ, મે. નિરમા લિમિટેડ દ્વારા લોક સુનાવણીમાં હાજર સૌનુ સ્વાગત કરવામાં આવેલ. ત્યારબાદ પ્રોજેક્ટ પ્રોપોનન્ટ મે. નિરમા લીમીટેડમાં એન્વાયરમેન્ટ એન્જીનીયર તરીકે ફરજ બજાવતા સુશ્રી ખુશાલી ઓઝા દ્વારા ગુજરાતી ભાષામાં પાવર પોઈન્ટ પ્રેઝન્ટેશન દ્વારા પરીયોજનાની રૂપરેખા આપવામાં આવેલ. જેમાં પ્રોજેક્ટનો પરીચય, પૂર્વભૂમિકા, પ્રોજેકટની વિગતો, ઉત્પાદન અંગેની માહિતી, પર્યાવરણ વ્યવસ્થાપન પધ્ધતિ, તેની અસરો અને સૂચિત નિયંત્રણો, પ્રોજેકટના લાભ, સામાજીક-આર્થિક વિકાસ યોજના અંગે હાજર રહેલ સર્વેને માહિતગાર કર્યા.

પરીયોજના વિશે ઉપરોકત પ્રેઝન્ટેશન પુર્ણ થયા બાદ, માન. જીલ્લા કલેકટર અને જીલ્લા મેજીસ્ટ્રેટશ્રી તેમજ આ લોક સુનાવણીના અધ્યક્ષશ્રી આર. કે. મહેતા (IAS)ની મંજુરીથી શ્રી એ. જે. રાઠોડ, પ્રાદેશિક અધિકારી, જી.પી.સી.બી., ભાવનગર અને સભ્ય સચિવશ્રી, ગુજરાત પ્રદૂષણ નિયંત્રણ બોર્ડ, ગાંધીનગરના પ્રતિનિધિ દ્વારા આ લોક સુનાવણીમાં હાજર સ્થાનિક લોકોને રજુઆતો/વાંધાઓ/સૂચનો માટે મંચ ખુલ્લો મૂકયો. લોક સુનાવણી દરમ્યાન હાજર લોકો તરફથી પુછવામાં આવેલ પ્રશ્નો/સુચનો/ રજુઆતો/વાંધાઓ/ અભિપ્રાયો રજુ કરવામાં આવેલ. આ રજુઆતો તથા પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિ શ્રી આશિષ દેસાઈ, પ્રેસીડેન્ટ (પ્રોજેકટ) ના પ્રત્યુત્તરની વિગતો નીચે પ્રમાણે છે.

ક્રમ	રજુઆત કરનારનું નામ અને ગામ	રજુ કરવામાં આવેલ મુદ્દાઓ	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિશ્રી દ્વારા આપવામાં આવેલ પ્રત્યુતર
(૧)	શ્રી શિયાળ ભરતભાઈ નારણભાઈ ગામ-દુધેરી	રજુઆતકર્તા દ્વારા શ્રી મહુવા બંધારા ખેતીવાડી પર્યાવરણ બચાવ સમિતીની લેખિત રજુઆતને અક્ષરશઃ વાંચી સંભળાવવામાં આવેલ. જે લેખિત રજુઆત આ સાથે એનેક્ષર-C-24 મુજબ સામેલ છે.	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિશ્રી દ્વારા નીચે મુજબ પ્રત્યુતર આપવામાં આવેલ. MoEF & CC, નવી દિલ્હી દ્વારા મંજૂર કરાયેલ TOR મુજબ તૈયાર કરાયેલ ડ્રાફ્ટ EIA રિપોર્ટ સબમિટ કરવા પર, ગુજરાત પ્રદૂષણ નિયંત્રણ બોર્ડે તેમના ત્રણ લાઈમસ્ટોન માઈનિંગ લીઝની પર્યાવરણીય મંજૂરી માટે ૨૮/૦૪/૨૦૨૩ના રોજ જાહેર સુનાવણીની તારીખ નક્કી કરી છે. શ્રી મહુવા બંધારા ખેતીવાડી પર્યાવરણ બચાવ સમિતિ, વાંગરની તારીખ: ૨૬/૦૪/૨૦૨૩ રજૂઆત મુજબ, તેના જવાબ નીચે પ્રમાણે છે. ૧. વન અને પર્યાવરણ મંત્રાલય દ્વારા રચિત પ્રોફેસર સી.આર.બાબુ કમિટી તેમજ પ્રોફેસર સી.કે. વાશેનેય કમિટીના રિપોર્ટ કે જેમાં આ વિસ્તારની જમીનને વેટલન્ડ તરીકે દર્શાવી હતી. આ રિપોર્ટને નામદાર NGT દ્વારા માન્ય રાખવામા આવેલ નથી અને નામદાર NGT દ્વારા તારીખ ૧૪/૦૧/૨૦૧૫ના આદેશથી ભારત સરકારના વન અને પર્યાવરણ મંત્રાલય નવી દિલ્હીના ઈ. સી. કેન્સલ કરવાના હુકમને રદ કરેલ છે. વધુમાં, નાયબ વન સંરક્ષકે ૦૯/૧૧/૨૦૨૦ ના રોજ તેમના પત્ર દ્વારા પ્રમાણિત કર્યું છે કે "કોઈ રાષ્ટ્રીય ઉદ્યાન, અભયારણ્ય, બાયોસ્ફીયર રિઝર્વ, વન્યજીવ કોરિડોર, રામસર સાઈટ, વાઘ/હાથી રિઝર્વ એ માઈન્સ થી ૧૫ કિમી વિસ્તાર માં નથી". ત્રણેય ખાણોનો વિસ્તાર માટેના નાયબ વન સંરક્ષક(DCF) ના પત્રની નકલ Annexure - D 24 ની સાથે રજૂ કરેલ છે. આ ઉપરાંત, નવેમ્બર-૨૦૨૨માં જાહેર કરાયેલ તાજેતરની રામસર કન્વેન્શન સાઈટ મુજબ, સૂચિત માઈનિંગ લીઝ વિસ્તારના કોર ઝોન અને બફર ઝોન વેટલેન્ડ તરીકે નવીનતમ અહેવાલમાં આવતા નથી. આ બાબતના પત્રની નકલ Annexure - D 24 ની સાથે રજૂ કરેલ છે.

			2.રાજ્ય સરકારના ઉદ્યોગ અને ખાણ વિભાગ દ્વારા કેન્દ્ર સરકારની પૂર્વ મંજૂરી મેળવીને લાઈમસ્ટોન બેરિંગ એરિયામાં માઈનિંગ લીઝ મંજૂર કરે છે. તમામ પ્રકારની જમીનોમાં ખનિજ અધિકારો સરકાર પાસે હોય છે. જે મુજબ રાજ્ય સરકારે માઈનિંગ લીઝ મંજૂર કરેલ છે. જો કે, કંપની ખેડૂતોની સંમતિ વિના ખાણકામ માટે ખેતીની જમીન સંપાદન કરશે નહીં. જો ખેડૂતો તેમની જમીન બજાર દરો/વ્યાપારી વાટાઘાટો પર ખાણકામ માટે વેચવા/સંમતિ આપવા માંગતા હોય, તો માઈનિંગ લિઝ ધારક, તે મુજબ, જમીન ખરીદી કરશે/તે જમીનનું ખાણકામ કરવા માટે જમીન માલિકની સંમતિ લેશે. આમ, જમીન માલિકની સંમતિ મેળવ્યા પછી જ તે જમીનમાં ખાણકામ કરવામાં આવશે. 3. માઈનિંગ લીઝ વિસ્તારની ૧૦ કિલોમીટરની અંદર માલણ બંધારા અને સમઢીયાળા ક્ષાર પ્રસાર અટકાવ બંધ છે અને માઈનિંગ લીઝ પ્રવર્તમાન અધિનિયમ અને નિયમો મુજબ મંજૂર કરવામાં આવેલ છે. માલણ અને નિકોલ બંધારાના પાણીના આવારા ક્ષેત્રમાં તેમજ લાભીત વિસ્તારોમાં મંજુર થયેલ માઈનિંગ લીઝ વિસ્તારોનો સમાવેશ થતો નથી. સમઢીયાળા ક્ષાર અંકુશ બંધનો ઉદ્દેશ દરિયાના ખારા પાણીને જમીન તરફ વધતા અટકાવવાનો છે. જેમાં વરસાદી પાણીનો સંગ્રહ થાય છે આ બંધારામાં પાણીના આવારા માટે તથા સંગ્રહ શક્તિ વધે તે માટે આયોજન કરવામાં આવેલ છે અને ક્ષાર અંકુશ બંધમાં પાણીના પ્રવાહને સરળ બનાવવા માટે સિમેન્ટ પ્લાન્ટની આજુબાજુમાં ત્રણ નહેરો બનાવવામાં આવશે. સિંચાઈ વિભાગની સૂચન/સલાહ મુજબ કંપની પાણીના સંગ્રહમાં વધારો કરવા માટે સૂચિત ભૂમિને બાંધારાની તરફ ઊંડા કરશે. માઈનિંગ લીઝ વિસ્તારમા કોઈ પણ જળાશય આવેલ નથી. આ ઉપરાંત માઈનિંગ દરમિયાન પર્યાવરણ ને લગતા તમામ નિયમોનું પાલન કરવામાં આવશે. ૪. વન અને પર્યાવરણ વિભાગ, ગાંધીનગર

			દ્વારા કોઈ બૃહદગીર વિસ્તારને રીજર્વે ફોરેસ્ટ જાહેર કરવામાં આવેલ નથી. તથા નાયબ વન સંરક્ષક(DCF) દ્વારા ૦૯/૧૧/૨૦૨૦ ના પત્ર થી આરક્ષિત વનનો નકશો પ્રમાણિત કરી જણાવ્યુ છે કે "ત્રણ ખાણોના ૧૫ કિમીના અભ્યાસ વિસ્તારમાં કોઈ રાષ્ટ્રીય ઉદ્યાન, અભયારણ્ય, બાયોસ્ફિયર રિઝર્વ, વાઈલ્ડલાઈફ કોરિડોર, રામસર સાઈટ, વાઘ/હાથી અનામત કરેલ નથી". આ બાબત માટેના નાયબ વન સંરક્ષક(DCF) ના પત્રની નકલ Annexure - D 24 ની સાથે રજૂ કરેલ છે. ઉપરાંત, ખાણકામ લીઝ વિસ્તારમાં વન્ય જીવન અને શેડ્યૂલ ૧ પ્રજાતિઓનો કોઈ રહેઠાણ વિસ્તાર નથી. વન્યજીવ વિભાગ દ્વારા અનુસૂચિI વન્યજીવોના રક્ષણ માટે સંરક્ષણ યોજના મંજૂર કરવામાં આવી છે. અગ્ર મુખ્ય વન્ય જીવ સરંક્ષક દ્વારા તારીખ ૨૦/૧૨/૨૦૨૧ ના રોજ મંજૂર કરાયેલ વન્યજીવન સંરક્ષણ યોજના બાબતના પત્રની નકલ Annexure - D 24 ની સાથે રજૂ કરેલ છે અને તે મુજબ આ વિસ્તારમાં ખાણકામની પ્રવૃત્તિઓ શરૂ કરવાની સાથે અમલમાં મૂકવામાં આવશે. ૫. મંજૂર ખાણકામ લીઝ વિસ્તારોમાં પડતી સરકારી જમીન ખનીજ સભર હોઈ જિલ્લા મહેસૂલ વિભાગ દ્વારા જમીનની ઉપલબ્ધતા ભલામણ અહેવાલ મેળવીને સરકાર દ્વારા ખાણકામની લીઝ આપવામાં આવેલ છે. ૬.કોઈ પણ માઈનિંગ લીઝ નો વિસ્તાર કોસ્ટલ રેગ્યુલેટરી ઝોન (કુદરતી દીવાલ-બફર ઝોન) મા આવતો નથી અને આ કુદરતી દીવાલ માં કોઈ ખોદકામ કરવાનું નથી.ખાણકામ લીઝ વિસ્તારોમાં ચૂનાના પત્થરોનું ખાણકામ ભૂગર્ભજળના સ્તરથી ઉપર હાથ ધરવાનું આયોજન છે. ખાણકામની પ્રવૃત્તિઓ કોઈપણ રીતે ભૂગર્ભ જળને છેદશે નહીં. જેથી ખાણકામની ગતિવિધિઓને કારણે દરિયાના પાણી નો પ્રવેશ થવાની શક્યતા નથી. વાસ્તવમાં ખાણકામ થી થયેલ કેટલાક ખાડાઓનો ઉપયોગ કૃત્રિમ રિચાર્જ સ્ટ્રક્ચર તરીકે કરવામાં આવશે અને આ ભૂગર્ભ જળની ગુણવત્તામાં સુધારો કરશે અને વધુ ખારાશના પ્રવેશને અટકાવશે અને વધેલી ખારાશમાં

			ઘટાડો કરશે. ૭. કંપનીએ પોતે જળ સ્ત્રોતના સંરક્ષણ માટે નર્મદા પાઈપલાઈનનું મંજૂર થયેલ કનેક્શન GWIL ને તારીખ 01.07.2011 ના પત્ર થી પરત સોંપ્યું છે. આ બાબતના પત્રની નકલ Annexure - D 24 ની સાથે રજૂ કરેલ છે અને GWIL એ તેને રદ કર્યું નથી. અમને પર્યાવરણ ક્લિયરન્સ મળતા, ઉપરોક્ત GWIL પરવાનગીને પુનર્જીવિત કરીશું અથવા ફરીથી કરાર કરીશું. ૮. ત્રણેય માઈનિંગ લીઝનો જમીન વિસ્તાર અને સિમેન્ટ પ્લાન્ટનો જમીન વિસ્તાર અલગ-અલગ છે. વધુમાં નામદાર NGT દ્વારા તારીખ ૧૪/૦૧/૨૦૧૫ના આદેશથી ભારત સરકારના વન અને પર્યાવરણ મંત્રાલય નવી દિલ્હીના ઈ. સી. કેન્સલ કરવાના હુકમને રદ કરેલ છે. ખાણકામ અને સિમેન્ટ પ્લાન્ટ બંને પ્રોજેક્ટ તેમજ EC એપ્લિકેશન અલગ-અલગ હોવાથી EIAમાં તેનો ઉલ્લેખ નથી.
(૨)	શ્રી ચોળીયા મનીષ જીતુભાઇ ગામ- દુધેરી	૧.પર્યાવરણ એકશન પ્લાન દર્શાવેલ છે. તેમાં બધામાં કહેવામાં આવેલ છે કે, જળ પ્રદુષણ, ધ્વની પ્રદુષણ, વાયુ પ્રદુષણ અને જમીન પ્રદુષણ બધાને નિયંત્રણ કરવામાં આવશે એનો મતલબ એ થયો કે પ્રદુષણ તો થશે જ ને? એટલે જ તો નિયંત્રણ કરવું પડે. ૨. રામસર સાઈટની વારંવાર વાત કરવામાં આવે છે કે, રામસર સાઈટ નથી. હા, એ વાત સાચી છે કે ગુજરાતમાં માત્ર ચાર જ રામસર સાઈટ છે. આપણે અહીયા નથી. જો આ વસ્તુનું , પ્રદુષણ એટલું બધું થશે તો રામસર સાઈટના જે યુનેસ્કોના નિયમો છે તેમાં તે પ્રદુષણને એવું બધું થશે તો અમારા ભવિષ્યની	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિશ્રી દ્વારા જણાવેલ કે ખેતી વગર કે વન્ય પ્રાણીઓ વગર કે પક્ષીઓ વગર કે ઉદ્યોગો વગર પણ ચાલવાનું નથી. આથી બધાને સાથે રાખીને અને જેનાથી પર્યાવરણને ન્યુનતમ નુકશાન થાય તે પ્રમાણે જો કામ કરવામાં આવે તો તેને સસ્ટેનેબલ ડેવલપમેન્ટ કહી શકાય. અત્યારે સ્થિતિ એવી છે કે સમગ્ર દુનિયા એ સસ્ટેનેબલ ડેવલપમેન્ટનાં સિધ્ધાંત પર ચાલે છે જે રીતે મોબાઈલના ટાવરથી તથા તેની વેવથી પક્ષીઓને નુકશાન થાય છે તે જ રીતે માણસોને પણ નુકશાન થાય છે. તેમ છતાં અત્યારે કોઈપણ વ્યક્તિ મોબાઈલ વગર રહી શકતો નથી. વધુમાં જે રામસર સાઈટની વાત છે કે તો તેમાં રામસર સાઈટ એ કોઈ વેટલેન્ડ ડિકલેર કરેલ નથી. વેટલેન્ડ ડિકલેર કરવા માટે જે યુનેસ્કોના નિયમો છે તે નિયમો ખુબ અઘરા છે તે મુજબ મહુવા ખાતેના આ સ્થળનું વેટલેન્ડ ડિકલેર થશે કે કેમ તે કહી

		કોઇ આશા જ નહી રહે અને ભવિષ્યમાં બનશે નહી. ૩. લાઈમ સ્ટોન પથ્થરની બાબતે મારી નોંધ છે કે, લાઈમસ્ટોન પથ્થર વધુ પડતો કચ્છમાંથી મળે છે અને તે રણ વિસ્તાર પણ છે તો તે ત્યાંથી પણ લેવો જોઈએ. શા માટે એવો પ્રયત્ન છે કે માનવ જીવનને નુકશાન કરવું અને અહીંયા જ પથ્થર કાઢવા. ૪. હાથી, વાઘ તેવા પ્રાણી અહીં જોવા ન મળતા હોય તો અહી તમને માણસો પણ જોવા નથીમળતા?અહી સિંહ પણ જોવા મળે છે. અને ઈશ્વરની કૃપા હશે તો, એ વાઘ, હાથી પણ જોવા મળશે. ૫. પક્ષીઓ બાબતે હમણાં જ વિશ્વ ચકલી દિવસ ઉજ્વવામાં આવ્યો અને અમને ગર્વ છે કે, અમને ચકલીઓનો અવાજ સાંભળવા મળે છે. નેટવર્કના તરંગોને લીધે આટલું નુકશાન થતું હોય તો, આ ધોંધાટ અને અવાજ થાય તો તેનાથી કેટલું નુકશાન થશે. સાથે અમારે ત્યાં મોર પણ જોવા મળે છે. દેશની જી.ડી.પી માટે વિકાસ જરૂરી છે પણ એટલું વિકાસ કરીને કયાં જવું છે તો અમારી નમ્ર વિનંતી છે કે, અમારા માટે તો આજ અમારી દુનિયા છે અને અમને ખુશ રહેવા દયો. અમારી ધરતી અમારી માં છે.	શકાય તેમ નથી. વધુમાં ચુનાના પથ્થરને કચ્છમાંથી કાઢવાની જે વાત રજૂઆતકર્તા દ્વારા કરવામાં આવેલ છે તો એ સંબંધામા ત્યાના ખેડુતો/ગ્રામજનોની પણ આપની જેમ જ રજુઆત હોય એ સ્વાભાવિક છે કારણ કે તે તેમની માતૃભુમી છે અને આ માટે જ પ્રદુષણ નિયંત્રણ બોર્ડે નિયમો/મર્યાદાઓ ઘડેલી છે. જેથી નિયમો અનુસાર કાર્યવાહી કરવામાં આવે તો તેના માટે હંમેશા માન્યતા મળે છે.

(૨-એ)	શ્રી ભરતભાઈ નારણભાઈ શિયાળ ગામ- દુધેરી	રજૂઆતકર્તા દ્વારા રજુઆત કરવામાં આવી કે, કંપની તેમની જમીનને વેસ્ટલેન્ડ કહે છે અને તેમની પાસે નામ. સુપ્રીમ કોર્ટ દ્વારા બનાવેલ બાબુ કમીટી અને વાશેનેય કમીટીના રીપોર્ટ છે. જેના રીપોર્ટ પછી જ કંપનીનું એન્વાર્યમેન્ટ સર્ટીફીકેટ ૨૦૧૧માં કેન્સલ કરેલ છે અને અત્યારે એ કેસ નામ .સુપ્રીમ કોર્ટમાં છે. નામ. ગ્રીન ટ્રિબ્યુનલમાં કેન્સલ થયેલા રીપોર્ટને નામ. સુપ્રીમકોર્ટમાં પડકારેલ છે અને અત્યારે નામ. સુપ્રીમકોર્ટમાં તે કેસ એન્વારમેન્ટ સર્ટિફીકેટ માટે ચાલુ છે.	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિશ્રી દ્વારા જણાવેલ કે પ્રો.બાબુ કમીટી અને પ્રો.વાશેનેય કમીટીએ એમ.ઓ.ઈ.એફ. દ્વારા બનાવેલ કમીટી છે અને તેમના દ્વારા આપેલ રીપોર્ટને નામદાર નેશનલ ગ્રીન ટીબ્યુનલે માન્ય રાખેલ નથી અને નામદાર નેશનલ ગ્રીન ટીબ્યુનલનો જે ઓર્ડર આવેલ છે તે ધ્યાને લેવા રજૂઆતકર્તાને વિનંતી છે. વધુમાં તેમને જણાવેલ કે, રજૂઆતકર્તા એ જે રજૂઆત કરી તે સાચી છે પરંતુ તે પ્લાન્ટ માટેનું છે અને હાલ માઈનીંગ માટેની પર્યાવરણ સુનાવણી ચાલુ છે.
(૩)	શ્રી મોહનભાઈ હમીરભાઈ મકવાણા ગામ: ગુજરડા (મહુવા તાલુકા-ગ્રામ્ય, પ્રમુખશ્રી ભારતીય જનતા પાર્ટી)	રજુઆતકર્તા દ્વારા તેઓની તા.૨૮/૦૪/૨૦૨૩ની લેખિત રજુઆતને અક્ષરશઃ વાંચી સંભળાવવામાં આવેલ. લેખિત રજુઆત આ સાથે Annexure-C 46 મુજબ સામેલ છે.	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિશ્રી દ્વારા પ્રત્યુતર આપવામાં આવેલ જે પ્રત્યુતરની નકલ Annexure-D 46 સામેલ છે. વધારામાં પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિશ્રી દ્વારા રજૂઆતકર્તાને સંબોધીને જણાવેલ કે, પ્રો. બાબુ કમીટી અને પ્રો. વાશેનેય કમીટીના આધારે મીનીસ્ટ્રીએ જે એનવારમેન્ટ કલીયરન્સ પર્યાવરણની મંજુરી કેન્સલ/રદબાતલ કરવામાં આવેલી હતી. તેને નામદાર નેશનલ ગ્રીન ટ્રીબ્યુનલે રીવાઈવ કરી દીધી છે તથા એમ.ઓ.ઈ.એફ.ના ઓર્ડરને કેન્સલ કરી દીધેલ છે અને તે ઓર્ડર સામે નામ. સુપ્રીમ કોર્ટે તેના ઉપર કોઈ સ્ટે આપેલ નથી તેથી હાલ પણ મેં. નિરમા કંપનીનું એન્વાયરમેન્ટ કલીયરન્સ જે સ્થિતિમાં હતું તે જ સ્થિતિમાં છે. વધુમાં, જળાશયો, વેટ્લેન્ડ કે વેસ્ટલેન્ડ બાબતની તેમના દ્વારા વાત કરાયેલ નથી. સમઢીયાળા બંધારા માટે તેમની પાસેથી નામ. હાઈકોર્ટે સરકારને ૧૦૦ હેકટર જમીન પાછી અપાવી અને એ ૧૦૦ હેકટરને ઉંડુ કરી અને જોડે-જોડે જ્યારે પ્લાન્ટ આવે ત્યારે

			સમઢીયાળા બંધારાને પણ ઉંડો કરવાનો છે. જેના પરિણામે આ બંધારામાં વધારે વરસાદનાં પાણીનો સંગ્રહ થઈ શકે તથા તેના પરિણામ સ્વરૂપે બંધારાની કેપેસીટીમાં ૨૦૦ ટકાનો વધારો થશે. તદુપરાંત, તેમને ઉમેરેલ કે દુધેરી સ્કુલ માટે જમીન આપવા મે. નિરમા કંપનીની પૂરે-પૂરી તૈયારી છે અને જરૂરીયાત મુજબ ફાળો આપવામાં માટે પણ કંપનીની તૈયારી છે. આ તૈયારીનાં રૂપે મે. નિરમા કંપની દ્વારા માન. કલેકટરશ્રીને તા.૨૪/૦૨/૨૦૨૩ના પત્રનાં સ્વરૂપમાં રજૂઆત કરવામાં આવેલ છે.
(૩-એ)	ભરતભાઈ નારણભાઈ શિયાળ ગામ: દુધેરી	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિનાં પ્રત્યુત્તરનાં અનુસંધાને શ્રી ભરતભાઈ શિયાળ દ્વારા નીચે મુજબ રજુઆત કરેલ. મે. નિરમા લી. કંપની દ્વારા કલેકટર સાહેબને તા.૨૪/૦૨/૨૦૨૩ના રોજ પત્ર જમા કરાવેલ હતો તેની તેમને જાણ નથી. તા.૨૪/૧૧/૨૦૨૨ના રોજ તેમના દ્વારા દુધેરી ગામનો ૫૫ નંબરનો ટુકડો સ્કુલ બનાવવા માટે માંગવામાં આવેલ છે.	આ રજૂઆત દરમિયાન શ્રી ભરતભાઈ નારણભાઈ શિયાળ દ્વારા જે રજૂઆત થઈ તે બાબતે પ્રોજેક્ટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા નીચે મુજબ જવાબ આપવામાં આવેલા છે. રજૂઆતમાનો ૫૫ નંબરનો સરકારી પડતરનો ટુકડો જે માઈનીંગ લીઝ એરીયાની અંદર આવેલ છે એ સંદર્ભે મે. નિરમા લી. કંપની સ્કુલ બનાવવા માટે આપી શકશે નહી. આ સિવાય દુધેરી ગામનો બીજો કોઈ પણ સર્વે નંબર આપવા માટે મે. નિરમા લી. કંપની તૈયાર છે અને તે માટેનો પત્ર ઉપર જણાવ્યા મુજબ માન. કલેકટરશ્રી, ભાવનગરને મે. નિરમા લી. દ્વારા આપવામાં આવેલ છે. તેમને વધુમાં જણાવેલ હતું કે, મે. નિરમા લી. કંપની દ્વારા ભૂતકાળમાં માઢીયા ગામમાં સરકારી સ્કુલ રોડના કપાતમાં આવતા નવી સ્કુલ બનાવવા માટે અરજી આવેલ હતી, જે અન્વયે મે. નિરમા લી. કંપની દ્વારા માન્ય રાખીને સ્કુલ માટે જમીન આપવામાં આવી હતી.
(૪)	શ્રી ભાલ્યા વિજયભાઈ મનસુખભાઈ ગામ: દુધેરી (ઉપ સરપંચ દુધેરી ગામ)	રજૂઆતકર્તાએ જણાવેલ કે તેમના ગામના લગભગ ૬૫૦ જેટલા લોકો પ્લોટથી વંચીત છે અને બધી પડતર જમીનો માઈનીંગમાં આપેલી છે. તેમના ગામના લોકો રજુઆત કરતાં હોય છે કે તેમને	પ્રોજેક્ટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા જણાવેલ કે જમીન વંચીત લોકોને જમીન આપવી તે સરકારશ્રીનુ કામ છે તથા આ પ્રશ્ન હાલ ચાલુ સુનાવણીના પર્યાવરણના પ્રશ્નમાં નથી આવતું. વધુમાં લીઝ વિસ્તારમાં સિંહનો વસવાટ નોંધાયો નથી અને વન વિભાગ દ્વારા

		પ્લોટ આપો પણ બીજી જગ્યા ન હોઈ તેઓ પ્લોટ આપી શકતા નથી. બધી પડતર જમીનો તમે માઈનીંગ લીઝમાં ૫૦ વર્ષના ભાડા પેટે આપેલ છે. તો રજૂઆતકર્તા અરજદારોને શું કહીએ? ફોરેસ્ટ ડિપાર્ટમેન્ટ અને માઈનીંગ લીઝના પણ માણસો બેઠા હોઈ તેમ કહી તેમણે ઉમેરેલ કે અહીં સિંહો આવે છે. તે બાબત તમારા અભ્યાસમાં ધ્યાનમાં આવેલ નથી?	કન્ઝર્વેશન પ્લાન મંજુર કરેલ છે તેમા આ બાબતનો ઉલ્લેખ કરેલ નથી.
(૫)	સુશ્રી ગીતા બેન રમેશભાઈ મકવાણા (પ્રમુખશ્રી મહુવા નગરપાલિકા) ગામ: પઢીયારકા વતી શ્રી રવજીભાઈ વાઘજીભાઈ બારૈયા	રજુઆતકર્તા દ્વારા તેઓની તા.૨૮/૦૪/૨૦૨૩ ની લેખિત રજુઆતને અક્ષરશઃ વાંચી સંભળાવવામાં આવેલ. લેખિત રજુઆત આ સાથે Annexure - C100 મુજબ સામેલ છે.	પ્રોજેક્ટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા જણાવેલ કે રજુઆતકર્તા દ્વારા પુછવામાં આવેલ પ્રશ્નો મહુવા બંધારા ખેતીવાડી પર્યાવરણ બચાવ સમિતિના છે અને જેના જવાબ આગળ વિસ્તારમાં આપવામાં આવેલ છે. રજૂઆતકર્તાની રજુઆતો ના પ્રત્યુતરની લેખિત નકલ Annexure – D100 સામેલ છે.
(૬)	શ્રી મકવાણા જસુભાઈ વેલજીભાઈ ગામ: ડોળીયા	રજુઆતકર્તા દ્વારા જણાવેલ કે જી.ડી.પી. દ્વારા જે ઔદ્યોગિક વિકાસની વાત કરો છો તે તેમના મંતવ્ય પ્રમાણે સ્ટન્ટ કરીને છેતરવાનો પ્રયાસ હોય શકે છે. ભારતની અંદર ૬૦ ટકા લોકો કૃષિ સાથે સંકળાયેલ છે અને તેઓ ખેતીવાડીની યોજના- ગ્રામ નિર્માણ સમાજ દેવડીયા ચાલે છે. જે મહુવાના બધા ગામોની અંદર કાર્યરત છે. ત્યાં દેવડીયા કલસ્ટરની અંદર ત્રણ વર્ષથી વિકાસના કામ તેઓ કરી રહ્યા છે અને તેઓ ખેડુતો સાથે સીધા સંકળાયેલ છે	પ્રોજેકટ પ્રોપોનેન્ટ દ્વારા પ્રત્યુતર આપવામાં આવેલ કે ૨૦૦૮માં એક જ પ્રોજેકટ હતો અને તે સિમેન્ટ પ્લાન્ટનો હતો. માઈનીંગ પ્રોજેકટને ૨૦૦૮માં ગુજરાત સરકારે ત્રણ અલગ-અલગ માઈનીંગ લીઝના એલ.ઓ.આઈ. આપેલ છે. એ એલ.ઓ.આઈ. ૩૪૦૦ હેકટર જમીન માટેના હતા. તેની રજુઆત મીનીસ્ટ્રી ઓફ એનવારમેન્ટ ફોરેસ્ટ દિલ્હી કરવાથી તેની મંજુરી ૩૪૦૦ હેકટરમાંથી માત્ર ૧૬૦૦ હેકટરની મંજુરી મે. નિરમા કંપનીને આપવામાં આવી અને ડીડ આ ૧૬૦૦ હેકટર જમીન માટે જ કરવામાં આવી હતી. ૨૦૦૮માં પણ ત્રણ જ લીઝ હતી અને ત્રણ એલ.ઓ.આઈ.

		અને પોતે પણ ખેડુતનાં દિકરા છે. તેમને ઉમેરેલ કે આ વર્ષ માન. પ્રધાન મંત્રીશ્રીએ જે મિલેટ વર્ષ જાહેર કરેલ છે. તેનો પ્રયાસ છે કે, વિદેશમાં લોકો બાજરો-બાજરી નથી ખાતા તે વિદેશમાં લોકો ખાતા થાય અને ખેડુતોને સારો ભાવ મળે અને વિકાસ થાય. બાજરાનું ઉત્પાદન કાઠા વિસ્તારની અંદર જ લેવામાં આવે છે. આ બાજરો બીજા વિસ્તારમાં થતો નથી કારણ કે, મહુવાને સૌરાષ્ટ્રનું કાશ્મીર ગણવામાં આવતું હતું તો અત્યારે કેમ નથી અને સરકાર તરફથી શા માટે કોઇ પ્રયાસ કરવામાં આવતા નથી? જો બધી જ જમીનનું ખનન થઇ જાય તો આ વિસ્તારના લોકોને પોતાના પેટ ભરવા માટે બીજી જગ્યાએ જવું પડે તો આવનાર પેઢીનું ભવિષ્ય શું? મહુવા તાલુકાના સાત ગામોમાં એક જ કંપની દ્વારા ત્રણ માઇનીંગ પ્રોજેકટ હાથ ધરવામાં આવેલ છે. તે આખો માઇનીંગ વિસ્તાર સળંગ છે. જ્યારે ૨૦૦૮-૧૦ તે સમગ્ર વિસ્તાર એક જ વિસ્તાર હતો. પરંતું અત્યારે તેના ત્રણ ટુકડા કરવામાં આવેલ જે અગાઉ આ વિસ્તાર એક જ વિસ્તાર હતો તો અત્યારે ત્રણ ટુકડા કરવામાં આવ્યા તેનું કારણ શું હોય શકે? અત્યારે જે દરિયામાંથી સરકારની મીલી ભગતથી પરમીશન વગર રેતી કાંઢવામાં આવે છે. રેતીમાં વાહનોની રાત્રે અવર-જવર થાય છે જેને કારણે સિંહને તેનાથી નુકશાન થઇ શકે છે. અમે	હતી. તેમણે ઉમેરેલ કે રજૂઆતકર્તાને એક જ લીઝ અંગેની વાત કરીને ગેર માર્ગે દોરવવામાં આવી રહ્યા હોવાનું જણાય છે.

		માઈનીંગનો સંપૂર્ણ પણે બહિષ્કાર કરીએ છીએ. પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિનાં પ્રત્યુત્તર અન્વયે રજૂઆતકર્તા એ દલીલ કરેલ કે, જો આ માઈનીંગ થાય તો તે કેટલા અંતર સુધી અંદર ખનન કરે? પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિ નાં પ્રત્યુત્તર અન્વયે રજૂઆતકર્તા એ દલીલ કરેલ કે, અત્યારનો નિરમાનો પ્લાન્ટ જે જગ્યાએ છે તેના નીચે પાણી ભરેલું છે અને તે ખારું પાણી છે જો અહીંયા વધારે ખનન કરવામાં આવે તો દરિયાનું પાણી તળમાં ભરી જાય અને જો કમ્પની દ્વારા બંધારા મોટા બનાવવામાં આવે તો તે પાણી તેની સાથે ભળી જાય તો તેનો કોઇ મતલબ નથી અને તેમાં ખેતી થઈ શકે નહી.	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતીનીધી દ્વારા પ્રત્યુત્તર આપવામાં આવેલ કે, માઈનીંગ ઈન્ડીયન બ્યુરો ઓફ માઈન્સએ પાસ કરેલા માઈનીંગના પ્લાન પ્રમાણે મીનીમમ એક મીટરથી શરૂ કરી જ્યાં જમીનનો ઉપરનો ભાગ વધારે હોય ત્યાં ૧૫ મીટર સુધીનું માઈનીંગ થશે. દલીલના જવાબમાં કહેલ છે કે, કોઈ પણ જગ્યાએ દરિયાનું પાણી છે તે તળને અમારે છેદવાનું નથી અને અત્યારે તમે જે ખેતી કરો છો તેના માટે બોરથી જે પાણી ખેંચો છો તેના લીધે ખારુ પાણી ઉપર આવે છે. તળાવમાં પાણી ભરવામાં આવે તો મીઠા પાણીનું તળ ઉચું આવે. અંબુજામાં માઈનીંગ ખાણને તળાવમાં પરીવર્તીત કરીને શેરડીનો પાક લેવામાં આવે છે. જેને કારણે મીઠા પાણીનું સ્તર ઉપર આવેલ છે. જે ઉદાહરણ રૂપ છે. આ પ્રોજેકટમાં પણ એ જ રીતે વરસાદના પાણીને માઈનીંગના ખાડામાં સગ્રહ કરવામાં આવશે. જેથી મીઠા પાણીનું સ્તર ઉપર આવશે અને ખારાશમાં ઘટાડો થશે.
(૭)	શ્રી બારૈયા પુનાભાઈ રામભાઈ ગામ-પઢીયારકા	અમે કોઈ સંજોગોમાં માઈનીંગ કરવા માંગતા નથી.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ અને પ્રત્યુત્તર પાઠવેલ કે પર્યાવરણ અને માઈનીંગના કાયદા/નિયમોનું પાલન કરીને જ માઈનીંગ કરવામાં આવશે.
(૮)	શ્રી જોળીયા કસાભાઈ ગામ-ડોળીયા	રજૂઆતકર્તા દ્વારા જણાવેલ કે તેમનો મુખ્ય મુદ્દો પશુપાલનનો છે. તેમના ગામની ૪૧૦૨ વસ્તી ની સામે ૩૫૧૬ પશુપાલકો છે. એટલે કે ૭૦થી ૮૦ ટકા પશુ પાલકોની વસ્તી છે. જ્યારે ગોચર હતું ત્યારે બંધારો બનાવવા માટે આપ્યુ તે બાદ તે જીરો થઈ ગયેલું. પડતર જમીન ખનન કરવા માટે નિરમાવાળાને આપી દીધેલ તો તેમા પહેલો અધિકાર માલધારીનો	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ અને પ્રત્યુત્તર પાઠવેલ કે ખેડૂતો અને પશુધનને કોઈ અસર ન થાય તેની કાળજી લેવામાં આવશે.

		આવે છે પછી બીજા બધાનો આવે. ૨. તેમના ગામનો દેશી બાજરો આ વખતે ૨૫૦૦ રુપિયાના મણ સુધી વેચાયેલ છે. જે બધા વેપારીઓ લઈ ગયેલ છે. કપાસનો ભાવ રૂ.૧૫૦૦/- મણ હતો અને દેશી બાજરાનો રૂ.૨૫૦૦/-મણ નો ભાવ હતો. તેવી જ રીતે પોષ્ટીક અનાજ આ માઈન એરીયાની અંદર પાકે છે. જ્યારે બીજો વ્યવસાય શાકભાજીનો છે. અને આ પોષ્ટીક અનાજ બીજે ક્યાંય પાકતો નથી અને આ જીરો લેવલ ગોચર કરી નાખ્યું તો આટલા બધા પશુને ચારવા માટે તેમણે કયા જવુ? પડતર જમીનમાં પહેલો અધિકાર માલધારીનો હોય છે ઉદ્યોગોનો નહી તે પહેલો મુદ્દો ધ્યાનમાં લેવો જોઈએ. પશુપાલનથી શ્વેત ક્રાતિ તરફ આજે તેમનું ગામ જઈ રહયું છે. એટલા માટે તેમને આજુ-બાજુના ગામમાં આ માઈનીંગ જોતું નથી.	
(૯)	શ્રી જોળીયા વિક્રમભાઈ અરજણભાઈ ગામ: ડોળીયા	રજૂઆતકર્તા દ્વારા જણાવેલ કે આ સાત ગામમાં ટોટલ સાત હજારથી આઠ હજાર માલધારીઓના પશુઓ રહે છે અને તે માટે રાજય સરકાર અને કેન્દ્ર સરકાર દુધની ક્ષમતા માટે વધારવાનું કહે છે તો આ બધી ગોચરની જમીન જ છે, જે ભલે રાજય સરકારે માઈનીંગ નિરમા કંપનીને આપેલ હોય તો સરકાર સાથે સમજુતી કરી અને પાછી ગ્રામપંચાયતને ગોચર માટે આપવી	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ. રજૂઆતકર્તાની રજુઆત જમીનને લગતી છે અને આ પ્રશ્નનો નિર્ણય સરકારશ્રી જ કરી શકે. પરંતુ કોઈ ખેડૂત ખાતેદાર મટી નહી જાય અને મે. નિરમા કં. દ્વારા પશુધનને કોઈ અસર ન થાય તેની કાળજી લેવામાં આવશે.

		જોઈએ અને કોઈ કારણોસર માઈનીંગ ન કરવું જોઈએ. માઈનીંગ કરવાથી જે સાત હજારથી આઠ હજાર પશુઓ છે તેને ભુખા રહેવાનો વારો આવશે. સાથે-સાથે રોજની પાંચ હજાર લિટર સવારે અને સાંજે તે રીતે ટોટલ દસ હજાર લિટર દુધની આવક રોજની થઈ રહી છે તો અત્યારે જે ૬થી૭ લાખની જે આવક થઈ રહી છે. તે આ માઈનીંગ આવવાથી તે આવકનું નુકશાન થશે. તેથી, તેઓ આ માઈનીંગનો તદ્ન વિરોધ કરીએ છીએ.	
(૧૦)	શ્રી ખીમજીભાઈ લાખાભાઈ બારૈયા ગામ: પઢીયારકા	રજૂઆતકર્તા દ્વારા જણાવેલ કે તેમને કલેકટર સાહેબને એટલું કહેવું છે કે, જો ભારત સરકાર એમ કહે છે કે, કોઈ પણ ગામમાં ગોચર ન હોય તો, ગોચર વેચાતુ લઈને આપવું તે સરકારની ફરજ છે તેવી જોગવાઈ સરકારની છે. કોઈ પણ બંધારા પાણીના હેતુ માટે ફાળવેલ જમીનનો ફરીવાર હેતુ ફેર થતો નથી. તેવા સરકારના નિયમો છે છતાં સરકારે કયા હેતુસર આ બંધારાના નિયમમાં ફેરફાર કર્યો તે સરકારને કહેવું પડે. સરકાર એમ કહે છે કે, ત્યાંની જમીનમાં કઈ થતું નથી તો તેનું કારણ શું આટલું જુઠ્ઠું બોલવાનું કારણ શું? અહીની જમીન ફળદ્રુપ છે. છતાં કંપનીવાળા એમ કહે છે કે, આ ખેતીમાં કાંઈ થતું નથી, તે જમીન બંજર અને ખારાશવાળી છે. તેમ કહે છે તો અહીં એકવાર આંટોમારીનો જોવો તો ખબર પડે. અહીની શાકભાજી	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ. પ્રોજેકટ માટે પડતર જમીન સરકાર દ્વારા માઈનીંગ માટે અપાયેલ છે. ખેડૂતોની જમીન ને કોઈ અસર ન થાય તેની કાળજી લેવામાં આવશે.

		ખાઈ શકાય પરંતુ નિરમાનો સિમેન્ટ ખાઈ શકાય ? સિમેન્ટ ખાઈને જીવાય તો ફેકટરી કાલે બનાવી દો. સાચુ લખો, ખોટુ ન લખો.	
(૧૧)	શ્રી રમેશભાઈ ખાટાભાઈ ગોહિલ ગામ-વાઘનગર	રજૂઆતકર્તા દ્વારા જણાવેલ કે, ભવિષ્યમાં ગામ તળના વધારા માટે પ્રાથમિક માધ્યમિક શાળા આંગણવાડી કે આરોગ્ય કેન્દ્ર જેવી સુવિધાઓ માટે નિરમા કંપની પડતર જમીન કે ખરાબાની કેટલી જમીનો છોડશે તેનો જવાબ આપો?	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા કહેવામાં આવેલ કે, ત્રણેય માઈન્સની ભેગી થઈને સરકારી પડતર જમીન ૨૮૦ હેકટર છે. તથા કેટલી જમીન છોડવાની તેનો નિર્દેશ સરકારશ્રી આપશે.
(૧૨)	શ્રી છગનભાઈ નાનભાઈ ભાલીયા ગામ: ડોળીયા	રજૂઆતકર્તા દ્વારા જણાવેલ કે, ડોળીયા ગામ સાત હજારની વસ્તીવાળું ગામ છે. સમુદ્ર તટનું ગામ છે. કુદરતે ડોળીયાને આટલી બધી બક્ષીસ આપેલી છે. તેમને ઉમેરેલ કે કેમિકલ મુક્ત શાકભાજી ખાવા હોય તો ડોળીયામાં આવજો. કોરોના કાળ દરમિયાન તેમના ગામમાં એક પણ કેસ આવેલ નથી તેનું કારણ સારું વાતાવરણ અને કુદરતે આપેલી પર્યાવરણની જાળવણી છે. બધી જ જાતની વનસ્પતિ ડોળીયા ગામમાં થાય છે. આવી જગ્યા કયાંય જોવા નહી મળે. ઈશ્વરે આપ્યું તે તેમને મંજુર છે તેમાં તેઓ રાજી છે તેથી તેમને ઈશ્વરે જે આપ્યુ છે તે માણવા દયો.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ. તેમને ઉમેરેલ કે પર્યાવરણ અને આરોગ્યલક્ષીના કાયદા/નિયમોનું પાલન કરીને જ માઈનીંગ કરવામાં આવશે.
(૧૩)	શ્રી નરસિંહભાઈ મોહનભાઈ જોળીયા. ગામ-ડોળીયા	રજૂઆતકર્તા દ્વારા માઈનીંગ માટે વિરોધ દર્શાવ્યો છે.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ. પર્યાવરણ અને માઈનીંગના કાયદા/નિયમોનું પાલન કરીને જ માઈનીંગ કરવામાં આવશે.
(૧૪)	સમસ્ત દુધેરી સમાજનો	રજૂઆતકર્તા દ્વારા જણાવેલ કે,	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ. કોઈ ખેડૂત ખાતેદાર મટી

	રજૂઆતકર્તા ગામ-દુધેરી	સુનાવણીમાં બેઠેલા ખેડુતો માલ-ઢોર ભુખ્યા મુકીને અહી આવ્યા છે. તેમને બીજું કાઇ જોતુ નથી. કલેકટર સાહેબ જો અહીયા ખાડો હોત તો તમે અહી ન બેઠા હોત. ઉદ્યોગ આવવાથી ચારેય બાજુ દિવાલ બની જશે. તેમને નિરમા કે એક પણ પ્લાન્ટ જોઈતો નથી.	નહી જાય અને પશુધનને કોઈ અસર ન થાય તેની કાળજી લેવામાં આવશે.
(૧૫)	સુશ્રી શાતુંબેન નરશીભાઈ ચૌહાણ (કતપર જિલ્લા પંચાયત સભ્ય) વતી શ્રી હમીરભાઈ શિયાળ	માઈનીંગ ન થાય તેમાં તેમનો વિરોધ છે. લેખિત રજુઆત આ સાથે Annexure-C44 મુજબ સામેલ છે.	પ્રત્યુતરની લેખિત નકલ Annexure – D44 સામેલ છે. પર્યાવરણ અને માઈનીંગના કાયદા/નિયમોનું પાલન કરીને જ માઈનીંગ કરવામાં આવશે.
(૧૬)	શ્રી ભાલીયા ગોપાલભાઈ જયંતીભાઈ	રજૂઆતકર્તા દ્વારા જણાવેલ કે, જો માઈનીંગ કરશો તો તેઓ આખી જીંદગી પછી શુ કરશે ? પર્યાવરણની વાત કરીએ તો વિશ્વમાં એશીયાનો એક માત્ર સિંહ જે આપણા ગીરના જંગલમાં જ જોવા મળે છે. બીજે કયાંય વિશ્વમાં જોવા મળતો નથી અને માઈનીંગ કરવાથી ખાડા પડશે તો સિંહને પણ ખાડામાં પડવાની શક્યતા વધશે તો તેનુ શુ?	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ તથા રજુઆતકર્તા દ્વારા પુછવામાં આવેલ પ્રશ્નોના જવાબ પ્રોજેકટ પ્રોપોનેન્ટના પ્રતિનિધિશ્રી દ્વારા આગળ વિસ્તૃતમાં આપવામાં આવેલ છે. તદઉપરાંત વન વિભાગે મંજુર કરેલ કન્ઝરવેશન પ્લાન મુજબ તેઓ કામ કરશે અને માઈનીંગ કાયદા/નિયમોનું પાલન કરીને જ કરવામાં આવશે.
(૧૭)	શ્રી મકવાણા રાજેશભાઈ ગામ: દુધેરી	રજૂઆતકર્તા દ્વારા જણાવેલ કે, ખોદકામ કરવાથી હવા પ્રદુષણ તરીકે જે હવામાં રજકણો ઉડે, તે શ્વાસ નળીમાં થઈ અને ફેફસાને નુકશાન કરે છે. તેના દ્વારા ઘણા રોગો થાય છે.જેમકે, મેલેરીયા, ટાઈફોઈડ, ડેન્ગ્યુ અને ઝાડા-ઉલ્ટી વગેરે.માઈનીંગના લીધે આરોગ્ય માટે ફાયદા છે કે ગેરફાયદા તે જણાવો.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા જણાવેલ કે, આરોગ્ય માટેના બધા જ નિયમો મુજબ માઈનીંગ કરવાના છીએ. માઈનીંગ કરતો માણસ પણ તેની પુરે-પુરી સાવધાની રાખશે. તથા માઈનીંગના કાયદા/નિયમોનું પાલન કરીને જ માઈનીંગ કરવામાં આવશે.

(૧૮)	શ્રી બારૈયા ભુપતભાઈ સુખાભાઈ ગામ: પઢીયારકા	રજૂઆતકર્તા દ્વારા જણાવેલ કે, પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિએ જણાવેલ કે તમારી ખાનગી માલિકીની જમીન તમારી ઈચ્છા હશે તો જ તેઓ દ્વારા લેવામાં આવશે અન્યથા તેઓ દ્વારા નહિ લેવામાં આવે. આ રજુઆત તેમણે પહેલા સેશનમાં પણ કરી હતી અને અત્યારે પણ કરી હતી. તેમને જણાવેલ કે અંગ્રેજોએ જેમ રાજ કર્યુ હતુ અને આખુ ભારત દેશ પણ કબ્જે કર્યુ હતુ અને કોઇ પણ કારણોસર અને કાવા દાવા કરીને કોઇ આ જમીન માઇનીંગ માટે આપી દે અને ખાડા કરી દે તો બાજુ વાળાને શું કરવું અને તેમની ટોટલ જમીન જો માઇનીંગ માટે આપી દેવામાં આવે તો તેમની આવકનું સાધન ચાલ્યું જાય. કલેકટર સાહેબને પ્રશ્ન છે કે, અત્યારે તેમના ગામની ગોચર શૂન્ય છે તો આ પડતર જમીન પાછી ગોચર તરીકે આપી શકો કે નહી? જો નિરમાને ગોચર ની જમીન આપી શકો તો અમોને કેમ નહી? રમત-ગમતમાં પંચાયત કઈ જમીન ફાળવી શકે અને કઈ રીતે તેમના બાળકોનો વિકાસ થઈ શકે? તેઓએ ઉમેરેલ કે માઇનીગ અને નિરમા પ્લાન્ટ કાંઇ જોઇતું નથી. નિરમા આવશે તો તેઓ ઉગ્ર આદોલન કરશે. તેઓ બન્નેનો સખ્ત વિરોધ કરે છે તેમ જણાવેલ.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ. તેમણે ઉમેરેલ કે નિરમાને માઇનીંગ માટે કોઇ ગૌચર જમીન અપાયેલ નથી તથા ખાનગી જમીન જેને વેચવી હશે તેની પાસેથી જ બજાર કિંમતે લેવાની થશે.

(૧૯)	શ્રી ભરવાડ પાલાભાઈ ગોબરભાઈ ગામ: પઢીયારકા	રજૂઆતકર્તા દ્વારા જણાવેલ કે, તેઓ જાણવા માંગે છે કે, અહીં નિરમા પ્લાન્ટ આવવાનો છે કે, માઈન્સ તે ત્યાંની પબ્લિકને ખબર જ નથી. તેને નિરમા સિમેન્ટ પ્લાન્ટની ખબર નથી તેથી તમે તેઓને તેની વિશે સત્ય હકીકત જણાવશો.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા જણાવેલ કે, ગ્રામજનોને ખબર છે કે નિરમાનો સિમેન્ટ પ્લાન્ટ આવવાનો છે અને તેના માટે જ માઈનીંગ કરવાની થશે. નામ. સુપ્રીમ કોર્ટમાં કેસ ચાલે છે. અને કેસ જ્યારે પૂર્ણ થશે ત્યારબાદ નિરમા સિમેન્ટ પ્લાન્ટ પણ આવશે.
(૧૯-એ)	શ્રી ભરતભાઈ નારણભાઈ શિયાળ ગામ: દુધેરી	પ્રોજેક્ટ પ્રોપોનેન્ટના પ્રતિનિધિનાં પ્રત્યુત્તરનાં અનુસંધાને શ્રી ભરતભાઈ શિયાળ દ્વારા રજુઆત કરેલ કે નિરમા કંપનીને સુપ્રીમ કોર્ટમાં સ્ટે આપવામાં આવેલ છે	રજૂઆતકર્તાનાં પ્રત્યુત્તરનાં અન્વયે પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા જણાવેલ કે, તેઓ ખોટી ભ્રામક વાતો ફેલાવો નહી અને લોકોને ગેરમાર્ગે દોરશો નહી. કારણ કે, નામ. સુપ્રીમ કોર્ટે કોઈ સ્ટે આપેલ નથી.
(૨૦)	શ્રી ભીખાભાઈ વાલાભાઈ ભીલ ગામ: પઢીયારકા	રજૂઆતકર્તા દ્વારા જણાવેલ કે, તમે બોલ્યા કે તમે સિચાઈનું પાણી ખેતી માટે આપશો પણ તમે ખેતી રહેવા દેશો તો તેઓ તે ખેતીને પાણી પાશુંને? તમે માઈનીંગ કરશો તો તેઓ ખેતીને ક્યાંથી પાણી પાઈ શકશું? તેમને ઉમેરેલ કે તેઓ એટલી જ વિનંતી કરે છે કે, તેમના પર દયા કરો. જો આ માઈનીંગ કરશો તો તેઓના બાળકોને તકલીફ પડશે. આગળ બધા ભાઈઓએ કરેલ રજુઆત સાચી છે.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ. તેમને ઉમેરેલ કે ખેડૂતોની જમીન ને કોઈ અસર ન થાય તેની કાળજી લેવામાં આવશે.
(૨૧)	સુશ્રી કડવી બેન ગામ: દુધેરી	રજૂઆતકર્તા દ્વારા જણાવેલ કે, તેઓના માણસો સવારના અહીં બેઠા છે. તેમનામાં તાકાત છે અને તેઓ લડશે અને માઈનીંગનો વિરોધ કરીએ છે. તેમને ઉમેરેલ કે ભુતકાળમાં આ માટે તેઓ ચાલીને ગાંધીનગર પહોંચ્યા હતા. તથા ભાણતર માટેના પ્રશ્નો ઉભા થશે તેઓના ભવિષ્ય મુશ્કેલીમાં મુકાશે તેમ તેમણે રજૂઆત કરેલ.	પ્રોજેકટ પ્રોપોનેન્ટનાં પ્રતિનિધિ દ્વારા રજુઆત સાંભળેલ.

લોકસુનાવણી દરમિયાન શ્રી ભાલ્યા વિજયભાઇ મનસુખભાઇ એ મે. નિરમા લિ. ના માઈનીંગ પ્રોજેક્ટ માટે જમીન આપવી જોઈએ કે કેમ તથા આ માઈનીંગ પ્રોજેક્ટને મંજૂરી મળવી જોઈએ કે કેમ તે બાબતે ભેગા થયેલ જનસમુદાયનો જાહેરમાં લોકમત માંગેલ. જે અન્વયે હાજર રહેલ મોટાભાગના જનસમુદાય દ્વારા હાથ ઊંચા કરીને મે. નિરમા લિ. ને જમીન આપવા તથા મંજૂરી આપવા સામે વિરોધ દર્શાવેલ હતો.

શ્રી એ.જે.રાઠોડ, પ્રાદેશિક અધિકારીશ્રી, ગુજરાત પ્રદૂષણ નિયંત્રણ બોર્ડ, ભાવનગર દ્વારા હાજર ગામ લોકોને વારંવાર કોઇ રજુઆત હોય તો, તે કરવા જણાવેલ. પરંતુ ત્યારબાદ અન્ય કોઇ મૌખિક રજુઆત આવેલ ન હતી. વધુમાં પ્રાદેશિક અધિકારીશ્રી, ગુજરાત પ્રદુષણ નિયંત્રણ બોર્ડ દ્વારા જણાવવામાં આવેલ કે આ લોકસુનાવણી દરમ્યાન પણ કેટલીક લેખિત રજૂઆતો તેમને મળેલ છે, જે તમામ લેખિત રજૂઆતો તથા પ્રોજેક્ટ પ્રોપોનન્ટના પ્રત્યુત્તરોનો કાર્યસૂચીમાં સમાવેશ કરવામાં આવશે. તેઓ દ્વારા લોકસુનાવણીનો સારાંશ રજૂ કરવામાં આવ્યો.

ત્યારબાદ તેમના દ્વારા અંતમાં લોક સુનાવણીમાં હાજર રહેલ સર્વે ગ્રામજનોનો આભાર માનવામાં આવેલ અને જિલ્લા કલેકટર અને જિલ્લા મેજીસ્ટ્રેટશ્રી, ભાવનગર તથા આ લોક સુનાવણીના અધ્યક્ષશ્રીની મંજુરીથી આ લોક સુનાવણી સમાપ્ત થયેલ જાહેર કરવામાં આવેલ.

સ્થળ: . નિરમા લિમિટેડ સિમેન્ટ પ્લાન્ટ એરીયા, નેશનલ હાઈવે ૮૬/૫૧, સર્વે નં. ૮૦, ગામ: પઢિયારકા, તા. મહુવા, જીલ્લો. ભાવનગર. તારીખ : ૨૮/૦૪/૨૦૨૩	એ. જે. રાઠોડ પ્રાદેશિક અધિકારી, ગુ.પ્ર.નિ.બોર્ડ, ભાવનગર	આર. કે. મહેતા (આઈ. એ. એસ.) જિલ્લા કલેકટર અને જિલ્લા મેજિસ્ટ્રેટ, ભાવનગર

ANNEXURE : XXX Contd.

Since the EIA can be uploaded of 50 MB size only, and the complete minutes of public hearing minutes are around 100 MB and have already uploaded in section 3.6-3.8 of Form C, therefore Annexue C and Annexure D of the public hearing minutes are not included here. They may be downloaded from the aforementioned sections and considered as part of this EIA/EMP document.

Government of India
Ministry of Environment, Forest and Climate Change
IA Division
(Non-Coal Mining)
***

ANNEXURE-R-2

Minutes of AGENDA FOR 21ST EAC MEETING OF THE EXPERT APPRAISAL COMMITTEE (NON-COAL MINING SECTOR), SCHEDULED TO BE HELD DURING 18-20 OCTOBER, 2023 THROUGH VIDEO CONFERENCE. meeting Non-Coal Mining held from 18/10/2023 to 19/10/2023

Date: 27/10/2023

MoM ID: EC/MOM/EAC/313507/10/2023

Agenda ID: EC/AGENDA/EAC/313507/10/2023

Meeting Venue: N/A

Meeting Mode: Virtual

Date & Time:

18/10/2023	10:30 AM	05:30 PM
19/10/2023	10:30 AM	05:30 PM

1. Opening remarks

The 21st meeting of the Re-Constituted Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 18-20 October, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

2. Confirmation of the minutes of previous meeting

The minutes of the 20th EAC meeting held during 21-22 September, 2023 were placed before the members of the EAC.

3. Details of proposals considered by the committee

Day 1 -18/10/2023

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

EC for Ravirala Limestone Mine (Revenue); Extent 124.33 Ha & Production of Limestone-0.115 MTPA (ROM), Topsoil-0.005 MTPA, Over Burden-0.211 MTPA (Total Excavation- 0.331 MTPA) at Sy. No. 20, 28, 38, 39, 41, 42, etc., of Ravirala village, Jaggayyapeta Mandal, NTR District, Andhra Pradesh by The Ramco Cements Limited by **THE RAMCO CEMENTS LIMITED** located at **NTR,ANDHRA PRADESH**

Proposal For	Fresh EC

Proposal No	File No	Submission Date	Activity (Schedule Item)
IA/AP/MIN/441553/2023	IA-J-11015/44/2022-IA-II(NCM)	20/09/2023	Mining of minerals (1(a))

3.1.2. Project Salient Features

The instant proposal is for mining of Limestone in Ravirala Limestone Mine of M/s The Ramco Cements Limited with production capacity of 0.115 MTPA (ROM), Topsoil-0.005 MTPA, Over Burden-0.211 MTPA (Total Excavation- 0.331 MTPA) in the mine lease area of 124.33 Ha, located at Sy. No. 20, 28, 38, 39, 41, 42, etc., of Ravirala village, Jaggayyapeta Mandal, NTR District, Andhra Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 16º49'30.77"N-16º50'21.60"N and Longitude: 80º06'03.85"E -80º07'26.85"E.The mine lease area falls under the Survey of India Toposheet No. 65 D/1 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at Schedule no. 1(a) Mining of Minerals of the schedule of the EIA Notification, 2006 and attracts the general conditions as the Interstate boundary of Andhra Pradesh-Telangana is located at a distance of 3.5 km, W from the mine lease area and falls under Category "A" and appraised at the Central level.

iii. Details of Terms of Reference: -

Date of application	File No/ Proposal No	Consideration by EAC	Details of ToR	Date of accord
28.11.2022	IA-J-11015/44/ 2022-IA-II(NCM) IA/AP/MIN/ 407914/2022	8th EAC meeting held on 28.12.2022	Terms of Reference under Ministry's SOP for identification and handling of violation cases under EIA, notification 2006 dated 07.07.2021 for mining of Limestone in Ravirala Limestone Mine of M/s. The Ramco Cements Limited with proposed production capacity of Limestone: 0.115 MTPA (ROM), Topsoil: 0.005 MTPA, Over Burden: 0.211 MTPA (Total excavation: 0.331 MTPA) in the mine lease area of 124.33 Ha, located at Ravirala Village, Jaggayyapeta Mandal, NTR District (earlier Krishna District), Andhra Pradesh for undertaking detailed EIA/EMP study	16.01.2023

iv. Details of Mine Lease:

a) The Project Proponent has submitted that initially mining lease was granted by the State Govt. vide G.O. Ms. No.59, Inds. & Com (M.III) Dept., dated 02.05.1997 for Limestone mine over an extent of 124.33

Hects in Sy.No.20,28,38,39,41,42 etc., of Ravirala Village, Jaggayyapet Mandal, Krishna District for a period of 20 years in favour of M/s. Madras Cements Ltd. The minelease deed was executed on 01.10.1997 and the lease wasvalid up to 30.09.2017.

b) Meanwhile, the mining lease was transferred by the State Govt. vide G.O. Ms.No.96dated 13.10.2015 from M/s. Madras Cements Ltd to M/s. The Ramco Cements Limited over an area of 124.33 Ha.

c) Thereafter, the Govt. of Andhra Pradesh have extended the validity of mine lease vide G.O. Ms. No. 60 Inds. & Com (M.III) Dept., dated 02.05.2017 for a period of 50 years w.e.f. 01.10.1997 to 30.09.2047 for Limestone over an extent of 124.33 Hects. The Supplementary lease deed for extension was also executed on 27.02.2019 between the Govt. of Andhra Pradesh and M/s The Ramco Cements Limited for the period upto 30.09.2047.

v. Land Use/Land Cover of the Mine Lease Area:

Private land	55.89 Ha own Patta Land 51.30 Ha Private Patta Land to be purchased
Government land	17.14 Ha (Leased to RCL)
Total Mining lease area (MLA)	124.33 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil
Additional information(if any)	There are now some agricultural activities taking place. At present, there is no mining activity in the ML area.There are mainly 5 Mining Blocks (1-5) in the granted Lease. Blocks 2, 3 & 5 are not feasible for mining due to proximity to Rivers Paleru& Krishna and encompassing the village habitation. Thus, RCL undertakes to carry out mining activity in balance area of 88.93 Ha in Blocks 1 & 4 and mining activity only over an extent of 67.29 Ha (Block-1) out of 124.33 Ha.

Review of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines, Hyderabad	Letter No.	AP/KSN/MP/Lst-2A/Hyd
	Dated	03.12.2021
	Mine lease area	124.33 Ha
	Mineral	Limestone
	Validity	2022-23 to 2026-27
Mining Parameters	Quantitative Description	
Method of Mining	Conventional fully Mechanized Open-Cast Mining method with Controlled Drilling and Blasting	
Drilling/Blasting	Wet drills and controlled blasting will be undertaken.	
Geological Reserves	33.519 Million Tonnes	
Mineable Reserves	13.196 Million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone-0.115 MTPA (ROM) Topsoil-0.005 MTPA, Over Burden-0.211 MTPA Total Excavation- 0.331 MTPA	
Life of mine	26 years	
Mine Bench Height & Bench Width	Bench Height 8 m in OB & 9 m in Mineral Band Bench Width >10 m	
No. of Mine Benches	4 (during Plan Period)	
Existing Depth, m bgl	0	
Individual bench slope	72^{o}	
Overall pit slope	45^{o}	
Ultimate Depth of Mining, m bgl	82 m BGL (-45 m RL)	

Ground Water Table, m bgl	26
Details of ground water intersection	Mining activities will intersect the ground water-table at 26 m BGL
RoM output size	300-500 mm
Details of existing/ proposed Crusher	No Crusher is proposed in the Lease as existing Crushers are at the Cement Plant
Mineral Beneficiation	Nil
Transportation details including capacity of dumper/tipper, mode of transport and distance	By 25 Tons Tippers. From RLMR Lease, limestone transportation will be done through SH-220 (Jaggayyapeta-Vedadri Road) for a distance of 1.25 km, thereafter through RCL's own Haulage Road by just crossing the road and SH-214 (Chillakallu-Vedadri Road) to reach the Crusher in the Plant. There is no possibility of having conveyor (OLBC) for mineral transportation due to existence of reserve forest (in 3 sides) and settlements (in one side).
Generation of Topsoil/OB & its Management during plan period & conceptual period	About 14,064 cu. m Top soil will be removed and fully utilised for green belt along the peripheries, thus, no Top soil dump in the lease. About 3,51,254 cu.m of OB waste will be removed during ROMP Period. From 2027-28 to 2047-48 (upto the lease period), a quantity of 2.1 Million Tonnes of ROM ore and a quantity of 0.45 Million cu.m of waste (Phyllite and Interstitial Clay) will be generated. Thus, OB of 0.8 MCm will be accommodated in the temporary dump yards, over an extent of 7.63 Ha with maximum height of 20 m, in south-eastern parts of Block-1, very well away from the Flood Zones. Back filling will not be initiated as mineral existing at bottom.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	No Mineral Rejects/ Wastes is anticipated.

Total water requirement	20 KLD		Domestic Consumption	5.0 KLD
	Fresh water	-	Green Belt	10.0 KLD
	Treated water	20.0 KLD	Dust Control	5.0 KLD
Source	The rain water collected in the mine pit will be utilised to meet the water requirement. Initially the water requirement will be met from existing captive mines through Tankers.			
Permission	The Project Proponent has submitted the Permission/NOC from the APWALTA (Ground Water Department) vide File No. PRR05-11028/45/2018-SLNA-GIS-CORD dated 13.11.2021 for dewatering of 12,365 KLD of Mine seepage water for carrying out mining operations from 4 lime stone mines and for utilization of 7,000 KLD of dewatered Mine Seepage Water for Cement plant, Coal based Captive Thermal Power plant, Waste Heat Recover Boilers, Colony and associated 5 Nos. of Captive Limestone Mines located at Jayanthipuram Village, Jaggayyapeta Mandal, Krishna District, Andhra Pradesh. This NOC is valid for three years from the date of issue of this letter. On its Renewal, NOC for this Mine dewatering &utilisation will also be obtained.			

Particulars	Particular's Name	Distance &Direction
Nearest Village	RaviralaTanda Ravirala Village	SW of Block-4 SW
Nearest Town	Jaggayyapeta	5.2 km, NW
Nearest Highway	NH-65 Hyderabad-Vijayawada Section	6.5 km, NNE
Nearest railway station	Bonakalu	28.5 km, NE
Water body	River Paleru River Krishna	Adjacent in West Adjacent in South
Pilgrimage Centre	Vedadri Temple	1.4 km, SE

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter/Remarks
Forest Land	No	No forest land is involved in the Lease-DFO, Krishna Division, Vijayawada Letter Rc. No. 1160/2019/TO dated 20.12.2019. There are 8 Reserved Forests falling fully/partly within 10 km radius area are: i. Jaggayyapeta Extension RF (0.1 km in East& North) ii. Jaggayyapeta RF (3.0 km; SE) iii. Kuntimaddi RF Part (1.9 km; S) iv. Ginjupalli RF (2.4 km; S) v. Venkatayapalem Extension-1 RF (4.0 km; S) vi. Chintalapalem RF (9.5 km; SW) vii. Budawada RF (1.6 km; WNW) viii. Ballusupadu RF (8.5 km; NW)
National Park	Nil	The District Forest Officer, NTR Division, Vijayawada vide Letter Rc. No. 1752/2023/ TO dated 19.09.2023 stated that there are no National Park, WLS, ESA/ESZ located within 10 km radius of Ravirala Limestone Mine (Revenue).
Wildlife Sanctuary	Nil	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area(ESA)	Nil	
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	No	The District Forest Officer, NTR Division, Vijayawada vide Letter Rc. No.1091/2023/TO dated 20.06.2023 has provided the authenticated list of Flora and Fauna and informed that there are no Schedule-I species in core/buffer zone of 10 km radius of Ravirala Limestone Mine (Revenue).
Wildlife Conservation Plan	NA	-

Proposed area for green belt/plantation and no. of saplings proposed	2.80 Ha Only native tree species of 7,000 no.s. will be planted @ 2,500 Trees/Ha and maintained.
Budget for green plant & plantation till the end of life of mine.	Rs 5.00 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	85-90%.
No. of tree cuts in the mine lease area and	Nil

compensatory afforestation	
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	1.3
50 m safety zone of nallah, roads, electric lines	0.4
500 m safety zones of nearest habitation villages	1.1

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	December 2022-February 2023
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Winter 2022-23 Season
Predominant Wind direction (From)	NE & SSE directions during the season
Ambient Air Quality (no. of locations) and results	10 Locations. Result summary: PM_{10}: 16 µg/m^3- 71.0 µg/m^3 $PM_{2.5}$: 10.0 µg/m^3- 45.0 µg/m^3 SO_2: 6.0 µg/m^3 - 22.0 µg/m^3 NO_2: 6.0 µg/m^3- 27.0 µg/m^3
Noise level (no. of locations) and results	10 Locations Day Time (Lday) noise level: 40.1 dB (A) - 48.9 dB (A) Night Time (Lnight) noise level: 38.7 dB (A) - 44.7 dB (A).

Water Quality (no. of locations) and results

Parameters	Surface water (8 locations)	Ground water (10 locations)
pH at 25°C	7.36-7.84	7.54-7.92
Total Dissolved Solids, mg/l	200-380	330-580
Chloride as Cl-, mg/l	54-96	74-136
Total Hardness, mg/l	85-170	130-230
DO, mg/l	4.2-5.9	-
BOD, mg/l	<2	-
COD, mg/l	3-16	-

Soil Quality (no. of locations) and results: 6 Locations

Parameters	Observed Values
pH	7.68-7.82
Electrical Conductivity (mmhos/cm)	1.18-1.36
Organic Carbon (%)	0.81-1.10
Sodium Absorption Ratio	1.91-2.95

Hydro geological study and results	RCL has engaged the 'College of Engineering Kakinada (Autonomous) Campus' of Jawaharlal Nehru Technological University Kakinada (JNTUK) for the detailed Hydrogeological Study. Officials of M/s. Thrust Geo-Consultants Private Limited, an Accredited Ground Water Professionals for 'Hydrogeological Report for Mining Projects' by Central Ground Water Authority (CGWA) – with Certificate No. CGWA/RGI/019 dated 01.10.2021 with validity upto30.09.2026 are also involved in the Study & Report. Monitored Ground Water-table Levels were found to be from 3.10 m BGL (ML Area) to 11.22 m BGL (KauthwariAgraharam). The groundwater flow direction towards Northeast from Southwest. The Water-table in the Mines vicinity was recorded as 26 m BGL in Post-monsoon Period and 40 m BGL in Premonsoon Period. According to Ground water resource estimation, the Stage of

	Development of Jaggayyapeta basin as well as Jayanthipuram village is in 'SAFE' Category. A yield test and Pumping Test were performed during 24-26.02.2023. As a counter check Recuperation Test was also conducted for determining the Aquifer Parameter T (Transmissivity given by kb, b being the thickness of the aquifer). The thickness of the aquifer is 50 m. Transmissivity "T" - 6.10 m^2/hr (or) 146.4 m^2 /day Permeability "K"- 2.93 m/day Seepage is likely to take place only from the 4th bench onwards in the last 6 m depth of this bench. Using Darcy's equation, corresponding to Saturated Bench, discharge will be 1186.84 KLD and The maximum Radius of Influence is 204.49 m (205 m) for the case of saturated bench. Hence, it is concluded that the mining activity in the proposed Mine Pit area of Ravirala Revenue Mine will not result in lowering of groundwater levels in the wells outside the leased area.
Traffic study (no. of locations) and results	1 Location For assessing the baseline status, the Traffic Survey based on Indian Road Congress-IRC: 64 & 106 Norms at RLMR Haul Road-Vedadri Road Junction, was carried out during a Week day (Wednesday; 15.02.2023) and also during the Week end (Sunday; 19.02.2023). Based on the Survey, the existing Traffic Volume in the vicinity was found to be 206.6 PCU/day @ 8.61 PCU/hr. In the Post-Project Scenario, there will be an addition of 30 Tippers in 2-ways to the existing traffic in the Mine vicinity. Cumulatively, the traffic volume in the Project vicinity will be 296.5 PCU/day @ 12.35 PCU/hr. The net increase (cumulative) will be 89.9 PCU/day @ 3.75 only PCU/hr. Level of Service (LOS) will be '0-0.2 (A). The existing Roads/Haul Roads are adequate to handle the proposed traffic volume due to the Project.

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	APPCB, Vijayawada had given the Public Hearing Advertisements for the Project on 06.07.2023 in the English Newspaper 'The Hindu' with a Corrigendum and the local vernacular (Telugu) Newspaper 'Saakshi'.
Date of PH	08.08.2023
Venue	Project Site
Chaired by	District Collector & Magistrate, NTR District
Main issues raised during PH	The main issues raised in the Public Hearing are: employment to local people, skill development, ground water table depletion, water quality, land cost, cracks due to blasting, air pollution & health issues, more medical camps, flood mitigation, green belt & avenue plantations, additional CSR funds, DMF fund utilisation, village infrastructure development, etc.
Budget proposed for addressing issues raised during PH over 3 years	A Budget of Rs.37.00 Lakhs (Rs.24.00 Lakhs for 1st Year & Rs.13.00 Lakhs for 2nd Year implementation) is allotted for executing the Physical Activities as per

	MoEF&CC OM dated 30.09.2020

Particulars	Details of Letter along with date of grant and validity
Consent to Establish	To be obtained after EC
Consent to Operate	To be obtained after EC
Certified Compliance Report and Inspection date	Not Applicable
Certified Production Details from the inception of the mine (in tabular form against the EC capacity)	The Certification for Production & Dispatch since commissioning of the mine lease from 1997-98 to 2018-19 has been certified by the Assistant Director of Mines and Geology, Nandigama vide Letter No. 77/M/2008 dated 22.08.2019. Limestone production quantity from 1993-94 to till date was 4,099 Tonnes only with the highest production of 1,622 TPA during 2001-02 as stated in AD (M&G) Certification. Also, there was no production after 2019-20 to till date.
Details of Violation	The Project Proponent submitted that the mine was opened on 31.12.1997. The Surface Outcrop Excavation (leveling works) was done occasionally during the period from 1998-99 to 2002-03. During the excavation and leveling, there was production of Limestone of about 4,099 Tonnes in 4 years (with a maximum production of 1,622 Tonnes/Annum during 2001-02) and Dispatched 3,892 Tonnes. For the excavated quantity, Royalty and other applicable taxes were paid to the Department of Mines & Geology, Government of Andhra Pradesh. Thereafter, the entire mining activities were stopped. Actually, there was no Mining Pit made in the Mining Lease area during the Outcrop Excavation period. The imposition of Penalty (compensation amount) under Sec 21(5) of the MMDR Act, as per the judgment of the Hon'ble Supreme Court of India against WP (Civil) No. 114 of 2017 between Common Cause vs Union of India, for an amount of Rs.2,22,125/- (100% of the price of the Mineral) was also paid to the Asst. Director (Mines & Geology), Nandigama on the Demand vide Challan Transaction ID No.30061839632019 dated.08.08.2019. The Project Proponent has submitted the letter issued by the Dept. of Mines and Geology vide letter no. 77/M/2008, dated 24.08.2019 stating that "M/s. The Ramco Cements Limited has paid an amount of Rs. 2.22.125/- (Rupees two lakh twenty two thousand one hundred and twenty five only) vide challan No.30061839632019 dated.08.08.2019. The M/s. Ramco Cements Limited has paid the penalty for complying the Section 21(5) of MMDR Act for the Limestone excavated during the period 2000-2001 to 2002-2003. The Lessee already paid the Royalty and other taxes for dispatches quantity during the period 1999 to 2002-03. Finally, it is to submit M/s. Ramco Cements Limited Mining Lease is in force and valid up to 30.09.2047. The lessee is paying Annual dead rent regularly".

xiii. Ecological Damage Assessment, Natural Resource and Community Resource Augmentation Plan:

-

The Project Proponent has submitted that the total budgetary provision with respect to Remediation Plan and Natural & Community Resource Augmentation Plan is Rs.6.00 Lakhs. The Project Proponent shall be required to submit a Bank Guarantee of an amount of Rs.6.00 Lakhs in favour of APPCB prior to the grant of EC. The Remediation Plan shall be completed in 2 years whereas Bank Guarantee shall be for 5 years. The Bank Guarantee shall be released after successful implementation of the Remediation Plan and Natural and Community Resource Augmentation Plan and after the recommendation by the Regional Office of the Ministry. The breakup of the Ecological Damage Assessment, Natural Resource and Community Resource Augmentation Plan are as follows:-

S. No	Environmental Component	Remediation Plan / Activity Description	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
			I Year	II Year	
1	Air Quality & Ecology	Greenbelt by planting 500 trees in ML Area facing Ravirala Village @ Rs.400 per tree including its maintenance	1.0	1.0	2.0
2	Socio-economics & Public Health	Community/Public Buildings Maintenance and Conducting Medical Camps	1.0	1.0	2.0
	Total	-	2.0	2.0	4.0

S. No	Activity proposed	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
		I Year	II Year	
1	Providing 4 Nos. Solar Street Lights to Ravirala Village @ Rs.20,000/- per Light, 2 per Year	0.40	0.40	0.80
	Total	0.40	0.40	0.80

S. No	Activity proposed	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
		I Year	II Year	
1	Providing Furniture's to Ravirala School	0.30	0.30	0.60
2	Providing Medical Equipment's to. Sub-Primary Health Centre, Ravirala	0.30	0.30	0.60
	Total	0.60	0.60	1.20

d) Summary of Ecological Damage Remediation, Natural & Community Resource Augmentation Plan: -

S. No	Activity proposed	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
		I Year	II Year	
1	Cost of Damage Remediation Plan	2.0	2.0	4.0
2	Natural Resource Augmentation Plan	0.40	0.40	0.80
3	Community Resource Augmentation Plan	0.60	0.60	1.20
	Total	3.0	3.0	6.0

xiv. Penalty provisions as per SOP dated 07.07.2021:

a) The Project Proponent has submitted that the Project cost is Rs.6.0 Crores. The Penalty Provision for new Projects where operation has not commenced is 1% of Project Cost i.e. Rs.6,00,000/- has been earmarked to compensate the damage caused to the environment (in addition to the remedial Plan measures).

R & R details	No R & R is involved in this project.

xvi. Court case details:

Court Case, No and its present status	The Project Proponent has submitted that as directed by MoEF&CC, a case was filed by APPCB against the Project Proponent, M/s. The Ramco Cements Limited under Section 19 of E(P) Act, 1986 in the Hon'ble Court of Addl. Junior Civil Judge, Jaggaiahpet as CC No. 510/2023. The Hon'ble Court has sentenced the Project Proponent to pay a fine of Rs. 50,000/- and disposed off the case on 23.07.2023. Project Proponent has remitted the fine amount of Rs.50,000/- to the Hon'ble Court on 23.07.2023.

xvii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp of Rs 100 bearing no: CW 037909 dated 30.12.2022 stating that the company will comply with all the statutory requirement & judgment of Hon'ble Supreme Court dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted a declaration vide letter dated 25.05.2023 stating that the Environmental Impact Assessment (EIA) Report and Summary Environmental Impact Assessment Reports (English & Telugu) have been prepared in compliance with the awarded TORs and as per the generic structure proposed in EIA Notification 2006 and submitted. The data submitted in the EIA Report are factually correct.
Undertaking by Consultant in EIA/EMP report	The EIA Consultant (M/s. ABC Techno Labs India Private Limited) has submitted a declaration vide letter dated 25.05.2023 stating that the Environmental Impact Assessment (EIA) Report and Summary Environmental Impact Assessment Reports (English & Telugu) have been prepared in compliance with the awarded TORs and as per the generic structure proposed in EIA Notification 2006 and submitted. The data submitted in the EIA Report are factually correct.
Plagiarism checked on 18.08.2023	The Head of the Accredited Consultant Organization certified that this EIA Report has been evaluated by using online software viz. Plagiarism Checker (https://plagiarismchecker.co). The report has been analysed by the system and based on it, I certify that the EIA Report produced in accordance with good scientific practice.

xviii. Details of the Environmental Management Plan (EMP):

EMP – Capital Cost		
S. No	Description	Cost, Rs
1	Mobile Water Sprinkler for Dust Suppression	20,00,000
2	Green Belt Development & Maintenance @ Rs.50,000/yr for 15 Years	7,50,000
	Total	27,50,000
EMP - Operating Cost		

S. No	Description	Operating Cost/Annum (Rs)
I	Greenery	
1	Gardeners & Security (12 persons)	12,00,000
II	Environmental Status	
1	Operation and maintenance of Ambient Air Quality Monitoring Station	3,00,000
2	Water Sprinkling for Dust Suppression	5,00,000
3	Environmental & Vibration Survey Works	2,00,000
	Total	22,00,000

xix. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	(0.2750 + 0.3700=) 0.6450
Project Cost	6.0
Employment (No.s)	19 persons directly and 20 persons indirectly

3.1.3. Deliberations by the EAC in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that River Paleru is located adjacent to the mine lease area on western side and it continues with River Krishna which is flowing on the southern side adjacent to the mine lease area. There are two villages such as RaviralaTanda and Ravirala are located within the mine lease area and hence the safety zone of 300m will be maintained as no mining zone. The mine lease area consists of 5 blocks. Blocks 2, 3 & 5 are not feasible for mining due to proximity of Rivers Paleru & Krishna and encompassing the village habitation. Mining activity is proposed to be carried out over an area of 67.29 Ha in Block-1 and during the present mining plan period, mining activity will be carried out in northern side over an area of 21.82 ha. The EAC asked the Project Proponent to show the area where the illegal mining has been taken place. The Project Proponent has informed the EAC that only surface outcrop excavation was done in the northern side of the lease area which is approximately less than 1 ha and no mine pit was created. Excavation works were done only for 10 days during the period from 1998-99 to 2002-03with a maximum production of 1,622 tonnes/annum during 2001-02.

The EAC asked the Project Proponent to brief about the protection measures being taken and to be taken for Rivers Paleru & Krishna due to mining activity. A detailed study has been carried out by ‘College of Engineering Kakinada (Autonomous) Campus’ of Jawaharlal Nehru Technological University Kakinada (JNTUK) for bund formation and surface drain management. As recommended, a protective bund of 642 m is proposed to be constructed using soft clay material. The top of the protective bund will be kept at +43.50 m with a freeboard of about 50 cm. Three garland drains are suggested for conveying the surface runoff estimated with a bed width of 1.5 m and a depth of 1 m (depth of flow being 0.8 m and a freeboard of 20 cm). All the drains are to be culminated in to one of the three settling tanks (ST1, ST2 and ST3) each of size 15 x 15 x 5 m. Thus, there will not be any flooding of the Lease from nearby Rivers and the Surface Runoffs and Seepage waters will be effectively controlled. The mined out material will be transported to the crusher in the cement plant by road which is located at a distance of 6.0 km from the mine lease area. Since the mine lease area is surrounded by reserve forest on three sides, there will be no possibility of having conveyor (OLBC) for mineral transportation. Transportation activity will be taking place in the northern side of the mine lease area to the cement plant

and there will be no cumulative impact due to transportation. About 1.25 km of Major District Road will be used for transportation and thereafter own road will be used to reach the crusher in the cement plant.

The EAC on viewing the KML file observed that the mine lease area is located in the junction of two rivers and surrounded by reserve forests and opined that the mining activity will have impact on river dynamics, mine inundation and biological environment. The EAC asked about the list of schedule-I species found in the study area. The Project Proponent has informed the EAC that the District Forest Officer, NTR Division, Vijayawada vide letter dated 20.06.2023 has stated that there are no Schedule-I species in core/buffer zone of 10 km radius of Ravirala Limestone Mine (Revenue). The Project Proponent also informed the EAC that no Eco Sensitive Areas located within 10km radius of the mine lease area. The EAC asked the Project Proponent to resubmit the list of authenticated flora and fauna in reference to the Wild Life (Protection) Amendment Act, 2022 by clearly indicating the type and category of Schedule-I species and accordingly the Project Proponent shall submit the proof of the submission of the Wildlife Conservation Plan if applicable. The Project Proponent informed that they will resubmit the list in consultation with the Forest Department. The EAC asked about the location of the OB/waste dump. The Project Proponent has informed the EAC that earlier OB/waste dump was proposed in the western side of the lease area and now it is proposed in the south eastern side of the mine lease area.

The Project Proponent informed the EAC that the mine lease is valid up to 30.09.2047. The Cement Plant is being operated for 4.685 MTPA clinker and 3.650 MTPA Cement of various grades. Limestone requirement of the plant is being met from the five captive limestone mines in this region. Centralized crushers are located at the plant. No mineral beneficiation is involved in the proposal. The topsoil will be used for development of greenbelt/plantation and OB will be temporarily dumped in the south eastern part of the mine lease area over an area of 7.63 ha and maximum height will be 20m and will be used for backfilling as well as for creating protection bunds. Mining activity is proposed to be carried out in Block-1 over an area of 67.29 ha out of which 39.41 ha is in possession with the Project Proponent. Also, during five years mining plan period, mining activity will be carried out in northern side over an area of 21.82 ha which is also in possession with the Project Proponent and no purchase of land will be required for mining.

The Project Proponent has informed the EAC that the mining activities will intersect the ground water table at 26m bgl. Land Use plan for the conceptual stage will be reviewed during the next plan period. The EAC opined that the Project Proponent needs to submit the land use land cover analysis for pre mining, post violation, post mining and at conceptual stage. The EAC also asked the Project Proponent to submit the year wise land required for mining over the life of the mine. The Project Proponent has informed the EAC that the water requirement will be 20.0 KLD and will be met from existing captive mines through tankers till the mine pit is created. The EAC asked the Project Proponent to submit the timeline specifically that till which year water will be utilized from existing captive mines and from which year water will be utilized from this instant mine. The EAC opined that the water for dust suppression of 5.0 KLD is very less. The Project Proponent has informed the EAC that since water from other mines are being utilized; water for dust suppression is less. The EAC asked the Project Proponent about the existing traffic in the road. The Project Proponent has informed the EAC that existing traffic load is 206 PCU/day. Additionally, 30 no.s (to and fro) of tippers will be added to the traffic movement. The cumulative will be 89.9 PCU/day and the existing haul roads are adequate to handle the proposed traffic volume. The EAC asked the Project Proponent to revise the scenario of the traffic over the period of 10 years.

The Project Proponent has informed the EAC that the plan for Greenbelt development has been updated and now it is proposed to develop greenbelt over an area of 13.487 ha with total a 33,718 no. of saplings. The EAC observed that the percentage of greenbelt coverage is 20.0% only and hence the EAC asked the Project Proponent to revisit the greenbelt/plantation plan so as to cover 33% of the area. Baseline data was carried out during Winter Season i.e., December 2022-February 2023. Predominant wind direction was from NE & SSE. The EAC asked about the difference of the High flood level of the river and the mine lease area. The Project Proponent has informed the EAC that the HFL of the Krishna River is + 36.90 m (say +37.0 m). The average ground level in the area is +41.80 m. The maximum HFL of this area during 2009 flood was noted as +41.98 m and the lowest ground level of the Lease Area is +35.0 m. Thus, certain area is below the inundation level of +41.98 m and it is obligatory to protect those areas with the protective bund. The EAC asked the Project Proponent to ensure that the height of the

bund shall be about minimum of about 5m height from the highest flood level and also in line with the Metalliferous Mines Regulations, 1961 and its amendments therein. The EAC also asked the Project Proponent to submit the cross section of the bund with slope both on upstream and downstream side and protection measures on the upstream side.

The Project Proponent has informed the EAC that a budget of Rs 37.0 Lakhs has been earmarked to address the concerns of the public hearing. The EAC noted that the proposed action plan to address the concerns of the public hearing is generalized. The EAC asked the Project Proponent to revise the action plan to address the concerns of the public hearing in a more specific manner by detailing the specific activities proposed under each component in a more specific and monitorable manner and also to include the recurring cost for the same. The Project Proponent has also informed the EACthat a case was filed by APPCB against the Project Proponent under Section 19 of E(P) Act, 1986 in the Hon'ble Court of Addl. Junior Civil Judge, Jaggaiahpet as CC No. 510/2023. The Hon'ble Court has sentenced the Project Proponent to pay a fine of Rs. 50,000/- and disposed off the case on 23.07.2023. Project Proponent has remitted the fine amount of Rs.50,000/- to the Hon'ble Court on 23.07.2023.The EAC asked the Project Proponent to submit the exact area on which the illegal mining has been carried out. The EAC also asked the Project Proponent to include the no. of man days of utilization, equipment's utilized, quantity of domestic water consumption, quantity of waste generation and its handling and management and details of non-provision of garland drain, impact on biological environment, non-provision of green belt and pro rata compensation for greenbelt development and details of occupational health provided to employees. Accordingly, the EAC asked the Project Proponent to rework out the damage assessment and penalty provisions as per SOP dated 07.07.2021. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the exact area on which the illegal mining has been carried out and also to submit the map showing the same.

ii. The Project Proponent needs to include the no. of man days of utilization, equipment's utilized, quantity of domestic water consumption, quantity of waste generation and its handling and management and details of non-provision of garland drain, impact on biological environment, non-provision of green belt and pro rata compensation for greenbelt development by avoidance cost method and details of occupational health provided to employees for the violation period (1998-99 to 2002-03) and needs to rework out the damage assessment. The Cost saved if any shall be considered under Environmental Compensation Charges.

iii. The Project Proponent needs to include the 0.25 % of the turnover as per penalty provisions of SOP dated 07.07.2021.

iv. The Project Proponent needs to submit the land use land cover analysis for pre mining, post violation, post mining and at conceptual stage.

v. The Project Proponent needs to submit the year wise land required for mining over the life of the mine.

vi. The Project Proponent needs to submit the action plan for the bund proposed for protection against mine inundation that should be lined with proper stone pitching on the U/S side as protection against erosion and abetted by three tier plantation all along the GD and settling tank/pond as proposed. The Project Proponent also needs to submit the action plan for proper alarm/warning system that shall be in place against flood warning asper DGMS. Accordingly, the Project Proponent needs to revise the EMP budget.

vii. The Project Proponent needs to ensure that the height of the bund shall be about minimum of about 5m height from the highest flood level and also in line with the Metalliferous Mines Regulations, 1961 and its amendments therein. The Project Proponent needs to submit the cross section of the bund with slope both on upstream and downstream side and protection measures on the upstream side.

viii. The Project Proponent needs to resubmit the list of authenticated flora and fauna in reference to the Wild Life (Protection) Amendment Act, 2022 by clearly indicating the type and category of Schedule-I species and accordingly the Project Proponent shall submit the proof of the submission of the Wildlife Conservation Plan if applicable.

ix. The Project Proponent needs to revise the scenario of the traffic over the period of 10 years and shall submit the Level of Service as per IRC Guidelines.

x. The Project Proponent needs to revise the action plan to address the concerns of the public hearing in a more specific manner by detailing the specific activities proposed under each component in a more specific and monitorable manner and also to include the recurring cost for the same.

xi. The Project Proponent needs to revisit the greenbelt/plantation plan so as to cover 33% of the total area.

xii. The Project Proponent needs to submit the timeline specifically mentioning that till which year water will be utilized from existing captive mines and from which year water will be utilized from this instant mine.

xiii. The Project Proponent needs to submit the measures to be taken for protection of unpurchased lands. The Project Proponent also needs to submit the possession certificate from the concerned Dept/State Govt.

3.1.5. Recommendation of EAC

Deferred for ADS

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Lakhpat & Punharajpur Lignite Block by **GMDC LAKHPAT & PUNHARAJPUR LIGNITE BLOCK** located at **KACHCHH,GUJARAT**			
Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/GJ/MIN/445103/2023	IA-J-11015/29/2023-IA-II(NCM)	21/09/2023	Mining of minerals (1(a))

3.2.2. Project Salient Features

The instant proposal is for mining of Lignite and Limestone in Lakhpat & Punharajpur Lignite Block and Limestone mine of M/s Gujarat Mineral Development Corporation Limited for a peak production capacity of 4.5 MTPA of Lignite and 29.81 MTPA of Limestone in the mine lease area of 2959.6715 ha, located at Villages Lakhpat, Kaner&Punharajpur, Tehsil: Lakhpat, District: Kutch, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 23°44'40.429"N to 23°49'19.872"N and Longitude:

68°43'22.983" E to 68°47'30.417" E. The mine lease area falls under the Survey of India Toposheet No: 41 A/9, 41 A/10, 41 A/13 & 41 A/14 and falls in Seismic Zone-V.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mine lease area is greater than 250ha and appraised at the Central level.

iii. The Project Proponent has submitted that the Terms of Reference (ToR) was obtained on 22.06.2022 for Lakhpat&Punharajpur Lignite Block with production capacity 3.0/4.5 MTPA Lignite (Normative/Peak) & 29.81 MTPA Limestone in project area of 2959.6715 Ha. One of the specific condition (i) is that *"as per the MoEF&CC's OM dated 24.12.2010, PP to apply the TOR separately for operation of Limestone mine to respective sector under the provisions of EIA, Notification for preparation of common EIA-EMP report"*. In view of the above, a fresh proposal has been submitted to obtain the Terms of Reference (ToR) for mining of Limestone.

iv. Details of Mine Lease:

S. No	Letter of Intent (LoI)	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Letter No-MCR-102015 -406-CHH1 (Part File) Sachivalaya, Gandhinagar	25.10.2021	Lignite and Limestone (Major Mineral)	30 years	Government of Gujarat, Industries and Mines Department	2959.67.15 ha

v. Land Use/Land Cover of the Mine lease area:

Private land	224.9142 Ha
Government land	2734.7573Ha
Forest land	0
Total Mining lease area (MLA), ha	2959.6715 ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Details of Mining Plan: -

Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	MCDR-MPCP0CaF1/7/2023- GNR-IBM_RO_GNR
	Date	09.08.2023
	Mineral & (Major/Minor)	Mineral Limestone and Lignite as Associated Mineral
	Mine Lease Area, Ha	2959.6715
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining	
Drilling/Blasting	Drilling and blasting will be rarely phenomenon in the whole mining process throughout the life of the mine. Occasional drilling and blasting may require to excavate the hard limestone strata which has been reported in the Geological report. In case of drilling and blasting, spacing and burdens will be limited to 5 meter each. Deep hole blasting with SMS will be adopted. Blasting will be done in the suitable time of the day after proper intimation	

Geological Reserves	736.58 MT of Limestone and 145.43 MT of Lignite
Mineable Reserves	562.55 MT of Limestone 105.52 MT of Lignite
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone - 29.81 MTPA Lignite – 3 MTPA Top soil – 0.52 MTPA OB – 118.7672 MTPA
Life of mine	39 years (for Limestone 35 years and for Lignite 39 years)
Mine Bench Height & Bench Width	Proposed bench height 5m and bench width 10m
No. of Mine Benches	21
Existing Depth, m bgl	0
Ultimate Depth of Mining, m bgl	105m
Ground Water Table, m bgl	2.60 m to 11.05 m bgl in Pre-monsoon and 0.00 m to 11.00 m bgl in Post-monsoon
Details of ground water intersection	There will be intersection of ground water aquifer during mining operation
Individual bench slope	80º
Overall pit slope	26º
Details of existing/ proposed Crusher	Proposed Primary Crushing – Jaw Crusher of 6000 TPH capacity
Mineral Beneficiation	Not Applicable
RoM output size	-200 mm
Transportation details including capacity of dumper/tipper, mode of transport and distance	No. of Dumper of capacity 40 Ton -128 and No. of Dumper of capacity 35 Ton – 51 Mode of transport – Road Distance – around 10 Km from project site
Generation of Topsoil/OB & its Management during plan period & conceptual period	About 1249.34 M.cum of OB and 12.65 M.cum of Topsoil will be generated. Backfilling will be done over 1675.72 Ha out of which 717.93 Ha will be converted to agricultural land and 957.79 Ha will be utilized for plantation.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	A mineral rejects yard will be created in the south-western corner of the Block to stack the sub-graded limestone for future usage.

Total water requirement	1940 KLD	Drinking/Domestic	90.0 KLD
		Dust suppression	1350.0 KLD
		Greenbelt/Plantation	500.0 KLD
Source	Deep tube wells will be installed at site for drinking water with necessary treatment plant. Potability of water will be analyzed in quarterly basis. In the initial years, water for dust suppression, plantation use and workshop uses will be catered from the mine pit water of nearby GMDC mines. With progress of the mine, accumulated pit water will be stored and utilized for the Plantation, Dust Suppression and workshop usage.		
Permission for withdrawal/ intersection along with details of grant and its validity	Requisite approvals from CGWA will be obtained before commencement of mining operation.		

Particulars	Particular's Name	Distance & Directions

Village	Lakhpat	0.5 km
Town	Nakhatrana Bhuj	~70 km, SE ~111km, SE
Highway	SH-42 SH-6	SH-42 passing through the block boundary SH-6 is passing just outside the north-western boundary of the block.
Interstate Boundary	India-Pakistan International Boundary	40 km towards NW
Railway Station/Railway line	Bhuj Railway Station	110 km towards SE
Water Bodies	Nala Kori Creek Nala	0.3 km towards W 1 Km towards N 2 km towards E

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No Forest land involved in the mine lease area
National Park	No	Nil within 10 km
Wildlife Sanctuary	No	Narayan Sarovar Wildlife Sanctuary in the southern direction from the mine lease area
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	The block is also 8.2 km outside of the Eco Sensitive zone of Narayan Sarovar Wildlife sanctuary as per the certificate of Forest and Environment Department, Gujarat, dated 09-02-23)
Coastal Regulation Zone (CRZ)	No	The project site does not fall in CRZ area as per the assessment of CRZ status of LakhpatPunharajpur Lignite Block.

Proposed area for green belt/plantation and no. of saplings proposed	Proposed area – 1056.41 Ha No. of saplings – 16,90,000
Budget for green plant & plantation till the end of life of mine.	Capital Cost - 936 lakhs Revenue Cost – 214.5 lakhs
Budget for nursery	Nil
Details of existing plantation and its survival rate	No existing plantation
No. of tree cuts in the mine lease area and compensatory afforestation	Nil

R & R details	There is no homestead PAF within the Block. However, there are 196 PAF and 798 PAP within the Block. Compensation in accordance with the prevailing Norm of State R & R Policy will be undertaken and implemented by M/s GMDC for the land losers.

Court Case, No and its present status	No court case is pending against the project.

Particulars	(Rs. In Crore)

Project Cost	Rs 1037.436 Crores
Employment (No.s)	1000 persons (Departmental: 200, Contractual: 650 & Security: 150)

3.2.3. Deliberations by the EAC in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant has presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has informed the EAC that the initially mining lease was granted over an area of 2973 ha and then the State Govt has reduced the 14 ha of forest land and granted the Letter of Intent (LoI) over an area of 2959.6715 ha. A State Highway is passing within and adjacent to the mine lease area. No Villages located within the mine lease area. Nala is located about 200m on the western side. Kori Creek is situated at a distance of 1 km towards Northern side. This region receives an annual rainfall of about 200–300 mm. The project site does not fall under CRZ area. Lakphat Fort is located at a distance of about 200m from the mine lease area on the northern direction. The instant mine lease area is located at a distance of 8.8 km from Narayan Sarovar Wildlife sanctuary and 8.2 km from Eco Sensitive zone of Narayan Sarovar Wildlife sanctuary which is outside the Eco Sensitive zone. No forest land is involved in the mine lease area. India-Pakistan International Boundary is located about at a distance of 40 km towards NW. The EAC observed that on viewing the KML file, CRZ area is found to be on northern side of the mine lease area. The Project Proponent has informed the EAC that CRZ area is outside the mine lease area. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence"*. The EAC opined that the NOC from the Ministry of Defence is prerequisite for grant of Terms of Reference (ToR).

The Project Proponent has informed the EAC that the instant proposal is for mining of Lignite and Limestone. Terms of Reference (ToR) have been already obtained from the Coal Mining Sector for Lignite mining on 22.06.2022. One of the specific condition (i) of the ToR is that *"as per the MoEF&CC's OM dated 24.12.2010, PP to apply the TOR separately for operation of Limestone mine to respective sector under the provisions of EIA, Notification for preparation of common EIA-EMP report"*. In this regard, a fresh proposal has been submitted to obtain the Terms of Reference (ToR) for mining of Limestone. This Limestone has been occurring as an over burden and has to be excavated out. Maximum proposed production capacity of Limestone is 29.81 MTPA. Expression of Interest (EoI) has been published for putting up cement plants. The EAC asked about the plan for transportation. The Project Proponent has informed the EAC that they are exploring the options to put the Cement Plant close to the Limestone mine and will also explore the possibilities of transporting through conveyor belt and if not possible proper mitigation plans will be devised to minimize the impact due to road transportation. The Cement Plant will commence between during the year 2026-2029. The feasibility of transportation will be covered in the EIA/EMP report since the EoI is in 2nd Stage of tendering.

The EAC asked the Project Proponent that when will the Lignite production will commence. The Project Proponent has informed the EAC that the Lignite production will commence in the year 2025. The EAC asked the Project Proponent that whether huge area is available to accommodate the Limestone. The Project Proponent has informed the EAC that during the first five-year plan, the maximum production of Limestone will be 14.80 MTPA. The EAC asked the Project Proponent to explore the possibility of the reduction of the requirement of water consumption. The EAC also asked the Project Proponent to submit the action plan for exploration program in the EIA report.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC opined that there are other mines also present in the study area. The EAC observed that the Lakphat Fort is located at a distance of about 200m from the mine lease area on the northern direction. The proposed capacity of Limestone is huge quantity. The EAC noted that the maximum proposed production capacity of Limestone of 29.81 MTPA will be achieved in the 12th year as per the then approved mining plan. The Project Proponent did not finalize the mode of transportation. The EAC was of the view that rainfall in the region is very minimal and there will be intersection of ground water aquifer during mining operation. The area is already starved of freshwater. The EAC opined that this will create further complications. The EAC observed that since there will be no overburden, backfilling the void and the closure of mine remains a challenging task. The EAC noted that a Nala is located about 200m on the Western side and Kori Creek is situated at a distance of 1 km towards Northern side and there will likely chance of sea ingress. The EAC also noted that the mine lease area is located in Seismic Zone-V. Thus the EAC was of the view that there is a need to ascertain the ground reality w.r.t water bodies in the vicinity of the mine lease area, Lakphat Fort (200m, N), handling, management and transportation of Limestone, traffic congestion, water balance and source of water, plan for final closure of mine, sea ingression, cumulative impact and hazard management. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal and was of the view that the instant proposal may be considered only after submission of the following additional information: -

i. i. The Site visit report of the sub-committee.

ii. Since the mine site is located within 20 km from seaboard frontier, Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project for Terms of Reference (ToR).

iii. The Project Proponent needs to clearly justify the water balance and also to explain that how the requirements of freshwater will be met.

3.2.5. Recommendation of EAC

Deferred for ADS

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

Revalidation of EC under MoEF&CC Notification S.O 1530(E) dated 06th April, 2018 for Lakheri Limestone Mine (ML Area 1516.88 ha) with production capacity of 1.5 MTPA and waste/ topsoil 11.25 Lakhs CuM per annum (Maximum) with existing Wobbler and screening plant of 400 TPH at villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lkaheri, Sakhoda, Nayagaon & Papadi, Tehsil: Indergarh&Kesoraipatan, District: Bundi, Rajasthan of M/s ACC Limited. by **SANDEEP KUMAR** located at **BUNDI,RAJASTHAN**

Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/RJ/MIN/426653/2023	J-11015/167/2018-IA.II(M)	20/04/2023	Mining of minerals (1(a))

3.3.2. Project Salient Features

The instant proposal is for revalidation of EC under MoEF&CC Notification S.O 1530(E) dated 6thApril, 2018 of M/s. ACC Ltd for mining of Limestone with Limestone Production Capacity of 1.5 Million TPA and OB Waste: 1.96 Million TPA with Total Excavation: 3.46 MTPA along with existing wobbler & screening plant of 400 TPH in the mine lease area of 1,308.88 ha [Forest land having Stage-II FC: 201.88 ha + Non-Forest land: 1107 ha] out of 1516.88 Ha, located at Villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lakheri, Sakhoda, Nayagaon&Papadi, Tehsil: Indergarh, District: Bundi, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 25º31'54.6"N to 25º39'39'' N and Longitude: 75º56'46.4''E to 76º15'27.2"E. The mine lease area falls under the Survey of India Toposheet No: 45 O/14 & 54 C/2and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

iii. The instant proposal was earlier considered in the 14th EAC (Non-Coal Mining) meeting held during 3-4 May, 2023 wherein the EAC deferred the proposal. Then, the Project Proponent submitted the information on 05.06.2023 and 25.07.2023 in Parivesh portal. Accordingly, the proposal was reconsidered in the 19th EAC (Non-Coal Mining) meeting held during 24-25 August, 2023 wherein the EAC deferred the proposal for want of requisite information. Then, the Project Proponent submitted the information on 30.09.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the 21st EAC (Non-Coal Mining) meeting held during 18-20 October, 2023.

Based on observation of EAC in its EAC meeting held during 24-25 August, 2023 and compliance of observation of EAC made by Project Proponent are detailed below:

S. No	Observation of EAC in its meeting held during 24-25 August, 2023	Reply by Project Proponent
1	The EAC opined that the due to the close proximity of Chambal Gharial Sanctuary, Ramgarh Vishdhari Tiger Reserve and Ranthambhore Tiger Reserve, the Ministry may seek comments from the Wildlife Division whether any protected areas are located in the buffer zone of the Tiger Reserve/Wildlife Sanctuary and also to seek clarification that whether the NBWL recommendations has been obtained for each of them or not in reference to the minutes of 32nd meeting of SCNBWL dated 21.01.2015 and minutes of 45th meeting of the Standing Committee of NBWL held on 4th September, 2017. Project Proponent informed that they are yet to receive the formal letter for	The Wildlife Division on 22.09.2023 has gave the following comments as given below: - 1. The total mining lease area is 1516.88 ha out of which 1107 ha is a non-forest and 409.882 is a forest land. The matter was initially discussed in 31st meeting of SCBNWL held on 12.08.2014. During the meeting of SCNBWL recommended for 1107 ha forest area of the mining lease. 2. NOC has been accorded by the Chief Wildlife Warden Rajasthan vide letter dated 3.12.2014. 3. In 32nd meeting of NBWL held on 21.01.2015, remaining 409.88 ha of forest area including 208 ha diverted forest area and 201.88 ha non-diverted forest area of total mining lease wildlife clearance was granted by the NBWL. 4. By the order of NBWL in its 45th meeting dated 04.09.2017 and NTCA meeting dated 04.09.2017, an area of 409.88 ha of forest land of ACC mining lease is denotified from RTR notified area by the Rajasthan Government order dated 26.05.2022. 5. Further, it was informed by the DCF, RVTR Bundi vide letter dated 4.07.2023 that an Inspection committee made by NGT in its inspection report stated that there is no mining activity carried out by ACC in forest area of

	NBWL clearance as recommended in the aforesaid minutes dated 21.01.2015. Since, the Project Proponent is undertaking the mining without obtaining the formal letter, the wildlife division of the Ministry may clarify whether this tantamount to violation or not. The Ministry may also seek clarification from wildlife Division whether Project Proponent needs to obtain the NBWL clearance for Ranthambore Tiger Reserve, since the sanctuary is located at a distance of 9.36 km from the mine site.	409.88 ha and mining activities was carried out in only two pit viz P-3 and sakhoda which are located in the non-forest area, but within the allotted lease area. So before commencement of any mining activity in 409.88 ha forest area, the NoC from the State Government may be obtained. The Project Proponent also submitted the following facts as given below: - 1. On 12-13.08.2014, SCNBWL in its 31st meeting recommended wildlife clearance for an area of 1107 ha of revenue/ non-forest area of mining lease. 2. Subsequently, NOC had been accorded by CWLW on dated 03.12.2014 regarding proposal of non-forest project within 10 km of national Park and Sanctuaries. 3. On 21.01.2015 Wildlife Clearance was recommended by NBWL in its 32nd meeting, committee observed that forest area of 409.88 ha was inadvertently missed out in 31st meeting. It was also stated by NBWL that this permission will be deemed once the recommendation of SBWL to exclude 409.88 ha forest area from RTR Buffer will be implemented and NBWL directed to SBWL to expedite the de-notification process. 4. On 04.09.2017 during 45th SCNBWL meeting, in continuation with direction of wildlife clearance dated 21.01.2015, NBWL and NTCA approved de-notification of RTR to exclude forest mining area 409.88 ha and user agency to deposit Rs 5.0 Cr. Accordingly ACC deposited Rs 5.0 Cr on 14.10.2017 as demanded vide letter dated 22.09.2017. 5. CWLW in its letter dated 10.02.2023, clearly mentioned that wildlife clearance is already granted by NBWL. 6. CCF & Field Director of RVTR in its advice letter dated 28.04.2023 and 23.05.2023 related with wildlife clearance of ACC mining lease stated that ACC have valid wild life clearance. 7. DCF and Dy. Field Director of RVTR, Bundi in his factual report addressed to CWLW dated 04.07.2023 endorsed above mention facts and also stated as below: (i) 409.88 ha area of ACC mining lease had been de-notified from RTR notified area by Rajasthan Govt. vide order dated 26.05.2022. (ii) There is no Mining activity carried out by ACC in Forest area of 409.88 ha.
2	The Project Proponent needs to submit the map showing the distance of the railway line & railway boundary from the Sakhawada mine pit. The Project Proponent needs to undertake the vibration monitoring study during blasting near the railway line and SOP followed during blasting during movement of	The Project Proponent has submitted that the distance of the railway boundary and the railway line from the boundary of Sakhawada mine lease area is 550 m and 570 m respectively. The Project Proponent also submitted the map showing the distance of railway line & railway boundary from the boundary of Sakhawada mine lease area. The Project Proponent has submitted the copy of the report of the blasting and vibration study carried out by Shri Pawansut Sharma, NABET Accredited EIA

	railways and also to submit the specifications of the rock breaker. The Project Proponent shall also consider the direction of the blasting w.r.t railway line to avoid any fly rocks during blasting.	Coordinator & FAE (AP, NV & RH). The observations made, analysis results of the data, conclusions and recommendations made in the report are summarized below: 1. At sakhoda pit, the drilling was carried out by LM 100 drill machine having dia 115mm. One drill block of 16 nos holes with 4.5m depth was prepared maintaining spacing 3m and burden 2.5m. 2. The distance of study station from the blasting sites was 550m (Railway Line). 3. From the blasting data at the mines as per the approved mine plan, a ground vibration data is calculated at different vibration study locations. Depending on the distance of points, charging pattern of holes and the total number of holes used in the blasting, the magnitudes of vibration varied at 1 location: 4. At a distance of 550m (Railway line), the blast parameters were spacing 3m, burden 2.5m, depth 4.5m and numbers of holes were 16 in 3 rows. Per hole charge was 9.765 kgs and charge per delay was also 9.765 kgs. The equipment used for measuring vibration was micromate (make- Instantel) and the PPV values were recorded 0.055 mm/sec to 0.702mm/sec with the associated dominant frequency of 7.1Hz to 7.3 Hz. 5. The level of ground vibrations recorded at the 550 m (Railway line), is well within the safe limit as per the DGMS Vibration Standard. The safe permissible limit of vibration corresponding to frequency range 8-25 Hz is 10mm/s as per the DGMS criterion for domestic houses near the proposed mine. Therefore, it may conclude that the all the vibrations (PPV &Frequency) values were within the safe permissible limits as per DGMS criterion. Hence practically no impact will be on the nearest Railway Line RCC infrastructure with given blasting parameters. Further, the Project Proponent has submitted the following control measures to be followed during as given below: - i. Blasting will be strictly done during day time only. ii. Before 1 hr of blasting activity the blasting contractor will sound a loud Siren horn to make people aware so that they can come to know and distance themselves from the mining area. iii. Steaming height will be taken as per the plan and as per the blasting design parameters suggested by the approved blasting authority. iv. Secondary blasting will be totally avoided and hydraulic rock breaker is employed and same practice shall be used for breaking large boulders, Controlled blasting with proper spacing, burden, stemming and optimum charge/delay are being /shall be maintained. v. The blasting shall be carried out during favourable atmospheric condition and less human activity timings,

		alternatively excel non-electrical initiation system, Supervision of drilling and blasting operations to ensure blast design geometry, Effective stemming of the explosives will be done in the drill holes. vi. Blasting & drilling will be carried-out as per the norms of DGMS. A proper management plan has been prepared in the concern to ensure safety of human life property and production of environment &Blasting will be performed strictly as per the guidelines specified under MMR, 1961. vii. Controlled blasting with proper spacing, burden, stemming and optimum charge/delay is being /shall be maintained. viii. Supervision of drilling and blasting operations to ensure blast design geometry. ix. Effective stemming of the explosives will be done in the drill holes. x. Blasting will be performed strictly as per the guidelines specified under MMR, 1961. xi. Vibration monitoring at sensitive locations shall be carried out scientifically to check adverse effects if any during blasting. xii. The holes will be fired towards the free face. Proper stemming of holes will be always carried out. Blasting will be avoided during foggy weather and high wind velocity and will be done during day time only. xiii. Over charging will be avoided. The maximum charge per delay will be kept within limit to minimize ground vibration. Blast mate will be used to record the ground vibration. xiv. During blasting, other activities in the nearby area will be temporarily stopped. xv. Drilling parameters like spacing, burden, depth and diameter of hole will be properly designed and spacing/ burden ratio is always more than one. xvi. To control fly rock measures such as proper Drilling, Subgrade drilling, roper spacing and burden, appropriate charge, muffling or covering blast site with old conveyor belt piece /screen, proper stemming, statutory distance w.r.t danger zone, two to one free faces advancement, PPV decreases with increase in delay intervals, use of NONEL for bottom initiation, no pebbles at blast face and proper initiating pattern with electronic detonators will be followed. The Project Proponent has submitted that in-line with discussion held during EAC meeting as the mining will be by using Rock Breaker considering as closest pit of mine lease near Railway line to avoid any harm with fly rocks due to blasting operation may be considered. The Rock Breaker will be an attachment of 40tone capacity of Excavator (Manufacturer Name: EPIROC Specification Type: HB 3100 DP Part no: 3363120769 & Serial No: DEQ182289).
3	The EAC asked the Project	The Project Proponent has submitted that they will follow

	Proponent to revisit the action plan for shifting the school along with the timeline. The Project Proponent needs to submit the safety precautions to be taken during mining activity till the shifting of the school.	the safety precautions as per recommendations given by Director General of Mines Safety, Govt. of India considering 100 m blasting permission as safe distance. The Project Proponent also submitted the copy of the permission letter obtained from the Directorate General of Mines Safety vide letter dated 22.04.2023 under regulation 164 (1-B) of the Metalliferous Mines Regulation, 1961 to conduct deep hole blasting within 300 m of danger zone but beyond 100 m of surface structures not belonging to owner at Lakheri Limestone Mine (ML No. 04/1972) of M/s ACC Limited. Further, the Project Proponent has submitted that they have requested to the District Education Officer, Bundi, and Principal of School for shifting of School vide their letter's dated 11.01.2023 & 03.01.2023. After necessary approvals school will be shifted as per the revised plan given below: -

S. No.	Activity	Timeline	Budget (Rs in Lacs)		Remarks
			1st Year	2nd Year	
1.	Permission and seeking support from District Administration	FY2023-24 (on going)	-	-	Request letter has been submitted
2.	Meeting with stack holders to resolve the issue and analysis of alternative land	FY2022-23 (on going)	-	-	Liasoning with local community is in progress.
3.	Arrangement of land through Government	FY 2022-23 (on going)	-	-	Dialog is under progress and expected to be finalized before 31.12.2023
4.	Construction of School	FY 2022-23 (on going)			
	Construction of complete school building – 8 classrooms (4.6mx5.5m), one Principal Room (5.3mx9.5m), one staff room (5.3mx8.2m), one staff room (5.3mx8.4m), toilets with water facilities (5.3mx7.5m), drinking water facilities, electric fittings		60	-	Architectural design of proposed school has been prepared and ready for mutual discussion with local committee.

			and ensuring all basic infrastructure facilities.				
			Classroom furniture, office furniture, white boards, fans, etc.		8	-	
		5.	Developing smart classrooms / digital classrooms with solar back up.	FY2023-24 (on going)	-	3.0	
		6.	Training and capacity building of teachers.	FY2023-24 (on going)	-	0.20	
			Total		68	3.20	
			Sub Total		71.20		

4	The Project Proponent needs to provide the document supporting the deemed extension of CTO from State Pollution Control Board during the period 01.05.2018 to 18.12.2022.	The Project Proponent has submitted that the Consent to Operate (CTO) for mines was obtained from Rajasthan State Pollution Control Board (RSPCB)vide letter no F (Mines)/Bundi (Bundi)/1(1)2009-2010/336-340 dated 14/05/2015 for the period upto 30/04/2018. Renewal of Consent to Operate application was submitted on 08.12.2017 and it was pending by RSPCB in want of Environment Clearance under EIA Notification 2006. The Project Proponent also submitted the chronology of communication made with RSPCB during the period of 01.05.2018 to 18.12.2022 as given below in table: -

Date	Communication details
08.12.2017	ACC applied for renewal of consent to operate
04.01.2018	RSPCB issued a deficiency letter to ACC
15.01.2018	ACC submitted its reply on 15.01.2028
27.02.2018	RSPCB issued a Show Cause Notice for refusal of CTO application in view of some deficiencies.
08.03.2018	ACC submitted its reply with all the information
19.07.2019	RSPCB issues a deficiency letter to submit the Environment Clearance under EIA Notification 2006, GPS co-ordinates of mines pillars and distance of mines lease from National Park/ Wildlife Sanctuary/ critical tiger habitat.
31.07.2019	ACC Submitted its reply
30.06.2020	RSPCB Letter of submitting the requisite information
10.07.2020	ACC Submitted its reply
22.07.2021	RSPCB issued Show Cause Notice for intended refusal of consent to operate
22.08.2021	ACC Submitted its reply to the show cause notice
22.12.2021	ACC submitted the present status of EC

	revalidation and forest area de-notification
07.07.2022	ACC informed to RSPCB regarding forest area de-notification on 26.05.2022 and issuance of ToR by MoEF&CC on 28.06.2022
14.11.2022	RSPCB refused the CTO, mining operation was stopped after refusal
23.11.2022	ACC Applied to RSPCB for CTO
19.12.2022	RSPCB granted conditional CTO which is valid till 31.12.2023

Further, the Project Proponent has submitted that the operation of mine was stopped on 14.11.2022 after refusal of consent by RSPCB. Subsequently, ACC applied for new consent to operate on 23.11.2022. Looking into continues operation and time involved in deciding the Environmental Clearance under EIA Notification, 2006 by MoEF&CC, RSPCB granted the conditional CTO on 19.12.2022 which is valid till 31.12.2023.

As per the Hon'ble NGT order dated 31.08.2023, Joint Committee has been constituted consisting of the following members Shri. Mahesh DuttPurohit, Scientist "D" SRO Jaipur, MoEF&CC, Shri. P Jagan, RD, CPCB Bhopal and Sh. VivekGoel, SEE, RSPCB, Jaipur and the joint committee submitted their report to Hon'ble NGT. The conclusion of the Joint Committee reportisgiven as under: -

i. The Project Proponent had applied for Environment Clearance under the provision of EIA Notification 2006 within the specified time frame as prescribed vide notification dated 06.04.2018 and the Project Proponent continued the mining activities in non-forest area of 1107 ha, while the proposal was under consideration at the level of MoEF&CC, GoI. Later on, the PP had obtained the National Board for Wildlife (NBWL) Clearance after de-notification of the RTR buffer by Rajasthan Government. As per the mining department and State Forest Department, mining activity has been limited to the non-forest land only.

ii. The Project Proponent had also applied for Renewal of Consent to Operate along with requisite fee and the application was kept under consideration at the level of State Board in want of Environmental Clearance under the provision of EIA Notification 2006. After issuing several notices to the lessee and non-submission of Environmental Clearance under EIA Notification 2006, the State Board has refused the application on 14.11.2022. It is pertinent to mention here that no clear directions were issued by the State Board regarding operation of mine during this period and as soon as the pending application was refused, the mining operations were shut down by the project proponent. Furthermore, the notification dated 06.04.2018 is also not clear

<table>
<tr><td></td><td></td><td>regarding the operation of mines for the intervening period (i.e. beyond the date of application and upto the issue of Environmental Clearance under EIA Notification 2006).
iii. Later on, looking to the status of issue of Environmental Clearance in advance stage (ToR issued) and after taking firm commitment in form of bank guarantee of Rs 5 Cr, the State Board had issued conditional consent to operate for short period (one year only) on the same capacity and lease area. However, the proposal of Environmental Clearance under the provision of EIA notification 2006 was still under consideration at the level of MoEF&CC, GoI.
iv. No action has been taken by mining department for stopping the mining during the said period while the CTO application was pending.
v. RSPCB may be directed to adopt a standard practice for dealing all such matters, in accordance to Hon’ble Supreme Court judgment in the matters of Common Cause v/s UoI and various judgment of Hon’ble NGT issued from time to time with respect to requirement of prior Environmental Clearance.</td></tr>
<tr><td>5</td><td>The Project Proponent needs to submit the status of the court case matter which was listed on 31st August, 2023 for final arguments before the Hon’ble NGT, Bhopal.</td><td>The Project Proponent has submitted the status of the court case as given in table below: -
<table>
<tr><th>S.No</th><th>Date</th><th>Activity</th></tr>
<tr><td>1</td><td>31.08.2023</td><td>Hon’ble NGT issued order dated 31.08.2023 and directed the Rajasthan State Pollution Control Board to submit the report on the following:
i.Why the consent to operate application was kept pending by RSPCB from 2017 to 2022?
ii.How many CTO applications of mining lease are issued without EC?
iii.How many mining lease were accorded condition CTO for a period of one year without EC?
iv.Number of inspections carried out by the RSPCB of the mining lease being in Red Category Industry and not taking any action for want EC.
v.The quantum of mineral, excavated by the respondent no. 6 with the detail of area excavated from 2017 till date.
vi.The amount paid and use of power for mining.

NGT constituted a committee, consisting the representative of MoEF&CC, CPCB and State Pollution Control Board to examine the matter. Next hearing was scheduled on 26.09.2023.</td></tr>
<tr><td>2</td><td>26.09.2023</td><td>Joint Committee consisting of Shri.</td></tr>
</table></td></tr>
</table>

				MaheshDuttPurohit, Scientist "D" SRO Jaipur, MoEF&CC, Shri. P Jagan, RD, CPCB Bhopal and Sh. VivekGoel, SEE, RSPCB, Jaipur submitted their report to Hon'ble NGT. ACC filled an application to review the order dated 31.08.2023 and the Hon'ble NGT issued notice on the same. The next hearing is scheduled on 02.11.2023.

iv. Details of previous Environmental Clearance (EC):

a) The Project Proponent obtained Environmental Clearance (EC) vide EC Lr No. J-11015/14/2003-IA.II(M) dated 26.12.2005 for production capacity of 1.5 MTPA involving mine lease area of 1516.88 ha under the provisions of EIA Notification, 1994.

v. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
04.10.2018	IA/RJ/MIN/ 275163/2022 J-11015/167/ 2018-IA.II (M)	38thEAC (15.11.2018), 20thEAC meeting (21.08.2020), 26th EAC (13.01.2021) and 52nd EAC (14.06.2022)	Terms of Reference under the provision of Notification S.O 1530(E) dated 06.04.2018 for LakheriLimestone Mine of M/s ACC Limited (Area: 1516.88 Ha) with Limestone Production Capacity of 1.5 Million TPA and waste/topsoil 11.25 Lakhs cu.m per annumwith existing wobbler & screening plant of 400 TPH at Villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lakheri, Sakhoda, Nayagaon&Papadi, Tehsil: Indergarh, District: Bundi, Rajasthan.	28.06.2022

vi. Details of Mine Lease:

a) The mining lease was originally granted by the State Government in year 1913 and lease deed was executed on 01.12.1913 for a period of 30 years.

b) First Renewal of mine lease was granted on 28.07.1943 for a period of 30 years w.e.f. 01.08.1943 for mining of Limestone.

c) Second renewal of mine lease was for a period 20 years w.e.f. 01.08.1973 and after 01.08.1993, the lease was under deemed renewal upto 31.07.2013.

d) As per Section 8A (5) of MMDR (Amendment) 2015, Lease period of Mining leases has been extended upto 31.03.2030 vide Department of Mines & Geology Lr no ME/Kota/C.C/Major/4/72/349 dated 18.02.2015.

vii. Land Use/Land Cover of the Mine Lease Area:

Private land	645.87 Ha
Government land	461.13 Ha
Forest Land	409.88 Ha
Total Mining lease area (MLA), Ha	1516.88 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area

viii. Mining Plan Details: -

<table>
<tr><td rowspan="4">Modified Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines</td><td>Letter No.</td><td>584 (4)(3)(1886)/2021-RCM-Ajmer</td></tr>
<tr><td>Date</td><td>28.12.2021</td></tr>
<tr><td>Mineral & (Major/Minor)</td><td>Limestone (Major Mineral)</td></tr>
<tr><td>Mine Lease Area, Ha</td><td>1516.88</td></tr>
<tr><td></td><td>Validity</td><td>2022-23 to 2024-2025</td></tr>
<tr><td>Mining Parameters</td><td colspan="2">Quantitative Description</td></tr>
<tr><td>Method of Mining</td><td colspan="2">Fully Mechanized Opencast Mining Method</td></tr>
<tr><td>Drilling/Blasting</td><td colspan="2">Drilling Parameter
<table>
<tr><th>S. No.</th><th>Particular</th><th>Details</th></tr>
<tr><td>1</td><td>Height of the bench</td><td>9.0 m</td></tr>
<tr><td>2</td><td>Sub grade drilling</td><td>0.5 m</td></tr>
<tr><td>3</td><td>Length of stemming column</td><td>2.5 m</td></tr>
<tr><td>4</td><td>Length of ANFO Column</td><td>3.5 m</td></tr>
<tr><td>5</td><td>Spacing</td><td>4.0 m</td></tr>
<tr><td>6</td><td>Burden</td><td>3.0 m</td></tr>
<tr><td>7</td><td>Type of Booster</td><td>Primer</td></tr>
<tr><td>8</td><td>Type of drill holes</td><td>Vertical Holes with 115 mm diameter each</td></tr>
</table>
Blasting Parameter
<table>
<tr><th>S. No.</th><th>Particular</th><th>Details</th></tr>
<tr><td>1</td><td>Spacing</td><td>4.0 m</td></tr>
<tr><td>2</td><td>Burden</td><td>3.0 m</td></tr>
<tr><td></td><td>Depth of Hole</td><td>9.5 m</td></tr>
<tr><td>3</td><td>Charge per delay</td><td>40 –45 kg</td></tr>
<tr><td>4</td><td>Powder Factor (T/kg)</td><td>8 tonnes per kg</td></tr>
</table></td></tr>
<tr><td>Geological Reserves</td><td colspan="2">24.60 Million Tonnes (As on 01.09.2021)</td></tr>
<tr><td>Mineable Reserves</td><td colspan="2">21.80 Million Tonnes (As on 01.09.2021)</td></tr>
<tr><td>Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)</td><td colspan="2">Limestone 1.50 Million TPA and OB Waste 1.96 Million TPA (Total Excavation: 3.46 Million TPA)</td></tr>
<tr><td>Life of mine</td><td colspan="2"></td></tr>
<tr><td>Mine Bench Height & Bench Width</td><td colspan="2">Bench Height – 6 - 9 m
Bench Width–15 - 20 m (working width)</td></tr>
<tr><td>No. of Mine Benches</td><td colspan="2">3</td></tr>
<tr><td>Existing Depth, m bgl</td><td colspan="2">15 m bgl</td></tr>
<tr><td>Ultimate Depth of Mining, m bgl</td><td colspan="2">20 m bgl</td></tr>
<tr><td>Ground Water Table, m bgl</td><td colspan="2">Pre monsoon: 6.83 - 7.53 m bgl</td></tr>
<tr><td>Details of ground water</td><td colspan="2">The groundwater table has already been intersected and</td></tr>
</table>

intersection	permission for the same has already been obtained from CGWA vide NOC no CGWA/NOC/MIN/ORIG/2021/13631 dated 03.11.2021 (Valid upto 02.11.2023)
Individual bench slope	80°
Overall pit slope	45°
Details of existing/ proposed Crusher Mineral Beneficiation	The limestone raised is being/will be transported to Wobbler along with screen having 400 TPH capacities within lease area / crusher. Wobbled & screened material/raised limestone is transported to the crusher (situated in cement plant) by Rail/Road from which the crusher limestone is being/will be transported to cement plant by conveyor belt.
RoM output size	500 mm to 800 mm size
Transportation details including capacity of dumper/tipper, mode of transport and distance	The limestone raised is being/will be transported to Wobbler along with screen having 400 TPH capacities within lease area / crusher. Wobbled & screened material/raised limestone is transported to the crusher (situated in cement plant) by Rail/Road from which the crusher limestone is being/will be transported to cement plant by conveyor belt.
Generation of Topsoil/OB &its Management during plan period & conceptual period	<u>Plan period:</u>
	During the conceptual / lease period 178.50 lacs m^3 of OB waste will be generated. At conceptual period, 60 Ha will be backfilled, out of which 29.26 Ha has already been reclaimed. Remaining 30.74 Ha will be backfilled with 35.7 lacs m^3 of OB waste and rest will be stacked as dumps which covers an area of 85 ha.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil

Total water requirement	94.0 KLD	Dust Suppression	40.0 KLD
		HEMM Washing, Workshops	10.0 KLD
		Greenbelt development	30.0 KLD
		Domestic Use	14.0 KLD
Source	Mine sump and Ground water		
Permission for withdrawal/ intersection along with details of grant and its validity	No Objection Certificate for Groundwater abstraction vide NOC No. CGWA/NOC/MIN/ORIG/2021/13631 dated 3/11/2021 for abstraction of fresh water of 14.0 m^3/day and dewatering of 350.0 m^3/day and is validupto 02.11.2023.		

x. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Directions
Nearest village	Within Mining Lease area:Gendoli Kala, GendoliKhurdh, Gutha, Lakheri&Sakhoda	
	Part habitation within ML Area: Chamavali, Uttarana,	

	Kankra&Dangaheri	
	Adjacent or within 500 m from ML:Pholai, Mahuwa, Budel, Nayagaon&Papadi)	
Nearest Town	Kota	~42 km, SSW
Nearest State/National Highway	SH- 01 SH- 29 Delhi -Mumbai Expressway	Passing through ML area Passing through ML area Passing through ML area
Interstate Boundary		None
Railway Station/Railway line	Lakheri Railway Station	~4.5 km, East
	Railway line(Length 0.40 km)	Passing through ML Area
Water Bodies	Mej River	Passing through ML area in ENE direction
	Sandal Nallah	Passing within mining lease area
	Motipura Bandh Canal	~2.5 km, WSW
	Chambal Main left canal	~3.0 km, East
	TaljuniNadi	~3.5 km, WSW
	Chambal River	~4.0 km, ENE
	ChhaonikaTalav	~5.5 km, West
	KuralNala	~6.0 km, SW
	MachhliNala	~8.5 km, NW
	BikhaiNala	~8.5 km, SSW
Forest	Indergarh PF	Adjacent, North
	Protected Forest	Adjacent, NNW
	Reserved Forest	Adjacent, SW
	Protected Forest	Adjacent to ML area
	Balwan PF	Adjacent, ENE
	Kapren PF	Adjacent, NE
	Protected Forest	~1.0 km, ENE
	Protected Forest	~1.5 km, ENE
	Protected Forest	~3.0 km, East
	Protected Forest	~3.5 km, East
	Protected Forest	~3.5 km, WSW
	Naenwa PF	~3.5 km, North
	Protected Forest	~4.0 km, ESE
	Protected Forest	~4.5 km, ESE
	Mohanpura PF	~6.5 km, NE
	Protected Forest	~8.0 km, WSW

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	Yes	a) Out of 1516.88 ha area, 1107 ha is non-forest land and 409.88 ha is a Forest land. Out of 409.88 ha forest land, diversion of 108 ha has been granted by MoEFCC Vide letter No 8-2/97-FC dated 03.04.1998 b) Diversion of 100 ha has been granted by MoEFCC vide letter no 8-26/2003-FC dated 13.11.2006 c) Renewal of 208 ha forest land by MoEFCC (FC Division) Vide letter no 8-26/2003-FC dated 18.12.2013 d) For the balance 201.88 ha area, application has been submitted for diversion on 18.07.2012

		e) NPV have also paid for the total forest land of 409.88 Ha and General approval has been obtained for complete 409.88 ha of forest land on 27.12.2017
National Park	No	a) There are 2 nos of Sanctuaries, one is "Ramgarh Sanctuary" which is 2.65 Km away and another is "National Ghariyal sanctuary" which is 2.5 Km away. ESZ, permission has been granted by MoEF&CC in its 31st standing committee on 12th/13th August 2014 b) Forest area of 409.88 ha falls under buffer zone of RTR (Ranthambore Tiger Reserve) for which NBWL approved de-notification in its 45th standing committee meeting on 04.09.2017 c) Government of Rajasthan has issued de-notification for denotification of forest area of 436.35 ha including our 409.88 ha area land from buffer zone of Ranthambore Tiger Reserve (RTR) vide letter no P1 (63) Van/2017 dated 26.05.2022
Wildlife Sanctuary	Yes	
Elephant/Tiger Reserve	Yes	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	Yes	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	According to (IWPA) Indian Wildlife Protection Act, 1972, five Schedule- I fauna found in the study area. Out of these 3 mammals' species i.e. Gazella gazelle (Chinkara), Pantheratigris (Tiger), Ursusamericanus (Bear) and 1 reptiles' species i.e. Varanusbengalensis (Indian monitor lizard), and 1 Avi-faunal species i.e. Pavocristatus (Peafowl) were recorded in the study area during field survey. Authenticated list of flora and fauna has been received from DCF vide letter no F () Survey/DCF/R.V.T.R/1353 dated 04.11.2022.
Wildlife Conservation Plan	Yes	Conservation Plan of an amount of Rs 7.84 Crore has been prepared and submitted to CWLW for approval. Letter received from CWLW vide letter no F 11 (450) Vikas /C.W.L.W / 2022-23/109 dated 10.02.2023.
NTCA comments dated 13.07.2023.		The proposal was perused and it was observed that the total ML area is 1516.88 ha comprising of 409.88 ha forest land, 461.13 ha Government land and 645.87 ha of Private land.
	ii.	Forest area of 409.88 ha falling under buffer zone of Ranthambhore Tiger Reserve for which NBWL had approved de-notification during its 45thStanding Committee meeting held on 04.09.2017.
	iii.	In compliance to this, Government of Rajasthan has already denotified 436.35 ha including 409.88 ha of forest land for the ML area from the buffer of Ranthambhore Tiger Reserve (vide letter no P1 (63) Van/2017 dated 26.05.2022).
	iv.	The ML area is situated at an approximate distance of 2.6 km from the core of RamgarhVishdhari Tiger Reserve (RVTR). Eco-sensitive Zone for RVTR is not yet been declared and therefore ML area falls within default ESZ (10 km) of RVTR.
	v.	RamgarhVishdhari Tiger Reserve currently hasresident tiger population and it acts as an important tiger dispersal corridor in between Ranthambhore (only 'source' tiger population in the landscape) and Mukundara Hills Tiger

	Reserve situated further south. This habitat permeability is crucial for maintaining tiger metapopulation dynamics in the landscape and for future recovery of Mukundara Hills Tiger Reserve which is currently at its below potential. vi. However, approximately 10-15 thousand people depend on these mines for their livelihood. In case of closure of these mines, the local economy will get severely impacted with a likelihood of local community's enhanced dependence on forest resources. This is likely to compromise local community support for tiger conservation. This was considered during the 14th meeting of NTCA held on 04-09-2017. vii. It would, therefore, be prudent and of best interest for tiger conservation objectives that these mines be operational complying with all statutory clearances in adherence to the approved mining plan and using advanced mining technologies available so as to ensure minimal ecological impacts. viii. EAC may like to take cognizance of these information while making decision pertaining to this instant proposal.
ESZ comments dated 18.07.2023	The ESZ around RamgarhVishdhari Tiger Reserve is yet to be finalised and the ESZ Division has no proposal to this effect from the State Government as on date. Under the circumstances, default ESZ of 10 km from the boundary of the PA applies for which clearance from the Standing Committee of the NBWL is a pre-requisite for undertaking any developmental activity. In the instant case, perusal of the available records, indicates that the operating mine has a NBWL clearance in place.

Proposed area for green belt/plantation and no. of saplings proposed Budget for green plant & plantation till the end of life of mine. Budget for nursery Details of existing plantation and its survival rate	Details are given as per below: S. No. | Particular | Status of Greenbelt of Total Lease area | Greenbelt in only possession land | Remarks 1. | Length of lease Periphery | 82.6 km | 67.8 km | Details of land: Non forest Land-1107 ha, Diverted Forest Land-208 Ha, Non diverted forest Land-201.88 ha, At present, we can develop green belt, only peripheral length of non-forest and diverted forest land. 2. | Area of greenbelt | 61.95 ha | 50.85 Ha 3. | No of Plants planted | 35300 | 35300 4. | Survival Rate | 80 | 80 5. | Greenbelt done as on date | 11.5 | 11.5 6. | Greenbelt to be done with timeline | 31.03.2026 | 31.03.2026
No. of tree cuts in the mine lease area and compensatory afforestation	None
Particulars for Green	Area covered (in Ha)

belt/plantation	
7.5 m barrier & non-mineralized zone	At present 11.5 ha area has been covered with greenbelt within 7.5 m safety zone and anarea of 39.35 ha will be developed under greenbelt till life of mine
50 m safety zone of nallah, roads, electric lines	i. At present 0.30 ha area has been covered with plantation on safety zone of nalla and remaining 2.60 ha area will be covered till life of mine ii. At present 2.5 ha area has been covered with plantation on safety zone of road/highway and remaining 2.75 ha area will be covered till life of mine.
500 m safety zones of nearest habitation villages	At present 1.2 ha area has been covered with plantation on safety zone of nalla and remaining 1.22 ha area will be covered till life of mine

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	October to December 2022
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Post monsoon Season
Predominant Wind direction (From)	West direction

Ambient Air Quality (no. of locations) and results

No. of Locations	Parameters	Results
10	PM_{10}	44.7 to 90.8 µg/m^3
	$PM_{2.5}$	23.8 to 52.7 µg/m^3
	SO_2	5.9 to 12.1 µg/m^3
	NO_2	12.1 to 22.8 µg/m^3

Noise level (no. of locations) and results

No. of Locations	Parameters	Results
08	During Day Time [Leq dB(A)]	51.2 to 65.1
	During Night Time [Leq dB(A)]	41.5 to 49.3

Water Quality (no. of locations) and results

Ground water quality

No. of Locations	Parameters	Results
10	pH	7.18 to 7.72
	TDS (mg/l)	544 to 3268 mg/l
	Fluoride (mg/l)	0.12 to 0.98 mg/l
	Sulphate (mg/l)	34.6 to 198.5 mg/l
	Calcium (mg/l)	77.2 to 298.9 mg/l
	Magnesium	20.4 to 120.3 mg/l

Surface Water Quality

No. of Locations	Parameters	Results
10	pH	6.98 to 7.34
	TDS (mg/l)	84 to 398 mg/l
	DO (mg/l)	6.60 to 7.40 mg/l
	BOD (mg/l)	1.60 to 7.10 mg/l
	Magnesium	4.80 to 21.60 mg/l

Soil Quality (no. of locations) and results

No. of Locations	Parameters	Results
09	pH	6.28 to 8.13
	Texture	Clay Loam
	Organic Matter (%)	0.98 to 1.18 %

<table>
<tr><td>Hydro geological study and results</td><td>
<table>
<tr><td colspan="5">Ground Water Level (Phreatic Surface) - 13 Locations</td></tr>
<tr><td rowspan="2">Monitoring Location</td><td colspan="2">Range of Water Table Pre-monsoon Season (in m below ground level)</td><td colspan="2">Range of Water Table Post-Monsoon Season (in m below ground level)</td></tr>
<tr><td>From (Pre-monsoon)</td><td>To (Pre-monsoon)</td><td>From (Post-monsoon)</td><td>To (Post-monsoon)</td></tr>
<tr><td>Buffer Zone</td><td>6.5</td><td>6.5</td><td>5.8</td><td>5.8</td></tr>
<tr><td>Core Zone</td><td>7.53</td><td>7.53</td><td>6.83</td><td>6.83</td></tr>
</table>

The Project Proponent has submitted that the Mej river flows from SW to NE direction and tangential to mine lease. The distance of nearest Sakhoda Pit is 2.0 km from Mej River. Ground level of Sakhoda pit is 225 meter above MSL and ground level of Mej river is 201 meter above MSL A hillock is also situated between mines pit and Mej river having top RL 295 meter above MSL. HFL is 210.6 meter above sea level recorded by Central Water Commission on 23.08.2022. In light of above-mentioned geographical facts, there is no possibility of water from Mez River to mines pit.
</td></tr>
<tr><td>Traffic study (no. of locations) and results</td><td>No public road is being/will be used for transportation of Limestone. Therefore, traffic study is not required.</td></tr>
</table>

xiv. Details of Public Consultation:

a) As per Specific ToR point no: 1 “The Public Hearing was already conducted on 07.04.2003 for the same scope and at present there is no change in scope. Therefore, as per Ministry’s O.M. dated 16.02.2021, the project proponent shall carry out public consultation instead of public hearing and shall address the concerns of the public in the EIA/EMP report.

b) Public consultation for this project done on 29.03.2023.

c) Issues raised during public consultation were about Infra Development, Education, Drinking Water facilities, Skill Development, Employment based training, Healthcare facilities, Plantation in nearby areas, etc.

d) The Project Proponent earmarked a budget of Rs 3.01 Crore (Capital) to address the concerns raised during public consultation over a period of 3 years.

Particulars	Details of Letter along with date of grant and validity
Consent to Establish (CTE)	CTE issued by the Rajasthan State Pollution Control Boardvide letter no F.12 (6-14) RPCB/Gr.I/6657 dated 30.12.2005for Limestone Production Capacity of 1.5 MTPA
Consent to Operate (CTO)	CTO issued by the Rajasthan State Pollution Control Boardvide File No: F (Mines) / Bundi (Bundi) 1 (1) 2009- 2010 / 4954-4958 dated 19.12.2022 for Limestone Production Capacity of 1.5 MTPA under Water Act and Air Act for the period upto 31.12.2023.
Certified Compliance Report and Inspection date	Certification of compliance report of EC dated 26.12.2005 has been granted by IRO, Jaipur vide letter no IV/ENV/R/MINE-288/394/296 dated 29th August 2022. The project was Inspected/ Monitored on 25/07/2022.
Certified Production Details from	Year-wise production details since inception of mine has been

the inception of the mine (in tabular form against the EC capacity)	authenticated by Asst. Mining Engineer vide letters dated 13.11.2018, 08.06.2022 and 06.04.2023 for the period 1987-88 to 2022-23.

S. No	Year	As per EC (MTPA)	Actual production (Tonnes)
1.	1993 – 1994	-	0.342
2.	1994 - 1995	-	0.223
3.	1995 - 1996	-	0.210
4.	1996 - 1997	-	0.191
5.	1997 - 1998	-	0.234
6.	1998 - 1999	-	0.269
7.	1999 - 2000	-	0.455
8.	2000 - 2001	-	0.562
9.	2001 - 2002	-	0.565
10.	2002 - 2003	-	0.493
11.	2003 - 2004	-	0.623
12.	2004 - 2005	-	0.601
13.	2005 - 2006	1.5	0.620
14.	2006 - 2007	1.5	0.568
15.	2007 - 2008	1.5	0.434
16.	2008 - 2009	1.5	0.721
17.	2009 - 2010	1.5	0.779
18.	2010 - 2011	1.5	0.791
19.	2011 - 2012	1.5	0.803
20	2012 - 2013	1.5	0.905
21.	2013 - 2014	1.5	0.880
22.	2014 - 2015	1.5	0.614
23.	2015 - 2016	1.5	0.585
24.	2016 - 2017	1.5	0.792
25.	2017 - 2018	1.5	0.808
26.	2018 - 2019	1.5	1.157
27.	2019 - 2020	1.5	1.158
28.	2020 - 2021	1.5	1.041
29.	2021 - 2022	1.5	1.070
30.	2022 – 2023	1.5	0.995

xvi. Rehabilitation & Resettlement (R&R):

R & R details	Total mine lease area is 1516.88 ha,out of which 409.88 ha is a forest land, 461.13 ha is a Govt land and 645.87 ha is a Private land. Out of total private land of 645.87 ha, 354.02 ha land has already been owned by ACC. Remaining private land fall in non-mineralized area hence future acquisition is not required.

Court Case, No and its present status Undertaking by Project Proponent w.r.t court case	The Project Proponent vide letter dated 24.04.2023 submitted an undertaking stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and that for any such litigation whatsoever, the sole responsibilities will be borne by the company. However, a complaint has been lodged in Hon'ble NGT Bhopal on 11.02.2023. The Hon'ble NGT has formed a joint committee consisting of (i) Collector, Bundi, Rajasthan, (ii) Representative of Chief Wild Life Warden, (iii) Representative of RPCB vide order dated 13.03.2023. The Committee has visited the site on 21.04.2023 to submit the factual and action taken report.

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent submitted the Affidavit in a non-judicial stamp paper ofRs 100 bearing no: AH525507 dated 12.11.2018 stating that they commit to comply if applicable with the order of Hon'ble Supreme Court dated 2nd August 2017 in w.r.t. Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 18.04.2023 stating that the conditions laid down in ToR issued by MoEF&CC vide ToR Letter dated 28.06.2022 in accordance to the EIA Notification, 2006 and amended as on date have been complied with and the data submitted and the information presented in this report are factually correct.
Undertaking by Consultant in EIA/EMP report	The Consultant submitted an undertaking vide letter dated 14.04.2023 to the effect that the conditions laid down in Terms of Reference issued by MoEF&CC, New Delhi vide letter no. J-11015/167/2018-IA.II(M) dated 28.06.2022 have been complied as per data/details provided by Project Proponent & as per Review and Modification in Mining Plan approved by IBM and the data submitted are factually correct.
Plagiarism Certificate	The Head of the Accredited Consultant Organization/ Authorized person certified that this EIA Report has been evaluated by using online software viz. Plagiarism Checker X on 14.04.2023. The report produced has been analyzed by the system and based on it and certify that the EIA Report produce in accordance with good scientific practice.

Sl. No.	Activities	Proposed budget (In Lakhs)	
		Capital	Recurring
	Mitigative Measures		
1.	Water tankers for sprinkling on haul roads and mining areas/activities	50	10
2.	Fixed Water Sprinkler on Haul Road	50	10
3.	Greenbelt on remaining 39.35 ha with 98250 trees till 2030	197	5
4.	Plantation over an area of 63.72 ha (158175 trees) till 2030	-	46
5.	Drip irrigation facility for plantation	5.0	0.5
6.	Protection for Plantation (Fencing around area)	20	0.30
7.	Rain water harvesting structure near Mines office	5	0.3
8.		20	1.0
9.		100	5.0
10.		10	1.0
11.	Controlled blasting for minimizing ground vibration, fly rock, air pressure/ noise, etc. by Using Nonel and Exel	-	10
12.	10 nos. of fog canon/mist sprayer of at least 40 m throw shall be installed at various locations in the mine lease area.	30.0	2.0
13.	Vaccum suction hoods and dry fogging system in Wobbler	30.0	0.5
14.	Providing Ear muffs/plugs to workers working in high noise area	-	1.0
		517	92.6
	Monitoring		
	Installation of continuous Ambient Air Quality Monitoring Station (3 nos)	150	15
2.	Display Board at main gate for display of Ambient, Air, Noise and	5.00	0.50

	Hazardous waste monitoring data.		
	Five Ambient Air Quality Monitoring Station at Village Lakheri, Utrana, GandoliKhurd, Dangaheri and Chamavali	5.00	0.50
	Air monitoring Equipment for PM10 & PM2.5	1.70	1.50
	Work Place Noise Level Monitoring (4 no. of locations &quarterly frequency)	-	0.10
	Installation of 03 pie-zometer along the periphery in the premises	5.00	0.50
	Monitoring of River and nallah (Flow and quality-inlet & outlet).	-	1.50
	Sub Total	166.7	19.6
	Wildlife conservation Plan for 5 schedule I species	784	-
	Total	1467.7	112.2

Particulars	Budget (Rs. in Crores)
Total Cost for EMP (Capital Cost of EMP + Capital cost of Public hearing)	Capital Cost: Rs. 17.69 Crores (Capital cost of EMP: Rs. 14.68 Crore + Capital cost for public hearing: Rs. 3.01 Crore)
Project Cost	Rs. 77 Crores
Employment	91 persons

3.3.3. Deliberations by the EAC in previous meetings

Date of EAC 1 :24/08/2023

Deliberations of EAC 1 :
The EAC noted that the validity of the accreditation of the EIA Consultant expired on 07.08.2023. The EIA Consultant informed the EAC the validity of the accreditation has been extended upto 31.10.2023. As informed during the EAC, the EIA Consultant vide email dated 24.08.2023 submitted the validity of the accreditation of the EIA Consultant that has been extended upto 31.10.2023. The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant.

The Project Proponent/Consultant has informed the EAC that in reference to the 45thmeeting of the Standing Committee of National Board for Wildlife held on 04.09.2017 and Ministry's letter dated 12.09.2017, the letter has been obtained from the Forest Department, Govt. of Rajasthan vide letter dated 26.05.2023. The forest area of 436.35 ha including 409.88 ha area land from buffer zone of Ranthambore Tiger Reserve (RTR) has been denotified vide letter dated 26.05.2022. Letter has also obtained from the Forest Conservator & Field Director, Mukandra Hills Tiger Reserve, Kota vide letter dated 23.05.2023 mentioning the distance of Ramgarh Vishdhari Tiger Reserve Sanctuary is 2.90 km in WSW direction from mine site.

The EAC asked the Project Proponent to demarcate and show the distance of the boundaries of the National Park and the Wildlife Sanctuary from the mine lease area in KML file. The Project Proponent has informed the EAC that the Chambal Gharial Sanctuary, RamgarhVishdhari Tiger Reserve and Ranthambhore Tiger Reserve are located in the study area. Chambal River is located in the eastern direction of the mine lease area. The Project Proponent has informed the EAC that the Ranthambhore Tiger Reserve is located at a distance of 9.36 km, Ranthambhore Tiger Reserve: 0 km (buffer zone), Chambal Garihal Sanctuary: 2.62 km, Ramgarh Vishdhari Tiger Reserve: 2.90 km. The EAC asked the Project Proponent whether the NBWL clearance has been obtained for all three (Chambal Gharial Sanctuary, RamgarhVishdhari Tiger Reserve and Ranthambhore Tiger Reserve) or not? The Project Proponent has showed the minutes of 32nd meeting of SCNBWL dated 21.01.2015 and informed the EAC that the NBWL clearance has been recommended for RamgarhVishdhari Sanctuary and National Chambal Sanctuary. The Project Proponent also informed the EAC that the protected area is not located in buffer zone. The EAC noted that the Ranthambhore Tiger Reserve is not mentioned in the said minutes. The Project Proponent has showed the minutes of 45th meeting of the Standing Committee of NBWL held on 4th September 2017, wherein the Standing Committee decided to recommend the proposal for denotification of the buffer zone area of Ranthambore Tiger Reserve and renotify after rationalization excluding the lease area of M/s ACC Limited. During the NBWL meeting, the Project Proponent has voluntarily agreed to provide an amount of Rs 5 Cr into the corpus of Ranthambore Tiger Conservation Foundation for carrying out the conservation activities. Accordingly, the Project Proponent has deposited an amount of Rs 5.0 Cr into Ranthambhore Tiger Conservation Foundation for conservation activities vide letter dated 14.10.2017. The EAC asked the Project Proponent to show the letter from the State Forest Department which has been granted after the recommendations of SCNBWL. The Project Proponent has informed the EAC that the State Govt has not issued the letter so far. The State Govt has asked the Project Proponent to submit the Affidavit to comply with the conditions as recommended by SCNBWL and informed that the formal letter will be issued only after the submission of the Affidavit.

The EAC opined that the due to its close proximity of Chambal Gharial Sanctuary, RamgarhVishdhari Tiger Reserve and Ranthambhore Tiger Reserve the Ministry may seek comments from the Wildlife Division on whether any protected areas located in the buffer zone of the Tiger Reserve/Wildlife Sanctuary and also to seek clarification that the NBWL clearance has been recommended for which Tiger Reserve/Wildlife Sanctuary (Chambal Gharial Sanctuary, RamgarhVishdhari Tiger Reserve and Ranthambhore Tiger Reserve) in reference to the minutes of 32nd meeting of SCNBWL dated 21.01.2015 and minutes of 45th meeting of the Standing Committee of NBWL held on 4th September 2017.

The EAC asked about the status of Forest Clearance for remaining forest land of 201.88 ha. The Project Proponent has informed the EAC that the general approval has been obtained from the Secretary, Forest, Govt. of Rajasthan on 15.02.2018 after deposition of NPV of Rs19.39 crore. The EAC asked the Project Proponent whether transportation route is passing through tiger corridors in the study area. The Project Proponent has informed the EAC that the transportation route is not passing through tiger corridors and the same has been verified from the KML file available from the NTCA website. The EAC asked the Project Proponent since the mine lease area is in vicinity of the hills, what are the precautions measures are taken during rainy season. The Project Proponent informed the EAC that the natural drains will not disturbed at any stage and the fencing will be done around the mine pits and bund will be formed and thick plantation will be carried out.

The Project Proponent has informed the EAC that there are seven mine pits, out of which Sakhawada mine pit is 600m away from the railway line and other pits are more than 5km. The reserves are available for a period of 6 months only in Sakhawada mine pit. No mining will be carried out within 500m from the railway line. The Project Proponent has showed the blast monitored data for last six months at distance between 215m – 260m from mine pit. The EAC noted that the Project Proponent has not carried out vibration monitoring near the railway line. The EAC asked the Project Proponent to undertake the vibration monitoring during blasting near the railway line and SOP followed during

blasting during movement of railways and also to submit the specifications of the rock breaker.

The Project Proponent has informed the EAC that the distance of nearest Sakhoda Pit is 2.0 km from Mej River. A hillock is also situated between mines pit and Mej river having top RL 295 meter above MSL. HFL is 210.6 meter above sea level recorded by Central Water Commission on 23.08.2022. Hence, there will be no possibility of water from Mez River flow into mines pit. The Project Proponent has informed the EAC that the location for shifting the school will be finalized in consultation with the Gram Panchayat and consent will be obtained. The EAC asked the Project Proponent to revisit the action plan for shifting the school along with the timeline. The EAC was of the view that the timeline for 3 no.s of CAAQMS has to be installed within 1 year only. The Project Proponent also agreed to install 3 no.s of CAAQMS within one year. Production has been carried out well within the limits of EC capacity of 1.5 MTPA.

The EAC asked the Project Proponent whether the public consultation has been carried out as per EIA Notification, 2006. The Project Proponent has informed the EAC that the notice for advertisement for public consultation was advertised in the Times of India and Rajasthan Patrika on 22.02.2023. Rajasthan State Pollution Control Board (RSPCB) vide letter dated 29.03.2023 has informed that the 17 no of representations have been received from the stakeholders through email during the notice period. As informed during the meeting, the Proponent vide email dated 24.08.2023 submitted the copy of the Rajasthan State Pollution Control Board (RSPCB) letter dated 29.03.2023.

The EAC asked the about the status of Consent to Operate for the period 01.05.2018 to 18.12.2022. The Project Proponent has informed the EAC that the CTO was deemed renewal during the period 01.05.2018 to 18.12.2022. A matter is pending in the Hon'ble NGT, Bhopal on 11.02.2023 regarding cancellation of the CTO. Based on the directions of the Hon'ble NGT, Bhopal, the joint committee has visited the site on 21.04.2023 and submitted the report to Hon'ble NGT, Bhopal. The matter is listed on 31st August, 2023 for final arguments. The EAC asked the Project Proponent to submit the report of the joint committee and as informed during the meeting, the Project Proponent vide email dated 24.08.2023 submitted the joint committee report. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The EAC opined that the due to the close proximity of Chambal Gharial Sanctuary, RamgarhVishdhari Tiger Reserve and Ranthambhore Tiger Reserve, the Ministry may seek comments from the Wildlife Division whether any protected areas are located in the buffer zone of the Tiger Reserve/Wildlife Sanctuary and also to seek clarification that whether the NBWL recommendations has been obtained for each of them or not in reference to the minutes of 32nd meeting of SCNBWL dated 21.01.2015 and minutes of 45th meeting of the Standing Committee of NBWL held on 4th September 2017. Project Proponent informed that they are yet to receive the formal letter for NBWL clearance as recommended in the aforesaid minutes dated 21.01.2015. Since, the Project Proponent is undertaking the mining without obtaining the formal letter, the wildlife division of the Ministry may clarify whether this tantamount to violation or not. The Ministry may also seek clarification from wildlife Division whether Project Proponent needs to obtain the NBWL clearance for Ranthambore Tiger Reserve, since the sanctuary is located at a distance of 9.36 km from the mine site.

ii. The Project Proponent needs to submit the map showing the distance of the railway line & railway boundary from the Sakhawada mine pit. The Project Proponent needs to undertake the vibration monitoring study during blasting near the railway line and SOP followed during blasting during movement of railways and also to submit the specifications of the rock breaker. The Project Proponent shall also consider the direction of the blasting w.r.t railway line to avoid any fly rocks during blasting.

iii. The EAC asked the Project Proponent to revisit the action plan for shifting the school along with the timeline. The Project Proponent needs to submit the safety precautions to be taken during mining activity till the shifting of the school.

iv. The Project Proponent needs to provide the document supporting the deemed extension of CTO from State Pollution Control Board during the period 01.05.2018 to 18.12.2022.

v. The Project Proponent needs to submit the status of the court case matter which is listed on 31st August, 2023 for final arguments before the Hon'ble NGT, Bhopal.

Date of EAC 2 :03/05/2023

Deliberations of EAC 2 :

The Project Proponent informed the EAC, that initially Environmental Clearance (EC) was obtained vide EC dated 26.12.2005 for production capacity of 1.5 MTPA involving mine lease area of 1516.88 ha under the provisions of EIA Notification, 1994. The instant proposal is for revalidation of EC under MoEF&CC Notification S.O 1530(E) dated 6th April, 2018. There is no change in the production capacity, mine lease area and no additional land acquisition and accordingly Terms of Reference was obtained on 28.06.2022 with exemption of public hearing as per Ministry's OM dated 16.02.2021.

Then, the Project Proponent/Consultant presented the KML file and explained the site features in the vicinity of the mine lease area and in the study area of 10 km radius. The EAC asked about the distance of the Ramgarh Sanctuary from the mine lease area. The Project Proponent informed the EAC that the Ramgarh Sanctuary is 2.65 km away from the mine lease area. Forest area of 409.88 ha within lease area falls under the buffer zone of RTR (Ranthambore Tiger Reserve). The NBWL approved de-notification of the aforesaid forest area in its 45thstanding committee meeting held on 04.09.2017. Government of Rajasthan has issued de-notification of forest area of 436.35 ha including the area of 409.88 ha from buffer zone of Ranthambore Tiger Reserve(RTR) vide letter dated26.05.2022. The EAC asked about the railway line and road passing within the mine lease area. The Project Proponent informed the EAC that one railway line (Length 0.40 km) passes through the mine lease area from North to South direction. A safety zone of 500m is left as no mining zone. SH-29 connecting the town Bundi and town Lakheri passes through the mine lease area at some places. SH-1 (~0.40 km) is passing through the mine lease area connecting the lakheri town in South and merging into the SH-29 in North direction. The Delhi -Mumbai Expressway is also passing through the mine lease area (Length 0.50 km) from North to South. Mej River (~0.5 km in length) passes through the NE part of lease area and is 2 km away from the active mining area. Sandal nala (~0.5 km in length) crossing the mine lease from North to South. Ultimate pit limit will be 50 m away from Sandal nala. The EAC noted the river Mez is in the close proximity of the mine lease area. The EAC was of the view that the River Mez is the lifeline of the sanctuary and flows across the Ramgarh Sanctuary. The EAC asked whether any school located within the mine lease area. The Project Proponent informed the EAC that a school is located within the mine lease area and is 500 m away from the crusher.

The EAC asked about the status of the Wildlife Clearance. The Project Proponent informed the EAC that the forest area of 409.88 ha falls under buffer zone of RTR (Ranthambore Tiger Reserve) for which NBWL approved de-notification in its 45th standing committee meeting on 04.09.2017. The EAC observed that the Draft Notification of Ramgarh Wildlife Sanctuary was notified vide S.O. 4777(E) dated 30.12.2020 and the extent of Eco-Sensitive Zone varies from 0.025 kilometres to 0.40 kilometres around the Ramgarh Wildlife Sanctuary. The EAC also observed that the Ramgarh Wildlife Sanctuary is now a part of core area of recently notified Ramgarh Visdhari Tiger Reserve (52nd). The Ramgarh Visdhari TR with total area of 1501.88 Square km (core 481.9 square km and buffer 1019.98 square km) is an important area for meta-population management of tigers in this landscape and provides connectivity with Ranthambhore and Mukundra Hill Tiger Reserves". The EAC asked the Project Proponent whether any comments from the NTCA have been sought in this regard. The Project Proponent informed the EAC that during the 45th meeting of the Standing Committee of National Board for Wildlife held on 04.09.2017, the NTCA has recommended the proposal and the Project Proponent has agreed to provide an amount of Rs 5.0 Cr into the corpus of Ranthambore Tiger Conservation Foundation for carrying out the conservation activities.

The Project Proponent has shown the past production details from the 1993-94 to 2022-23 and informed the EAC that there is no excess production done against the granted EC capacity of 1.5 MTPA. The EAC noted that as per the certified past production details, the Project Proponent has missed out the year 2018-19. Public consultation for this project was carried out on 29.03.2023. A budget of Rs 3.01 Crore (Capital) has been earmarked to address the concerns raised during public consultation over a period of 3 years. Site Inspection of the project was carried out by Integrated Regional Office, Jaipur on 25.07.2022 and Certified Compliance Report was issued by 29.08.2022. The EAC asked the Project Proponent to show the point wise compliance of EC conditions and the Project Proponent has shown the point wise compliance of EC conditions before the EAC. The EAC asked about the status of forest clearance for remaining forest land of 201.88 ha. The Project Proponent informed the EAC that for the balance area of 201.88 ha for diversion of forest land application was submitted on 18.07.2012. NPV has been paid for the total forest land of 409.88 ha and General approval has been obtained for the entire forest land of 409.88 ha on 27.12.2017.

The EAC asked the Project Proponent whether NOC has been obtained from the Railway Dept or not. The Project Proponent informed the EAC that NOC has not been obtained from the Railways Dept. The EAC opined that the Project Proponent needs to submit the real time data monitored for ground vibration for each blast for the past 6 months in line with the DGMS permission and the measures to mitigate impact of the fly rock. The EAC also opined that the Project Proponent needs to submit the current status from the State Govt. in reference to the 45th meeting of the Standing Committee of National Board for Wildlife held on 04.09.2017 and Ministry's letter dated 12.09.2017. The EAC also noted that even after identification, mine lease area is adjacent to the buffer area of RTR. Based on the above discussions held, the EAC **deferred** the proposal and the EAC was of the view that the proposal may be considered only after the submission of the following information

1. The Project Proponent needs to submit the current status from the State Govt. in reference to the 45th meeting of

the Standing Committee of National Board for Wildlife held on 04.09.2017 and Ministry's letter dated 12.09.2017.

2. Ministry may also seek comments from NTCA.
3. The EAC noted the river Mez is located to the close proximity of the mine lease area. The Project Proponent needs to explore the likelihood of river water entering into the mine pit below the RL of the HFL and the measures that are required to be taken for prevention of seepage and in the event of seepage to drain out the water through settling tank.
4. The Project Proponent needs to submit the methodology of mining and year wise sequence of mining w.r.t railway line and also the measures to be taken to mitigate the impact of mining activity. The details of the train passing, frequency of the trains, train timings, blasting time and safety distances shall be provided.
5. The Project Proponent needs to submit the real time data monitored for ground vibration for each blast for the past 6 months in line with the DGMS permission and the measures to mitigate impact of the fly rock.
6. The Project Proponent needs to submit the action plan for shifting the School within the mine lease area along with timeline and cost.
7. The Project Proponent needs to submit the action plan to install Continuous Ambient Air Quality Monitoring Station with timeline.
8. The Project Proponent needs to submit the current status of diversion of forest clearance for remaining forest land of 201.88 ha.
9. The Project Proponent needs to submit the certified past production detail for the year 2018-19.
10. The Project Proponent needs to submit the complete details and background regarding the complaint lodged in Hon'ble NGT Bhopal on 11.02.2023 and its present status with supporting documents.
11. The Project Proponent needs to submit the proof of payment Rs 5.0 Cr made into the corpus of Ranthambore Tiger Conservation Foundation for carrying out the conservation activities.

3.3.4. Deliberations by the EAC in current meetings

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent/Consultant has informed the EAC that the recommendation of NBWL is for all three Wildlife sanctuaries/Tiger Reserve such as Chambal Gharial Sanctuary, Ramgarh Vishdhari Tiger Reserve and Ranthambhore Tiger Reserve. The EAC noted the comments of the Wildlife Division given on 22.09.2023 which are as follows:

i. The total mining lease area is 1516.88 ha out of which 1107 ha is a non-forest and 409.882 is a forest land. The matter was initially discussed in 31st meeting of SCBNWL held on 12.08.2014. During the meeting of SCNBWL recommended for 1107 ha forest area of the mining lease.

ii. NOC has been accorded by the Chief Wildlife Warden Rajasthan vide letter dated 3.12.2014, (however, on perusal of this letter it has been observed that it is not a NOC as informed by the PP)

iii. In 32nd meeting of NBWL held on 21.01.2015, remaining 409.88 ha of forest area including 208 ha diverted forest area and 201.88 ha non-diverted forest area of total mining lease wildlife clearance was granted by the NBWL,

iv. By the order of NBWL in its 45th meeting dated 04.09.2017 and NTCA meeting dated 04.09.2017, an area of 409.88 ha of forest land of ACC mining lease is denotified from RTR notified area by the Rajasthan Government order dated 26.05.2022

v. Further, it was informed by the DCF, RVTR Bundi vide letter dated 4.07.2023 that an Inspection committee made by NGT in its inspection report stated that there is no mining activity carried out by ACC in forest area of 409.88 ha and mining activities was carried out in only two pit viz P-3 and sakhoda which are located in the non-forest area, but within the allotted lease area. So before commencement of any mining activity in 409.88 ha forest area, the NoC from the State Government may be obtained.

The EAC also noted that comments obtained from National Tiger Conservation Authority (NTCA) dated 13.07.2023 and ESZ Division dated 18.07.2023. The Project Proponent presented the map showing the distance of the railway boundary and the railway line from the boundary of Sakhawada mine lease area which is 550 m and 570 m respectively. No mining activity will be carried out in 500m radius from the railway boundary. Vibration levels nearby the railway line are estimated as 0.055 mm/sec, 0.701 mm/sec and 0.071 mm/sec. Rock breaker will be used in the closest pit of mine lease near railway line to

avoid the impacts due to fly rock. The Project Proponent also informed the EAC that the action plan for shifting the school has been revised from 3 years to 2 years.

Further, the Project Proponent has informed the EAC that the Hon'ble NGT vide order dated 31.08.2023 constituted a joint committee consisting of the representative of MoEF&CC, CPCB and State Pollution Control Board to examine the matter w.r.t Consent to Operate and the joint committee submitted their report before the Hon'ble NGT. The Project Proponent has informed that they have filed an application to review the order dated 31.08.2023 and the Hon'ble NGT issued notice on the same. The next hearing is scheduled on 02.11.2023. The EAC was of the view that the instant matter regarding Consent to Operate before the Hon'ble NGT is sub-judice. An undertaking has been submitted in a non-judicial stamp paper of Rs 50 bearing dated 19.07.2023 to comply with the conditions as recommended by the NBWL and the same has been submitted to the Dy. Conservator of Forest & Dy. Field Director, Ramgarah Vishdhari Tiger Reserve on 28.08.2023. The EAC was of the view that the Project Proponent needs to undertake a community based conservation program and the same shall be monitored and vetted by the Forest Dept.

The EAC asked about the status of the Forest Clearance. The Project Proponent has informed the EAC that the total mine lease area is 1516.88 ha area, out of which 1107 ha is non-forest land and 409.88 ha is a Forest land. Initially, the Forest Clearance has been obtained from the MoEF vide letter dated 03.04.1998 under section-2 of the Forest (Conservation) Act, 1980 for diversion of 108 ha of already broken forest land for mining of Limestone. Then, the Forest Clearance was granted by the MoEF vide letter dated 13.11.2006 under section-2 of the Forest (Conservation) Act, 1980 for diversion of 100 ha out of proposed 301.88 ha of forest land for mining of Limestone. Further, the MoEF vide letter dated 18.12.2013 has conveyed the 'in-principle' approval for renewal of diversion of 208 ha of forest land for mining of Limestone. The Project Proponent also submitted that an application has been submitted on 18.07.2012 for diversion of remaining area of forest land of 201.88 ha. Further, the Project Proponent has informed the EAC that the MoEF&CC vide letter dated 27.12.2017 has stated that the State Govt. may allow mining activities in the non-forest area within the mining lease as per the existing provisions for mining around the National Park and Supreme Court order and the lease is executed after receiving the NPV for whole forest land within the lease. It is also mentioned in the same letter that the out of 409.88 ha of forest land in the lease, FC clearance under section 2(ii) was granted for 201.88 ha in 2012 by the Ministry. Since this is the latest letter from Forest Conservation Division of the Ministry with regard to Forest Clearance, the EAC opined to consider that Forest Clearance (Stage II) is only available for 201.88 ha. The State Govt. vide letter dated 15.02.2018 has granted the extension of general approval under section 2(iii) of FC Act, 1980 for 409.88 ha of forest land for existing captive Lakehri mining lease after deposition of NPV of Rs 19.39 Crores. The EAC reiterated the Ministry's FC Division OM dated 31.05.2023 wherein it has been clarified that *"in respect of existing mining leases having forest land in part or full and where the State Governments have considered the grant of GA as per the provisions of the para 7.3 (iv) of the Handbook of Forest (Conservation) Act, 1980, the existing mining operations will be restricted to the forest land already approved under section 2(ii) of the FC Act, 1980. In existing leases were approval under the FC Act, 1980 is available only for part of forest land, the nonavailability of approval under the section2 (ii) of the Act in respect of remaining forest land will not be a deterrent to undertake mining in the already approved area provided the user agency has complied all conditions, as stipulated under para 7.3(iv) of the Handbook of Forest (Conservation) Act, 1980"*. Thus, the EAC opined that the mining activity shall be restricted to the forest land for which the Project Proponent is having Stage-II FC and to non-forest land.

The EAC also noted that in response to the Project Proponent requisition letter dated 31.07.2023 to issue the formal letter for Wildlife Clearance, the Dy. Conservator of Forest & Dy. Field Director, Ramgarah Vishdhari Tiger Reserve vide letter dated 28.08.2023 has replied that the affidavit submitted by the user organization has been verified and forwarded for further necessary action. The EAC also observed the report of the joint committee wherein it is mentioned that the CWLW in its letter dated 10.02.2023 clearly mentioned that the Wildlife Clearance is already granted by NBWL. Then, the CF & Field Director Mukundra Hills Tiger Reserve vide letters dated 28.04.2023 and 23.05.2023 related with the wildlife clearance of ACC mining lease has stated that M/s ACC Ltd has Wildlife Clearance. Also, the Forest Dept vide letter dated 22.09.2023 has informed that as per the records of the State Forest Dept, no mining activity was carried out during last 5 years in forest area of 409.88 ha by M/s ACC Ltd. The

EAC asked the Project Proponent to submit the annexures enclosed in the joint committee report and accordingly the Project Proponent has submitted all the annexures vide email dated 18.10.2023.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 18-20 October, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of Environmental Clearance under Ministry's Notification dated 06.04.2018 for revalidation of Environmental Clearance (EC) to M/s. ACC Ltd for mining of Limestone with Limestone Production Capacity of 1.5 Million TPA and OB Waste: 1.96 Million TPA with Total Excavation: 3.46 MTPA along with existing wobbler & screening plant of 400 TPH in the mine lease area of 1,308.88 ha [Forest land having Stage-II FC: 201.88 ha + Non-Forest land: 1107 ha] out of 1516.88 Ha, located at Villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lakheri, Sakhoda, Nayagaon &Papadi, Tehsil: Indergarh, District: Bundi, Rajasthan subject to the following specific conditions in addition to the standard EC conditions applicable for non-coal mining projects: -

3.3.5. Recommendation of EAC

Recommended

3.3.6. Details of Environment Conditions

3.3.6.1. Specific

Dust Suppression	
1.	
Environment and Forest	
1.	
2.	
3.	
Validity	
1.	
Wildlife Clearance	
1.	
Environment and Wildlife	
1.	
Court case	
1.	
Consent to Operate	

1.	
Railway Line	
1.	
Ground Vibration	
1.	
School	
1.	
Wildlife Conservation	
1.	
2.	
3.	
4.	The Project Proponent needs to explore the possibility of using advanced/ latest mining technologies available so as to minimize the ecological impacts.
5.	
6.	
Air Quality Monitoring Station	
1.	
2.	
Surface Water Management	
1.	
2.	
3.	
Environment Monitoring and Management	
1.	
Dust Suppression	
1.	
Greenbelt and Plantation	
1.	

Public Hearing	
1.	
Single Use Plastic	
1.	
Clean Energy	
1.	
Ground water	
1.	
Skill Development	
1.	
Occupational Health	
1.	
Regrassing	
1.	
Environment Monitoring and Management	
1.	
2.	

3.3.6.2. Standard

1(a)	**Mining of minerals**
Statutory compliance	
1.	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
2.	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
3.	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
4.	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues

	related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
5.	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
6.	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
7.	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
8.	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.
Air quality monitoring and preservation	
1.	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.
2.	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.
Water quality monitoring and preservation	
1.	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
2.	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
3.	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria

	and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
4.	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
5.	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
6.	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
7.	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.
Noise and vibration monitoring and prevention	
1.	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
2.	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
3.	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.
Mining plan	
1.	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).
2.	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining.

	The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.
Land reclamation	
1.	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
2.	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
3.	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
4.	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.
Transportation	
1.	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a ‘bypass’ road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].
2.	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
Green Belt	
1.	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

null	
1.	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
2.	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
Public hearing and human health issues	
1.	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.
Corporate Environment Responsibility (CER)	
1.	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.
Miscellaneous	
1.	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
2.	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
3.	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
4.	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
5.	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
6.	In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and

	any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
7.	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
8.	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
9.	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
10.	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Tadawas Limestone Mine (Auction Mine) of M/s Hansdeep Industries and Trading Company Limited in the mine lease area of 423.97 ha with the production capacity of 2.0 MTPA of limestone and 0.6 MTPA OB/ waste located at Tadawas, Berawas, Bhawanda and Khorawa Village, Tehsil Khimsar, District Nagaur, Rajasthan by **HANSDEEP INDUSTRIES AND TRADING COMPANY LIMITED** located at **NAGAUR,RAJASTHAN**

Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/RJ/MIN/445238/2023	J-11015/29/2022-IA-II(NCM)	22/09/2023	Mining of minerals (1(a))

3.4.2. Project Salient Features

The instant proposal is for mining of Limestone in Tadawas Limestone Mine (Auction Mine) of M/s Hansdeep Industries and Trading Company Limited with the proposed production capacity of 2.0 MTPA of Limestone and 0.6 MTPA of OB/Waste in the mine lease area of 423.97 ha along with the crusher capacity of 1000 TPH, located at Tadawas, Berawas, Bhawanda and Khorawa Villages, Tehsil Khimsar, District Nagaur, Rajasthan.

3.4.3. Deliberations by the EAC in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant has informed the EAC that the instant proposal is for mining of Limestone in Tadawas Limestone Mine (Auction Mine) for the proposed production capacity of 2.0 MTPA of Limestone and 0.6 MTPA of OB/Waste along with the crusher capacity of 1000 TPHin the

mine lease area of 423.97 ha. The EAC asked the Project Proponent that whether the Letter of Intent (LoI) is valid as on date or not. The Project Proponent has informed the EAC that as on date the Letter of Intent is not valid and it was valid up to 24.09.2023. A requisition letter has been submitted to the State Govt. for extension of validity of Letter of Intent (LoI). The EAC was of the view that the Letter of Intent (LoI) is the basis for consideration of the proposal and hence the instant proposal cannot be considered further without a valid Letter of Intent (LoI). Thus, the EAC opined that the instant proposal may be considered only after the submission of the valid Letter of Intent (LoI) by the Project Proponent. Therefore, the EAC **deferred** the proposal.

3.4.5. Recommendation of EAC

Deferred for ADS

3.5. Agenda Item No 5:

3.5.1. Details of the proposal

Proposed Kottameta Limestone Mine (Auctioned Block) (ML Area: 802.25 ha) with total excavation of 7.6 million TPA (Limestone Production Capacity – 3.0 Million TPA, Soil 0.5 Million TPA and Waste 4.1 Million TPA) along with 1000 TPH Crusher located at Village – Katamater, Tehsil & District – Malkangiri, Odisha by M/s. Dalmia Cement (Bharat) Ltd. by **DALMIA CEMENT BHARAT LIMITED** located at **MALKANGIRI,ODISHA**

Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/OR/MIN/440925/2023	J-11015/80/2018-IA.II (M)	22/08/2023	Mining of minerals (1(a))

3.5.2. Project Salient Features

The instant proposal is for mining of Limestone in Kottameta Limestone Mine (Auctioned Block) of M/s. Dalmia Cement (Bharat) Ltd with Total Excavation of 7.6 Million TPA (Limestone: 3.0 Million TPA, Soil: 0.5 Million TPA and Waste: 4.1 Million TPA) along with 1000 TPH Capacity Crusher in the mine lease area of 802.25 ha, located at Village: Katamater, Tehsil & District: Malkangiri, Odisha.

3.5.3. Deliberations by the EAC in previous meetings

N/A

3.5.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant has informed the EAC that the total mine lease area is 802.25 ha, out of which Forest land is 575.160 ha, Private land is 143.603 ha and Government land is 83.487 ha. The Interstate boundary of Odisha-Chhattisgarh is located adjacent (~50m) to the mine lease area in the northern direction and the mine lease area is located within the Odisha State. The Project Proponent also informed the EAC that initially Letter of Intent (LoI) was granted by the State Govt. vide letter dated 27.01.2017 over an area of 801.171 ha. At the time of pursuing Forest Clearance, re-validation of land schedule was done by Tehsildar, Malkangiri within the mine lease area allotted under auction and total

extent of the area changed from 801.171 ha to 802.25 ha. Further, the Project Proponent has informed the EAC that the change in the mine lease area is due to DGPS Survey and there is no change in the physical boundary of the mine lease area. The EAC asked about the status of the Stage-I Forest Clearance for an area of 575.160 ha. The Project Proponent has informed the EAC that the MoEF&CC has granted the approval vide file no. 8-18/2022-FC dated 18.05.2023under Section-2 (iii) of Forest (Conservation) Act, 1980 for grant of forest land on lease over 575.16 ha of forest land within the granted ML area over 802.255 ha for Kottameta Lime Limestone mining. The Stage - I FC for an area of 575.16 ha of forest land is under process.

The EAC reiterated the Hon'ble Supreme Court of India in its order of 6thJuly 2011 issued guidelines so as to not create *fait accompli* situation in the matter of diversion of forest land under the FCA, 1980. Therefore, in the case of new mining leases/projects having forest land in part or in full, approval under FCA for diversion of entire forest land located within the mining lease/project is to be obtained before execution/renewal of mining lease/project. The EAC opined that the scenario of the Stage-I FC proposal may change w.r.t extent, compensatory afforestation, etc., Thus the EAC was of the view that the Stage-I Forest Clearance is necessary to appraise the project on the environmental merits of the site. Therefore, the EAC **deferred** the proposal and opined that the proposal may be considered only after the submission of the Stage – I Forest Clearance for an area of 575.16 ha of forest land by the Project Proponent.

3.5.5. Recommendation of EAC

Deferred for ADS

Day 2 -19/10/2023

3.1. Agenda Item No 1:

3.1.1. Details of the proposal

Gujarda, Dudheri & Dudhala Limestone Mine by **Nirma Limited** located at **BHAVNAGAR,GUJARAT**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/GJ/MIN/443968/2023	J-11015/153/2016-IA-II(NCM)	13/09/2023	Mining of minerals (1(a))

3.1.2. Project Salient Features

The proposal is for mining of Limestone in Gujarda, Dudheri & Dudhala Limestone Mine of M/s Nirma Limited for mining of Limestone with production capacity of 2.7 MTPA in the mine lease area of 681.62 ha, located at Villages Gujarda, Dudheri & Dudhala, Tehsil: Mahuva, District: Bhavnagar, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 21°01'1.31"N to 21°03' 44.86" N and Longitude 71°41'15.21"E to 71°43'38.54"E. The mine lease area falls under the Survey of India Toposheet No: F42R12and falls in Seismic Zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference:

Date of	Proposal No/ File	Consideration by	Details of ToR	Date of

application	No	EAC		accord
18.11.2022	IA/GJ/MIN/ 406830/2022 J-11015/153/ 2016-IA.II(M)	5-6 Dec., 2022 & 17-18 Jan, 2023	Terms of Reference (ToR) for mining of Limestone in Gujarda, Dudheri & Dudhala Limestone Mine of M/s Nirma Limited for mining of Limestone with production capacity of 2.7 MTPA in the mine lease area of 681.62 ha, located at Villages Gujarda, Dudheri & Dudhala, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study	06.02.2023

iv. Details of Mine Lease: -

a) The Project Proponent has submitted that initially the State Govt has granted the mining lease vide letter no. MCR-102004-1943-CHH dated 15.02.2008 for mineral Limestone and Marl over an area of 1497.4701 ha for a period of 30 years.

b) Then, the Govt. of Gujarat, Industries and Mines Department, vide Lr. No: MCR-102004- 1943-CHH dated 02.02.2011 have reduced the area of 8.0 ha falling in CRZ and the mine lease area was revised as 1489.4701 Ha.

c) Then, the Govt. of Gujarat, Industries and Mines Department, vide Order no: MCR102004-1943-CHH dated 08.01.2017 granted the mining lease for Limestone and Marl to M/s Nirma Limited over an area of 681.62 hafor a period of 50 years for its captive consumption.

d) The mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the Project Proponent, M/s Nirma Ltd. for a period of 50 years and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017under the provision of MMDR Amendment Act, 2015.

v. Land Use/Land Cover of the Mine Lease Area:-

Private land	565.9454 ha
Government land	115.6746 ha
Forest land	-
Total Mining lease area (MLA), ha	681.62 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No any facilities outside the ML area. However crusher will be installed at company's Cement Plant.

vi. Mining Plan Details:

Review of Mining Plan includingProgressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	File No.: 684(4)(1)/MP-348(197)/2021-22 GNR/1121
	Date	04.08.2021
	Mineral & (Major/Minor)	Limestone, Major mineral
	Mine Lease Area, Ha	681.62
	Validity	2021-22 to 2025-26
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized	
Drilling/Blasting	Multi-row drilling and V-pattern drill holes for deep hole drilling and blasting. Slurry explosive -cap sensitive and non-cap sensitive.	

Geological Reserves	57.280 Million tonne
Mineable Reserves	20.574million tonne
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Top soil- 0.57 mi.cum OB/SB/IB/Mineral Rejects- Nil Waste-Nil
Life of mine	11 years (Life of mine may be increased subjectto conversions of resources under 333 categoryinto category of reserves 111)
Mine Bench Height & Bench Width	6.0 m, for working bench 12-15 m for closing (conceptual) bench Optimum
No. of Mine Benches	2
Existing Depth, m bgl	New mine
Ultimate Depth of Mining, m bgl	10 m
Ground Water Table, m bgl	15.5 m (Post monsoon)
Details of ground water intersection	No ground water will be encountered during planning stage i.e. in working plan in neither pre monsoon nor post monsoon season in any of the pits. Ground water will also not intersect during mining at the end of mine life.
Individual bench slope	80-85°
Overall pit slope	~ 45°
Details of existing/ proposed Crusher	Proposed crusher will be installed at Cement Plant.
Mineral Beneficiation	-
RoM output size	-
Transportation details including capacity of dumper/tipper, mode of transport and distance	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease. For the Soda Ash Plant located at approx.100 km at Kalatalav, Bhavnagar limestone will be transported in dumpers/ trucks through National Highway 51. Internal haul road from mine face to crusher means of dumper/tippers of 25 tonnes capacity.
Generation of Topsoil/OB & its Management during plan period &conceptual period	Top soil at plan period- 249806 cu.m, temporary stacking at one location Top soil at conceptual period-321394 cu.m, simultaneously backfilling
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil
Additional information(if any)	Surface miner as well as ripper/dozer & rock breaker will be used for mining to minimize drilling & blasting.

vii. Water requirement:

Total water requirement	44 KLD	Fresh water	3 KLD
		Treated water	41 KLD
Source	i. Fresh water source Narmada water pipeline/Water tanker. ii. Water harvested within mine lease during rainy season. iii. Treated water source- Reject water of RO /DM plant & Reject water of RO /DM plant (proposed at Cement plant)		
Permission for withdrawal/ intersection along with details of grant and its validity	Permission for water withdrawal from Narmada water pipeline has been taken vide letter No. GWIL/ Bhavnagar/Ind.conn./1257 dated 4.06.2008.		

Particulars	Particular's Name	Distance & Directions
Village	Gujarda, Dudheri, Dudhala Madhiya Padhiarka	0.2-0.5 km 0.5 km, NW 0.5 km, W
Town	Mahuva	4.0km, NE
Highway	NH-51 (Una-Mahuva highway)	Within MLA
Interstate Boundary	Rajasthan	Approx.500 KM,N
Railway Station/Railway line	Amrutvel	2.0km, N
Water Bodies	Arabian Sea Coast	0.5 km, S from the HTL
	Samdiyala Salinity ingress control bund	4.5 km, WSW
	Malan Bandhara	1.5 km E
	Malan River	4.4 KM,E
	Bhambhali River	5.4 Km, W
	Garasawo River	0.9 KM,NE
Forest	RF near Patwa	2.8 KM,SW
	RF near Doliya	7.4 KM,E
	RF near Dudheri	0.6 KM,S
	RF near Gujarda	0.3 KM,S
	RF near Khared	2.1 KM,E

ix. Presence of Environmentally Sensitive areas in the study area:

<table>
<tr><td>Forest Land/ Protected Area/ Environmental Sensitivity Zone</td><td>Yes/ No</td><td>Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks</td></tr>
<tr><td>Forest Land within the mine lease area and (if yes) status of Forest Clearance</td><td>No</td><td rowspan="4">The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests vide Lr.No: WLP/32/C826-827/2021-22 dated 13.01.2022 regarding the map showing the location of protected areas within 10km of the Limestone mining project and the and distance of protected areas and proposed Limestone mine.
<table><tr><td>Protected areas</td><td>Distance between Limestone mines and Protected areas</td></tr><tr><td>Gir National Park</td><td>80.9 km</td></tr><tr><td>Gir Wildlife Sanctuary</td><td>48.8 km</td></tr><tr><td>Mitiyala Wildlife Sanctuary</td><td>48.1 km</td></tr></table>
The Project Proponent has submitted the letter from the Office of the Deputy Chief Conservator of Forest, Bhavnagar vide letter no. A/GMN/T11/2075/22-23 dated 27.01.2023 certifying that the nearest turtle rearing/breeding site is located at a distance of about 70km away from the mines.</td></tr>
<tr><td>National Park</td><td>No</td></tr>
<tr><td>Wildlife Sanctuary</td><td>No</td></tr>
<tr><td>Elephant/Tiger Reserve</td><td>No</td></tr>
<tr><td>Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)</td><td>No</td></tr>
<tr><td>Coastal Regulation Zone (CRZ)</td><td>No</td><td>The Project Proponent has submitted the letter from the Government of Gujarat, Forest and Environment Dept vide Lr no.ENV-10-2023-170-T dated 19.07.2023 stating that the proposed</td></tr>
</table>

		project of mining at Gujarda, Dudheri and Dudhala mine lease (681.62 ha), District Bhavnagar is outside CRZ area.
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	The Project Proponent has submitted the authenticated list of flora and fauna from the Office of the Deputy Forest Conservator vide Lr.No: A/Jaman/ Te.11/304/ 17-18 stating that there are three Schedule-I species such as Peafowl, Chinkara and Asiatic lion in the study area. After the amendment of the Wild Life (Protection) Amendment Act, 2022, No 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.
Wildlife Conservation Plan	Yes	On the basis of the fauna study findings & list of fauna authenticated by Forest Department, Wildlife Conservation Plan was prepared and submitted for approval. The Wildlife Conservation Plan was approved by the Chief Wildlife Warden vide Lr.No: WLP/32/C670-672 dated 20.12.2021 with a budget of Rs. 19.9 Lakhs for the conservation of wildlife in the study area.

Proposed area for green belt/plantation and no. of saplings proposed	30.00 Ha.
Budget for green plant & plantation till the end of life of mine.	90.95 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	-
No. of tree cuts in the mine lease area and compensatory afforestation	As per actual during mining
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	10.0
50 m safety zone of nallah, roads, electric lines	10.0
Additional information (if any)	10.00 ha(Backfilled area (Govt. wasteland))

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	01.03.2021 to 02.06.2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer
Predominant Wind direction (From)	South
Ambient Air Quality (no. of locations) and results – 16 locations	PM10: 27.6 –71.1 µg/m^3 PM2.5: 11.2 – 40.0 µg/m^3 SO2: 2.7 – 10.2 µg/m^3 NO2: 3.6 – 14.5 µg/m^3
Noise level (no. of locations) and results – 16 locations	Day Time: 47.57 dB(A) – 52.46 dB(A) Night Time: 39.42 dB(A) - 42.89 dB(A)

Water Quality (no. of locations) and results - 12Ground water and 3 Surface water	
Soil Quality (no. of locations) and results – 12 locations	Soil quality was monitored at 12 no. of stations. The result indicates that the maximum and minimum values of pH ranges between 7.7 - 8.2, Potassium ranges from 157.0 - 845.0 kg/ha and Nitrogen ranges from 0.01 - 12.57mg/kg.
Hydro geological study and results	
Traffic study (no. of locations) and results	The traffic volume survey was conducted on Bhavnagar to Una Road (NH8E/51) Near Vangar Village. Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day. There will be daily movement of 864numbers of dumpers (to & fro) per day or 2592 PCU/ day on the road. The proposed increase in traffic density will not cause significant impact on the traffic since the road is capable of handling this increase in traffic density.
Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	26.03.2023 in Sandesh Newspaper (Gujarati) & Indian Express (English)
Date of PH	28.04.2023 @ 4:00 PM
Venue	At the premises of Nirma Cement Plant Area, NH 8E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. Bhavnagar
Chaired by	Shri R.K Mehta (IAS), District Collector & District Magistrate, Bhavnagar District & Regional Officer, GPCB Bhavnagar
Main issues raised during PH	Air pollution, salinity ingression, wildlife protection, acquisition of agriculture land
Budget proposed for addressing issues raised during PH over 3 years	Rs 49 Lakhs

xiii. Resettlement & Rehabilitation (R&R):

R & R details	The total mine lease area is 681.62 ha, out of which Govt. land is 115.6746 haand Private land is 565.9454 ha.Land will be required for quarrying an area of 114.24 ha of Private land and Government land including 18 houses/hutments in land of Gujarda (15 nos.), in land of Dudheri (3 Nos.) & Dudhala (0 Nos.) villages. There will be total of 656 land losers. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 18.0 Lakhs. In addition to above, the registration cost of sale of the land and homesteads shall be borne by the Company. Assuming it to be 6% of the entire costs of sale, the total resettlement budget works out to be Rs. 78.17 lakhs.

xiv. Court case details:

Court Case, No and its present status Undertaking by Project Proponent w.r.t court case	The Project Proponent has submitted an undertaking vide letter dated 07.10.2023 stating that there is no litigation on the project either at NGT or any other court of law related to environment and pollution matters in which the project proponent is a respondent.
Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted an undertaking by way of notarized Affidavit dated 09.10.2023 stating that the proposal does not involve violation of Ministry's OM dated

	30.05.2018.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 14.02.2023 stating that the contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge of the undersigned (Shri Ashish Desai).
Undertaking by Consultant in EIA/EMP report	The Director of the EIA Consultant (M/s Centre for Envotech & Management Consultancy Pvt. Ltd) has informed that the baseline data was generated by MoEF &NABL Accredited Laboratory M/s Min Mec R&D Laboratory, a division of Min Mec Consultancy Pvt. Ltd., New Delhi and the same has been verified and also confirmed that he shall be fully accountable for any misleading information mentioned in this statement.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Pollution Control	0.291	10.12
Pollution monitoring	0.016	3.88
Occupational health	0.014	0.95
Environmental Studies, etc.	0.10	-
Green belt	-	5.10
Reclamation	-	10.03
Others (Environmental studies, Rehabilitation, Realignment, Expert advice, fencing etc.	-	5.48
Overheads	-	0.32
Total	0.421	35.87

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	1.19
Project Cost	25
Employment (No.s)	84

3.1.3. Deliberations by the EAC in previous meetings

N/A

3.1.4. Deliberations by the EAC in current meetings

The EAC deliberated the instant proposal along with Vangar & Madhiya Limestone Mine and Padhiarka and Doliya Limestone mine. The Project Proponent has informed the EAC that the proposed method of mining is same in all three mines such as Gujarda, Dudheri & Dudhala Limestone Mine, Vangar & Madhiya Limestone Mine, and Padhiarka and Doliya Limestone mine. Arabian Sea Coast is located at a distance of 0.5 km, S from the HTL. The Project Proponent has also informed the EAC that the letter from the Government of Gujarat, Forest and Environment Dept.has been obtained vide letter dated 19.07.2023stating that the proposed project of mining at Gujarda, Dudheri and Dudhala mine lease (681.62 ha), District Bhavnagar is outside CRZ area. There are 5 mine pits proposed in the mine lease area. The total mine lease area is 681.62 ha, out of which Govt. land is 115.6746 haand Private land is 565.9454 ha. Project Affected Families will be 656 no.s. A budget of Rs 49.0 Lakhs has been earmarked

to address the issues raised during public hearing. The geological conditions, method of mining, environmental sensitivity and implications, impact on socio economic are similar in all these three mines.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the project is part of three contiguous projects namely Padhiarka and Doliya Limestone mine (332.24 ha), Vangar & Madhiya Limestone Mine (612.336 ha) and Gujarda, Dudheri & Dudhala Limestone Mine (681.62 ha) and together it extends over an area of 1626.196 ha. The mine lease area comprises of partly Private Agriculture land and partly Govt. land. Gujarda, Dudheri, Dudhala Villages are located at a distance of 0.2-0.5 km. NH-51 (Una-Mahuva highway) is passing within mine lease area. The EAC was not convinced with the proposed backfilling plan and the activities proposed under the Wildlife Conservation Plan. The EAC observed that the pits are isolated and the mine lease area is partly Private and Govt. land. The EAC also observed that there will be direct purchase or leasing of private land with the willing consent of the private land owners. The EAC was of the view that what if the land owners are not willing to give their land. There are likely chances that mining will not take place sequentially if the land acquisition does not happen. There will be failure of scientific mining. Large no. of Project Affected Families is involved in all these projects. The EAC opined that the Saltwater intrusion through surface or ground water sources may diminish the availability or quality of source waters for drinking water utilities. Some salt pans i.e., salt manufacturing industries and few wind mills exists in the study area. Old mine pits also existing within the mine lease area. The EAC noted that the Bhavnagar is categorized as a Severely Polluted Areas. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence"*. Accordingly, EAC opined that PP should obtain NOC from Ministry of Defence.

Thus the EAC opined that there is a need to ascertain the ground reality w.r.t natural low lying areas, water logging areas, old mine pits, sequence of mining, feasibility for backfilling, impact on socio economic, agriculture land, transportation route, traffic congestion, salt pans, effectiveness of salinity ingress control bund, proximity of habitations, schools, water bodies, roads etc., The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. Since the mine site is located within 20 km from seaboard frontier the Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project.

iii. The Project Proponent needs to submit the action for laying common Over Land Belt Conveyor (OLBC) for transportation of mineral from mine lease area to the Cement Plant. The Project Proponent also needs to submit the action plan for expansion of road with a width of 7m and by passing the village road till the commission of the Over Land Belt Conveyor (OLBC).

iv. The Project Proponent needs to explore the possibility of laying overbridge over the Highway and shall submit the permission from the National Highways Authority of India (NHAI).

v. The Project Proponent needs to submit the protection measures to be taken for salt water intrusion and the effectiveness of the salinity ingress control bund.

vi. The Project Proponent needs to submit the site specific mitigation measures for backwaters from Arabian Sea coming into the mine lease area.

vii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

viii. The Project Proponent needs to revise the activities proposed under the Wildlife Conservation Plan. The Project Proponent also needs to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation.

ix. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit and justify the budget proposed for Resettlement & Rehabilitation (R&R). The Project Proponent also needs to submit the action plan for land acquisition and timeline.

x. The Project Proponent needs to submit the action plan for year wise exploration program.

xi. The Project Proponent needs to submit the copy of the permission letter obtained from the State Govt. for utilization of Chemical Grade of Limestone for non-cement purposes.

xii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Gujarat clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Nirma Limited or not?

3.1.5. Recommendation of EAC

Deferred for ADS

3.2. Agenda Item No 2:

3.2.1. Details of the proposal

Amendment to Environmental Clearance for establishing a new Crusher of capacity of 900TPH at Central Block Sector-2 with mid-point loading facilities to the existing cable belt conveyor and reduction of lease area from from 2414.263 ha to 1315.264 ha at Panchpatmali Central and North Block Bauxite Mine NALCO by **NATIONAL ALUMINIUM COMPANY LIMITED** located at **KORAPUT,ODISHA**

Proposal For		Fresh ToR	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/OR/MIN/444819/2023	J-11015/49/2008-IA-II(M)	21/09/2023	Mining of minerals (1(a))

3.2.2. Project Salient Features

Panchpatmali Central and North Block Bauxite Mine of M/s National Aluminium Company Limited (NALCO) for mining of Bauxite with production capacity of 6.825 MTPA of bauxite along with existing crusher of 2 x 900 TPH &SMCP- 1x900 TPH andproposed crusher of 1 x 900 TPH in the mine lease area of 1315.264 ha, located at Village: Damanjodi, Tehsil: Pottangi, District: Koraput, Odisha - [File. No: J-11015/49/2008-IA.II(M), Proposal No: IA/OR/MIN/444819/2023; EIA Consultant: M/s Global Tech Enviro Experts Pvt Ltd]- Terms of Reference (SOP violation)

The instant proposal is for mining of Bauxite in Panchpatmali Central and North Block Bauxite Mine of M/s National Aluminium Company Limited (NALCO) with production capacity of 6.825 MTPA of bauxite along with existing crusher of 2 x 900 TPH & SMCP- 1x 900 TPH and proposed

crusher of 1 x 900 TPH in the mine lease area of 1315.264 ha, located at Village: Damanjodi, Tehsil: Pottangi, District: Koraput, Odisha.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The mine lease area is located between Latitude: 18°49'04"N to 18°54'46”N and Longitude: 82°59'16"E to 83°03'29”E. The mine lease area falls under the Survey of India Toposheet No: 65J/13,65N/1 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category “A” as the mine lease area is greater than 250ha and appraised at the Central level.

iii. Details of previous Environmental Clearance (EC): -

a) The Project Proponent has submitted that initially Environmental Clearance (EC) has been obtained vide EC letter dated 20.02.2009 for annual production of 6.825 million tonnes of bauxite by opencast mechanized method in the mine lease area of 2414.263 ha.

iv. Details of Mine Lease:

a) The Project Proponent has submitted that initially mining lease was granted on 22.09.1982 for a period of 30 years over an area of 4692.05 ha.

b) The Project Proponent has submitted that the mine lease of Panchpatmali Central & North Block over an area of 3403.281 ha was valid upto 16.11.2012. Prior to renewal of mine lease, it was planned to part surrender the non-bauxite bearing lease to the State Govt. and accordingly an application was submitted to the State Govt. on 16.07.2010 to part surrender the lease area of 2087.919 ha out of 3403.281 ha.

c) Then, the Project Proponent has submitted the application for renewal of mining lease to the State Govt. vide dated 30.10.2010in the prescribed Form-J over an area of 1315.363 ha for a period of 20 years.

d) Thereafter, the Govt. of Odisha, Dept. of Steel and Mines vide Lr No: 6730/III(K)SM-19/2000(Pt)/SM, Bhubaneswar vide dated 08.09.2014 have accepted the 2nd part surrender of ML for Bauxite over 2087.919 ha out of the balance ML area of 3403.183 ha.

e) Subsequently, the Govt. of Odisha, Dept. of Steel and Mines videLr. No: 10370/IV(BX)SM-14/13/SM, Bhubaneswar dated 16.10.2015 have extended the period of the validity of the mining lease of M/s NALCO for Bauxite over an area of 1315.264 ha for the period upto 31.03.2020.

f) Further, the Project Proponent has submitted that the Govt. of Odisha, Dept. of Steel and Mines vide Lr No. 8903/IV (BX) SM-14/13/SM, Bhubaneswar vide dated 27.10.2016 have extended the period of the validity of the mining lease of M/s NALCO for Bauxite over an area of 1315.264 ha in Village Panchapatmali (Central and North Block) in the District of Koraput is extended upto 16.11.2032 from the date of last extension i.e, beyond 01.04.2020.

g) Accordingly, the Project Proponent has executed the supplementary deed made on 26.09.2017 for extension of lease period upto 16.11.2032 over an area of 1315.264 ha.

v. Land Use/Land Cover of the Mine Lease Area: -

Private land	Nil
Government land	20.981ha
Forest land	1294.283 ha
Total Mining lease area (MLA)	1315.264 ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Details of Mine Plan: -

Review of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	RMP/A/22-ORI/BHU/2020-21
	Dated	09.11.2021
	Mine lease area	1315.264 Ha
	Mineral	Bauxite
	Validity	2022-23 to 2026-27
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized method with drilling and blasting	

Geological Reserves	94.29 million Tons as on 31.03.23
Mineable Reserves	82.12 million Tons as on 31.03.23
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Topsoil: 0.1 MTPA OB: 0.6 MTPA Bauxite ore : 6.825 MTPA
Life of mine	20years
Mine Bench Height & Bench Width	Topsoil H= 0.8m, W=75-100 mtr, Top OB H=2.0m, W=75-100 mtr, Top Bauxite H=8m, W= 75-100 mtr, Bottom Bauxite H= 5m, W=75-100 mtr
No. of Mine Benches	Topsoil-0, OB-01, Top Bxt-01, Bottom Bxt -02
Existing Depth, m bgl	OB-02 Mtr, Bauxite- 16 Mtr average
Individual bench slope	85-90^{o}
Overall pit slope	45°with horizontal
Ultimate Depth of Mining, m bgl	40m bgl
Ground Water Table, m bgl	100m bgl
Details of ground water intersection	No groundwater intersection
RoM output size	-150 mm
Details of existing/ proposed Crusher	Existing: 2 x 900 TPH & SMCP- 1x900 TPH Proposed: 1 x 900 TPH
Mineral Beneficiation	Not proposed
Transportation details including capacity of dumper/tipper, mode of transport and distance	Within the mining lease through 55T/100T dumpers from face to crusher & outside lease through 14.6 km conveyor Belt from crusher to Alumina Refinery.
Generation of Topsoil/OB & its Management during plan period & conceptual period	0.72 MTPA, Overburden is used for backfilling of excavated area and Top soil is laid over the backfilled area for plantation purpose.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil

Total water requirement 2300 m3 /day	i. Drinking, Domestic & canteen- 200 m3 /day, ii. Washing of machines- 200 m3 /day, iii. Dust suppression: 1700 m3 /day iv. Plantation: 200 m3/ day	Fresh water	2090 m3 / day
		Treated water	210 m3 / day
Source	Jholaguda Stream		
Permission for withdrawal/ intersection along with details of grant and its validity			

Particulars	Particular's Name	Distance & Directions
Village	Maliguda, Badaneraka	0.9 km, W
Town	Kakiriguma	3.5 km, NNW
Highway	NH - 26	20 km, SW
Interstate Boundary	Not within study area	
Railway Station/ Railway line	Damanjodi	20 km, SW
Water Bodies	DebaghatNallahDebagarh River Kalmugarh River HatigarhNallah	0.2 km in W 1.2 km in W 1.2 km in S

	Muran River	0.2 km in S 5.5 km in SW

ix. Presence of Environmentally Sensitive areas in the study area: -

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	Yes	Forest land: 1294.283 ha The Project Proponent has submitted the Forest Clearance (FC) has been granted by the MoEF&CC vide F.No 8-40/1993-FC(pt-I) vide dated 15.09.2014 under Section -2 of the Forest (Conservation) Act, 1980 for diversion of 1294.283 ha of forest land (including 372.583 hectares of unbroken forest land proposed for fresh breaking and safety zone of 25.275 hectares) within the mining lease area of Panchpatmali Central & North Block over an area of 1315.363 ha during first renewal of mining lease period for bauxite mining by M/s NALCO.
National Park	No	There is no national park, wildlife sanctuary or biosphere reserve within 10 km radius area of the project
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ)/Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	-
Schedule-I species (Nos. and name of schedule-I species with authenticated letter)	Yes	There are two Schedule-I species such as i.e., Elephant and Sloth bear. Authenticated letter has been obtained vide letter No. 4011/1 WL(C) SSP-397/2013 dated 19thMay 2014.
Wildlife Conservation Plan	Yes	Site Specific Wildlife Management plan prepared by NALCO has been approved by PCCF(Wildlife), Odisha, Bhubaneswar vide Memo No. 4011/1 WL(C) SSP-397/2013 Dt. 19th May 2014 for a budget of Rs. 2,269.92 Lakhs.

Proposed area for green belt/plantation and no. of saplings proposed	Every year appx 70,000-85,000 trees are planted in and around Central and North Block Mining lease. Total area planted as on 31.3.2023 is 1089.29 hectares.
Budget for green plant & plantation till the end of life of mine.	Budget for Horticulture Dept. for developing and maintain plantationapprox is Rs. 94 lakhs every year
Budget for nursery	Approx Rs. 38 lakhs every year.
Details of existing plantation and its survival rate	The total number of saplings planted as on 31.3.2023 is 33,58,737 which are planted in mined out area safety zone, backfilled/ reclamation area and other unused area. The survival rate is approx 80%.
No. of tree cuts in the mine lease area and compensatory afforestation	No of trees Cut: Nil Afforestation done over 1601.568 ha (i.e., 1001.568 ha of non-forest govt. land & 600 ha- degraded

	forest land)
Particulars for Green belt/plantation	Area covered (In Ha)
7.5 m barrier & non-mineralized zone	Plantation details as on 31-3-2023 are as follows; i. Mining area including peripheralbarrier: 527.97 ha ii. Conveyor corridor: 38 ha iii. Auxiliary facilities: 33 ha iv. Water supply, power line: 3 ha v. Explosive magazine-35 ha vi. Central North Unused area: 27.27 ha vii. Outside lease area: (Putraghati, etc. surrendered lease area & urban plantation): 425.06 ha (A total of 1089.29 Ha)
50 m safety zone of nallah, roads, electric lines	
500 m safety zones of nearest habitation villages	

Particulars	Details of Letter along with date of grant and validity
Consent to Operate	The Project Proponent has submitted the Consent to Operate granted by the Odisha State Pollution Control Board vide order no: 4162/IND-I-CON-92 dated 17.03.2022 for production of 6.825 MTPA of Bauxite for the period upto 31.03.2024.
Certified Compliance Report and Inspection date	The Project Proponent submitted the certified compliance report issued by the Regional Office (IRO), Bhubaneshwar vide F.No. 101-836/EPE dated 10.05.2023 for the EC dated 20.02.2009. Site visit was conducted by IRO on 15.03.2023 & 16.03.2023. The Project Proponent has submitted that the status of compliance of non complied/partially complied conditions submitted to the Ministry's Regional Office (RO), Bhubaneshwar on 22.06.2023. RO vide letter no. 101-836/EPE dated 11.07.2023 has informed the Ministry that in response to the observations/non compliances, the project has submitted the action taken report to this office and the action taken report is enclosed for necessary action.
Certified Production Details from the inception of the mine (in tabular form against the EC capacity)	The Project Proponent has submitted the certified past production details from the Office of the Deputy Director of Mines, Koraput Circle vide No. 417/Mines, dated 15.03.2023 for the period 1993-94 to 2022-23 (upto February 2023).

S.No	Financial Year	Production of Bauxite in MT	EC Capacity, MTPA
1	1993-94	2435596	4.8
2	1994-95	2138344	4.8
3	1995-96	2408472	4.8
4	1996-97	2558002	4.8
5	1997-98	2661557	4.8
6	1998-99	2806288	4.8
7	1999-00	2822464	4.8
8	2000-01	2834189	4.8
9	2001-02	3522059	4.8
10	2002-03	4777003	4.8
11	2003-04	4816762	4.8
12	2004-05	4851726	4.8
13	2005-06	4854253	4.8
14	2006-07	4623278	4.8
15	2007-08	4684684	4.8
16	2008-09	4700027	6.825
17	2009-10	4878888	6.825

18	2010-11	4823908	6.825
19	2011-12	5002626	6.825
20	2012-13	5419391	6.825
21	2013-14	6292677	6.825
22	2014-15	5139120	6.825
23	2015-16	6340142	6.825
24	2016-17	6825000	6.825
25	2017-18	6825000	6.825
26	2018-19	6825000	6.825
27	2019-20	6729579	6.825
28	2020-21	6579835	6.825
29	2021-22	6414906	6.825
30	2022-23 (upto February 2023)	5854059	6.825

xii. If violation under SOP, dated 7th July, 2021. Point-Wise Compliance to SoP:

<table>
<tr><th>S. No.</th><th>SOP dated 07.07.2021</th><th>Compliance</th></tr>
<tr><td>1</td><td>
<table>
<tr><th>S. No</th><th>Status of EC</th><th>Actions</th></tr>
<tr><td>1</td><td>If no prior EC has been taken</td><td>Order to close its operation</td></tr>
<tr><td>2</td><td>If prior EC is available for existing/old unit</td><td>Order to revert the activity/ production to permissible limits</td></tr>
<tr><td>3</td><td>If prior EC was not required for earlier production level but is now required</td><td>Restrict the activity/production to the extent to which prior EC was not required</td></tr>
</table>
</td><td>Order to revert the activity/ production to permissible limits</td></tr>
<tr><td>2</td><td>Action under Environment (Protection), Act 1986</td><td></td></tr>
<tr><td>3</td><td>Appraisal under EIA Notification, 2006</td><td></td></tr>
<tr><td>4</td><td>Penalty Provisions for Violation Cases and applications

a. For new projects:

i. Where operation has not commenced:
1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report; [Ex: Rs. 1 lakh for project cost of Rs 1 Cr]
ii. Where operations have commenced without EC:
1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover during the period of violation. [Ex: For Rs. 100 Cr project cost and Rs.100 Cr total turnover, the penalty shall be Rs. 1 Cr + Rs 0.25 Cr = Rs 1.25 Cr].

b. For expansion projects:

i. Where operation/ production with expanded capacity has not commenced:
1% of the total project cost attributable to the expansion, incurred up to the date of filing of application along with EIA/EMP report.</td><td></td></tr>
</table>

	ii. Where operation/ production with expanded capacity have commenced: 1% of the total project cost (attributable to the expansion activity), incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover (attributable to the expanded activity/capacity) involved during the period of violation.	

xiii. Rehabilitation & Resettlement (R&R):

R & R details	There is no displacement frommines.

Court Case, No and its present status	The Project Proponent has submitted a declaration vide letter dated 09.10.2023 stating that no litigation is pending against the project or project proponent or land on which the project is proposed.
Undertaking by Project Proponent w.r.t court case	

Particulars	(Rs. In Crore)
Project Cost	Rs 135.1 Crore
Employment (No.s)	474 persons

3.2.3. Deliberations by the EAC in previous meetings

N/A

3.2.4. Deliberations by the EAC in current meetings

The EAC asked the Project Proponent/Consultant whether the instant proposal is for grant of Terms of Reference (ToR) or amendment in EC. The Project Proponent has informed the EAC that the instant proposal is for grant of Terms of Reference and the subject was mentioned wrongly. The EAC warned the Project Proponent/Consultant for being causal in submitting proposal. Then, the Project Proponent/Consultant presented the KML file to indicate the surface features in the study area of 10 km radius. The Project Proponent has informed the EAC that the mine lease area is located on the top of the hill and the height of the hill is about 300m.

The EAC noted that the violation was established earlier when the Project Proponent has submitted the proposal for amendment in EC dated 20.02.2009. The reiterated the minutes of EAC meeting held during 24-25 August 2023 wherein it has mentioned that "the mine was operating under deemed extension after the year 2012 and Project Proponent did not have EC for an area of 1315.264 ha.The EAC opined thatas per the judgment of Hon'ble Supreme Court dated 2ndAugust, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause Versus Union of India and Ors *"the renewal of a mining lease after 27th January, 1994 will require an EC even if there is no expansion or modernization activity or any increase in the pollution load"*. The EAC observed that excess production was done against the EC capacity of 4.8 MTPA during the year 2003-04 (48,16,762 MT), 2004-05 (48,51,726 MT) and 2005-06 (48,54,253 MT). The Project Proponent accepted that the excess production was done against the EC capacity of 4.8 MTPA during the year 2003-04, 2004-05 and 2005-06. The Project Proponent also presented the details of Consent to Operate (CTO) from the year 1993-94 to till date. The Project Proponent has informed the EAC that the capacities of the CTO for the year 1993-94 to 1999-2000 were 2.4 MTPA.The EAC noted that the Project Proponent has exceed the production capacity of CTO during the year 1993-94 (24,35,596 MT), 1995-96 (24,08,472 MT), 1996-97 (25,58,002 MT), 1997-98 (26,61,557 MT), 1998-99 (28,06,288 MT), 1999-2000 (28,22,464 MT), 2000-01 (28,34,189 MT), 2001-02 (35,22,059 MT) and 2002-03 (47,77,003 MT) against the CTO capacity of 2.4 MTPA. The EAC opined that the instant proposal attracts the judgment of Hon'ble Supreme Court

dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors and violation of the EIA Notification, 2006.Hence, the EAC asked the Ministry to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986.

Based on the discussions held, the EAC under the provisions of EIA Notification, 2006 and subsequent amendments therein and as per Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006, **recommended** the proposal for grant of Terms of Reference (ToR) to Panchpatmali Central and North Block Bauxite Mine of M/s National Aluminium Company Limited (NALCO) for mining of Bauxite with production capacity of 6.825 MTPA of bauxite along with existing crusher of 2 x 900 TPH &SMCP- 1x900 TPH and proposed crusher of 1 x 900 TPH in the mine lease area of 1315.264 ha, located at Village: Damanjodi, Tehsil: Pottangi, District: Koraput, Odisha for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects:-

3.2.5. Recommendation of EAC

Recommended

3.2.6. Details of Terms of Reference

3.2.6.1. Specific

CAG Recommendations	
1.	
Drone Survey	
1.	
EC compliance	
1.	
Environment Monitoring and EMP	
1.	
2.	
Greenbelt and Plantation	
1.	
Groundwater	
1.	The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

2.	The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.
Public Hearing	
1.	
Surface water management	
1.	
2.	
Violation	
1.	
2.	
3.	
4.	
5.	
6.	
7.	The Project Proponent needs to submit the penalty provisions as per Ministry's SOP dated 07.07.2021 at the time of appraisal of EC.
Wildlife Conservation Plan	
1.	
Groundwater	
1.	The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

3.2.6.2. Standard

1(a)	**Mining of minerals**
Project Details	
1.	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994. The production details need to submit since inception of mine duly authenticated by Department of Mines & Geology, State Government.
2.	A copy of the document in support of rightful lessee of the mine should be submitted. In case of new mines copy of LoI granted by State Government to be submitted. PP should ensure that LoI is valid at the time of grant of ToR. PP should submit the copy of lease deed/supplementary lease deed/extension letter/transfer deed, from

	its initial grant to subsequent renewals/ transfer/extension of validity.
3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4.	PP should submit the District Survey Report (DSR) as per S.O. 3611(E) dated 25.07.2018 in case of minor minerals.
5.	Brief of proposal to be submitted which include total excavation of the material required for the production of certain quantity of the minerals, location of the project, mining lease area, latitude longitude, seismic zone etc. In case of expansion project details of expansion viz. expansion in mining lease area or expansion in production of any particular mineral or expansion in total excavation, latest certified Compliance report (CCR) from IRO of conditions granted in existing EC needs to be submitted.
6.	The PP should submit the real-time aerial video footage & video of the mining lease area and of the transportation route.
7.	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
8.	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
9.	The PP should collect the Baseline data (BLD) in respect of initial level of the mining lease. For this permanent bench marks (BM) needs to be established at prominent location preferably close to mining leases in question and should have precisely known relationship to the level datum of the area, typically mean sea level.
10.	In case of sand mining, the entire mining lease area should be divided suitably into grids of 25 m x 25 m with the help of sections across the width of river and along the direction of flow of the river. The levels (MSL & RL) of the corner point of each grid needs to be recorded. Each Grid should be suitably numbered for identification. PP should identity grids which will be worked out and grids which will come under no mining zone i.e. safety barriers from the river bank. PP should comply with the sustainable sand mining management guidelines 2016 and enforcement and monitoring guidelines, 2020 etc.
11.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
12.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
13.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
14.	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
15.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

16.	Compliance of the Ministry's Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgment of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.
Forest	
1.	PP shall submit a certificate from Chief Conservator of Forests regarding involvement of Forest Land in the mining lease area if any. In case forest land is involved i) PP should submit the proof of application made for obtaining forest clearance and ii) a map clearly showing the forest & non-forest area.
2.	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
3.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
4.	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
Court Matters	
1.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
Land Environment	
1.	PP should submit the details of survey number [viz. survey no, area in hectare, classification of land (government, private, forest, grazing land etc.), villages] duly authenticated by State Government, falling in the mining lease area.
2.	The study area will comprise of 10km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
3.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
4.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
Wildlife	
1.	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
2.	A detailed biological study of the study area [core zone and buffer zone] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. PP shall submit list of Schedule-1 species present in core and buffer zone duly authenticated by CWLW. In case of any Scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest/Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost. Proof of its submission of conservation plan to the CWLW needs to be submitted.
3.	PP shall submit a certificate from Chief Wildlife Warden regarding distance of mining lease from the protected

	area falling within 10 KM of the mining lease. In case project requires clearance under Wildlife (Protection) Act, 1972 then copy of application made for the same needs to be submitted.
Baseline Environment	
1.	One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season); December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
2.	Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The windrose showing pre-dominant wind direction may also be indicated on the map.
3.	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this, PP should submit the original test reports and certificates of the labs from which samples were analyzed.
Water Environment	
1.	The water requirement for the Project, its availability and source should be furnished. Quantity of surface or ground water to be used for the Project should be indicated. A detailed water balance should also be provided. Submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. The capital and recurring expenditure to be incurred needs to be submitted.
2.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
Hydro Geology	
1.	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.
2.	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.
3.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working bench will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished. In case of surface water is proposed to be utilized then Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
Transportation	
1.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should

	be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
Land Acquisition and R&R	
1.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
2.	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need-based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
Socio-Economic Environment	
1.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
2.	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
3.	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
4.	Activity-wise time-bound action plan on the issues raised and commitment made during public hearing to be submitted as part of the final EMP Report in compliance of the Ministry's OM F.No.22-65/2017-IA.III dated 30th September, 2020.
Environmental Monitoring and Management	
1.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.
2.	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
Critically Polluted Areas, Aravali & CRZ	
1.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.
2.	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating

	LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
Risk Assessment & Disaster Management	
1.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
2.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
3.	A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.
Miscellaneous	
1.	The general points are also to be followed: - a) All documents to be properly referenced with index and continuous page numbering. b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated. c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project. d) Where the documents provided are in a language other than English, an English translation should be provided. e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted. f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed. g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation. h) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable. i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

3.3. Agenda Item No 3:

3.3.1. Details of the proposal

M/s NCL Industries Limited-Gundlapalli Limestone Mine by **NCL INDUSTRIES LIMITED** located at **SURYAPET,TELANGANA**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/TG/MIN/433538/2023	J-11011/576/2008-IA.II(I)	04/10/2023	Mining of minerals (1(a))

3.3.2. Project Salient Features

The instant proposal is for mining of Limestone in Gundlapalli Limestone mine of M/s NCL Industries Limited for expansion of Limestone production from 1.0 MTPA to 3.0 MTPA, Topsoil – Nil, OB/Waste – Nil,in the mine lease area of 130.37ha, located at Gundlapalli Village, Matampally Mandal, Suryapet District, Telangana.

3.3.3. Deliberations by the EAC in previous meetings

N/A

3.3.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant has informed the EAC that the instant proposal is for expansion in Limestone production capacity from 1.0 MTPA to 3.0 MTPA in the mine lease area of 130.37ha and the proposal attracts the general conditions as the Interstate boundary of Telangana and Andhra Pradesh is located at a distance of 220 m, S from the mine lease area. The EAC asked the Project Proponent that what was the latest date of the site visit by the Regional Office of the MoEF&CC for certification of the compliance of the existing EC dated 15.12.2009. The Project Proponent has informed the EAC that the Regional Office of the MoEF&CC conducted the site visit on 13.04.2022 and granted the letter dated 19.04.2022. The EAC reiterated the Ministry's OM dated 08.06.2022 wherein it has mentioned that "*for the proposals involving expansion of existing EC, CCR issued by the concerned Authority shall be valid for a period of one year from the date of inspection of the project*". Thus the EAC opined that the instant proposal to be considered only after the submission of the latest Certified Compliance Report (CCR) issued by the Regional Office of the MoEF&CC by the Project Proponent for further appraisal of the proposal. Therefore, the EAC **deferred** the proposal.

3.3.5. Recommendation of EAC

Deferred for ADS

3.4. Agenda Item No 4:

3.4.1. Details of the proposal

Amendment in Environment Clearance Letter no. J- 11015/243/2008-IA.II (M) for Change in Mine Lease Area from 951.848 ha to 912.797 ha for Petnikota Limestone Mine with Existing Production Capacity of 4.0 Million TPA located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh. by **M/s. UltraTech Cement Ltd.** located at **NANDYAL,ANDHRA PRADESH**

Proposal For		Amendment in EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/AP/MIN/439011/2023	J- 11015/243/2008-IA.II (M)	04/10/2023	Mining of minerals (1(a))

3.4.2. Project Salient Features

The instant proposal is for amendment in EC dated 14.05.2009 w.r.t change in mine lease area from 951.848 ha to 912.797 ha for Petnikota Limestone mine with existing Production Capacity of 4.0 Million TPA, located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh in favour of

M/s UltraTech Cement Limited.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude:15º03'25.71"N to 15º06'37.48"Nand Longitude:78º01'20.96"E to 78º04'11.82"E. The mine lease area falls under the Survey of India Toposheet No: 57I/4and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mine lease area is greater than 250 ha and appraised at the Central level.

iii. Details of previous Environmental Clearance (EC):

a) The Project Proponent has submitted that initially Environmental Clearance (EC) has been obtained vide EC letter dated 14.05.2009 for Petnikota Limestone Mine (ML area: 951.848 ha and production Capacity of 4.0 Million TPA), located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh in favour of M/s Grasim Industries Ltd.

b) Then, the Project Proponent has obtained amendment in EC on 09.02.2010 w.r.t 2nd and 3rd line of para 2 of EC dated 14.05.2009 in favour of M/s Grasim Industries Ltd.

iv. Details of Mine lease:

a) The total mine lease area is 912.797 ha, out of which 642.615 ha is a Pvt. Land and 270.182 ha is a Govt. land.

b) The Govt. of Andhra Pradesh vide G.O Ms. No 222, Ind & Com (M.I) Dept., dated 22.07.2003 granted the mining lease for Limestone mine over an extent of 951.848 Hectares in various Sy.Nos of Petnikota (V)1 Kolirnigundla .(M), Kurnool District for a period of (20) years from 27.04.2004 to 26.04.2024 as per the lease deed executed by the ADM&G, Banaganapalli vide his Progs, dt.27.04.2004in favour of M/s.Grasim Industries Limited.

c) The Govt. of Andhra Pradesh vide G.O Ms. No. 88 Industries & Commerce (M.III) Department dated 27.12.2022 has informed that the Director of Mines & Geology, A.P., Vijayawada has submitted that on verification of DGPS surveyed plan it is noticed that certain Sy.No's (i.e. 258, 259, 265, 268, 274, 275/1, 275/2, 276, 277, 278, 280, 281, 282 & 286 of Petnikota Village) for an extent of 29.409 Hectares are overlapping with the leased area of M/s.Madras Cement Ltd. Further, certain Sy.Nos. (770, 763,764, 765, 766, 767 & 787) for an extent of 9.255 Hectares are repeated in the total extent of 951.848 Hectares. As per the manual extent after deleting the overlapping area, repeated area and error as per the FMB, the area is arrived as 912.797 Hectares. But as per the DGPS the area is arrived as 923.478 Hectares. The difference in between manual and DGPS extent is 1.17%, which is well within the permissible limits. Keeping this minute, variation recommended for modified lease plan for 912.797 Hectares as this variation is on account of ground uneven surface and unpredictable and unforeseen satellite and transmission errors. This area of 912.797 Hectares virtually falls within the leased area of M/s. Grasim Industries Limited. Accordingly, the area of existing Mining Lease shrunken to 912.797 Hectares tothat of original granted area after initiating the DGPS Survey. The following Errata is used to the G.O.s dated 22.07.2003 and 25.03.2008 as mentioned below: - the words *"951.848 Hectares"* wherever they occur in the G.O.s dated 22.07.2003 and 25.03.2008 in respect of the area of Mining Lease, shall be substituted with the words *"912.797 Hectares"*.

d) The Govt. of Andhra Pradesh vide G.O Ms. No. 89 Industries & Commerce (M.III) Department dated 27.12.2022 have accorded the permission to transfer the existing Mining Lease held by M/s.Grasim Industries Limited for Limestone over an extent of 912.797 hectares in Sy.No.659/3C etc., of Petnikota (V), Kolimigundla (M), Kurnool District for a period of (20) years from 27.04.2004 to 26.04.2024 in favour of M/s.UltraTech Cement Limited for the unexpired portion of the lease period upto 26.04.2024. Project Proponent also submitted the transfer of lease deed made on 23.01.2023 over an area of 912.797 ha for the period upto 26.04.2024 in favour of M/s.UltraTech Cement Limited.

v. The Project Proponent also submitted that the Review of Mining Plan was approved by Indian Bureau of Mines (IBM) vide Lr No. AP/KNL/LST-214/HYD dated 14.03.2023 in respect of Petnikota Limestone mine of M/s UltraTech Cement Limited over an area of 912.797 ha.

vi. The Project Proponent has submitted that there is no change in the production capacity, mining methodology & requirements and only there is a reduction in Mine Lease Area from 951.848 ha to 912.797 ha and Name Change from M/s Grasim Industries Ltd., to M/s UltraTech Cement Limited.

vii. The Project Proponent has submitted the Affidavit bearing no: CY 418153 dated 29.07.2023 stating that "the company hereby undertakes to comply with all the statutory requirement and judgment of the Hon'ble Supreme Court order dated 2nd August 2017 in the matter of Writ Petition (Civil) No. 114 of 2014, Common Cause vs UoI".

viii. The Project Proponent has submitted an undertaking vide letter dated 29.07.2023 stating that "there is no litigation pending against the project and/or any direction/order passed by any Court of Law against the project and/or land in which the project is proposed and that for any such litigation whatsoever, the sole responsibilities will be borne by the company".

3.4.3. Deliberations by the EAC in previous meetings

N/A

3.4.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant has informed the EAC that the instant proposal is for amendment in EC dated 14.05.2009 w.r.t change in mine lease area from 951.848 ha to 912.797 ha and Transfer of EC from M/s Grasim Industries Ltd., to M/s UltraTech Cement Limited for Petnikota Limestone mine. The Project Proponent has informed the EAC that initially EC was obtained on 14.05.2009 for Petnikota Limestone Minefor production Capacity of 4.0 Million TPA in the mine lease area of 951.848 hain favour of M/s Grasim Industries Ltd. Then, the Govt. of Andhra Pradesh vide G.O Ms. No. 88 dated 27.12.2022 has informed that the Director of Mines & Geology, A.P., Vijayawada has submitted that on verification of DGPS surveyed plan it was noticed that certain Sy.No's (i.e. 258, 259, 265, 268, 274, 275/1, 275/2, 276, 277, 278, 280, 281, 282 & 286 of Petnikota Village) for an extent of 29.409 Hectares are overlapping with the leased area of M/s.Madras Cement Ltd. Further, certain Sy.Nos. (770, 763,764, 765, 766, 767 & 787) for an extent of 9.255 Hectares are repeated in the total extent of 951.848 Hectares. As per the manual extent after deleting the overlapping area, repeated area and error as per the FMB, the area was arrived as 912.797 Hectares. But as per the DGPS the area is arrived as 923.478 Hectares. The area of existing mining lease shrunken to 912.797 Hectares to that of original granted area after initiating the DGPS Survey. Accordingly, the following Errata was used to the G.O.s dated 22.07.2003 and 25.03.2008 as mentioned below: - the words "951.848 Hectares" wherever they occur in the G.O.s dated 22.07.2003 and 25.03.2008 in respect of the area of Mining Lease, shall be substituted with the words "912.797 Hectares".

The Project Proponent also informed the EAC that subsequently, the State Govt. has vide G.O Ms. No. 89 dated 27.12.2022 have accorded the permission to transfer the existing Mining Lease held by M/s.Grasim Industries Limited for Limes tone over an extent of 912.797 hectares in Sy.No.659/3C etc., of Petnikota (V), Kolimigundla (M), Kurnool District for a period of (20) years from 27.04.2004 to 26.04.2024 in favour of M/s.UltraTech Cement Limited. The transfer of lease deed was made on 23.01.2023 over an area of 912.797 ha for the period upto 26.04.2024 in favour of M/s.UltraTech Cement Limited. Mining Plan was also approved by Indian Bureau of Mines (IBM) vide letter dated 14.03.2023 over an area of 912.797 ha in favour of M/s UltraTech Cement Limited. Further, the Project Proponent has informed the EAC that there is no change in the production capacity, mining methodology & requirements apart from the reduction in mine lease area from 951.848 ha to 912.797 ha and name change from M/s Grasim Industries Ltd., to M/s UltraTech Cement Limited. The EAC was of the view that transfer of EC proposal may be dealt by the Ministry as per the provisions of EIA Notification, 2006

and its subsequent amendments.

After detailed deliberations, the EAC in its meeting held during 18-20 October, 2023 under the provisions of EIA Notification, 2006 and its subsequent amendments therein **recommended** the proposal for amendment in EC dated 14.05.2009 w.r.t. reduction in mine lease area from 951.848 ha to 912.797 ha for Petnikota Limestone mine of M/s UltraTech Cement Limited with existing Production Capacity of 4.0 Million TPA, located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh along with the following additional specific conditions mentioned below:-

3.4.5. Recommendation of EAC

Recommended

3.4.6. Details of Environment Conditions

3.4.6.1. Specific

Validity	
1.	
Air Quality and Dust Suppression	
1.	
Air Quality and Dust Suppression	
1.	
Clean Energy	
1.	
Skill Development	
1.	
Single Use Plastic	
1.	
Regrassing	
1.	
Miscellanous	
1.	

3.5. Agenda Item No 5:

3.5.1. Details of the proposal

Padhiarka and Doliya Limestone Mine by **Nirma Limited** located at **BHAVNAGAR,GUJARAT**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/GJ/MIN/443206/2023	J-11015/154/2016-IA-II(NCM)	13/09/2023	Mining of minerals (1(a))

3.5.2. Project Salient Features

The proposal is for mining of Limestone in Padhiarka and Doliya Limestone mine of M/s Nirma Limited with production capacity of 1.5 MTPA in the mine leasearea of 332.24 ha, located at Villages Padhiarka & Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meetingare given as under:

i. The mine lease area is located between Latitude 21°00'42.8152" N to 21°02' 9.7579" N and Longitude 71°40'10.0006"E to 71°41'9.9043"E. The mine lease area falls under the Survey of India Toposheet No: F42R12and falls in Seismic Zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category “A” as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
27.09.2022	IA/GJ/MIN/ 400887/2022 J-11015/ 154/ 2016-IA.II(M)	18.10.2022	Terms of Reference (ToR) for M/s Nirma Limited for mining of Limestone in Padhiarka and Doliya Limestone mine with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha, located at Villages Padhiarka &Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study	28.11.2022

iv. Details of Mine Lease: -

a) The Project Proponent has submitted that initiallythe State Govt has granted the Letter of Intent for grant of mining lease vide letter no. MCR-102004-1945-CHH dated 15.02.2008 for mineral Limestone and Marl over an area of 616.7254 ha for a period of 30 years.

b) Then, the Govt. of Gujarat, Industries and Mines Department, vide Order no: MCR102004-1945-CHH dated 08.01.2017 granted the mining lease for Limestone and Marl to M/s Nirma Limited over an area of 333.24 ha for a period of 50 years for its captive consumption.

c) The mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the lessee Nirma Ltd. for a period of 50 years and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017under the provision of MMDR Amendment Act, 2015.

v. Land Use/Land Cover of the Mine Lease Area: -

Private land	199.2246 ha
Government land	133.0154 ha
Forest land	-
Total Mining lease area (MLA), ha	332.24 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No any facilities outside the ML area. However crusher will be installed at company's Cement Plant.

vi. Mining plan details:

Review of Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	File No.: 684(4)(1)/MP-349(195)/2021-22 GNR/1129
	Date	05.08.2021
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	332.24
	Validity	2021-22 to 2025-26
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized	
Drilling/Blasting	Multi-row drilling and V-pattern drill holes for deep hole drilling and blasting. Slurry explosive -cap sensitive and non-cap sensitive.	
Geological Reserves	28.177 Million tonne	
Mineable Reserves	10.707 Million tonne	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Top soil- 0.5 mi.cum OB/SB/IB/Mineral Rejects- Nil Waste-Nil	
Life of mine	11 years (Life of mine may be increased subject to conversions of resources under 333 category into category of reserves 111)	
Mine Bench Height & Bench Width	6.0 m, for working bench 12-15 m for closing (conceptual) bench Optimum	
No. of Mine Benches	2	
Existing Depth, m bgl	New mine	
Ultimate Depth of Mining, m bgl	11 m	
Ground Water Table, m bgl	13 m (Post monsoon)	
Details of ground water intersection	No ground water will be encountered during planning stage i.e. in working plan in neither pre monsoon nor post monsoon season in any of the pits. Ground water will also not intersect during mining at the end of mine life.	
Individual bench slope	80-85°	
Overall pit slope	~ 45°	
Details of existing/ proposed Crusher	Proposed crusher will be installed at Cement Plant.	
Mineral Beneficiation	-	
RoM output size	-	
Transportation details including capacity of dumper/tipper, mode of transport and distance	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease. For the Soda Ash Plant located at approx.100 km at Kalatalav, Bhavnagar limestone will be transported in dumpers/ trucks through National Highway 51. Internal haul road from mine face to crusher by means of	

	dumper/tippers of 25 tonnes capacity.
Generation of Topsoil/OB & its Management during plan period & conceptual period	Top soil at plan period- 127122 cu.m, temporary stacking at one location Topsoil at conceptual period-372878 cu.m, simultaneously backfilling
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil
Additional information(if any)	Surface miner as well as ripper/dozer & rock breaker will be used for mining to minimize drilling & blasting.

Total water requirement	41 KLD	Fresh water	3 KLD
		Treated water	38 KLD
Source	i. Fresh water source Narmada water pipeline/Water tanker. ii. Water harvested within mine lease during rainy season. iii. Treated water source- Reject water of RO /DM plant &Reject water of RO /DM plant (proposed at Cement plant)		
Permission for withdrawal/ intersection along with details of grant and its validity	Permission for water withdrawal from Narmada water pipeline has been taken vide letter No. GWIL/Bhavnagar/Ind.conn./1257 dated 4.06.2008.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Madhiya	0.5 km, N
Town	Mahuva	9.5km, NE
Highway	NH-51 (Una-Mahuva highway)	0.7 km, N
Interstate Boundary	Rajasthan	500 KM,N
Railway Station/Railway line	Amrutvel	4.5 km, N
Water Bodies	Arabian Sea Coast	0.5 km, S from the HTL
	Samdiyala Salinity ingress control bund	2.3 km, WSW
	Bhambhali River	3.6 Km, W
Forest	RF near Patwa	0.4 KM,SW
	RF near Doliya	0.4 KM,S
	RF near Dudheri	0.6 KM,SSE
	RF near Gujarda	2.3 KM,E

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests vide Lr.No: WLP/32/C826-827/2021-22 dated 13.01.2022 regarding the map showing the location of protected areas within 10km of the Limestone mining project and the and distance of protected areas and proposed Limestone mine.
National Park	No	
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	

Protected areas	Distance between Limestone mines and

		<table><tr><td></td><td>Protected areas</td></tr><tr><td>Gir National Park</td><td>79.0 km</td></tr><tr><td>Gir Wildlife Sanctuary</td><td>47.6 km</td></tr><tr><td>Mitiyala Wildlife Sanctuary</td><td>46.7 km</td></tr></table> The Project Proponent has submitted the letter from the Office of the Deputy Chief Conservator of Forest, Bhavnagar vide letter no. A/GMN/T11/2075/22-23 dated 27.01.2023 certifying that the nearest turtle rearing/breeding site is located at a distance of about 70km away from the mines.
Coastal Regulation Zone (CRZ)	No	The Project Proponent has submitted the letter from the Government of Gujarat, Forest and Environment Dept vide Lr no.ENV-10-2023-170-T dated 19.07.2023 stating that the proposed project of mining at Padhiarka & Doliya mine lease (333.24 ha), District Bhavnagar is outside CRZ area.
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	The Project Proponent has submitted the authenticated list of flora and fauna from the Office of the Deputy Forest Conservator vide Lr.No: A/Jaman/Te.11/2302/ 17-18 dated 05.02.2018 stating that there are three Schedule-I species such as Peafowl, Chinkara and Asiatic lion in the study area. After the amendment of the Wild Life (Protection) Amendment Act, 2022, No 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.
Wildlife Conservation Plan	Yes	On the basis of the fauna study findings & list of fauna authenticated by Forest Department, Wildlife Conservation Plan was prepared and submitted for approval. The Wildlife Conservation Plan was approved by the Chief Wildlife Warden vide Lr.No: WLP/32/C670-672 dated 20.12.2021 with a budget of Rs. 19.9 Lakhs for the conservation of wildlife in the study area.

Proposed area for green belt/plantation and no. of saplings proposed	18.50 Ha.
Budget for green plant & plantation till the end of life of mine.	Rs 56.10 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	-
No. of tree cuts in the mine lease area and compensatory afforestation	As per actual during mining

Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	5.0
50 m safety zone of nallah, roads, electric lines	3.0
500 m safety zones of nearest habitation villages	-
Additional information (if any)	10.50 ha(Backfilled area (Govt. wasteland))

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	01.03.2021 to 02.06.2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer
Predominant Wind direction (From)	South
Ambient Air Quality (no. of locations) and results – 16 locations	PM10: 27.6 - 71.1 µg/m^3 PM2.5: 11.2 – 40.0 µg/m^3 SO2: 2.7 – 10.2 µg/m^3 NO2: 3.6 – 14.5 µg/m^3
Noise level (no. of locations) and results – 16 locations	Day Time: 47.57 dB(A) – 52.46 dB(A) Night Time: 39.42 dB(A) - 42.89 dB(A)
Water Quality (no. of locations) and results - 12Ground water and 3 Surface water	
Soil Quality (no. of locations) and results – 12 locations	Soil quality was monitored at 12 no. of stations. The result indicates that the maximum and minimum values of pH ranges between 7.7 - 8.2, Potassium ranges from 157.0 - 845.0 kg/ha and Nitrogen ranges from 0.01 - 12.57mg/kg.
Hydro geological study and results	
Traffic study (no. of locations) and results	The traffic volume survey was conducted on Bhavnagar to Una Road (NH8E/51) Near Vangar Village. Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day.There will be daily movement of 480 numbers of dumpers (to & fro) per day or 1440 PCU/ day on the road. V/C = 31.27.

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	26.03.2023 in Sandesh Newspaper (Gujarati) & Indian Express (English)
Date of PH	28.04.2023 @ 01:00 PM
Venue	At the premises of Nirma Cement Plant Area, NH 8E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. Bhavnagar
Chaired by	Shri R.K Mehta (IAS), District Collector & District Magistrate, Bhavnagar District & Regional Officer, GPCB Bhavnagar
Main issues raised during PH	Air pollution, salinity ingression, wildlife protection, acquisition of agriculture land
Budget proposed for addressing issues raised during PH over 3 years	Rs 77 Lakhs

R & R details	The total mine lease area is 332.24 ha, out of which Govt. land is 133.0154 ha and Private land is 199.2246 ha.Land will be required for quarrying an area of 100.61 ha of Private land and Government land including 08 houses/hutment in Padhiarka village and 27 houses/hutment in Doliya villages. The

	houses/hutment fall in the conceptual pits of the mine lease. There will be total of 683 project affected land losers. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 35.0 Lakhs. In addition to above, the registration cost of sale of the land and homesteads shall be borne by the Company. Assuming it to be 6% of theentire costs of sale, the total resettlement budget works out to be Rs. 59.93 lakhs (6% of land value).

xiv. Court case details:

Court Case, No and its present status Undertaking by Project Proponent w.r.t court case	The Project Proponent has submitted an undertaking vide letter dated 07.10.2023 stating that there is no litigation on the project either at NGT or any other court of law related to environment and pollution matters in which the project proponent is a respondent.
Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted an undertaking by way of notarized Affidavit dated 09.10.2023 stating that the proposal does not involve violation of Ministry's OM dated 30.05.2018.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 04.01.2023 stating that the contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge of the undersigned (Shri Ashish Desai).
Undertaking by Consultant in EIA/EMP report	The Director of the EIA Consultant (M/s Centre for Envotech & Management Consultancy Pvt. Ltd) has informed that the baseline data was generated by MoEF &NABL Accredited Laboratory M/s Min Mec R&D Laboratory, a division of Min Mec Consultancy Pvt. Ltd., New Delhi and the same has been verified and also confirmed that he shall be fully accountable for any misleading information mentioned in this statement.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Pollution Control	0.271	9.66
Pollution monitoring	0.016	3.88
Occupational health	0.011	0.65
Environmental Studies, etc.	0.10	_
Green belt	_	5.10
Reclamation	_	5.85
Others (Environmental studies, Rehabilitation, Realignment, Expert advice, fencing etc.	_	6.03
Overheads	_	0.30
Total	0.3980	31.47

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	1.16
Project Cost	29
Employment (No.s)	55

3.5.3. Deliberations by the EAC in previous meetings

N/A

3.5.4. Deliberations by the EAC in current meetings

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that the NH-51 (Una-Mahuva highway) is located at a distance of 0.7 km, N from the mine lease area. Madhiya Village is located at a distance of 0.5 km, N. Arabian Sea Coast is located at a distance of 0.5 km, S from the HTL and Bhambhali River is located at a distance of 3.6 km, W. A man made reservoir is located within 5km radius of the mine lease area on the eastern direction. Samdiyala Salinity ingress control bund is situated on the western side on the mine lease area. Part of the Doliya Village is located within the mine lease area on southern side. No mining activity is proposed in the side of the Doliya Village. Nearest distance of the village from the mine pit is 700m.

The EAC noted that Arabian Sea and there are few water bodies are present in the vicinity of the mine lease area and asked the Project Proponent whether there are any backwaters from Arabian Sea coming into the mine lease area or not. The Project Proponent has informed the EAC that the water within the mine lease area is due to accumulation of rain water that was accumulated during the rainy season and tends to remain during January - February. Water gets dried during summer season. The Project Proponent also shown the historical images of rainwater accumulation for different months over the past years. The mine pit elevation is 4-6m above MSL. Depth of mining proposed is 11 m. Water gets accumulated in the natural low lying areas. The EAC asked about the thickness of the over burden. The Project Proponent has informed the EAC that the average thickness of the over burden is varying between 1-1.5m. The EAC asked the Project Proponent that whether the enough material will be available for backfilling up to a depth of 11m. The Project Proponent has informed the EAC that the entire 11m will not be backfilled and only part of the area will be backfilled. The shallow pit of depth<4m will be backfilled i.e., Pit -2, 3 and 4. Backfilling is proposed after 2026-27/ 2027-28. Backfilled area shall be utilized for agriculture in case of private land and for plantation purpose in case of government land. Existing minerals were assessed through exploration carried out by CGM, GoG. Old mine pits are also existing within the mine lease area. The EAC asked the Project Proponent to submit the action plan for year wise exploration program.

The EAC asked to brief about the mode of transportation. The mined out material will be transported to the crusher proposed in the cement plant by internal haul road by means of dumper/tippers of 25 tonnes capacity and then from crusher to the Cement plant (adjacent to the mine lease) by conveyor. Village roads will be used for transporting the mined out material from different pits. The EAC asked about the width of the transportation road. The Project Proponent has informed the EAC that the existing width of the road is 4m which will be not adequate to transport the material. Hence, the lands adjacent to this road will be purchased and the width of the road will be increased to 6m. The dividers will be made in between transportation road. The Cement Plant is yet to be constructed and these lands will be purchased for expansion of road only at the time of construction of the cement plant. The EAC asked the Project Proponent till then how the mined out Limestone will be utilized. The Project Proponent has informed the EAC that there are two grades of Limestone such as Chemical Grade Limestone and Cement Grade Limestone available in this project. For utilization of Chemical Grade of Limestone for non-cement purposes, permission has been obtained from the State Govt. The company is having its Soda Ash manufacturing plant located at Bhavnagar at a distance of 100 km from the mine lease area. This manufacturing plant requires Chemical Grade Limestone. Hence, the Chemical Grade of Limestone from this instant mine will be transported to the Soda Ash manufacturing plant located at Bhavnagar through National Highway 51. The EAC asked the Project Proponent to increase the width of the road to 7m. The EAC asked the Project Proponent that when will the Cement Plant will be commissioned. The Project Proponent has informed the EAC that matter regarding Cement Plant is pending before the Hon’ble Supreme Court.

The EAC asked the Project Proponent to show the KML file of other two adjacent mine leases by

overlapping with the KML file of the instant project. The Project Proponent has informed the EAC that the Vangar & Madhiya Limestone Mine is proposed on the northern side and Gujarda, Dudheri & Dudhala Limestone Mine is proposed on the eastern side of the mine lease area to this instant mine lease belonging to M/s Nirma Ltd. The Project Proponent also shown the proposed mine pits in Vangar & Madhiya Limestone Mine and Gujarda, Dudheri & Dudhala Limestone Mine. A Cement Plant is proposed on the western side of the mine lease area. Internal haul roads passing through the mine lease area will be used for transportation. The EAC asked the Project Proponent to bypass the village road for transporting the material. The EAC also asked the Project Proponent that whether any school is present within the mine lease area or not. The Project Proponent has informed the EAC that a primary school is located in the village Vangar. A safety distance of 50m will be maintained. Greenbelt will be developed all along the school. No drilling and blasting will be practiced. Only Surface miner as well as ripper/dozer & rock breaker will be used. The EAC opined that there should be no activity of drilling and blasting near school premise.

The Project Proponent has informed the EAC that the Life of the mine will be 11 years and may increase subject to exploration. Marly Limestone occurs in mine lease area. The limestone is of the high / cement grade quality and is followed by Marly Limestone/ Marl. The Limestone production will be restricted till the commission of the Cement plant. The EAC asked the Project Proponent that how the Limestone will be sized and will be sent to the Soda Ash Plant. The Project Proponent has informed the EAC that by using the rock breaker the limestone will be sized and sent to the Soda Ash Plant. The EAC was of the view that the activities proposed under the Wildlife Conservation Plan is generalized and the Project Proponent needs to revise the activities of the Wildlife Conservation Plan which should be site specific. The EAC also asked the Project Proponent to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation. Turtle breeding centre is located about 70km from the mine lease area. The total mine lease area is 332.24 ha, out of which Govt. land is 133.0154 ha and Private land is 199.2246 ha.Land will be required for quarrying an area of 100.61 ha of Private land and Government land including 08 houses/hutment in Padhiarka village and 27 houses/hutment in Doliya villages. The houses/hutment fall in the conceptual pits of the mine lease. There will be total of 683 project affected families. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 35.0 Lakhs. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit and justify the budget proposed for R&R. Budget proposed for addressing issues raised during public hearing is Rs 77.0 Lakhs over 3 years and the cumulative budget will be Rs 160 Lakhs by comprising all three mines.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the project is part of three contiguous projects namely Padhiarka and Doliya Limestone mine (332.24 ha), Vangar & Madhiya Limestone Mine (612.336 ha) and Gujarda, Dudheri & Dudhala Limestone Mine (681.62 ha) and together it extends over an area of 1626.196 ha. The mine lease area comprises of partly Private Agriculture land and partly Govt. land. Part of the Doliya Village is located within the mine lease area on southern side. Also villages are located close to the proximity of the mine lease area. The EAC was not convinced with the proposed backfilling plan and the activities proposed under the Wildlife Conservation Plan. The EAC observed that the pits are isolated and the mine lease area is partly Private and Govt. land. The EAC also observed that there will be direct purchase or leasing of private land with the willing consent of the private land owners. The EAC was of the view that what if the land owners are not willing to give their land. There are likely chances that mining will not take place sequentially if the land acquisition does not happen. There will be failure of scientific mining. Large no. of Project Affected Families is involved in all these projects. The EAC opined that the Saltwater intrusion through surface or ground water sources may diminish the availability or quality of source waters for drinking water utilities. Some salt pans i.e., salt manufacturing industries and few wind mills exists in the study area. Old mine pits are also existing within the mine lease area. The EAC noted that the Bhavnagar is categorized as a Severely Polluted Areas. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within*

20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence". Accordingly, EAC opined that PP should obtain NOC from Ministry of Defence.

Thus the EAC opined that there is a need to ascertain the ground reality w.r.t natural low lying areas, water logging areas, old mine pits, sequence of mining, feasibility for backfilling, impact on socio economic, agriculture land, transportation route, traffic congestion, salt pans, effectiveness of salinity ingress control bund, proximity of habitations, schools, water bodies, roads etc., The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. Since the mine site is located within 20 km from seaboard frontier, Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project.

iii. The Project Proponent needs to submit the action for laying common Over Land Belt Conveyor (OLBC) for transportation of mineral from mine lease area to the Cement Plant. The Project Proponent also needs to submit the action plan for expansion of road with a width of 7m and by passing the village road till the commission of the Over Land Belt Conveyor (OLBC).

iv. The Project Proponent needs to submit the protection measures to be taken for salt water intrusion and the effectiveness of the salinity ingress control bund.

v. The Project Proponent needs to submit the site specific mitigation measures for backwaters from Arabian Sea coming into the mine lease area.

vi. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

vii. The Project Proponent needs to revise the activities proposed under the Wildlife Conservation Plan.The Project Proponent also needs to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation.

viii. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit and justify the budget proposed for Resettlement & Rehabilitation (R&R). The Project Proponent also needs to submit the action plan for land acquisition and timeline.

ix. The Project Proponent needs to submit the action plan for year wise exploration program.

x. The Project Proponent needs to submit the copy of the permission letter obtained from the State Govt. for utilization of Chemical Grade of Limestone for non-cement purposes.

xi. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Gujarat clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Nirma Limited or not?

3.5.5. Recommendation of EAC

Deferred for ADS

3.6. Agenda Item No 6:

3.6.1. Details of the proposal

Vangar & Madhiya Limestone Mine by **Nirma Limited** located at **BHAVNAGAR,GUJARAT**			
Proposal For		Fresh EC	
Proposal No	**File No**	**Submission Date**	**Activity (Schedule Item)**
IA/GJ/MIN/443498/2023	J-11015/152/2016-IA-II(NCM)	13/09/2023	Mining of minerals (1(a))

3.6.2. Project Salient Features

The proposal is for mining of Limestone in Vangar & Madhiya Limestone Mine of M/s Limited for mining of Limestone with production capacity of 1.6 MTPA in the mine lease area of 612.1336 ha, located at Villages Vangar & Madhiya, Tehsil: Mahuva, District: Bhavnagar, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 21º01'44.54" to 21º 03' 40.04" N and Longitude 71º39'18.3"E to 71º41'05"E. The mine lease area falls under the Survey of India Toposheet No: 41 O/12 (restricted)and falls in Seismic Zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
18.11.2022	IA/GJ/MIN/ 403568/2022 J-11015/152/ 2016-IA.II(M)	5-6 Dec., 2022	Terms of Reference (ToR) for mining of Limestone in Vangar & Madhiya Limestone Mine of M/s Nirma Limited for mining ofLimestone with production capacity of 1.6 MTPA in the mine lease area of 612.1336 ha, located at Villages Vangar & Madhiya, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study	23.12.2022

iv. Details of Mine Lease: -

a) The Project Proponent has submitted that initially the State Govt has granted the Letter of Intent for grant of mining lease vide letter no. MCR-102004-1827-CHH dated 15.02.2008 for mineral Limestone and Marl over an area of 1225.8553 ha for a period of 30 years.

b) Then, the Govt. of Gujarat, Industries and Mines Department, vide Order no: MCR102004-1827-CHH dated 08.01.2017 granted the mining lease for Limestone and Marl to M/s Nirma Limited over an area of 612.1336 hafor a period of 50 years for its captive consumption.

c) The mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the Project Proponent, M/s Nirma Ltd. for a period of 50 years and also registered the executed mining

lease deed with Sub, Registrar, Mahuva on 11.01.2017under the provision of MMDR Amendment Act, 2015.

v. Land Use/Land Cover of the Mine Lease Area:-

Private land	586.4789 ha
Government land	25.6547 ha
Forest land	-
Total Mining lease area (MLA), ha	612.1336 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No any facilities outside the ML area. However crusher will be installed at company's Cement Plant.

Review of Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	File No.: 684(4)(1)/MP-347(196)/2021-22 GNR/1125
	Date	05.08.2021
	Mineral & (Major/Minor)	Limestone, Major mineral
	Mine Lease Area, Ha	612.1336
	Validity	2021-22 to 2025-26
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized	
Drilling/Blasting	Multi-row drilling and V-pattern drill holes for deep hole drilling and blasting. Slurry explosive -cap sensitive and non-cap sensitive.	
Geological Reserves	35.539 Million tonnes	
Mineable Reserves	14.913 million tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Top soil- 0.99 mi.cum OB/SB/IB/Mineral Rejects- Nil Waste-Nil	
Life of mine	13 years (Life of mine may be increased subjectto conversions of resources under 333 categoryinto category of reserves 111)	
Mine Bench Height & Bench Width	6.0 m, for working bench 12-15 m for closing (conceptual) bench Optimum	
No. of Mine Benches	2	
Existing Depth, m bgl	New mine	
Ultimate Depth of Mining, m bgl	10 m	
Ground Water Table, m bgl	15 m (Post monsoon)	
Details of ground water intersection	No ground water will be encountered during planning stage i.e. in 5 years of working plan in neither pre monsoon nor post monsoon season in any of the pits. However, the ground water table may get touched in post monsoon in pit no. 4 & 5 when the proposed conceptual pit bottom level of +1.0 m AMSL is achieved. To avoid any accidental intersection of ground water table, the Company has now decided to restrict mining depth to +2.0 m AMSL in pit no. 4 & 5.	
Individual bench slope	80-85°	
Overall pit slope	~ 45°	
Details of existing/ proposed Crusher	Proposed crusher will be installed at Cement Plant.	
Mineral Beneficiation	-	
RoM output size	-	

Transportation details including capacity of dumper/tipper, mode of transport and distance	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease. For the Soda Ash Plant located at approx.100 km at Kalatalav, Bhavnagar limestone will be transported in dumpers/ trucks through National Highway 51. Internal haul road from mine face to crusher means of dumper/tippers of 25 tonnes capacity.
Generation of Topsoil/OB & its Management during plan period & conceptual period	Top soil at 1st plan period- 150000 cu.m, temporary stacking at one location Top soil at 2nd plan period- 840000 cu.m, temporary stacking at one location Top soil at conceptual period-380000 cu.m, simultaneously backfilling
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil
Additional information(if any)	Surface miner as well as ripper/dozer & rock breaker will be used for mining to minimize drilling & blasting.

vii. Water requirement:

Total water requirement	42 KLD	Fresh water	3 KLD
		Treated water	39 KLD
Source	i. Fresh water source Narmada water pipeline/Water tanker. ii. Water harvested within mine lease during rainy season. iii. Treated water source- Reject water of RO /DM plant &Reject water of RO /DM plant (proposed at Cement plant)		
Permission for withdrawal/ intersection along with details of grant and its validity	Permission for water withdrawal from Narmada water pipeline has been taken vide letter No. GWIL/ Bhavnagar/Ind.conn./1257 dated 4.06.2008.		

Particulars	Particular's Name	Distance & Directions
Village	Vangar Madhiya	0.25 km, NW 0.25 km, SE
Town	Mahuva	6.2km, ENE
Highway	NH-51 (Una-Mahuva highway)	Within
Interstate Boundary	Rajasthan	Approx.500 KM,N
Railway Station/Railway line	Amrutvel	2.0 km, N
Water Bodies	Arabian Sea Coast	3.4 km S to the HTL
	Samdiyala Salinity ingress control bund	2.3 km, SSW
	Bhambhali River	0.9 Km, W
	Garasawo River	2.5 Km,NE
Forest	RF near Patwa	2.1 KM,S
	RF near Doliya	3.3 KM,SSE
	RF near Dudheri	3.9 KM,SE
	RF near Gujarda	4.3 KM,SE

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks

<table>
<tr><td>Forest Land within the mine lease area and (if yes) status of Forest Clearance</td><td>No</td><td rowspan="4">The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests vide Lr.No: WLP/32/C826-827/2021-22 dated 13.01.2022 regarding the map showing the location of protected areas within 10km of the Limestone mining project and the and distance of protected areas and proposed Limestone mine.
<table><tr><td>Protected areas</td><td>Distance between Limestone mines and Protected areas</td></tr><tr><td>Gir National Park</td><td>76.0 km</td></tr><tr><td>Gir Wildlife Sanctuary</td><td>44.2 km</td></tr><tr><td>Mitiyala Wildlife Sanctuary</td><td>43.5 km</td></tr></table>
The Project Proponent has submitted the letter from the Office of the Deputy Chief Conservator of Forest, Bhavnagar vide letter no. A/GMN/T11/2075/22-23 dated 27.01.2023 certifying that the nearest turtle rearing/breeding site is located at a distance of about 70km away from the mines.</td></tr>
<tr><td>National Park</td><td>No</td></tr>
<tr><td>Wildlife Sanctuary</td><td>No</td></tr>
<tr><td>Elephant/Tiger Reserve</td><td>No</td></tr>
<tr><td>Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)</td><td>No</td></tr>
<tr><td>Coastal Regulation Zone (CRZ)</td><td>No</td><td>Arabian Sea Coast: 3.4 km S to the HTL
The proposed project lies beyond distance of 0.5 km from High Tide Line of Arabian Sea Coast. The CRZ map has been prepared by Institute of Remote Sensing, Anna University, Chennai.</td></tr>
<tr><td>Schedule-I species (No.s and name of schedule-I species with authenticated letter)</td><td>Yes</td><td>The Project Proponent has submitted the authenticated list of flora and fauna from the Office of the Deputy Forest Conservator vide Lr.No: A/Jaman/ Te.11/233/ 17-18 dated 08.02.2018 stating that there are three Schedule-I species such as Peafowl, Chinkara and Asiatic lion in the study area.

After the amendment of the Wild Life (Protection) Amendment Act, 2022,No 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.</td></tr>
<tr><td>Wildlife Conservation Plan</td><td>Yes</td><td>On the basis of the fauna study findings & list of fauna authenticated by Forest Department, Wildlife Conservation Plan was prepared and submitted for approval.

The Wildlife Conservation Plan was approved by the Chief Wildlife Warden vide Lr.No: WLP/32/C670-672 dated 20.12.2021 with a budget of Rs. 19.9 Lakhs for the conservation of wildlife in the study area.</td></tr>
</table>

x. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	26.50 Ha.
Budget for green plant & plantation till the end of life of mine.	Rs 80.35 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	-
No. of tree cuts in the mine lease area and compensatory afforestation	As per actual during mining
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	16.50
50 m safety zone of nallah, roads, electric lines	10.00

xi. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	01.03.2021 to 02.06.2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer
Predominant Wind direction (From)	South
Ambient Air Quality (no. of locations) and results – 16 locations	PM10: 27.6 –71.1 µg/m^3 PM2.5: 11.2 – 40.0 µg/m^3 SO2: 2.7 – 10.2 µg/m^3 NO2: 3.6 – 14.5 µg/m^3
Noise level (no. of locations) and results – 16 locations	Day Time: 47.57 dB(A) – 52.46 dB(A) Night Time: 39.42 dB(A) - 42.89 dB(A)
Water Quality (no. of locations) and results - 12Ground water and 3 Surface water	
Soil Quality (no. of locations) and results – 12 locations	Soil quality was monitored at 12 no. of stations. The result indicates that the maximum and minimum values of pH ranges between 7.7 - 8.2, Potassium ranges from 157.0 - 845.0 kg/ha and Nitrogen ranges from 0.01 - 12.57mg/kg.
Hydro geological study and results	
Traffic study (no. of locations) and results	The traffic volume survey was conducted on Bhavnagar to Una Road (NH8E/51) Near Vangar Village. Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day.There will be daily movement of 512 numbers of dumpers (to & fro) per day or 1536 PCU/ day on the road. V/C = 31.27.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	26.03.2023 in Sandesh Newspaper (Gujarati) & Indian Express (English)
Date of PH	28.04.2023 @ 9:30 AM
Venue	At the premises of Nirma Cement Plant Area, NH 8E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. Bhavnagar
Chaired by	Shri R.K Mehta (IAS), District Collector & District Magistrate, Bhavnagar District &

	Regional Officer, GPCB Bhavnagar
Main issues raised during PH	Air pollution, salinity ingression, wildlife protection, acquisition of agriculture land
Budget proposed for addressing issues raised during PH over 3 years	Rs 34 Lakhs

R & R details	The total mine lease area is 612.1336 ha, out of which Govt. land is 25.6547 ha and Private land is 586.4789 ha.Land will be required for quarrying an area of 197.0 ha of Private land and Government land including houses/hutment in Vangar village (17 No.s)& houses/hutments Madhiyavillage (7 No.s). The houses/hutment fall in the conceptual pits of the mine lease. There will be total of 494 land losers. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 24.0 Lakhs. In addition to above, the registration cost of sale of the land and homesteads shall be borne by the Company.

xiv. Court case details:

Court Case, No and its present status Undertaking by Project Proponent w.r.t court case	The Project Proponent has submitted an undertaking vide letter dated 07.10.2023 stating that there is no litigation on the project either at NGT or any other court of law related to environment and pollution matters in which the project proponent is a respondent.
Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted an undertaking by way of notarized Affidavit dated 09.10.2023 stating that the proposal does not involve violation of Ministry's OM dated 30.05.2018.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 04.01.2023 stating that the contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge of the undersigned (Shri Ashish Desai).
Undertaking by Consultant in EIA/EMP report	The Director of the EIA Consultant (M/s Centre for Envotech & Management Consultancy Pvt. Ltd) has informed that the baseline data was generated by MoEF &NABL Accredited Laboratory M/s Min Mec R&D Laboratory, a division of Min Mec Consultancy Pvt. Ltd., New Delhi and the same has been verified and also confirmed that he shall be fully accountable for any misleading information mentioned in this statement.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Pollution Control	0.241	9.54
Pollution monitoring	0.016	3.88
Occupational health	0.011	0.65
Environmental Studies, etc.	0.10	_
Green belt	_	5.10
Reclamation	_	11.39
Others (Environmental studies, Rehabilitation, Realignment, Expert advice, fencing etc.	_	5.28
Overheads	_	0.30
Total	0.3680	36.12

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	0.70
Project Cost	25
Employment (No.s)	58

3.6.3. Deliberations by the EAC in previous meetings

N/A

3.6.4. Deliberations by the EAC in current meetings

The EAC deliberated the instant proposal along withGujarda, Dudheri & Dudhala Limestone Mine and Padhiarka & Doliya Limestone mine. The Project Proponent has informed the EAC that the proposed method of mining is same in all three mines such as Vangar & Madhiya Limestone Mine, Gujarda, Dudheri & Dudhala Limestone Mine and Padhiarka and Doliya Limestone mine. NH-51 (Una-Mahuva highway) is passing within the mine lease area. A safety distance of 45m will be maintained. The underpass road has been proposed below Highway by NHAI for the safe passage of the villagers. The EAC asked the Project Proponent to explore the possibility of laying overbridge over the Highway. In the proposed 3rd pit, displacement will be taking place. Discrete houses are located within the mine lease area. The total mine lease area is 612.1336 ha, out of which Govt. land is 25.6547 haand Private land is 586.4789 ha. In this project, Pvt land is more than the previous project. There are 5 mine pits are proposed. Project Affected Families will be 494 no.s. In this project, a budget of Rs 34.0 Lakhs has been earmarked to address the concerns of the public hearing. The geological conditions, method of mining, environmental sensitivity and implications, impact on socio economic are similar in all these three mines.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the project is part of three contiguous projects namely Padhiarka and Doliya Limestone mine (332.24 ha), Vangar & Madhiya Limestone Mine (612.336 ha) and Gujarda, Dudheri & Dudhala Limestone Mine (681.62 ha) and together it extends over an area of 1626.196 ha. The mine lease area comprises of partly Private Agriculture land and partly Govt. land. NH-51 (Una-Mahuva highway) is passing within the mine lease area. Also, Vangar (0.25 km, NW) and Madhiya villages (0.25 km, SE) are located close to the proximity of the mine lease area. The EAC was not convinced with the proposed backfilling plan and the activities proposed under the Wildlife Conservation Plan. The EAC observed that the pits are isolated and the mine lease area is partly Private and Govt. land. The EAC also observed that there will be direct purchase or leasing of private land with the willing consent of the private land owners. The EAC was of the view that what if the land owners are not willing to give their land. There are likely chances that mining will not take place sequentially if the land acquisition does not happen. There will be failure of scientific mining. Large no. of Project Affected Families is involved in all these projects. The EAC opined that the Saltwater intrusion through surface or ground water sources may diminish the availability or quality of source waters for drinking water utilities. Some salt pans i.e., salt manufacturing industries and few wind mills exists in the study area. Old mine pits also exist within the mine lease area. The EAC noted that the Bhavnagar is categorized as a Severely Polluted Areas. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence"*. Accordingly, EAC opined that PP should obtain NOC from Ministry of Defence.

Thus the EAC opined that there is a need to ascertain the ground reality w.r.t natural low lying areas, water logging areas, old mine pits, sequence of mining, feasibility for backfilling, impact on socio economic, agriculture land, transportation route, traffic congestion, salt pans, effectiveness of salinity ingress control bund, proximity of habitations, schools, water bodies, roads etc., The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the

proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. Since the mine site is located within 20 km from seaboard frontier, the Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project.

iii. The Project Proponent needs to submit the action for laying common Over Land Belt Conveyor (OLBC) for transportation of mineral from mine lease area to the Cement Plant. The Project Proponent also needs to submit the action plan for expansion of road with a width of 7m and by passing the village road till the commission of the Over Land Belt Conveyor (OLBC).

iv. The Project Proponent needs to explore the possibility of laying overbridge over the Highway and shall submit the permission from the National Highways Authority of India (NHAI).

v. The Project Proponent needs to submit the protection measures to be taken for salt water intrusion and the effectiveness of the salinity ingress control bund.

vi. The Project Proponent needs to submit the site specific mitigation measures for backwaters from Arabian Sea coming into the mine lease area.

vii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

viii. The Project Proponent needs to revise the activities proposed under the Wildlife Conservation Plan. The Project Proponent also needs to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation.

ix. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit and justify the budget proposed for Resettlement & Rehabilitation (R&R). The Project Proponent also needs to submit the action plan for land acquisition and timeline.

x. The Project Proponent needs to submit the action plan for year wise exploration program.

xi. The Project Proponent needs to submit the copy of the permission letter obtained from the State Govt. for utilization of Chemical Grade of Limestone for non-cement purposes.

xii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Gujarat clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Nirma Limited or not?

3.6.5. Recommendation of EAC

Deferred for ADS

4. Any Other Item(s)

N/A

5. List of Attendees

Sr. No.	Name	Designation	Email ID	Remarks
1	Mr Pankaj Verma	Scientist E	pankaj.verma@nic.in	
2	Dr Dinesh Misra	IFS (Retired)	dmisra56@gmail.com	
3	Sh Niranjan Kumar Vasu	Member (EAC)	vasuifs@gmail.com	
4	Dr Asha Rajvanshi	Member (EAC)	asharajvanshi@gmail.com	
5	Shri Avijit Gosh	Member (EAC)	avijitmining@gmail.com	
6	Shri Bandi Ramchandra Reddy	Member (EAC)	reddyramchandra8858@gmail.com	
7	Prof Pramod Kumar	Member (EAC)	nita_pramod@yahoo.com	Absent
8	Prof Devesh Walia	Member (EAC)	devesh.eac@gmail.com	Absent
9	Dr Suresh Tiwari	Member (EAC)	smbtiwari@gmail.com	Absent
10	Dr K G Asha Manjari	Member (EAC)	kimberlite2016@gmail.com	
11	Prof Dev Dutt Sharma	Member (EAC)	ddshpu@gmail.com	Absent
12	Shri Mohammad Niyazi	Member (EAC)	dirsnt.dgms@gmail.com	
13	Mr V K Soni Representative of IMD	Member (EAC)	vijay.soni@imd.gov.in	Absent
14	Dr Y G Kale Representative of IBM	Member (EAC)	ygkale@ibm.gov.in	

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR
****

SUMMARY RECORD OF 21ST MEETING OF THE COMMITTEE OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF NON-COAL MINING PROJECTS CONSTITUTED UNDER THE EIA NOTIFICATION, 2006.

The 21st meeting of the Re-Constituted Expert Appraisal Committee (EAC) for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during 18-20 October, 2023 through video conference. The list of participants is annexed herewith. After login of the Committee Members through video conference link provided by NIC discussion on each of the Agenda Items was taken up ad-seriatim.

(1.0) Deliberation & Circulation on the Minutes of 20th EAC (Non-Coal Mining) meeting held during 21-22 September, 2023:

The minutes of the 20th EAC meeting held during 21-22 September, 2023 were placed before the members of the EAC.

Day 1: 18th October, 2023 (Wednesday)

1.1 Ravirala Limestone Mine of M/s The Ramco Cements Limited for mining of Limestone with production capacity of 0.115 MTPA (ROM), Topsoil-0.005 MTPA, Over Burden-0.211 MTPA (Total Excavation- 0.331 MTPA) in the mine lease area of 124.33 Ha,located at Sy. No. 20, 28, 38, 39, 41, 42, etc., of Ravirala village, Jaggayyapeta Mandal, NTR District, Andhra Pradesh – [F.No:- IA-J-11015/44/2022-IA-II(NCM), Proposal no: IA/AP/MIN/441553/2023; EIA Consultant: M/s. ABC Techno Labs India Private Limited] - Environmental Clearance (SOP Violation)

The instant proposal is for mining of Limestone in Ravirala Limestone Mine of M/s The Ramco Cements Limited with production capacity of 0.115 MTPA (ROM), Topsoil-0.005 MTPA, Over Burden-0.211 MTPA (Total Excavation- 0.331 MTPA) in the mine lease area of 124.33 Ha, located at Sy. No. 20, 28, 38, 39, 41, 42, etc., of Ravirala village, Jaggayyapeta Mandal, NTR District, Andhra Pradesh.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 16º49’30.77”N-16º50’21.60”N and Longitude: 80º06’03.85”E -80º07’26.85”E.The mine lease area falls under the Survey of India Toposheet No. 65 D/1 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at Schedule no. 1(a) Mining of Minerals of the schedule of the EIA Notification, 2006 and attracts the general conditions as the Interstate boundary of Andhra Pradesh-Telangana is located at a distance of 3.5 km, W from the mine lease area and falls under Category "A" and appraised at the Central level.

iii. Details of Terms of Reference: -

Date of application	File No/ Proposal No	Consideration by EAC	Details of ToR	Date of accord
28.11.2022	IA-J-11015/44/ 2022-IA-II(NCM) IA/AP/MIN/ 407914/2022	8th EAC meeting held on 28.12.2022	Terms of Reference under Ministry's SOP for identification and handling of violation cases under EIA, notification 2006 dated 07.07.2021 for mining of Limestone in Ravirala Limestone Mine of M/s. The Ramco Cements Limited with proposed production capacity of Limestone: 0.115 MTPA (ROM), Topsoil: 0.005 MTPA, Over Burden: 0.211 MTPA (Total excavation: 0.331 MTPA) in the mine lease area of 124.33 Ha, located at Ravirala Village, Jaggayyapeta Mandal, NTR District (earlier Krishna District), Andhra Pradesh for undertaking detailed EIA/EMP study	16.01.2023

iv. Details of Mine Lease:

a) The Project Proponent has submitted that initially mining lease was granted by the State Govt. vide G.O. Ms. No.59, Inds. & Com (M.III) Dept., dated 02.05.1997 for Limestone mine over an extent of 124.33 Hects in Sy.No.20,28,38,39,41,42 etc., of Ravirala Village, Jaggayyapet Mandal, Krishna District for a period of 20 years in favour of M/s. Madras Cements Ltd. The minelease deed was executed on 01.10.1997 and the lease wasvalid up to 30.09.2017.

b) Meanwhile, the mining lease was transferred by the State Govt. vide G.O. Ms.No.96dated 13.10.2015 from M/s. Madras Cements Ltd to M/s. The Ramco Cements Limited over an area of 124.33 Ha.

c) Thereafter, the Govt. of Andhra Pradesh have extended the validity of mine lease vide G.O. Ms. No. 60 Inds. & Com (M.III) Dept., dated 02.05.2017 for a period of 50 years w.e.f. 01.10.1997 to 30.09.2047 for Limestone over an extent of 124.33 Hects. The Supplementary lease deed for extension was also executed on 27.02.2019 between the Govt. of Andhra Pradesh and M/s The Ramco Cements Limited for the period upto 30.09.2047.

v. Land Use/Land Cover of the Mine Lease Area:

Private land	55.89 Ha own Patta Land 51.30 Ha Private Patta Land to be purchased
Government land	17.14 Ha (Leased to RCL)
Total Mining lease area (MLA)	124.33 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil
Additional information(if any)	There are now some agricultural activities taking place. At present, there is no mining activity in the ML area.There are mainly 5 Mining Blocks (1-5) in the granted Lease. Blocks 2, 3 & 5 are not feasible for mining due to proximity to Rivers Paleru& Krishna and encompassing the village habitation. Thus, RCL undertakes to carry out mining activity in balance area of 88.93 Ha in Blocks 1 & 4 and mining activity only over an extent of 67.29 Ha (Block-1) out of 124.33 Ha.

vi. Details of Mine Plan:

Review of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines, Hyderabad	Letter No.	AP/KSN/MP/Lst-2A/Hyd
	Dated	03.12.2021
	Mine lease area	124.33 Ha
	Mineral	Limestone
	Validity	2022-23 to 2026-27
Mining Parameters	Quantitative Description	
Method of Mining	Conventional fully Mechanized Open-Cast Mining method with Controlled Drilling and Blasting	
Drilling/Blasting	Wet drills and controlled blasting will be undertaken.	
Geological Reserves	33.519 Million Tonnes	
Mineable Reserves	13.196 Million Tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone-0.115 MTPA (ROM) Topsoil-0.005 MTPA, Over Burden-0.211 MTPA Total Excavation- 0.331 MTPA	
Life of mine	26 years	

Mine Bench Height & Bench Width	Bench Height 8 m in OB & 9 m in Mineral Band Bench Width >10 m
No. of Mine Benches	4 (during Plan Period)
Existing Depth, m bgl	0
Individual bench slope	72º
Overall pit slope	45º
Ultimate Depth of Mining, m bgl	82 m BGL (-45 m RL)
Ground Water Table, m bgl	26
Details of ground water intersection	Mining activities will intersect the ground water-table at 26 m BGL
RoM output size	300-500 mm
Details of existing/ proposed Crusher	No Crusher is proposed in the Lease as existing Crushers are at the Cement Plant
Mineral Beneficiation	Nil
Transportation details including capacity of dumper/tipper, mode of transport and distance	By 25 Tons Tippers. From RLMR Lease, limestone transportation will be done through SH-220 (Jaggayyapeta-Vedadri Road) for a distance of 1.25 km, thereafter through RCL's own Haulage Road by just crossing the road and SH-214 (Chillakallu-Vedadri Road) to reach the Crusher in the Plant. There is no possibility of having conveyor (OLBC) for mineral transportation due to existence of reserve forest (in 3 sides) and settlements (in one side).
Generation of Topsoil/OB & its Management during plan period & conceptual period	About 14,064 cu. m Top soil will be removed and fully utilised for green belt along the peripheries, thus, no Top soil dump in the lease. About 3,51,254 cu.m of OB waste will be removed during ROMP Period. From 2027-28 to 2047-48 (upto the lease period), a quantity of 2.1 Million Tonnes of ROM ore and a quantity of 0.45 Million cu.m of waste (Phyllite and Interstitial Clay) will be generated. Thus, OB of 0.8 MCm will be accommodated in the temporary dump yards, over an extent of 7.63 Ha with maximum height of 20 m, in south-eastern parts of Block-1, very well away from the Flood Zones. Back filling will not be initiated as mineral existing at bottom.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	No Mineral Rejects/ Wastes is anticipated.

vii. Water requirement:

Total water requirement	20 KLD		Domestic Consumption	5.0 KLD
	Fresh water	-	Green Belt	10.0 KLD
	Treated water	20.0 KLD	Dust Control	5.0 KLD

Source	The rain water collected in the mine pit will be utilised to meet the water requirement. Initially the water requirement will be met from existing captive mines through Tankers.
Permission	The Project Proponent has submitted the Permission/NOC from the APWALTA (Ground Water Department) vide File No. PRR05-11028/45/2018-SLNA-GIS-CORD dated 13.11.2021 for dewatering of 12,365 KLD of Mine seepage water for carrying out mining operations from 4 lime stone mines and for utilization of 7,000 KLD of dewatered Mine Seepage Water for Cement plant, Coal based Captive Thermal Power plant, Waste Heat Recover Boilers, Colony and associated 5 Nos. of Captive Limestone Mines located at Jayanthipuram Village, Jaggayyapeta Mandal, Krishna District, Andhra Pradesh. This NOC is valid for three years from the date of issue of this letter. On its Renewal, NOC for this Mine dewatering &utilisation will also be obtained.

viii. Nearest village / town/ highway/railway station / water bodies/monument:

Particulars	Particular's Name	Distance &Direction
Nearest Village	RaviralaTanda Ravirala Village	SW of Block-4 SW
Nearest Town	Jaggayyapeta	5.2 km, NW
Nearest Highway	NH-65 Hyderabad-Vijayawada Section	6.5 km, NNE
Nearest railway station	Bonakalu	28.5 km, NE
Water body	River Paleru River Krishna	Adjacent in West Adjacent in South
Pilgrimage Centre	Vedadri Temple	1.4 km, SE

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter/Remarks
Forest Land	No	No forest land is involved in the Lease-DFO,

		Krishna Division, Vijayawada Letter Rc. No. 1160/2019/TO dated 20.12.2019. There are 8 Reserved Forests falling fully/partly within 10 km radius area are: i. Jaggayyapeta Extension RF (0.1 km in East& North) ii. Jaggayyapeta RF (3.0 km; SE) iii. Kuntimaddi RF Part (1.9 km; S) iv. Ginjupalli RF (2.4 km; S) v. Venkatayapalem Extension-1 RF (4.0 km; S) vi. Chintalapalem RF (9.5 km; SW) vii. Budawada RF (1.6 km; WNW) viii. Ballusupadu RF (8.5 km; NW)
National Park	Nil	The District Forest Officer, NTR Division, Vijayawada vide Letter Rc. No. 1752/2023/ TO dated 19.09.2023 stated that there are no National Park, WLS, ESA/ESZ located within 10 km radius of Ravirala Limestone Mine (Revenue).
Wildlife Sanctuary	Nil	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area(ESA)	Nil	
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	No	The District Forest Officer, NTR Division, Vijayawada vide Letter Rc. No.1091/2023/TO dated 20.06.2023 has provided the authenticated list of Flora and Fauna and informed that there are no Schedule-I species in core/buffer zone of 10 km radius of Ravirala Limestone Mine (Revenue).
Wildlife Conservation Plan	NA	-

ix. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	2.80 Ha Only native tree species of 7,000 no.s. will be planted @ 2,500 Trees/Ha and maintained.
Budget for green plant & plantation till the end of life of mine.	Rs 5.00 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	85-90%.
No. of tree cuts in the mine lease area and compensatory afforestation	Nil
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	1.3
50 m safety zone of nallah, roads, electric lines	0.4
500 m safety zones of nearest habitation villages	1.1

x. Baseline data details:

<table>
<tr><td colspan="2">Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)</td></tr>
<tr><td>Period of baseline data collection</td><td>December 2022-February 2023</td></tr>
<tr><td>Season (Summer / Pre-monsoon / Post-monsoon / Winter)</td><td>Winter 2022-23 Season</td></tr>
<tr><td>Predominant Wind direction (From)</td><td>NE & SSE directions during the season</td></tr>
<tr><td>Ambient Air Quality (no. of locations) and results</td><td>10 Locations.
Result summary:
PM_{10}: 16 μg/m^3- 71.0 μg/m^3
$PM_{2.5}$: 10.0 μg/m^3- 45.0 μg/m^3
SO_2: 6.0 μg/m^3 - 22.0 μg/m^3
NO_2: 6.0 μg/m^3- 27.0 μg/m^3</td></tr>
<tr><td>Noise level (no. of locations) and results</td><td>10 Locations
Day Time (Lday) noise level:
40.1 dB (A) - 48.9 dB (A)
Night Time (Lnight) noise level:
38.7 dB (A) - 44.7 dB (A).</td></tr>
<tr><td>Water Quality (no. of locations) and results</td><td>
<table>
<tr><td>Parameters</td><td>Surface water (8 locations)</td><td>Ground water (10 locations)</td></tr>
<tr><td>pH at 25°C</td><td>7.36-7.84</td><td>7.54-7.92</td></tr>
<tr><td>Total Dissolved Solids, mg/l</td><td>200-380</td><td>330-580</td></tr>
<tr><td>Chloride as Cl-, mg/l</td><td>54-96</td><td>74-136</td></tr>
<tr><td>Total Hardness, mg/l</td><td>85-170</td><td>130-230</td></tr>
<tr><td>DO, mg/l</td><td>4.2-5.9</td><td>-</td></tr>
<tr><td>BOD, mg/l</td><td><2</td><td>-</td></tr>
<tr><td>COD, mg/l</td><td>3-16</td><td>-</td></tr>
</table>
</td></tr>
<tr><td>Soil Quality (no. of locations) and results: 6 Locations</td><td>
<table>
<tr><td>Parameters</td><td>Observed Values</td></tr>
<tr><td>pH</td><td>7.68-7.82</td></tr>
<tr><td>Electrical Conductivity (mmhos/cm)</td><td>1.18-1.36</td></tr>
<tr><td>Organic Carbon (%)</td><td>0.81-1.10</td></tr>
<tr><td>Sodium Absorption Ratio</td><td>1.91-2.95</td></tr>
</table>
</td></tr>
<tr><td>Hydro geological study and results</td><td>RCL has engaged the ‘College of Engineering Kakinada (Autonomous) Campus’ of Jawaharlal Nehru Technological University Kakinada (JNTUK) for the detailed Hydrogeological Study. Officials of M/s. Thrust Geo-Consultants Private Limited, an Accredited Ground Water Professionals for ‘Hydrogeological Report for Mining Projects’ by Central Ground Water Authority (CGWA) – with Certificate No. CGWA/RGI/019 dated 01.10.2021 with validity upto30.09.2026 are also involved in the Study & Report.
Monitored Ground Water-table Levels were found to be from 3.10 m BGL (ML Area) to 11.22 m BGL</td></tr>
</table>

	(KauthwariAgraharam). The groundwater flow direction towards Northeast from Southwest. The Water-table in the Mines vicinity was recorded as 26 m BGL in Post-monsoon Period and 40 m BGL in Premonsoon Period. According to Ground water resource estimation, the Stage of Development of Jaggayyapeta basin as well as Jayanthipuram village is in 'SAFE' Category. A yield test and Pumping Test were performed during 24-26.02.2023. As a counter check Recuperation Test was also conducted for determining the Aquifer Parameter T (Transmissivity given by kb, b being the thickness of the aquifer). The thickness of the aquifer is 50 m. Transmissivity "T" - 6.10 m^2/hr (or) 146.4 m^2 /day Permeability "K"- 2.93 m/day Seepage is likely to take place only from the 4th bench onwards in the last 6 m depth of this bench. Using Darcy's equation, corresponding to Saturated Bench, discharge will be 1186.84 KLD and The maximum Radius of Influence is 204.49 m (205 m) for the case of saturated bench. Hence, it is concluded that the mining activity in the proposed Mine Pit area of Ravirala Revenue Mine will not result in lowering of groundwater levels in the wells outside the leased area.
Traffic study (no. of locations) and results	1 Location For assessing the baseline status, the Traffic Survey based on Indian Road Congress-IRC: 64 & 106 Norms at RLMR Haul Road-Vedadri Road Junction, was carried out during a Week day (Wednesday; 15.02.2023) and also during the Week end (Sunday; 19.02.2023). Based on the Survey, the existing Traffic Volume in the vicinity was found to be 206.6 PCU/day @ 8.61 PCU/hr. In the Post-Project Scenario, there will be an addition of 30 Tippers in 2-ways to the existing traffic in the Mine vicinity. Cumulatively, the traffic volume in the Project vicinity will be 296.5 PCU/day @ 12.35 PCU/hr. The net increase (cumulative) will be 89.9 PCU/day @ 3.75 only PCU/hr. Level of Service (LOS) will be '0-0.2 (A). The existing Roads/Haul Roads are adequate to handle the proposed traffic volume due to the Project.

xi. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	APPCB, Vijayawada had given the Public Hearing Advertisements for the Project on 06.07.2023 in the English Newspaper 'The Hindu' with a Corrigendum and the local vernacular (Telugu) Newspaper 'Saakshi'.
Date of PH	08.08.2023
Venue	Project Site
Chaired by	District Collector & Magistrate, NTR District
Main issues raised during PH	The main issues raised in the Public Hearing are: employment to local people, skill development, ground water table depletion, water quality, land cost, cracks due to blasting, air pollution & health issues, more medical camps, flood mitigation, green belt & avenue plantations, additional CSR funds, DMF fund utilisation, village infrastructure development, etc.
Budget proposed for addressing issues raised during PH over 3 years	A Budget of Rs.37.00 Lakhs (Rs.24.00 Lakhs for 1st Year & Rs.13.00 Lakhs for 2nd Year implementation) is allotted for executing the Physical Activities as per MoEF&CC OM dated 30.09.2020

xii. Details of CTE/CTO, Certified Compliance Report, Certified Production Details from the inception of the mine:

Particulars	Details of Letter along with date of grant and validity
Consent to Establish	To be obtained after EC
Consent to Operate	To be obtained after EC
Certified Compliance Report and Inspection date	Not Applicable
Certified Production Details from the inception of the mine (in tabular form against the EC capacity)	The Certification for Production & Dispatch since commissioning of the mine lease from 1997-98 to 2018-19 has been certified by the Assistant Director of Mines and Geology, Nandigama vide Letter No. 77/M/2008 dated 22.08.2019. Limestone production quantity from 1993-94 to till date was 4,099 Tonnes only with the highest production of 1,622 TPA during 2001-02 as stated in AD (M&G) Certification. Also, there was no production after 2019-20 to till date.
Details of Violation	The Project Proponent submitted that the mine was opened on 31.12.1997. The Surface Outcrop Excavation (leveling works) was done occasionally during the period from 1998-99 to 2002-03. During the excavation and leveling, there was production of Limestone of about 4,099 Tonnes in 4 years (with a maximum production of

	1,622 Tonnes/Annum during 2001-02) and Dispatched 3,892 Tonnes. For the excavated quantity, Royalty and other applicable taxes were paid to the Department of Mines & Geology, Government of Andhra Pradesh. Thereafter, the entire mining activities were stopped. Actually, there was no Mining Pit made in the Mining Lease area during the Outcrop Excavation period. The imposition of Penalty (compensation amount) under Sec 21(5) of the MMDR Act, as per the judgment of the Hon'ble Supreme Court of India against WP (Civil) No. 114 of 2017 between Common Cause vs Union of India, for an amount of Rs.2,22,125/- (100% of the price of the Mineral) was also paid to the Asst. Director (Mines & Geology), Nandigama on the Demand vide Challan Transaction ID No.30061839632019 dated.08.08.2019. The Project Proponent has submitted the letter issued by the Dept. of Mines and Geology vide letter no. 77/M/2008, dated 24.08.2019 stating that "M/s. The Ramco Cements Limited has paid an amount of Rs. 2.22.125/- (Rupees two lakh twenty two thousand one hundred and twenty five only) vide challan No.30061839632019 dated.08.08.2019. The M/s. Ramco Cements Limited has paid the penalty for complying the Section 21(5) of MMDR Act for the Limestone excavated during the period 2000-2001 to 2002-2003. The Lessee already paid the Royalty and other taxes for dispatches quantity during the period 1999 to 2002-03. Finally, it is to submit M/s. Ramco Cements Limited Mining Lease is in force and valid up to 30.09.2047. The lessee is paying Annual dead rent regularly".

xiii. Ecological Damage Assessment, Natural Resource and Community Resource Augmentation Plan: -

The Project Proponent has submitted that the total budgetary provision with respect to Remediation Plan and Natural & Community Resource Augmentation Plan is Rs.6.00 Lakhs. The Project Proponent shall be required to submit a Bank Guarantee of an amount of Rs.6.00 Lakhs in favour of APPCB prior to the grant of EC. The Remediation Plan shall be completed in 2 years whereas Bank Guarantee shall be for 5 years. The Bank Guarantee shall be released after successful implementation of the Remediation Plan and Natural and Community Resource Augmentation Plan and after the recommendation by the Regional

Office of the Ministry. The breakup of the Ecological Damage Assessment, Natural Resource and Community Resource Augmentation Plan are as follows:-

a) Ecological Damage Remediation Plan

S. No	Environmental Component	Remediation Plan / Activity Description	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
			I Year	II Year	
1	Air Quality & Ecology	Greenbelt by planting 500 trees in ML Area facing Ravirala Village @ Rs.400 per tree including its maintenance	1.0	1.0	2.0
2	Socio-economics & Public Health	Community/Public Buildings Maintenance and Conducting Medical Camps	1.0	1.0	2.0
	Total	-	2.0	2.0	4.0

b) Natural Resource Augmentation Plan: -

S. No	Activity proposed	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
		I Year	II Year	
1	Providing 4 Nos. Solar Street Lights to Ravirala Village @ Rs.20,000/- per Light, 2 per Year	0.40	0.40	0.80
	Total	0.40	0.40	0.80

c) Community Resource Augmentation Plan: -

S. No	Activity proposed	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
		I Year	II Year	
1	Providing Furniture's to Ravirala School	0.30	0.30	0.60
2	Providing Medical Equipment's to. Sub-Primary Health Centre, Ravirala	0.30	0.30	0.60
	Total	0.60	0.60	1.20

d) Summary of Ecological Damage Remediation, Natural & Community Resource Augmentation Plan: -

S. No	Activity proposed	Budgetary Provision, Rs. Lakhs		Total, Rs Lakhs
		I Year	II Year	
1	Cost of Damage Remediation Plan	2.0	2.0	4.0
2	Natural Resource Augmentation Plan	0.40	0.40	0.80
3	Community Resource Augmentation Plan	0.60	0.60	1.20
	Total	3.0	3.0	6.0

xiv. Penalty provisions as per SOP dated 07.07.2021:

a) The Project Proponent has submitted that the Project cost is Rs.6.0 Crores. The Penalty Provision for new Projects where operation has not commenced is 1% of Project Cost i.e. Rs.6,00,000/- has been earmarked to compensate the damage caused to the environment (in addition to the remedial Plan measures).

xv. Rehabilitation & Resettlement (R&R):

R & R details	No R & R is involved in this project.

xvi. Court case details:

Court Case, No and its present status	The Project Proponent has submitted that as directed by MoEF&CC, a case was filed by APPCB against the Project Proponent, M/s. The Ramco Cements Limited under Section 19 of E(P) Act, 1986 in the Hon'ble Court of Addl. Junior Civil Judge, Jaggaiahpet as CC No. 510/2023. The Hon'ble Court has sentenced the Project Proponent to pay a fine of Rs. 50,000/- and disposed off the case on 23.07.2023. Project Proponent has remitted the fine amount of Rs.50,000/- to the Hon'ble Court on 23.07.2023.

xvii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted the Affidavit in a non-judicial stamp of Rs 100 bearing no: CW 037909 dated 30.12.2022 stating that the company will comply with all the statutory requirement & judgment of Hon'ble Supreme Court dated 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted a declaration vide letter dated 25.05.2023 stating that the Environmental Impact Assessment (EIA) Report and Summary Environmental Impact Assessment Reports (English & Telugu) have been prepared in compliance with the awarded TORs and as per the generic structure proposed in EIA Notification 2006 and submitted. The data submitted in the EIA Report are factually correct.
Undertaking by Consultant in EIA/EMP report	The EIA Consultant (M/s. ABC Techno Labs India Private Limited) has submitted a declaration vide letter dated 25.05.2023 stating that the Environmental Impact Assessment (EIA) Report and Summary Environmental

	Impact Assessment Reports (English & Telugu) have been prepared in compliance with the awarded TORs and as per the generic structure proposed in EIA Notification 2006 and submitted. The data submitted in the EIA Report are factually correct.
Plagiarism checked on 18.08.2023	The Head of the Accredited Consultant Organization certified that this EIA Report has been evaluated by using online software viz. Plagiarism Checker (https://plagiarismchecker.co). The report has been analysed by the system and based on it, I certify that the EIA Report produced in accordance with good scientific practice.

xviii. Details of the Environmental Management Plan (EMP):

EMP – Capital Cost		
S. No	Description	Cost, Rs
1	Mobile Water Sprinkler for Dust Suppression	20,00,000
2	Green Belt Development & Maintenance @ Rs.50,000/yr for 15 Years	7,50,000
	Total	27,50,000
EMP - Operating Cost		
S. No	Description	Operating Cost/Annum (Rs)
I	Greenery	
1	Gardeners & Security (12 persons)	12,00,000
II	Environmental Status	
1	Operation and maintenance of Ambient Air Quality Monitoring Station	3,00,000
2	Water Sprinkling for Dust Suppression	5,00,000
3	Environmental & Vibration Survey Works	2,00,000
	Total	22,00,000

xix. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	(0.2750 + 0.3700=) 0.6450
Project Cost	6.0
Employment (No.s)	19 persons directly and 20 persons indirectly

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that River Paleru is located adjacent to the mine lease area on western side and it continues with River Krishna

which is flowing on the southern side adjacent to the mine lease area. There are two villages such as RaviralaTanda and Ravirala are located within the mine lease area and hence the safety zone of 300m will be maintained as no mining zone. The mine lease area consists of 5 blocks. Blocks 2, 3 & 5 are not feasible for mining due to proximity of Rivers Paleru & Krishna and encompassing the village habitation. Mining activity is proposed to be carried out over an area of 67.29 Ha in Block-1 and during the present mining plan period, mining activity will be carried out in northern side over an area of 21.82 ha. The EAC asked the Project Proponent to show the area where the illegal mining has been taken place. The Project Proponent has informed the EAC that only surface outcrop excavation was done in the northern side of the lease area which is approximately less than 1 ha and no mine pit was created. Excavation works were done only for 10 days during the period from 1998-99 to 2002-03with a maximum production of 1,622 tonnes/annum during 2001-02.

The EAC asked the Project Proponent to brief about the protection measures being taken and to be taken for Rivers Paleru & Krishna due to mining activity. A detailed study has been carried out by 'College of Engineering Kakinada (Autonomous) Campus' of Jawaharlal Nehru Technological University Kakinada (JNTUK) for bund formation and surface drain management. As recommended, a protective bund of 642 m is proposed to be constructed using soft clay material. The top of the protective bund will be kept at +43.50 m with a freeboard of about 50 cm. Three garland drains are suggested for conveying the surface runoff estimated with a bed width of 1.5 m and a depth of 1 m (depth of flow being 0.8 m and a freeboard of 20 cm). All the drains are to be culminated in to one of the three settling tanks (ST1, ST2 and ST3) each of size 15 x 15 x 5 m. Thus, there will not be any flooding of the Lease from nearby Rivers and the Surface Runoffs and Seepage waters will be effectively controlled. The mined out material will be transported to the crusher in the cement plant by road which is located at a distance of 6.0 km from the mine lease area. Since the mine lease area is surrounded by reserve forest on three sides, there will be no possibility of having conveyor (OLBC) for mineral transportation. Transportation activity will be taking place in the northern side of the mine lease area to the cement plant and there will be no cumulative impact due to transportation. About 1.25 km of Major District Road will be used for transportation and thereafter own road will be used to reach the crusher in the cement plant.

The EAC on viewing the KML file observed that the mine lease area is located in the junction of two rivers and surrounded by reserve forests and opined that the mining activity will have impact on river dynamics, mine inundation and biological environment. The EAC asked about the list of schedule-I species found in the study area. The Project Proponent has informed the EAC that the District Forest Officer, NTR Division, Vijayawada vide letter dated 20.06.2023 has stated that there are no Schedule-I species in core/buffer zone of 10 km radius of Ravirala Limestone Mine (Revenue). The Project Proponent also informed the EAC that no Eco Sensitive Areas located within 10km radius of the mine lease area. The EAC asked the Project Proponent to resubmit the list of authenticated flora and fauna in reference to the

Wild Life (Protection) Amendment Act, 2022 by clearly indicating the type and category of Schedule-I species and accordingly the Project Proponent shall submit the proof of the submission of the Wildlife Conservation Plan if applicable. The Project Proponent informed that they will resubmit the list in consultation with the Forest Department. The EAC asked about the location of the OB/waste dump. The Project Proponent has informed the EAC that earlier OB/waste dump was proposed in the western side of the lease area and now it is proposed in the south eastern side of the mine lease area.

The Project Proponent informed the EAC that the mine lease is valid up to 30.09.2047. The Cement Plant is being operated for 4.685 MTPA clinker and 3.650 MTPA Cement of various grades. Limestone requirement of the plant is being met from the five captive limestone mines in this region. Centralized crushers are located at the plant. No mineral beneficiation is involved in the proposal. The topsoil will be used for development of greenbelt/plantation and OB will be temporarily dumped in the south eastern part of the mine lease area over an area of 7.63 ha and maximum height will be 20m and will be used for backfilling as well as for creating protection bunds. Mining activity is proposed to be carried out in Block-1 over an area of 67.29 ha out of which 39.41 ha is in possession with the Project Proponent. Also, during five years mining plan period, mining activity will be carried out in northern side over an area of 21.82 ha which is also in possession with the Project Proponent and no purchase of land will be required for mining.

The Project Proponent has informed the EAC that the mining activities will intersect the ground water table at 26m bgl. Land Use plan for the conceptual stage will be reviewed during the next plan period. The EAC opined that the Project Proponent needs to submit the land use land cover analysis for pre mining, post violation, post mining and at conceptual stage. The EAC also asked the Project Proponent to submit the year wise land required for mining over the life of the mine. The Project Proponent has informed the EAC that the water requirement will be 20.0 KLD and will be met from existing captive mines through tankers till the mine pit is created. The EAC asked the Project Proponent to submit the timeline specifically that till which year water will be utilized from existing captive mines and from which year water will be utilized from this instant mine. The EAC opined that the water for dust suppression of 5.0 KLD is very less. The Project Proponent has informed the EAC that since water from other mines are being utilized; water for dust suppression is less. The EAC asked the Project Proponent about the existing traffic in the road. The Project Proponent has informed the EAC that existing traffic load is 206 PCU/day. Additionally, 30 no.s (to and fro) of tippers will be added to the traffic movement. The cumulative will be 89.9 PCU/day and the existing haul roads are adequate to handle the proposed traffic volume. The EAC asked the Project Proponent to revise the scenario of the traffic over the period of 10 years.

The Project Proponent has informed the EAC that the plan for Greenbelt development has been updated and now it is proposed to develop greenbelt over an

area of 13.487 ha with total a 33,718 no. of saplings. The EAC observed that the percentage of greenbelt coverage is 20.0% only and hence the EAC asked the Project Proponent to revisit the greenbelt/plantation plan so as to cover 33% of the area. Baseline data was carried out during Winter Season i.e., December 2022-February 2023. Predominant wind direction was from NE & SSE. The EAC asked about the difference of the High flood level of the river and the mine lease area. The Project Proponent has informed the EAC that the HFL of the Krishna River is + 36.90 m (say +37.0 m). The average ground level in the area is +41.80 m. The maximum HFL of this area during 2009 flood was noted as +41.98 m and the lowest ground level of the Lease Area is +35.0 m. Thus, certain area is below the inundation level of +41.98 m and it is obligatory to protect those areas with the protective bund. The EAC asked the Project Proponent to ensure that the height of the bund shall be about minimum of about 5m height from the highest flood level and also in line with the Metalliferous Mines Regulations, 1961 and its amendments therein. The EAC also asked the Project Proponent to submit the cross section of the bund with slope both on upstream and downstream side and protection measures on the upstream side.

The Project Proponent has informed the EAC that a budget of Rs 37.0 Lakhs has been earmarked to address the concerns of the public hearing. The EAC noted that the proposed action plan to address the concerns of the public hearing is generalized. The EAC asked the Project Proponent to revise the action plan to address the concerns of the public hearing in a more specific manner by detailing the specific activities proposed under each component in a more specific and monitorable manner and also to include the recurring cost for the same. The Project Proponent has also informed the EACthat a case was filed by APPCB against the Project Proponent under Section 19 of E(P) Act, 1986 in the Hon'ble Court of Addl. Junior Civil Judge, Jaggaiahpet as CC No. 510/2023. The Hon'ble Court has sentenced the Project Proponent to pay a fine of Rs. 50,000/- and disposed off the case on 23.07.2023. Project Proponent has remitted the fine amount of Rs.50,000/- to the Hon'ble Court on 23.07.2023.The EAC asked the Project Proponent to submit the exact area on which the illegal mining has been carried out. The EAC also asked the Project Proponent to include the no. of man days of utilization, equipment's utilized, quantity of domestic water consumption, quantity of waste generation and its handling and management and details of non-provision of garland drain, impact on biological environment, non-provision of green belt and pro rata compensation for greenbelt development and details of occupational health provided to employees. Accordingly, the EAC asked the Project Proponent to rework out the damage assessment and penalty provisions as per SOP dated 07.07.2021. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the exact area on which the illegal mining has been carried out and also to submit the map showing the same.

ii. The Project Proponent needs to include the no. of man days of utilization, equipment's utilized, quantity of domestic water consumption, quantity of waste generation and its handling and management and details of non-provision of garland drain, impact on biological environment, non-provision of green belt and pro rata compensation for greenbelt development by avoidance cost method and details of occupational health provided to employees for the violation period (1998-99 to 2002-03) and needs to rework out the damage assessment. The Cost saved if any shall be considered under Environmental Compensation Charges.

iii. The Project Proponent needs to include the 0.25 % of the turnover as per penalty provisions of SOP dated 07.07.2021.

iv. The Project Proponent needs to submit the land use land cover analysis for pre mining, post violation, post mining and at conceptual stage.

v. The Project Proponent needs to submit the year wise land required for mining over the life of the mine.

vi. The Project Proponent needs to submit the action plan for the bund proposed for protection against mine inundation that should be lined with proper stone pitching on the U/S side as protection against erosion and abetted by three tier plantation all along the GD and settling tank/pond as proposed. The Project Proponent also needs to submit the action plan for proper alarm/warning system that shall be in place against flood warning asper DGMS. Accordingly, the Project Proponent needs to revise the EMP budget.

vii. The Project Proponent needs to ensure that the height of the bund shall be about minimum of about 5m height from the highest flood level and also in line with the Metalliferous Mines Regulations, 1961 and its amendments therein. The Project Proponent needs to submit the cross section of the bund with slope both on upstream and downstream side and protection measures on the upstream side.

viii. The Project Proponent needs to resubmit the list of authenticated flora and fauna in reference to the Wild Life (Protection) Amendment Act, 2022 by clearly indicating the type and category of Schedule-I species and accordingly the Project Proponent shall submit the proof of the submission of the Wildlife Conservation Plan if applicable.

ix. The Project Proponent needs to revise the scenario of the traffic over the period of 10 years and shall submit the Level of Service as per IRC Guidelines.

x. The Project Proponent needs to revise the action plan to address the concerns of the public hearing in a more specific manner by detailing the specific activities

proposed under each component in a more specific and monitorable manner and also to include the recurring cost for the same.

xi. The Project Proponent needs to revisit the greenbelt/plantation plan so as to cover 33% of the total area.

xii. The Project Proponent needs to submit the timeline specifically mentioning that till which year water will be utilized from existing captive mines and from which year water will be utilized from this instant mine.

xiii. The Project Proponent needs to submit the measures to be taken for protection of unpurchased lands. The Project Proponent also needs to submit the possession certificate from the concerned Dept/State Govt.

1.2 Lakheri Limestone Mine of M/s. ACC Ltd with Limestone Production Capacity of 1.5 Million TPA and OB Waste: 1.96 Million TPA with Total Excavation: 3.46 MTPA along with existing wobbler & screening plant of 400 TPH in the mine lease area of 1,308.88 ha [Forest land having Stage-II FC: 201.88 ha + Non-Forest land: 1107 ha] out of 1516.88 Ha, located at Villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lakheri, Sakhoda, Nayagaon&Papadi, Tehsil: Indergarh, District: Bundi, Rajasthan -[F.No: J-11015/167/2018-IA.II(M), Proposal No: IA/RJ/MIN/426653/2023; EIA Consultant: M/s J.M. EnviroNetPvt. Ltd.] - Revalidation of EC under MoEF&CC Notification S.O 1530(E) dated 6th April, 2018

The instant proposal is for revalidation of EC under MoEF&CC Notification S.O 1530(E) dated 6thApril, 2018 of M/s. ACC Ltd for mining of Limestone with Limestone Production Capacity of 1.5 Million TPA and OB Waste: 1.96 Million TPA with Total Excavation: 3.46 MTPA along with existing wobbler & screening plant of 400 TPH in the mine lease area of 1,308.88 ha [Forest land having Stage-II FC: 201.88 ha + Non-Forest land: 1107 ha] out of 1516.88 Ha, located at Villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lakheri, Sakhoda, Nayagaon&Papadi, Tehsil: Indergarh, District: Bundi, Rajasthan.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 25º31’54.6”N to 25º39’39’’ N and Longitude: 75º56’46.4’’E to 76º15’27.2”E. The mine lease area falls under the Survey of India Toposheet No: 45 O/14 & 54 C/2and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and accordingly, appraised at the Central level.

iii. The instant proposal was earlier considered in the 14th EAC (Non-Coal Mining) meeting held during 3-4 May, 2023 wherein the EAC deferred the proposal. Then, the Project Proponent submitted the information on 05.06.2023 and 25.07.2023 in Parivesh portal. Accordingly, the proposal was reconsidered in the 19th EAC (Non-Coal Mining) meeting held during 24-25 August, 2023 wherein the EAC deferred the proposal for want of requisite information. Then, the Project Proponent submitted the information on 30.09.2023 in Parivesh portal and accordingly the proposal was again reconsidered in the 21st EAC (Non-Coal Mining) meeting held during 18-20 October, 2023.

Based on observation of EAC in its EAC meeting held during 24-25 August, 2023 and compliance of observation of EAC made by Project Proponent are detailed below:

S. No	Observation of EAC in its meeting held during 24-25 August, 2023	Reply by Project Proponent
1	The EAC opined that the due to the close proximity of Chambal Gharial Sanctuary, Ramgarh Vishdhari Tiger Reserve and Ranthambhore Tiger Reserve, the Ministry may seek comments from the Wildlife Division whether any protected areas are located in the buffer zone of the Tiger Reserve/Wildlife Sanctuary and also to seek clarification that whether the NBWL recommendations has been obtained for each of them or not in reference to the minutes of 32nd meeting of SCNBWL dated 21.01.2015 and minutes of 45th meeting of the Standing Committee of NBWL held on 4th September 2017. Project Proponent	The Wildlife Division on 22.09.2023 has gave the following comments as given below: - 1. The total mining lease area is 1516.88 ha out of which 1107 ha is a non-forest and 409.882 is a forest land. The matter was initially discussed in 31st meeting of SCBNWL held on 12.08.2014. During the meeting of SCNBWL recommended for 1107 ha forest area of the mining lease. 2. NOC has been accorded by the Chief Wildlife Warden Rajasthan vide letter dated 3.12.2014. 3. In 32nd meeting of NBWL held on 21.01.2015, remaining 409.88 ha of forest area including 208 ha diverted forest area and 201.88 ha non-diverted forest area of total mining lease wildlife clearance was granted by the NBWL. 4. By the order of NBWL in its 45th meeting dated 04.09.2017 and NTCA meeting dated 04.09.2017, an area of 409.88 ha of forest land of ACC mining lease is denotified from RTR notified area by the Rajasthan Government order dated 26.05.2022. 5. Further, it was informed by the DCF, RVTR Bundi vide letter dated 4.07.2023 that an

	informed that they are yet to receive the formal letter for NBWL clearance as recommended in the aforesaid minutes dated 21.01.2015. Since, the Project Proponent is undertaking the mining without obtaining the formal letter, the wildlife division of the Ministry may clarify whether this tantamount to violation or not. The Ministry may also seek clarification from wildlife Division whether Project Proponent needs to obtain the NBWL clearance for Ranthambore Tiger Reserve, since the sanctuary is located at a distance of 9.36 km from the mine site.	Inspection committee made by NGT in its inspection report stated that there is no mining activity carried out by ACC in forest area of 409.88 ha and mining activities was carried out in only two pit viz P-3 and sakhoda which are located in the non-forest area, but within the allotted lease area. So before commencement of any mining activity in 409.88 ha forest area, the NoC from the State Government may be obtained. The Project Proponent also submitted the following facts as given below: - 1. On 12-13.08.2014, SCNBWL in its 31st meeting recommended wildlife clearance for an area of 1107 ha of revenue/ non-forest area of mining lease. 2. Subsequently, NOC had been accorded by CWLW on dated 03.12.2014 regarding proposal of non-forest project within 10 km of national Park and Sanctuaries. 3. On 21.01.2015 Wildlife Clearance was recommended by NBWL in its 32nd meeting, committee observed that forest area of 409.88 ha was inadvertently missed out in 31st meeting. It was also stated by NBWL that this permission will be deemed once the recommendation of SBWL to exclude 409.88 ha forest area from RTR Buffer will be implemented and NBWL directed to SBWL to expedite the de-notification process. 4. On 04.09.2017 during 45th SCNBWL meeting, in continuation with direction of wildlife clearance dated 21.01.2015, NBWL and NTCA approved de-notification of RTR to exclude forest mining area 409.88 ha and user agency to deposit Rs 5.0 Cr. Accordingly ACC deposited Rs 5.0 Cr on 14.10.2017 as demanded vide letter dated 22.09.2017. 5. CWLW in its letter dated 10.02.2023, clearly mentioned that wildlife clearance is already granted by NBWL. 6. CCF & Field Director of RVTR in its advice letter dated 28.04.2023 and 23.05.2023 related with wildlife clearance of ACC mining lease stated that ACC have valid wild life clearance.

		7. DCF and Dy. Field Director of RVTR, Bundi in his factual report addressed to CWLW dated 04.07.2023 endorsed above mention facts and also stated as below: (i) 409.88 ha area of ACC mining lease had been de-notified from RTR notified area by Rajasthan Govt. vide order dated 26.05.2022. (ii) There is no Mining activity carried out by ACC in Forest area of 409.88 ha.
2	The Project Proponent needs to submit the map showing the distance of the railway line & railway boundary from the Sakhawada mine pit. The Project Proponent needs to undertake the vibration monitoring study during blasting near the railway line and SOP followed during blasting during movement of railways and also to submit the specifications of the rock breaker. The Project Proponent shall also consider the direction of the blasting w.r.t railway line to avoid any fly rocks during blasting.	The Project Proponent has submitted that the distance of the railway boundary and the railway line from the boundary of Sakhawada mine lease area is 550 m and 570 m respectively. The Project Proponent also submitted the map showing the distance of railway line & railway boundary from the boundary of Sakhawada mine lease area. The Project Proponent has submitted the copy of the report of the blasting and vibration study carried out by Shri Pawansut Sharma, NABET Accredited EIA Coordinator & FAE (AP, NV & RH). The observations made, analysis results of the data, conclusions and recommendations made in the report are summarized below: 1. At sakhoda pit, the drilling was carried out by LM 100 drill machine having dia 115mm. One drill block of 16 nos holes with 4.5m depth was prepared maintaining spacing 3m and burden 2.5m. 2. The distance of study station from the blasting sites was 550m (Railway Line). 3. From the blasting data at the mines as per the approved mine plan, a ground vibration data is calculated at different vibration study locations. Depending on the distance of points, charging pattern of holes and the total number of holes used in the blasting, the magnitudes of vibration varied at 1 location: 4. At a distance of 550m (Railway line), the blast parameters were spacing 3m, burden 2.5m, depth 4.5m and numbers of holes were 16 in 3 rows. Per hole charge was 9.765 kgs and charge per delay was also 9.765 kgs. The equipment used for measuring vibration was micromate (make-Instantel) and the PPV values were recorded 0.055 mm/sec to 0.702mm/sec

		with the associated dominant frequency of 7.1Hz to 7.3 Hz. 5. The level of ground vibrations recorded at the 550 m (Railway line), is well within the safe limit as per the DGMS Vibration Standard. The safe permissible limit of vibration corresponding to frequency range 8-25 Hz is 10mm/s as per the DGMS criterion for domestic houses near the proposed mine. Therefore, it may conclude that the all the vibrations (PPV &Frequency) values were within the safe permissible limits as per DGMS criterion. Hence practically no impact will be on the nearest Railway Line RCC infrastructure with given blasting parameters. Further, the Project Proponent has submitted the following control measures to be followed during as given below: - i. Blasting will be strictly done during day time only. ii. Before 1 hr of blasting activity the blasting contractor will sound a loud Siren horn to make people aware so that they can come to know and distance themselves from the mining area. iii. Steaming height will be taken as per the plan and as per the blasting design parameters suggested by the approved blasting authority. iv. Secondary blasting will be totally avoided and hydraulic rock breaker is employed and same practice shall be used for breaking large boulders, Controlled blasting with proper spacing, burden, stemming and optimum charge/delay are being /shall be maintained. v. The blasting shall be carried out during favourable atmospheric condition and less human activity timings, alternatively excel non-electrical initiation system, Supervision of drilling and blasting operations to ensure blast design geometry, Effective stemming of the explosives will be done in the drill holes. vi. Blasting & drilling will be carried-out as per the norms of DGMS. A proper management plan has been prepared in the concern to ensure safety of human life

		property and production of environment &Blasting will be performed strictly as per the guidelines specified under MMR, 1961. vii. Controlled blasting with proper spacing, burden, stemming and optimum charge/delay is being /shall be maintained. viii. Supervision of drilling and blasting operations to ensure blast design geometry. ix. Effective stemming of the explosives will be done in the drill holes. x. Blasting will be performed strictly as per the guidelines specified under MMR, 1961. xi. Vibration monitoring at sensitive locations shall be carried out scientifically to check adverse effects if any during blasting. xii. The holes will be fired towards the free face. Proper stemming of holes will be always carried out. Blasting will be avoided during foggy weather and high wind velocity and will be done during day time only. xiii. Over charging will be avoided. The maximum charge per delay will be kept within limit to minimize ground vibration. Blast mate will be used to record the ground vibration. xiv. During blasting, other activities in the nearby area will be temporarily stopped. xv. Drilling parameters like spacing, burden, depth and diameter of hole will be properly designed and spacing/ burden ratio is always more than one. xvi. To control fly rock measures such as proper Drilling, Subgrade drilling, roper spacing and burden, appropriate charge, muffling or covering blast site with old conveyor belt piece /screen, proper stemming, statutory distance w.r.t danger zone, two to one free faces advancement, PPV decreases with increase in delay intervals, use of NONEL for bottom initiation, no pebbles at blast face and proper initiating pattern with electronic detonators will be followed. The Project Proponent has submitted that in-line with discussion held during EAC meeting as the mining will be by using Rock Breaker considering as closest pit of mine lease near Railway line to

<table>
<tr><td></td><td></td><td>avoid any harm with fly rocks due to blasting operation may be considered. The Rock Breaker will be an attachment of 40tone capacity of Excavator (Manufacturer Name: EPIROC Specification Type: HB 3100 DP Part no: 3363120769 & Serial No: DEQ182289).</td></tr>
<tr><td>3</td><td>The EAC asked the Project Proponent to revisit the action plan for shifting the school along with the timeline. The Project Proponent needs to submit the safety precautions to be taken during mining activity till the shifting of the school.</td><td>The Project Proponent has submitted that they will follow the safety precautions as per recommendations given by Director General of Mines Safety, Govt. of India considering 100 m blasting permission as safe distance. The Project Proponent also submitted the copy of the permission letter obtained from the Directorate General of Mines Safety vide letter dated 22.04.2023 under regulation 164 (1-B) of the Metalliferous Mines Regulation, 1961 to conduct deep hole blasting within 300 m of danger zone but beyond 100 m of surface structures not belonging to owner at Lakheri Limestone Mine (ML No. 04/1972) of M/s ACC Limited.

Further, the Project Proponent has submitted that they have requested to the District Education Officer, Bundi, and Principal of School for shifting of School vide their letter’s dated 11.01.2023 & 03.01.2023. After necessary approvals school will be shifted as per the revised plan given below: -
<table>
<tr><th rowspan="2">S. No.</th><th rowspan="2">Activity</th><th rowspan="2">Timeline</th><th colspan="2">Budget (Rs in Lacs)</th><th rowspan="2">Remarks</th></tr>
<tr><th>1st Year</th><th>2nd Year</th></tr>
<tr><td>1.</td><td>Permission and seeking support from District Administration</td><td>FY2023-24 (on going)</td><td>-</td><td>-</td><td>Request letter has been submitted</td></tr>
<tr><td>2.</td><td>Meeting with stack holders to resolve the issue and analysis of alternative land</td><td>FY2022-23 (on going)</td><td>-</td><td>-</td><td>Liasoning with local community is in progress.</td></tr>
<tr><td>3.</td><td>Arrangement of land through Government</td><td>FY 2022-23 (on going)</td><td>-</td><td>-</td><td>Dialog is under progress and expected to be finalized before 31.12.2023</td></tr>
<tr><td>4.</td><td>Construction of School</td><td>FY 2022-23</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

			Construction of complete school building – 8 classrooms (4.6mx5.5m), one Principal Room (5.3mx9.5m), one staff room (5.3mx8.2m), one staff room (5.3mx8.4m), toilets with water facilities (5.3mx7.5m), drinking water facilities, electric fittings and ensuring all basic infrastructure facilities.	(on going)	60	-	Architectural design of proposed school has been prepared and ready for mutual discussion with local committee.
			Classroom furniture, office furniture, white boards, fans, etc.		8	-	
		5.	Developing smart classrooms / digital classrooms with solar back up.	FY2023-24 (on going)	-	3.0	
		6.	Training and capacity building of teachers.	FY2023-24 (on going)	-	0.20	
			Total		68	3.20	
			Sub Total		71.20		
4	The Project Proponent needs to provide the document supporting the deemed extension of CTO from State Pollution Control Board during the period 01.05.2018 to 18.12.2022.	The Project Proponent has submitted that the Consent to Operate (CTO) for mines was obtained from Rajasthan State Pollution Control Board (RSPCB)vide letter no F (Mines)/Bundi (Bundi)/1(1)2009-2010/336-340 dated 14/05/2015 for the period upto 30/04/2018. Renewal of Consent to Operate application was submitted on 08.12.2017 and it was pending by RSPCB in want of Environment Clearance under EIA Notification 2006. The Project Proponent also submitted the chronology of communication made with RSPCB					

during the period of 01.05.2018 to 18.12.2022 as given below in table: -

Date	Communication details
08.12.2017	ACC applied for renewal of consent to operate
04.01.2018	RSPCB issued a deficiency letter to ACC
15.01.2018	ACC submitted its reply on 15.01.2028
27.02.2018	RSPCB issued a Show Cause Notice for refusal of CTO application in view of some deficiencies.
08.03.2018	ACC submitted its reply with all the information
19.07.2019	RSPCB issues a deficiency letter to submit the Environment Clearance under EIA Notification 2006, GPS co-ordinates of mines pillars and distance of mines lease from National Park/ Wildlife Sanctuary/ critical tiger habitat.
31.07.2019	ACC Submitted its reply
30.06.2020	RSPCB Letter of submitting the requisite information
10.07.2020	ACC Submitted its reply
22.07.2021	RSPCB issued Show Cause Notice for intended refusal of consent to operate
22.08.2021	ACC Submitted its reply to the show cause notice
22.12.2021	ACC submitted the present status of EC revalidation and forest area de-notification
07.07.2022	ACC informed to RSPCB regarding forest area de-notification on 26.05.2022 and issuance of ToR by MoEF&CC on 28.06.2022
14.11.2022	RSPCB refused the CTO, mining operation was stopped after refusal
23.11.2022	ACC Applied to RSPCB for CTO
19.12.2022	RSPCB granted conditional CTO which is valid till 31.12.2023

Further, the Project Proponent has submitted that the operation of mine was stopped on 14.11.2022 after refusal of consent by RSPCB. Subsequently, ACC applied for new consent to operate on 23.11.2022. Looking into continues operation and time involved in deciding the Environmental Clearance under EIA Notification, 2006 by MoEF&CC, RSPCB granted the conditional CTO on 19.12.2022 which is valid till 31.12.2023.

As per the Hon'ble NGT order dated 31.08.2023, Joint Committee has been constituted consisting of the following members Shri. Mahesh DuttPurohit, Scientist "D" SRO Jaipur, MoEF&CC, Shri. P Jagan, RD, CPCB Bhopal and Sh. VivekGoel, SEE, RSPCB, Jaipur and the joint

		committee submitted their report to Hon'ble NGT. The conclusion of the Joint Committee reportisgiven as under: - i. The Project Proponent had applied for Environment Clearance under the provision of EIA Notification 2006 within the specified time frame as prescribed vide notification dated 06.04.2018 and the Project Proponent continued the mining activities in non-forest area of 1107 ha, while the proposal was under consideration at the level of MoEF&CC, GoI. Later on, the PP had obtained the National Board for Wildlife (NBWL) Clearance after de-notification of the RTR buffer by Rajasthan Government. As per the mining department and State Forest Department, mining activity has been limited to the non-forest land only. ii. The Project Proponent had also applied for Renewal of Consent to Operate along with requisite fee and the application was kept under consideration at the level of State Board in want of Environmental Clearance under the provision of EIA Notification 2006. After issuing several notices to the lessee and non-submission of Environmental Clearance under EIA Notification 2006, the State Board has refused the application on 14.11.2022. It is pertinent to mention here that no clear directions were issued by the State Board regarding operation of mine during this period and as soon as the pending application was refused, the mining operations were shut down by the project proponent. Furthermore, the notification dated 06.04.2018 is also not clear regarding the operation of mines for the intervening period (i.e. beyond the date of application and upto the issue of Environmental Clearance under EIA Notification 2006). iii. Later on, looking to the status of issue of Environmental Clearance in advance stage (ToR issued) and after taking firm commitment in form of bank guarantee of Rs 5 Cr, the State Board had issued conditional consent to operate for short period (one year only) on the same

<table>
<tr><td></td><td></td><td>capacity and lease area. However, the proposal of Environmental Clearance under the provision of EIA notification 2006 was still under consideration at the level of MoEF&CC, GoI.
iv. No action has been taken by mining department for stopping the mining during the said period while the CTO application was pending.
v. RSPCB may be directed to adopt a standard practice for dealing all such matters, in accordance to Hon’ble Supreme Court judgment in the matters of Common Cause v/s UoI and various judgment of Hon’ble NGT issued from time to time with respect to requirement of prior Environmental Clearance.</td></tr>
<tr><td>5</td><td>The Project Proponent needs to submit the status of the court case matter which was listed on 31stAugust, 2023 for final arguments before the Hon’ble NGT, Bhopal.</td><td>The Project Proponent has submitted the status of the court case as given in table below: -
<table>
<tr><th>S.No</th><th>Date</th><th>Activity</th></tr>
<tr><td>1</td><td>31.08.2023</td><td>Hon’ble NGT issued order dated 31.08.2023 and directed the Rajasthan State Pollution Control Board to submit the report on the following:
i. Why the consent to operate application was kept pending by RSPCB from 2017 to 2022?
ii. How many CTO applications of mining lease are issued without EC?
iii. How many mining lease were accorded condition CTO for a period of one year without EC?
iv. Number of inspections carried out by the RSPCB of the mining lease being in Red Category Industry and not taking any action for want EC.
v. The quantum of mineral, excavated by the respondent no. 6 with the detail of area excavated from 2017 till date.
vi. The amount paid and use of power for mining.

NGT constituted a committee, consisting the representative of MoEF&CC, CPCB and State Pollution Control Board to examine the matter. Next hearing was scheduled on 26.09.2023.</td></tr>
<tr><td>2</td><td>26.09.2023</td><td>Joint Committee consisting of</td></tr>
</table></td></tr>
</table>

				Shri. MaheshDuttPurohit, Scientist "D" SRO Jaipur, MoEF&CC, Shri. P Jagan, RD, CPCB Bhopal and Sh. VivekGoel, SEE, RSPCB, Jaipur submitted their report to Hon'ble NGT. ACC filled an application to review the order dated 31.08.2023 and the Hon'ble NGT issued notice on the same. The next hearing is scheduled on 02.11.2023.

iv. Details of previous Environmental Clearance (EC):

a) The Project Proponent obtained Environmental Clearance (EC) vide EC Lr No. J-11015/14/2003-IA.II(M) dated 26.12.2005 for production capacity of 1.5 MTPA involving mine lease area of 1516.88 ha under the provisions of EIA Notification, 1994.

v. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
04.10.2018	IA/RJ/MIN/ 275163/2022 J-11015/167/ 2018-IA.II (M)	38thEAC (15.11.2018), 20thEAC meeting (21.08.2020), 26th EAC (13.01.2021) and 52nd EAC (14.06.2022)	Terms of Reference under the provision of Notification S.O 1530(E) dated 06.04.2018 for LakheriLimestone Mine of M/s ACC Limited (Area: 1516.88 Ha) with Limestone Production Capacity of 1.5 Million TPA and waste/topsoil 11.25 Lakhs cu.m per annumwith existing wobbler & screening plant of 400 TPH at Villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lakheri, Sakhoda, Nayagaon&Papadi, Tehsil: Indergarh, District: Bundi, Rajasthan.	28.06.2022

vi. Details of Mine Lease:

a) The mining lease was originally granted by the State Government in year 1913 and lease deed was executed on 01.12.1913 for a period of 30 years.
b) First Renewal of mine lease was granted on 28.07.1943 for a period of 30 years w.e.f. 01.08.1943 for mining of Limestone.
c) Second renewal of mine lease was for a period 20 years w.e.f. 01.08.1973 and after 01.08.1993, the lease was under deemed renewal upto 31.07.2013.
d) As per Section 8A (5) of MMDR (Amendment) 2015, Lease period of Mining leases has been extended upto 31.03.2030 vide Department of Mines & Geology Lr no ME/Kota/C.C/Major/4/72/349 dated 18.02.2015.

vii. Land Use/Land Cover of the Mine Lease Area:

Private land	645.87 Ha
Government land	461.13 Ha
Forest Land	409.88 Ha
Total Mining lease area (MLA), Ha	1516.88 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	No infrastructure is proposed outside the ML area

viii. Mining Plan Details: -

<table>
<tr><td rowspan="4">Modified Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines</td><td>Letter No.</td><td>584 (4)(3)(1886)/2021-RCM-Ajmer</td></tr>
<tr><td>Date</td><td>28.12.2021</td></tr>
<tr><td>Mineral & (Major/Minor)</td><td>Limestone (Major Mineral)</td></tr>
<tr><td>Mine Lease Area, Ha</td><td>1516.88</td></tr>
<tr><td>Validity</td><td>2022-23 to 2024-2025</td></tr>
<tr><td>Mining Parameters</td><td colspan="2">Quantitative Description</td></tr>
<tr><td>Method of Mining</td><td colspan="2">Fully Mechanized Opencast Mining Method</td></tr>
<tr><td>Drilling/Blasting</td><td colspan="2">Drilling Parameter
<table>
<tr><th>S. No.</th><th>Particular</th><th>Details</th></tr>
<tr><td>1</td><td>Height of the bench</td><td>9.0 m</td></tr>
<tr><td>2</td><td>Sub grade drilling</td><td>0.5 m</td></tr>
<tr><td>3</td><td>Length of stemming column</td><td>2.5 m</td></tr>
<tr><td>4</td><td>Length of ANFO Column</td><td>3.5 m</td></tr>
<tr><td>5</td><td>Spacing</td><td>4.0 m</td></tr>
<tr><td>6</td><td>Burden</td><td>3.0 m</td></tr>
<tr><td>7</td><td>Type of Booster</td><td>Primer</td></tr>
<tr><td>8</td><td>Type of drill holes</td><td>Vertical Holes with 115 mm diameter each</td></tr>
</table>
Blasting Parameter
<table>
<tr><th>S. No.</th><th>Particular</th><th>Details</th></tr>
<tr><td>1</td><td>Spacing</td><td>4.0 m</td></tr>
</table></td></tr>
</table>

	2	Burden	3.0 m
		Depth of Hole	9.5 m
	3	Charge per delay	40 –45 kg
	4	Powder Factor (T/kg)	8 tonnes per kg
Geological Reserves	24.60 Million Tonnes (As on 01.09.2021)		
Mineable Reserves	21.80 Million Tonnes (As on 01.09.2021)		
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone 1.50 Million TPA and OB Waste 1.96 Million TPA (Total Excavation: 3.46 Million TPA)		
Life of mine	~15 years (based on mineral reserves as on 01.09.2021)		
Mine Bench Height & Bench Width	Bench Height – 6 - 9 m Bench Width–15 - 20 m (working width)		
No. of Mine Benches	3		
Existing Depth, m bgl	15 m bgl		
Ultimate Depth of Mining, m bgl	20 m bgl		
Ground Water Table, m bgl	Post monsoon: 5.8- 6.5 m bgl Pre monsoon: 6.83 - 7.53 m bgl		
Details of ground water intersection	The groundwater table has already been intersected and permission for the same has already been obtained from CGWA vide NOC no CGWA/NOC/MIN/ORIG/2021/13631 dated 03.11.2021 (Valid upto 02.11.2023)		
Individual bench slope	80°		
Overall pit slope	45°		
Details of existing/ proposed Crusher Mineral Beneficiation	The limestone raised is being/will be transported to Wobbler along with screen having 400 TPH capacities within lease area / crusher. Wobbled & screened material/raised limestone is transported to the crusher (situated in cement plant) by Rail/Road from which the crusher limestone is being/will be transported to cement plant by conveyor belt.		
RoM output size	500 mm to 800 mm size		
Transportation details including capacity of dumper/tipper, mode of transport and distance	The limestone raised is being/will be transported to Wobbler along with screen having 400 TPH capacities within lease area / crusher. Wobbled & screened material/raised limestone is transported to the crusher (situated in cement plant) by Rail/Road from which the crusher limestone is being/will be transported to cement plant by conveyor belt.		
Generation of Topsoil/OB &its Management during plan period & conceptual	Particulars	Top Soil generation and management	OB generation and management

period	Plan period:	Total 4.76 million tonnes of Over burden waste will be generated in which partial quantity of OB waste generated will be stored in 10 proposed dumps covering an area of 11.33 ha and rest will be used to backfill the pit -Lower P3.
	Conceptual stage:	During the conceptual / lease period 178.50 lacs m^3 of OB waste will be generated. At conceptual period, 60 Ha will be backfilled, out of which 29.26 Ha has already been reclaimed. Remaining 30.74 Ha will be backfilled with 35.7 lacs m^3 of OB waste and rest will be stacked as dumps which covers an area of 85 ha.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil	

ix. Water requirement:

Total water requirement	94.0 KLD	Dust Suppression	40.0 KLD
		HEMM Washing, Workshops	10.0 KLD
		Greenbelt development	30.0 KLD
		Domestic Use	14.0 KLD
Source	Mine sump and Ground water		
Permission for withdrawal/ intersection along with details of grant and its validity	No Objection Certificate for Groundwater abstraction vide NOC No. CGWA/NOC/MIN/ORIG/2021/13631 dated 3/11/2021 for abstraction of fresh water of 14.0 m^3/day and dewatering of 350.0 m^3/day and is validupto 02.11.2023.		

x. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Directions
Nearest village	Within Mining Lease area:Gendoli Kala, GendoliKhurdh, Gutha, Lakheri&Sakhoda	
	Part habitation within ML Area: Chamavali, Uttarana, Kankra&Dangaheri	
	Adjacent or within 500 m from ML:Pholai, Mahuwa, Budel, Nayagaon&Papadi)	
Nearest Town	Kota	~42 km, SSW
Nearest State/National Highway	SH- 01 SH- 29 Delhi -Mumbai Expressway	Passing through ML area Passing through ML area Passing through ML area

Interstate Boundary	None	None
Railway Station/Railway line	Lakheri Railway Station	~4.5 km, East
	Railway line(Length 0.40 km)	Passing through ML Area
Water Bodies	Mej River	Passing through ML area in ENE direction
	Sandal Nallah	Passing within mining lease area
	Motipura Bandh Canal	~2.5 km, WSW
	Chambal Main left canal	~3.0 km, East
	TaljuniNadi	~3.5 km, WSW
	Chambal River	~4.0 km, ENE
	ChhaonikaTalav	~5.5 km, West
	KuralNala	~6.0 km, SW
	MachhliNala	~8.5 km, NW
	BikhaiNala	~8.5 km, SSW
Forest	Indergarh PF	Adjacent, North
	Protected Forest	Adjacent, NNW
	Reserved Forest	Adjacent, SW
	Protected Forest	Adjacent to ML area
	Balwan PF	Adjacent, ENE
	Kapren PF	Adjacent, NE
	Protected Forest	~1.0 km, ENE
	Protected Forest	~1.5 km, ENE
	Protected Forest	~3.0 km, East
	Protected Forest	~3.5 km, East
	Protected Forest	~3.5 km, WSW
	Naenwa PF	~3.5 km, North
	Protected Forest	~4.0 km, ESE
	Protected Forest	~4.5 km, ESE
	Mohanpura PF	~6.5 km, NE
	Protected Forest	~8.0 km, WSW

xi. Presence of Environmentally Sensitive areas in the study area:

Forest Land / Protected Area / Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	Yes	a) Out of 1516.88 ha area, 1107 ha is non-forest land and 409.88 ha is a Forest land. Out of 409.88 ha forest land, diversion of 108 ha has been granted by MoEFCC Vide letter No 8-2/97-FC dated 03.04.1998 b) Diversion of 100 ha has been granted by MoEFCC vide letter no 8-26/2003-FC dated 13.11.2006 c) Renewal of 208 ha forest land by MoEFCC (FC Division) Vide letter no 8-26/2003-FC

		dated 18.12.2013 d) For the balance 201.88 ha area, application has been submitted for diversion on 18.07.2012 e) NPV have also paid for the total forest land of 409.88 Ha and General approval has been obtained for complete 409.88 ha of forest land on 27.12.2017
National Park	No	a) There are 2 nos of Sanctuaries, one is "Ramgarh Sanctuary" which is 2.65 Km away and another is "National Ghariyal sanctuary" which is 2.5 Km away. ESZ, permission has been granted by MoEF&CC in its 31st standing committee on 12th/13th August 2014 b) Forest area of 409.88 ha falls under buffer zone of RTR (Ranthambore Tiger Reserve) for which NBWL approved de-notification in its 45th standing committee meeting on 04.09.2017 c) Government of Rajasthan has issued de-notification for denotification of forest area of 436.35 ha including our 409.88 ha area land from buffer zone of Ranthambore Tiger Reserve (RTR) vide letter no P1 (63) Van/2017 dated 26.05.2022
Wildlife Sanctuary	Yes	
Elephant/Tiger Reserve	Yes	
Eco-Sensitive Zone (ESZ) /Eco-Sensitive Area (ESA)	Yes	
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	According to (IWPA) Indian Wildlife Protection Act, 1972, five Schedule- I fauna found in the study area. Out of these 3 mammals' species i.e. Gazella gazelle (Chinkara), Pantheratigris (Tiger), Ursusamericanus (Bear) and 1 reptiles' species i.e. Varanusbengalensis (Indian monitor lizard), and 1 Avi-faunal species i.e. Pavocristatus (Peafowl) were recorded in the study area during field survey. Authenticated list of flora and fauna has been received from DCF vide letter no F () Survey/DCF/R.V.T.R/1353 dated 04.11.2022.
Wildlife Conservation Plan	Yes	Conservation Plan of an amount of Rs 7.84 Crore has been prepared and submitted to CWLW for approval. Letter received from CWLW vide letter no F 11 (450) Vikas /C.W.L.W / 2022-23/109 dated 10.02.2023.
NTCA comments dated 13.07.2023		i. The proposal was perused and it was observed that the total ML area is 1516.88 ha comprising of 409.88 ha forest land, 461.13 ha Government land and 645.87 ha of Private land. ii. Forest area of 409.88 ha falling under

	buffer zone of Ranthambhore Tiger Reserve for which NBWL had approved de-notification during its 45thStanding Committee meeting held on 04.09.2017. iii. In compliance to this, Government of Rajasthan has already denotified 436.35 ha including 409.88 ha of forest land for the ML area from the buffer of Ranthambhore Tiger Reserve (vide letter no P1 (63) Van/2017 dated 26.05.2022). iv. The ML area is situated at an approximate distance of 2.6 km from the core of RamgarhVishdhari Tiger Reserve (RVTR). Eco-sensitive Zone for RVTR is not yet been declared and therefore ML area falls within default ESZ (10 km) of RVTR. v. RamgarhVishdhari Tiger Reserve currently hasresident tiger population and it acts as an important tiger dispersal corridor in between Ranthambhore (only 'source' tiger population in the landscape) and Mukundara Hills Tiger Reserve situated further south. This habitat permeability is crucial for maintaining tiger metapopulation dynamics in the landscape and for future recovery of Mukundara Hills Tiger Reserve which is currently at its below potential. vi. However, approximately 10-15 thousand people depend on these mines for their livelihood. In case of closure of these mines, the local economy will get severely impacted with a likelihood of local community's enhanced dependence on forest resources. This is likely to compromise local community support for tiger conservation. This was considered during the 14th meeting of NTCA held on 04-09-2017. vii. It would, therefore, be prudent and of best interest for tiger conservation objectives that these mines be operational complying with all statutory clearances in adherence to the approved mining plan and using advanced mining technologies available so as to ensure minimal ecological impacts. viii. EAC may like to take cognizance of these information while making decision pertaining to this instant proposal.
ESZ comments dated 18.07.2023	The ESZ around RamgarhVishdhari Tiger Reserve is yet to be finalised and the ESZ

	Division has no proposal to this effect from the State Government as on date. Under the circumstances, default ESZ of 10 km from the boundary of the PA applies for which clearance from the Standing Committee of the NBWL is a pre-requisite for undertaking any developmental activity. In the instant case, perusal of the available records, indicates that the operating mine has a NBWL clearance in place.

xii. Green belt/Plantation details:

<table>
<tr><td>Proposed area for green belt/plantation and no. of saplings proposed
Budget for green plant & plantation till the end of life of mine.
Budget for nursery
Details of existing plantation and its survival rate</td><td>Details are given as per below:
<table>
<tr><th>S. No.</th><th>Particular</th><th>Status of Greenbelt of Total Lease area</th><th>Greenbelt in only possession land</th><th>Remarks</th></tr>
<tr><td>1.</td><td>Length of lease Periphery</td><td>82.6 km</td><td>67.8 km</td><td rowspan="7">Details of land:
Non forest Land-1107 ha,
Diverted Forest Land-208 Ha,
Non diverted forest Land-201.88 ha,
At present, we can develop green belt, only peripheral length of non-forest and diverted forest land.</td></tr>
<tr><td>2.</td><td>Area of greenbelt</td><td>61.95 ha</td><td>50.85 Ha</td></tr>
<tr><td>3.</td><td>No of Plants planted</td><td>35300</td><td>35300</td></tr>
<tr><td>4.</td><td>Survival Rate</td><td>80</td><td>80</td></tr>
<tr><td>5.</td><td>Greenbelt done as on date</td><td>11.5</td><td>11.5</td></tr>
<tr><td>6.</td><td>Greenbelt to be done with timeline</td><td>31.03.2026</td><td>31.03.2026</td></tr>
</table></td></tr>
<tr><td>No. of tree cuts in the mine lease area and compensatory afforestation</td><td>None</td></tr>
<tr><td>Particulars for Green belt/plantation</td><td>Area covered (in Ha)</td></tr>
<tr><td>7.5 m barrier & non-mineralized zone</td><td>At present 11.5 ha area has been covered with greenbelt within 7.5 m safety zone and anarea of 39.35 ha will be developed under greenbelt till life of mine</td></tr>
<tr><td>50 m safety zone of nallah,</td><td>i. At present 0.30 ha area has been covered with</td></tr>
</table>

roads, electric lines	plantation on safety zone of nalla and remaining 2.60 ha area will be covered till life of mine ii. At present 2.5 ha area has been covered with plantation on safety zone of road/highway and remaining 2.75 ha area will be covered till life of mine.
500 m safety zones of nearest habitation villages	At present 1.2 ha area has been covered with plantation on safety zone of nalla and remaining 1.22 ha area will be covered till life of mine

xiii. Details of Baseline data:

<table>
<tr><td colspan="2">Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)</td></tr>
<tr><td>Period of baseline data collection</td><td>October to December 2022</td></tr>
<tr><td>Season (Summer / Pre-monsoon / Post-monsoon / Winter)</td><td>Post monsoon Season</td></tr>
<tr><td>Predominant Wind direction (From)</td><td>West direction</td></tr>
<tr><td>Ambient Air Quality (no. of locations) and results</td><td>
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="4">10</td><td>PM_{10}</td><td>44.7 to 90.8 $\mu g/m^3$</td></tr>
<tr><td>$PM_{2.5}$</td><td>23.8 to 52.7 $\mu g/m^3$</td></tr>
<tr><td>SO_2</td><td>5.9 to 12.1 $\mu g/m^3$</td></tr>
<tr><td>NO_2</td><td>12.1 to 22.8 $\mu g/m^3$</td></tr>
</table>
</td></tr>
<tr><td>Noise level (no. of locations) and results</td><td>
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="2">08</td><td>During Day Time [Leq dB(A)]</td><td>51.2 to 65.1</td></tr>
<tr><td>During Night Time [Leq dB(A)]</td><td>41.5 to 49.3</td></tr>
</table>
</td></tr>
<tr><td>Water Quality (no. of locations) and results</td><td>Ground water quality
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="6">10</td><td>pH</td><td>7.18 to 7.72</td></tr>
<tr><td>TDS (mg/l)</td><td>544 to 3268 mg/l</td></tr>
<tr><td>Fluoride (mg/l)</td><td>0.12 to 0.98 mg/l</td></tr>
<tr><td>Sulphate (mg/l)</td><td>34.6 to 198.5 mg/l</td></tr>
<tr><td>Calcium (mg/l)</td><td>77.2 to 298.9 mg/l</td></tr>
<tr><td>Magnesium</td><td>20.4 to 120.3 mg/l</td></tr>
</table>
Surface Water Quality
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td rowspan="5">10</td><td>pH</td><td>6.98 to 7.34</td></tr>
<tr><td>TDS (mg/l)</td><td>84 to 398 mg/l</td></tr>
<tr><td>DO (mg/l)</td><td>6.60 to 7.40 mg/l</td></tr>
<tr><td>BOD (mg/l)</td><td>1.60 to 7.10 mg/l</td></tr>
<tr><td>Magnesium</td><td>4.80 to 21.60 mg/l</td></tr>
</table>
</td></tr>
<tr><td>Soil Quality (no. of locations) and results</td><td>
<table>
<tr><th>No. of Locations</th><th>Parameters</th><th>Results</th></tr>
<tr><td>09</td><td>pH</td><td>6.28 to 8.13</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><td></td><td>Texture</td><td>Clay Loam</td></tr>
<tr><td></td><td>Organic Matter (%)</td><td>0.98 to 1.18 %</td></tr>
</table>
</td></tr>
<tr><td>Hydro geological study and results</td><td>
Ground Water Level (Phreatic Surface) - 13 Locations
<table>
<tr><td rowspan="2">Monitoring Location</td><td colspan="2">Range of Water Table Pre-monsoon Season (in m below ground level)</td><td colspan="2">Range of Water Table Post-Monsoon Season (in m below ground level)</td></tr>
<tr><td>From (Pre-monsoon)</td><td>To (Pre-monsoon)</td><td>From (Post-monsoon)</td><td>To (Post-monsoon)</td></tr>
<tr><td>Buffer Zone</td><td>6.5</td><td>6.5</td><td>5.8</td><td>5.8</td></tr>
<tr><td>Core Zone</td><td>7.53</td><td>7.53</td><td>6.83</td><td>6.83</td></tr>
</table>

The Project Proponent has submitted that the Mej river flows from SW to NE direction and tangential to mine lease. The distance of nearest Sakhoda Pit is 2.0 km from Mej River. Ground level of Sakhoda pit is 225 meter above MSL and ground level of Mej river is 201 meter above MSL A hillock is also situated between mines pit and Mej river having top RL 295 meter above MSL. HFL is 210.6 meter above sea level recorded by Central Water Commission on 23.08.2022. In light of above-mentioned geographical facts, there is no possibility of water from Mez River to mines pit.
</td></tr>
<tr><td>Traffic study (no. of locations) and results</td><td>No public road is being/will be used for transportation of Limestone. Therefore, traffic study is not required.</td></tr>
</table>

xiv. Details of Public Consultation:

a) As per Specific ToR point no: 1 “The Public Hearing was already conducted on 07.04.2003 for the same scope and at present there is no change in scope. Therefore, as per Ministry’s O.M. dated 16.02.2021, the project proponent shall carry out public consultation instead of public hearing and shall address the concerns of the public in the EIA/EMP report.
b) Public consultation for this project done on 29.03.2023.
c) Issues raised during public consultation were about Infra Development, Education, Drinking Water facilities, Skill Development, Employment based training, Healthcare facilities, Plantation in nearby areas, etc.
d) The Project Proponent earmarked a budget of Rs 3.01 Crore (Capital) to address the concerns raised during public consultation over a period of 3 years.

xv. Details of CTE/CTO, Certified Compliance Report, Certified Production Details from the inception of the mine:

<table>
<tr><td>Particulars</td><td>Details of Letter along with date of grant and validity</td></tr>
<tr><td>Consent to Establish (CTE)</td><td>CTE issued by the Rajasthan State Pollution Control Boardvide letter no F.12 (6-14) RPCB/Gr.I/6657 dated 30.12.2005for Limestone Production Capacity of 1.5 MTPA</td></tr>
<tr><td>Consent to Operate (CTO)</td><td>CTO issued by the Rajasthan State Pollution Control Boardvide File No: F (Mines) / Bundi (Bundi) 1 (1) 2009- 2010 / 4954-4958 dated 19.12.2022 for Limestone Production Capacity of 1.5 MTPA under Water Act and Air Act for the period upto 31.12.2023.</td></tr>
<tr><td>Certified Compliance Report and Inspection date</td><td>Certification of compliance report of EC dated 26.12.2005 has been granted by IRO, Jaipur vide letter no IV/ENV/R/MINE-288/394/296 dated 29th August 2022. The project was Inspected/ Monitored on 25/07/2022.</td></tr>
<tr><td>Certified Production Details from the inception of the mine (in tabular form against the EC capacity)</td><td>Year-wise production details since inception of mine has been authenticated by Asst. Mining Engineer vide letters dated 13.11.2018, 08.06.2022 and 06.04.2023 for the period 1987-88 to 2022-23.
<table>
<tr><th>S. No</th><th>Year</th><th>As per EC (MTPA)</th><th>Actual production (Tonnes)</th></tr>
<tr><td>1.</td><td>1993 – 1994</td><td>-</td><td>0.342</td></tr>
<tr><td>2.</td><td>1994 - 1995</td><td>-</td><td>0.223</td></tr>
<tr><td>3.</td><td>1995 - 1996</td><td>-</td><td>0.210</td></tr>
<tr><td>4.</td><td>1996 - 1997</td><td>-</td><td>0.191</td></tr>
<tr><td>5.</td><td>1997 - 1998</td><td>-</td><td>0.234</td></tr>
<tr><td>6.</td><td>1998 - 1999</td><td>-</td><td>0.269</td></tr>
<tr><td>7.</td><td>1999 - 2000</td><td>-</td><td>0.455</td></tr>
<tr><td>8.</td><td>2000 - 2001</td><td>-</td><td>0.562</td></tr>
<tr><td>9.</td><td>2001 - 2002</td><td>-</td><td>0.565</td></tr>
<tr><td>10.</td><td>2002 - 2003</td><td>-</td><td>0.493</td></tr>
<tr><td>11.</td><td>2003 - 2004</td><td>-</td><td>0.623</td></tr>
<tr><td>12.</td><td>2004 - 2005</td><td>-</td><td>0.601</td></tr>
<tr><td>13.</td><td>2005 - 2006</td><td>1.5</td><td>0.620</td></tr>
<tr><td>14.</td><td>2006 - 2007</td><td>1.5</td><td>0.568</td></tr>
<tr><td>15.</td><td>2007 - 2008</td><td>1.5</td><td>0.434</td></tr>
<tr><td>16.</td><td>2008 - 2009</td><td>1.5</td><td>0.721</td></tr>
<tr><td>17.</td><td>2009 - 2010</td><td>1.5</td><td>0.779</td></tr>
<tr><td>18.</td><td>2010 - 2011</td><td>1.5</td><td>0.791</td></tr>
<tr><td>19.</td><td>2011 - 2012</td><td>1.5</td><td>0.803</td></tr>
<tr><td>20</td><td>2012 - 2013</td><td>1.5</td><td>0.905</td></tr>
<tr><td>21.</td><td>2013 - 2014</td><td>1.5</td><td>0.880</td></tr>
<tr><td>22.</td><td>2014 - 2015</td><td>1.5</td><td>0.614</td></tr>
<tr><td>23.</td><td>2015 - 2016</td><td>1.5</td><td>0.585</td></tr>
<tr><td>24.</td><td>2016 - 2017</td><td>1.5</td><td>0.792</td></tr>
<tr><td>25.</td><td>2017 - 2018</td><td>1.5</td><td>0.808</td></tr>
<tr><td>26.</td><td>2018 - 2019</td><td>1.5</td><td>1.157</td></tr>
<tr><td>27.</td><td>2019 - 2020</td><td>1.5</td><td>1.158</td></tr>
<tr><td>28.</td><td>2020 - 2021</td><td>1.5</td><td>1.041</td></tr>
<tr><td>29.</td><td>2021 - 2022</td><td>1.5</td><td>1.070</td></tr>
</table></td></tr>
</table>

	30.	2022 – 2023	1.5	0.995

xvi. Rehabilitation & Resettlement (R&R):

R & R details	Total mine lease area is 1516.88 ha,out of which 409.88 ha is a forest land, 461.13 ha is a Govt land and 645.87 ha is a Private land. Out of total private land of 645.87 ha, 354.02 ha land has already been owned by ACC. Remaining private land fall in non-mineralized area hence future acquisition is not required.

xvii. Court case details:

Court Case, No and its present status	The Project Proponent vide letter dated 24.04.2023 submitted an undertaking stating that there is no litigation pending against the project and/or any direction/ order passed by any court of law against the project and that for any such litigation whatsoever, the sole responsibilities will be borne by the company. However, a complaint has been lodged in Hon'ble NGT Bhopal on 11.02.2023. The Hon'ble NGT has formed a joint committee consisting of (i) Collector, Bundi, Rajasthan, (ii) Representative of Chief Wild Life Warden, (iii) Representative of RPCB vide order dated 13.03.2023. The Committee has visited the site on 21.04.2023 to submit the factual and action taken report.
Undertaking by Project Proponent w.r.t court case	

xviii. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent submitted the Affidavit in a non-judicial stamp paper ofRs 100 bearing no: AH525507 dated 12.11.2018 stating that they commit to comply if applicable with the order of Hon'ble Supreme Court dated 2nd August 2017 in w.r.t. Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India &Ors.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 18.04.2023 stating that the conditions laid down in ToR issued by MoEF&CC vide ToR Letter dated 28.06.2022 in accordance to the EIA Notification, 2006 and amended as on date have been complied with and the data submitted and the information presented in this report are factually correct.
Undertaking by Consultant in EIA/EMP report	The Consultant submitted an undertaking vide letter dated 14.04.2023 to the effect that the conditions laid down in Terms of Reference issued by MoEF&CC, New Delhi vide letter no. J-11015/167/2018-IA.II(M) dated 28.06.2022 have been complied as per data/details provided by Project Proponent & as per Review and Modification in Mining Plan approved by IBM and

	the data submitted are factually correct.
Plagiarism Certificate	The Head of the Accredited Consultant Organization/ Authorized person certified that this EIA Report has been evaluated by using online software viz. Plagiarism Checker X on 14.04.2023. The report produced has been analyzed by the system and based on it and certify that the EIA Report produce in accordance with good scientific practice.

xix. Details of the Environmental Management Plan (EMP):

Sl. No.	Activities	Proposed budget (In Lakhs)	
		Capital	Recurring
A.	Mitigative Measures		
1.	Water tankers for sprinkling on haul roads and mining areas/activities	50	10
2.	Fixed Water Sprinkler on Haul Road	50	10
3.	Greenbelt on remaining 39.35 ha with 98250 trees till 2030	197	5
4.	Plantation over an area of 63.72 ha (158175 trees) till 2030	-	46
5.	Drip irrigation facility for plantation	5.0	0.5
6.	Protection for Plantation (Fencing around area)	20	0.30
7.	Rain water harvesting structure near Mines office	5	0.3
8.	Provision of Garland Drains around OB dumps: (L*W*D = 1200 m x 3 m x 1.5 m)	20	1.0
9.	Construction of Retaining Wall around OB dumps (L*W*D = 1200 m x 0.45 m x 1.5 m)till 2030	100	5.0
10.	Construction of check dams (5 nos) around mine pit and OB dump to prevent surface run off till 2030	10	1.0
11.	Controlled blasting for minimizing ground vibration, fly rock, air pressure/ noise, etc. by Using Nonel and Exel	-	10
12.	10 nos. of fog canon/mist sprayer of at least 40 m throw shall be installed at various locations in the mine lease area.	30.0	2.0
13.	Vaccum suction hoods and dry fogging system in Wobbler	30.0	0.5
14.	Providing Ear muffs/plugs to workers working in high noise area	-	1.0
	Sub Total	517	92.6
B.	Monitoring		
1.	Installation of continuous Ambient Air Quality Monitoring Station (3 nos)	150	15
2.	Display Board at main gate for display of Ambient, Air, Noise and Hazardous waste monitoring data.	5.00	0.50
3.	Five Ambient Air Quality Monitoring Station at Village Lakheri, Utrana, GandoliKhurd, Dangaheri and Chamavali	5.00	0.50
4.	Air monitoring Equipment for PM10 & PM2.5	1.70	1.50
5.	Work Place Noise Level Monitoring (4 no. of locations	-	0.10

	&quarterly frequency)		
6.	Installation of 03 pie-zometer along the periphery in the premises	5.00	0.50
7.	Monitoring of River and nallah (Flow and quality-inlet & outlet).	-	1.50
	Sub Total	166.7	19.6
C.	Wildlife conservation Plan for 5 schedule I species	784	-
	Total	1467.7	112.2

xx. Details of project cost and employment:

Particulars	Budget (Rs. in Crores)
Total Cost for EMP (Capital Cost of EMP + Capital cost of Public hearing)	Capital Cost: Rs. 17.69 Crores (Capital cost of EMP: Rs. 14.68 Crore + Capital cost for public hearing: Rs. 3.01 Crore)
Project Cost	Rs. 77 Crores
Employment	91 persons

3. Observation and Recommendation of the EAC:

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent/Consultant has informed the EAC that the recommendation of NBWL is for all three Wildlife sanctuaries/Tiger Reserve such as Chambal Gharial Sanctuary, Ramgarh Vishdhari Tiger Reserve and Ranthambhore Tiger Reserve. The EAC noted the comments of the Wildlife Division given on 22.09.2023 which are as follows:

i. The total mining lease area is 1516.88 ha out of which 1107 ha is a non-forest and 409.882 is a forest land. The matter was initially discussed in 31st meeting of SCBNWL held on 12.08.2014. During the meeting of SCNBWL recommended for 1107 ha forest area of the mining lease.
ii. NOC has been accorded by the Chief Wildlife Warden Rajasthan vide letter dated 3.12.2014, (however, on perusal of this letter it has been observed that it is not a NOC as informed by the PP)
iii. In 32nd meeting of NBWL held on 21.01.2015, remaining 409.88 ha of forest area including 208 ha diverted forest area and 201.88 ha non-diverted forest area of total mining lease wildlife clearance was granted by the NBWL,
iv. By the order of NBWL in its 45th meeting dated 04.09.2017 and NTCA meeting dated 04.09.2017, an area of 409.88 ha of forest land of ACC mining lease is denotified from RTR notified area by the Rajasthan Government order dated 26.05.2022
v. Further, it was informed by the DCF, RVTR Bundi vide letter dated 4.07.2023 that an Inspection committee made by NGT in its inspection report stated that there is no mining activity carried out by ACC in forest area of 409.88 ha and mining activities was carried out in only two pit viz P-3 and sakhoda which are located in the non-forest area, but within the allotted lease area. So before

commencement of any mining activity in 409.88 ha forest area, the NoC from the State Government may be obtained.

The EAC also noted that comments obtained from National Tiger Conservation Authority (NTCA) dated 13.07.2023 and ESZ Division dated 18.07.2023. The Project Proponent presented the map showing the distance of the railway boundary and the railway line from the boundary of Sakhawada mine lease area which is 550 m and 570 m respectively. No mining activity will be carried out in 500m radius from the railway boundary. Vibration levels nearby the railway line are estimated as 0.055 mm/sec, 0.701 mm/sec and 0.071 mm/sec. Rock breaker will be used in the closest pit of mine lease near railway line to avoid the impacts due to fly rock. The Project Proponent also informed the EAC that the action plan for shifting the school has been revised from 3 years to 2 years.

Further, the Project Proponent has informed the EAC that the Hon'ble NGT vide order dated 31.08.2023 constituted a joint committee consisting of the representative of MoEF&CC, CPCB and State Pollution Control Board to examine the matter w.r.t Consent to Operate and the joint committee submitted their report before the Hon'ble NGT. The Project Proponent has informed that they have filed an application to review the order dated 31.08.2023 and the Hon'ble NGT issued notice on the same. The next hearing is scheduled on 02.11.2023. The EAC was of the view that the instant matter regarding Consent to Operate before the Hon'ble NGT is sub-judice. An undertaking has been submitted in a non-judicial stamp paper of Rs 50 bearing dated 19.07.2023 to comply with the conditions as recommended by the NBWL and the same has been submitted to the Dy. Conservator of Forest & Dy. Field Director, Ramgarah Vishdhari Tiger Reserve on 28.08.2023. The EAC was of the view that the Project Proponent needs to undertake a community based conservation program and the same shall be monitored and vetted by the Forest Dept.

The EAC asked about the status of the Forest Clearance. The Project Proponent has informed the EAC that the total mine lease area is 1516.88 ha area, out of which 1107 ha is non-forest land and 409.88 ha is a Forest land. Initially, the Forest Clearance has been obtained from the MoEF vide letter dated 03.04.1998 under section-2 of the Forest (Conservation) Act, 1980 for diversion of 108 ha of already broken forest land for mining of Limestone. Then, the Forest Clearance was granted by the MoEF vide letter dated 13.11.2006 under section-2 of the Forest (Conservation) Act, 1980 for diversion of 100 ha out of proposed 301.88 ha of forest land for mining of Limestone. Further, the MoEF vide letter dated 18.12.2013 has conveyed the 'in-principle' approval for renewal of diversion of 208 ha of forest land for mining of Limestone. The Project Proponent also submitted that an application has been submitted on 18.07.2012 for diversion of remaining area of forest land of 201.88 ha. Further, the Project Proponent has informed the EAC that the MoEF&CC vide letter dated 27.12.2017 has stated that the State Govt. may allow mining activities in the non-forest area within the mining lease as per the existing provisions

for mining around the National Park and Supreme Court order and the lease is executed after receiving the NPV for whole forest land within the lease. It is also mentioned in the same letter that the out of 409.88 ha of forest land in the lease, FC clearance under section 2(ii) was granted for 201.88 ha in 2012 by the Ministry. Since this is the latest letter from Forest Conservation Division of the Ministry with regard to Forest Clearance, the EAC opined to consider that Forest Clearance (Stage II) is only available for 201.88 ha. The State Govt. vide letter dated 15.02.2018 has granted the extension of general approval under section 2(iii) of FC Act, 1980 for 409.88 ha of forest land for existing captive Lakehri mining lease after deposition of NPV of Rs 19.39 Crores. The EAC reiterated the Ministry's FC Division OM dated 31.05.2023 wherein it has been clarified that *"in respect of existing mining leases having forest land in part or full and where the State Governments have considered the grant of GA as per the provisions of the para 7.3 (iv) of the Handbook of Forest (Conservation) Act, 1980, the existing mining operations will be restricted to the forest land already approved under section 2(ii) of the FC Act, 1980. In existing leases were approval under the FC Act, 1980 is available only for part of forest land, the nonavailability of approval under the section2 (ii) of the Act in respect of remaining forest land will not be a deterrent to undertake mining in the already approved area provided the user agency has complied all conditions, as stipulated under para 7.3(iv) of the Handbook of Forest (Conservation) Act, 1980".* Thus, the EAC opined that the mining activity shall be restricted to the forest land for which the Project Proponent is having Stage-II FC and to non-forest land.

The EAC also noted that in response to the Project Proponent requisition letter dated 31.07.2023 to issue the formal letter for Wildlife Clearance, the Dy. Conservator of Forest & Dy. Field Director, Ramgarah Vishdhari Tiger Reserve vide letter dated 28.08.2023 has replied that the affidavit submitted by the user organization has been verified and forwarded for further necessary action. The EAC also observed the report of the joint committee wherein it is mentioned that the CWLW in its letter dated 10.02.2023 clearly mentioned that the Wildlife Clearance is already granted by NBWL. Then, the CF & Field Director Mukundra Hills Tiger Reserve vide letters dated 28.04.2023 and 23.05.2023 related with the wildlife clearance of ACC mining lease has stated that M/s ACC Ltd has Wildlife Clearance. Also, the Forest Dept vide letter dated 22.09.2023 has informed that as per the records of the State Forest Dept, no mining activity was carried out during last 5 years in forest area of 409.88 ha by M/s ACC Ltd. The EAC asked the Project Proponent to submit the annexures enclosed in the joint committee report and accordingly the Project Proponent has submitted all the annexures vide email dated 18.10.2023.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC in its meeting held during 18-20 October, 2023 under the provisions of EIA Notification 2006 and its subsequent amendments, **recommended** the proposal for grant of Environmental Clearance under Ministry's Notification dated

06.04.2018 for revalidation of Environmental Clearance (EC) to M/s. ACC Ltd for mining of Limestone with Limestone Production Capacity of 1.5 Million TPA and OB Waste: 1.96 Million TPA with Total Excavation: 3.46 MTPA along with existing wobbler & screening plant of 400 TPH in the mine lease area of 1,308.88 ha [Forest land having Stage-II FC: 201.88 ha + Non-Forest land: 1107 ha] out of 1516.88 Ha, located at Villages Gendoli Kala, GendoliKhurdh, Pholai, Gutha, Mahuwa, Dangaheri, Budel, Kankra, Chamavali, Uttarana, Lakheri, Sakhoda, Nayagaon &Papadi, Tehsil: Indergarh, District: Bundi, Rajasthan subject to the following specific conditions in addition to the standard EC conditions applicable for non-coal mining projects: -

i. The instant Environmental Clearance (EC) will be valid up to the mine lease period i.e., 31.03.2030.

ii. Mining activity is restricted to the Forest land (201.88 ha) for which the Stage-II FC is available as per Ministry's letter dated 27.12.2017 plus the non-forest land (1107 ha).

iii. No mining activity shall be carried out in the forest land for which the Stage-II FC is not available.

iv. As informed by the Project Proponent, no mining activity shall be carried out over an area of 291.85 ha of non-mineralized zone where the acquisition is not required.

v. The Project Proponent needs to submit copy of the formal letter for Wildlife Clearance to be issued by the Dy. Conservator of Forest & Dy. Field Director, Ramgarah Vishdhari Tiger Reserve to the Ministry's Regional Office.

vi. Mining operations shall be strictly carried out in accordance with the Order of the Hon'ble Supreme court dated 4.08.2006 in the T.N. Godavarman Thirumulpad vs UOI matter in WP(C) No. 202 of 1995 and Order dated 21.04.2014 in the matter of Goa Foundation Vs. UOI in WP(C) No. 435 of 2012. Further, the Hon'ble Supreme Court in its order dated 28.04.2023 in IA.No. 3949 of 2016 in Writ Petition (C) No: 202 of 1995 in T.N Godavarman Thirumulpad versus Union of India & Ors. and in the matter of M/s Puntambekar Minerals has directed that "any activity, which is prohibited by both the guidelines as well as the ESZ notification shall strictly be prohibited. Since the mining activity in ESZ area is a prohibited activity, there is no question of such an activity being permitted in an ESZ area even if it falls beyond the distance of one kilometer from the boundary of the protected area".

vii. The project proponent shall comply the directions in the court case matter regarding Consent to Operate (CTO) filed before the Hon'ble National Green Tribunal(NGT), Central Bench, Bhopal in the matter of Original Application No.19/2023 of Devidas Khatri Vs State of Rajasthan & Ors.

viii. The Rajasthan State Pollution Control Board needs to comply with all the statutory requirements of the order of Hon'ble Supreme Court dated 2nd August 2017 in w.r.t. Petition (Civil) No. 114 of 2014 in the matter of common cause versus Union of India & Ors.

ix. No mining activity shall be carried out in 500 m radius from the railway boundary. Rock breaker shall be used in the closest pit of mine lease near railway line to avoid the impacts due to fly rock.

x. The Project Proponent needs to conduct the scientific study for carrying out blasting by the reputed Institute within a period of six months from the start of mining operations. The ground induced blasting vibrations shall be monitored regularly for every blast performed and the values of "peak particle velocity" and "Air Over Pressure" shall be maintained below the permissible values prescribed by the DGMS, from time to time. The data needs to be maintained and submitted along with the six monthly compliance report. The implementation status of the scientific study to be carried out by the reputed Institute shall be submitted to the Ministry's Regional Office and DGMS.

xi. As committed by the Project Proponent, the school within the mine lease area has to be shifted within 2 years from the date of issue of this EC.

xii. The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the vicinity of the mine lease area as well as in study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.

xiii. The Project Proponent should follow-up the status of implementation on Wildlife Conservation Plan from the Forest Officials and the same shall be submitted to the Ministry's Regional Office in the six monthly compliance report.

xiv. The Project Proponent needs to strictly comply with the conditions recommended by the Chief Wildlife Warden in its meeting held on 21.01.2015.

xv. The Project Proponent needs to undertake a community based conservation program and the same shall be monitored and vetted by the Forest Dept.

xvi. The Project Proponent needs to explore the possibility of using advanced/ latest mining technologies available so as to minimize the ecological impacts.

xvii. The Project Proponent shall ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation. A proof of submission of updated Wildlife Conservation Plan shall be submitted to the Ministry's Regional Office.

xviii. As committed by the Project Proponent, 3 no.s of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) shall be installed and commissioned within 1 year from the date of issue of this EC. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

xix. No water bodies shall be disturbed at any stage of mining activity. No waste water shall be discharged outside the mine lease area. The Project Proponent shall take adequate measures to protect the river Mez &Chambal from the mining activity.

xx. The surplus water from the mine pit shall be monitored for its quality before its use for agricultural activity.

xxi. Garland drains and catch drains shall be regularly desilted and maintained periodically at regular intervals.

xxii. The Project Proponent shall monitor the air quality, noise level, water quality, water level and ground vibration during drilling and blasting at the edge of the mine, near the village, crusher and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.

xxiii. The Project Proponent needs to make provision for permanent water sprinklers so as to reduce the water consumption. About, 10 nos. of fog canon/mist sprayer of atleast 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.

xxiv. The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, and other areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions. The dense plantation shall be carried out in the vicinity of the crusher. The Stack emission monitoring of the Crusher shall be carried out at periodic intervals.

xxv. The Project Proponent needs to complete the entire peripheral plantation under green belt, safety barrier plantation and gap plantation within two years from the start of mining operations. The Project Proponent should plant quality sapling of appropriate height of native and fruit bearing species. In case of tall transplants (seedlings) the seedlings should have proper trained root stock with root biomass commensurate with seedling height to ensure good growth after out planting. Plantation shall be undertaken in consultation with the State Forest Department. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Regional Office.

xxvi. The budget of Rs 3.01 Cr to address the concerns raised by the public in the public consultation to be completed within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.

xxvii. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

xxviii. The Project Proponent should adopt the proper mitigation measures as proposed under EMP with budgetary provision of Rs 14.68 Cr. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.

xxix. The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.

xxx. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

xxxi. NoC from the Central Ground Water Authority (CGWA)/ Concerned Local authority, as the case may be, shall be obtained before drawing the ground water for the project activities, State Pollution Control Board / Pollution Control Committees shall not issue the Consent to Operate (CTO) under Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act till the project proponent shall obtain such permission.

xxxii. The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly. The preference shall be given to the local people for the purpose of employment as committed before the EAC.

xxxiii. The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance on occupational health shall be carried out every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.

xxxiv. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

1.3 Lakhpat & Punharajpur Lignite Block and Limestone mine of M/s Gujarat Mineral Development Corporation Limited for a peak production capacity of 4.5 MTPA of Lignite and 29.81 MTPA of Limestone in the mine lease area of 2959.6715 ha, located at Villages Lakhpat, Kaner&Punharajpur, Tehsil: Lakhpat, District: Kutch, Gujarat – [F.No: IA-J-11015/29/2023-IA-II(NCM), Proposal No: IA/GJ/MIN/445103/2023; EIA Consultant: M/s Centre For Envotech and Management Consultancy Pvt. Ltd.] - Terms of Reference

The instant proposal is for mining of Lignite and Limestone in Lakhpat & Punharajpur Lignite Block and Limestone mine of M/s Gujarat Mineral Development Corporation Limited for a peak production capacity of 4.5 MTPA of Lignite and 29.81 MTPA of Limestone in the mine lease area of 2959.6715 ha, located at Villages Lakhpat, Kaner&Punharajpur, Tehsil: Lakhpat, District: Kutch, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude: 23°44'40.429"N to 23°49'19.872"N and Longitude: 68°43'22.983" E to 68°47'30.417" E. The mine lease area falls under the Survey of India Toposheet No: 41 A/9, 41 A/10, 41 A/13 & 41 A/14 and falls in Seismic Zone-V.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mine lease area is greater than 250ha and appraised at the Central level.

iii. The Project Proponent has submitted that the Terms of Reference (ToR) was obtained on 22.06.2022 for Lakhpat&Punharajpur Lignite Block with production capacity 3.0/4.5 MTPA Lignite (Normative/Peak) & 29.81 MTPA Limestone in project area of 2959.6715 Ha. One of the specific condition (i) is that *"as per the MoEF&CC's OM dated 24.12.2010, PP to apply the TOR separately for operation of Limestone mine to respective sector under the provisions of EIA, Notification for preparation of common EIA-EMP report".* In view of the above, a fresh proposal has been submitted to obtain the Terms of Reference (ToR) for mining of Limestone.

iv. Details of Mine Lease:

S. No	Letter of Intent (LoI)	Date of the grant	Name of the Mineral & (Major/ Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Letter No-MCR-102015 -406- CHH1 (Part File) Sachivalaya, Gandhinagar	25.10.2021	Lignite and Limestone (Major Mineral)	30 years	Government of Gujarat, Industries and Mines Department	2959.67.15 ha

v. Land Use/Land Cover of the Mine lease area:

Private land	224.9142 Ha
Government land	2734.7573Ha
Forest land	0
Total Mining lease area (MLA), ha	2959.6715 ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Details of Mining Plan: -

Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	MCDR-MPCP0CaF1/7/2023-GNR-IBM_RO_GNR
	Date	09.08.2023

	Mineral & (Major/Minor)	Mineral Limestone and Lignite as Associated Mineral
	Mine Lease Area, Ha	2959.6715
Mining Parameters	Quantitative Description	
Method of Mining	Fully Mechanized Opencast Mining	
Drilling/Blasting	Drilling and blasting will be rarely phenomenon in the whole mining process throughout the life of the mine. Occasional drilling and blasting may require to excavate the hard limestone strata which has been reported in the Geological report. In case of drilling and blasting, spacing and burdens will be limited to 5 meter each. Deep hole blasting with SMS will be adopted. Blasting will be done in the suitable time of the day after proper intimation	
Geological Reserves	736.58 MT of Limestone and 145.43 MT of Lignite	
Mineable Reserves	562.55 MT of Limestone 105.52 MT of Lignite	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Limestone - 29.81 MTPA Lignite – 3 MTPA Top soil – 0.52 MTPA OB – 118.7672 MTPA	
Life of mine	39 years (for Limestone 35 years and for Lignite 39 years)	
Mine Bench Height & Bench Width	Proposed bench height 5m and bench width 10m	
No. of Mine Benches	21	
Existing Depth, m bgl	0	
Ultimate Depth of Mining, m bgl	105m	
Ground Water Table, m bgl	2.60 m to 11.05 m bgl in Pre-monsoon and 0.00 m to 11.00 m bgl in Post-monsoon	
Details of ground water intersection	There will be intersection of ground water aquifer during mining operation	
Individual bench slope	80º	
Overall pit slope	26º	
Details of existing/ proposed Crusher	Proposed Primary Crushing – Jaw Crusher of 6000 TPH capacity	
Mineral Beneficiation	Not Applicable	
RoM output size	-200 mm	
Transportation details including capacity of dumper/tipper, mode of transport and distance	No. of Dumper of capacity 40 Ton -128 and No. of Dumper of capacity 35 Ton – 51 Mode of transport – Road Distance – around 10 Km from project site	
Generation of Topsoil/OB & its Management during plan period & conceptual period	About 1249.34 M.cum of OB and 12.65 M.cum of Topsoil will be generated. Backfilling will be done over 1675.72 Ha out of which 717.93 Ha will be converted to agricultural land and 957.79	

	Ha will be utilized for plantation.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	A mineral rejects yard will be created in the south-western corner of the Block to stack the sub-graded limestone for future usage.

vii. Water requirement:

Total water requirement	1940 KLD	Drinking/Domestic	90.0 KLD
		Dust suppression	1350.0 KLD
		Greenbelt/Plantation	500.0 KLD
Source	Deep tube wells will be installed at site for drinking water with necessary treatment plant. Potability of water will be analyzed in quarterly basis. In the initial years, water for dust suppression, plantation use and workshop uses will be catered from the mine pit water of nearby GMDC mines. With progress of the mine, accumulated pit water will be stored and utilized for the Plantation, Dust Suppression and workshop usage.		
Permission for withdrawal/ intersection along with details of grant and its validity	Requisite approvals from CGWA will be obtained before commencement of mining operation.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest:

Particulars	Particular's Name	Distance & Directions
Village	Lakhpat	0.5 km
Town	Nakhatrana Bhuj	~70 km, SE ~111km, SE
Highway	SH-42 SH-6	SH-42 passing through the block boundary SH-6 is passing just outside the north-western boundary of the block.
Interstate Boundary	India-Pakistan International Boundary	40 km towards NW
Railway Station/Railway line	Bhuj Railway Station	110 km towards SE
Water Bodies	Nala Kori Creek Nala	0.3 km towards W 1 Km towards N 2 km towards E

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	No Forest land involved in the mine lease area
National Park	No	Nil within 10 km

Wildlife Sanctuary	No	Narayan Sarovar Wildlife Sanctuary in the southern direction from the mine lease area
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	The block is also 8.2 km outside of the Eco Sensitive zone of Narayan Sarovar Wildlife sanctuary as per the certificate of Forest and Environment Department, Gujarat, dated 09-02-23)
Coastal Regulation Zone (CRZ)	No	The project site does not fall in CRZ area as per the assessment of CRZ status of LakhpatPunharajpur Lignite Block.

x. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Proposed area – 1056.41 Ha No. of saplings – 16,90,000
Budget for green plant & plantation till the end of life of mine.	Capital Cost - 936 lakhs Revenue Cost – 214.5 lakhs
Budget for nursery	Nil
Details of existing plantation and its survival rate	No existing plantation
No. of tree cuts in the mine lease area and compensatory afforestation	Nil

xi. Rehabilitation & Resettlement (R&R):

R & R details	There is no homestead PAF within the Block. However, there are 196 PAF and 798 PAP within the Block. Compensation in accordance with the prevailing Norm of State R & R Policy will be undertaken and implemented by M/s GMDC for the land losers.

xii. Court case details:

Court Case, No and its present status	No court case is pending against the project.

xiii. Details of project cost and employment:

Particulars	(Rs. In Crore)
Project Cost	Rs 1037.436 Crores
Employment (No.s)	1000 persons (Departmental: 200, Contractual: 650 & Security: 150)

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant has presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has informed the EAC that the initially mining lease was granted over an area of 2973 ha and then the State Govt has reduced the 14 ha of forest land and granted the Letter of Intent (LoI) over an area of 2959.6715 ha. A State Highway is passing within and adjacent

to the mine lease area. No Villages located within the mine lease area. Nala is located about 200m on the western side. Kori Creek is situated at a distance of 1 km towards Northern side. This region receives an annual rainfall of about 200–300 mm. The project site does not fall under CRZ area. Lakphat Fort is located at a distance of about 200m from the mine lease area on the northern direction. The instant mine lease area is located at a distance of 8.8 km from Narayan Sarovar Wildlife sanctuary and 8.2 km from Eco Sensitive zone of Narayan Sarovar Wildlife sanctuary which is outside the Eco Sensitive zone. No forest land is involved in the mine lease area. India-Pakistan International Boundary is located about at a distance of 40 km towards NW. The EAC observed that on viewing the KML file, CRZ area is found to be on northern side of the mine lease area. The Project Proponent has informed the EAC that CRZ area is outside the mine lease area. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence".* The EAC opined that the NOC from the Ministry of Defence is prerequisite for grant of Terms of Reference (ToR).

The Project Proponent has informed the EAC that the instant proposal is for mining of Lignite and Limestone. Terms of Reference (ToR) have been already obtained from the Coal Mining Sector for Lignite mining on 22.06.2022. One of the specific condition (i) of the ToR is that *"as per the MoEF&CC's OM dated 24.12.2010, PP to apply the TOR separately for operation of Limestone mine to respective sector under the provisions of EIA, Notification for preparation of common EIA-EMP report".* In this regard, a fresh proposal has been submitted to obtain the Terms of Reference (ToR) for mining of Limestone. This Limestone has been occurring as an over burden and has to be excavated out. Maximum proposed production capacity of Limestone is 29.81 MTPA. Expression of Interest (EoI) has been published for putting up cement plants. The EAC asked about the plan for transportation. The Project Proponent has informed the EAC that they are exploring the options to put the Cement Plant close to the Limestone mine and will also explore the possibilities of transporting through conveyor belt and if not possible proper mitigation plans will be devised to minimize the impact due to road transportation. The Cement Plant will commence between during the year 2026-2029. The feasibility of transportation will be covered in the EIA/EMP report since the EoI is in 2nd Stage of tendering.

The EAC asked the Project Proponent that when will the Lignite production will commence. The Project Proponent has informed the EAC that the Lignite production will commence in the year 2025. The EAC asked the Project Proponent that whether huge area is available to accommodate the Limestone. The Project Proponent has informed the EAC that during the first five-year plan, the maximum production of Limestone will be 14.80 MTPA. The EAC asked the Project Proponent

to explore the possibility of the reduction of the requirement of water consumption. The EAC also asked the Project Proponent to submit the action plan for exploration program in the EIA report.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC opined that there are other mines also present in the study area. The EAC observed that the Lakphat Fort is located at a distance of about 200m from the mine lease area on the northern direction. The proposed capacity of Limestone is huge quantity. The EAC noted that the maximum proposed production capacity of Limestone of 29.81 MTPA will be achieved in the 12th year as per the then approved mining plan. The Project Proponent did not finalize the mode of transportation. The EAC was of the view that rainfall in the region is very minimal and there will be intersection of ground water aquifer during mining operation. The area is already starved of freshwater. The EAC opined that this will create further complications. The EAC observed that since there will be no overburden, backfilling the void and the closure of mine remains a challenging task. The EAC noted that a Nala is located about 200m on the Western side and Kori Creek is situated at a distance of 1 km towards Northern side and there will likely chance of sea ingress. The EAC also noted that the mine lease area is located in Seismic Zone-V. Thus the EAC was of the view that there is a need to ascertain the ground reality w.r.t water bodies in the vicinity of the mine lease area, Lakphat Fort (200m, N), handling, management and transportation of Limestone, traffic congestion, water balance and source of water, plan for final closure of mine, sea ingression, cumulative impact and hazard management. The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal and was of the view that the instant proposal may be considered only after submission of the following additional information: -

i. The Site visit report of the sub-committee.

ii. Since the mine site is located within 20 km from seaboard frontier, Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project for Terms of Reference (ToR).

iii. The Project Proponent needs to clearly justify the water balance and also to explain that how the requirements of freshwater will be met.

1.4 Tadawas Limestone Mine (Auction Mine) of M/s Hansdeep Industries and Trading Company Limited for the proposed production capacity of 2.0 MTPA of Limestone and 0.6 MTPA of OB/Waste in the mine lease area of 423.97 ha along with the crusher capacity of 1000 TPH, located at Tadawas,

Berawas, Bhawanda and Khorawa Villages, Tehsil Khimsar, District Nagaur, Rajasthan – [F.No: J-11015/29/2022-IA-II(NCM), Proposal No: IA/RJ/MIN/ 445238/2023; EIA Consultant: M/s GreenCIndia Consulting Private Limited] - Environmental Clearance

The instant proposal is for mining of Limestone in Tadawas Limestone Mine (Auction Mine) of M/s Hansdeep Industries and Trading Company Limited with the proposed production capacity of 2.0 MTPA of Limestone and 0.6 MTPA of OB/Waste in the mine lease area of 423.97 ha along with the crusher capacity of 1000 TPH, located at Tadawas, Berawas, Bhawanda and Khorawa Villages, Tehsil Khimsar, District Nagaur, Rajasthan.

2. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant has informed the EAC that the instant proposal is for mining of Limestone in Tadawas Limestone Mine (Auction Mine) for the proposed production capacity of 2.0 MTPA of Limestone and 0.6 MTPA of OB/Waste along with the crusher capacity of 1000 TPHin the mine lease area of 423.97 ha. The EAC asked the Project Proponent that whether the Letter of Intent (LoI) is valid as on date or not. The Project Proponent has informed the EAC that as on date the Letter of Intent is not valid and it was valid up to 24.09.2023. A requisition letter has been submitted to the State Govt. for extension of validity of Letter of Intent (LoI). The EAC was of the view that the Letter of Intent (LoI) is the basis for consideration of the proposal and hence the instant proposal cannot be considered further without a valid Letter of Intent (LoI). Thus, the EAC opined that the instant proposal may be considered only after the submission of the valid Letter of Intent (LoI) by the Project Proponent. Therefore, the EAC **deferred** the proposal.

1.5 Kottameta Limestone Mine (Auctioned Block) of M/s. Dalmia Cement (Bharat) Ltd with Total Excavation of 7.6 Million TPA (Limestone: 3.0 Million TPA, Soil: 0.5 Million TPA and Waste: 4.1 Million TPA) along with 1000 TPH Capacity Crusher in the mine lease area of 802.25 ha, located at Village: Katamater, Tehsil & District: Malkangiri, Odisha – [F.No: J-11015/80/2018-IA.II (M), Proposal No: IA/OR/MIN/440925/2023; EIA Consultant: M/s J.M. EnviroNetPvt. Ltd] – Environmental Clearance

The instant proposal is for mining of Limestone in Kottameta Limestone Mine (Auctioned Block) of M/s. Dalmia Cement (Bharat) Ltd with Total Excavation of 7.6 Million TPA (Limestone: 3.0 Million TPA, Soil: 0.5 Million TPA and Waste: 4.1 Million TPA) along with 1000 TPH Capacity Crusher in the mine lease area of 802.25 ha, located at Village: Katamater, Tehsil & District: Malkangiri, Odisha.

2. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant has informed the EAC that the total mine lease area is 802.25 ha, out of which Forest land is 575.160 ha, Private land is 143.603 ha and Government land is 83.487 ha. The Interstate boundary of Odisha-Chhattisgarhis located adjacent (~50m) to the mine lease area in the northern direction and the mine lease area is located within the Odisha State. The Project Proponent also informed the EAC that initially Letter of Intent (LoI) was granted by the State Govt. vide letter dated 27.01.2017 over an area of 801.171 ha. At the time of pursuing Forest Clearance, re-validation of land schedule was done by Tehsildar, Malkangiri within the mine lease area allotted under auction and total extent of the area changed from 801.171 ha to 802.25 ha. Further, the Project Proponent has informed the EAC that the change in the mine lease area is due to DGPS Survey and there is no change in the physical boundary of the mine lease area. The EAC asked about the status of the Stage-I Forest Clearance for an area of 575.160 ha. The Project Proponent has informed the EAC that the MoEF&CC has granted the approval vide file no. 8-18/2022-FC dated 18.05.2023under Section-2 (iii) of Forest (Conservation) Act, 1980 for grant of forest land on lease over 575.16 ha of forest land within the granted ML area over 802.255 ha for Kottameta Lime Limestone mining. The Stage - I FC for an area of 575.16 ha of forest land is under process.

The EAC reiterated the Hon'ble Supreme Court of India in its order of 6thJuly 2011 issued guidelines so as to not create *fait accompli* situation in the matter of diversion of forest land under the FCA, 1980. Therefore, in the case of new mining leases/projects having forest land in part or in full, approval under FCA for diversion of entire forest land located within the mining lease/project is to be obtained before execution/renewal of mining lease/project. The EAC opined that the scenario of the Stage-I FC proposal may change w.r.t extent, compensatory afforestation, etc., Thus the EAC was of the view that the Stage-I Forest Clearance is necessary to appraise the project on the environmental merits of the site. Therefore, the EAC **deferred** the proposal and opined that the proposal may be considered only after the submission of the Stage – I Forest Clearance for an area of 575.16 ha of forest land by the Project Proponent.

Day 2: 19th October, 2023 (Thursday)

2.1 Padhiarka and Doliya Limestone mine of M/s Nirma Limited for mining of Limestone with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha, located at Villages Padhiarka & Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat - [F.No: J-11015/154/2016-IA.II(M), Proposal No: IA/GJ/MIN/443206/2023, EIA Consultant: M/s Centre for Envotech and Management Consultancy Pvt. Ltd] – Environmental Clearance

The proposal is for mining of Limestone in Padhiarka and Doliya Limestone mine of M/s Nirma Limited with production capacity of 1.5 MTPA in the mine

leasearea of 332.24 ha, located at Villages Padhiarka & Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and as revealed from the discussions held during the meetingare given as under:

i. The mine lease area is located between Latitude 21°00'42.8152" N to 21°02' 9.7579" N and Longitude 71°40'10.0006"E to 71°41'9.9043"E. The mine lease area falls under the Survey of India Toposheet No: F42R12and falls in Seismic Zone-III.
ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mining lease area is greater than 250ha and appraised at the Central level.
iii. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
27.09.2022	IA/GJ/MIN/ 400887/2022 J-11015/ 154/ 2016-IA.II(M)	18.10.2022	Terms of Reference (ToR) for M/s Nirma Limited for mining of Limestone in Padhiarka and Doliya Limestone mine with production capacity of 1.5 MTPA in the mine lease area of 332.24 ha, located at Villages Padhiarka &Doliya, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study	28.11.2022

iv. Details of Mine Lease: -
   a) The Project Proponent has submitted that initiallythe State Govt has granted the Letter of Intent for grant of mining lease vide letter no. MCR-102004-1945-CHH dated 15.02.2008 for mineral Limestone and Marl over an area of 616.7254 ha for a period of 30 years.
   b) Then, the Govt. of Gujarat, Industries and Mines Department, vide Order no: MCR102004-1945-CHH dated 08.01.2017 granted the mining lease for Limestone and Marl to M/s Nirma Limited over an area of 333.24 ha for a period of 50 years for its captive consumption.
   c) The mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the lessee Nirma Ltd. for a period of 50 years and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017under the provision of MMDR Amendment Act, 2015.

v. Land Use/Land Cover of the Mine Lease Area: -

Private land	199.2246 ha
Government land	133.0154 ha
Forest land	-
Total Mining lease area (MLA), ha	332.24 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No any facilities outside the ML area. However crusher will be installed at company's Cement Plant.

vi. Mining plan details:

Review of Mining Plan including Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	File No.: 684(4)(1)/MP-349(195)/2021-22 GNR/1129
	Date	05.08.2021
	Mineral & (Major/Minor)	Limestone (Major)
	Mine Lease Area, Ha	332.24
	Validity	2021-22 to 2025-26
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized	
Drilling/Blasting	Multi-row drilling and V-pattern drill holes for deep hole drilling and blasting. Slurry explosive - cap sensitive and non-cap sensitive.	
Geological Reserves	28.177 Million tonne	
Mineable Reserves	10.707 Million tonne	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Top soil- 0.5 mi.cum OB/SB/IB/Mineral Rejects- Nil Waste-Nil	
Life of mine	11 years (Life of mine may be increased subject to conversions of resources under 333 category into category of reserves 111)	
Mine Bench Height & Bench Width	6.0 m, for working bench 12-15 m for closing (conceptual) bench Optimum	
No. of Mine Benches	2	
Existing Depth, m bgl	New mine	
Ultimate Depth of Mining, m bgl	11 m	
Ground Water Table, m bgl	13 m (Post monsoon)	
Details of ground water intersection	No ground water will be encountered during planning stage i.e. in working plan in neither pre monsoon nor post monsoon season in any of the pits. Ground water will also not intersect during mining at the end of mine life.	
Individual bench slope	80-85°	
Overall pit slope	~ 45°	
Details of existing/ proposed Crusher	Proposed crusher will be installed at Cement Plant.	
Mineral Beneficiation	-	

RoM output size	-
Transportation details including capacity of dumper/tipper, mode of transport and distance	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease. For the Soda Ash Plant located at approx.100 km at Kalatalav, Bhavnagar limestone will be transported in dumpers/ trucks through National Highway 51. Internal haul road from mine face to crusher by means of dumper/tippers of 25 tonnes capacity.
Generation of Topsoil/OB & its Management during plan period & conceptual period	Top soil at plan period- 127122 cu.m, temporary stacking at one location Topsoil at conceptual period-372878 cu.m, simultaneously backfilling
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil
Additional information(if any)	Surface miner as well as ripper/dozer & rock breaker will be used for mining to minimize drilling & blasting.

vii. Water requirement:

Total water requirement	41 KLD	Fresh water	3 KLD
		Treated water	38 KLD
Source	i. Fresh water source Narmada water pipeline/Water tanker. ii. Water harvested within mine lease during rainy season. iii. Treated water source- Reject water of RO /DM plant &Reject water of RO /DM plant (proposed at Cement plant)		
Permission for withdrawal/ intersection along with details of grant and its validity	Permission for water withdrawal from Narmada water pipeline has been taken vide letter No. GWIL/Bhavnagar/Ind.conn./1257 dated 4.06.2008.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Madhiya	0.5 km, N
Town	Mahuva	9.5km, NE
Highway	NH-51 (Una-Mahuva highway)	0.7 km, N
Interstate Boundary	Rajasthan	500 KM,N
Railway Station/Railway line	Amrutvel	4.5 km, N
Water Bodies	Arabian Sea Coast	0.5 km, S from the HTL
	Samdiyala Salinity ingress	2.3 km, WSW

	control bund	
	Bhambhali River	3.6 Km, W
Forest	RF near Patwa	0.4 KM,SW
	RF near Doliya	0.4 KM,S
	RF near Dudheri	0.6 KM,SSE
	RF near Gujarda	2.3 KM,E

ix. Presence of Environmentally Sensitive areas in the study area:

<table>
<tr><td>Forest Land/ Protected Area/ Environmental Sensitivity Zone</td><td>Yes/ No</td><td>Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks</td></tr>
<tr><td>Forest Land within the mine lease area and (if yes) status of Forest Clearance</td><td>No</td><td rowspan="5">The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests vide Lr.No: WLP/32/C826-827/2021-22 dated 13.01.2022 regarding the map showing the location of protected areas within 10km of the Limestone mining project and the and distance of protected areas and proposed Limestone mine.
<table>
<tr><td>Protected areas</td><td>Distance between Limestone mines and Protected areas</td></tr>
<tr><td>Gir National Park</td><td>79.0 km</td></tr>
<tr><td>Gir Wildlife Sanctuary</td><td>47.6 km</td></tr>
<tr><td>Mitiyala Wildlife Sanctuary</td><td>46.7 km</td></tr>
</table>

The Project Proponent has submitted the letter from the Office of the Deputy Chief Conservator of Forest, Bhavnagar vide letter no. A/GMN/T11/2075/22-23 dated 27.01.2023 certifying that the nearest turtle rearing/breeding site is located at a distance of about 70km away from the mines.</td></tr>
<tr><td>National Park</td><td>No</td></tr>
<tr><td>Wildlife Sanctuary</td><td>No</td></tr>
<tr><td>Elephant/Tiger Reserve</td><td>No</td></tr>
<tr><td>Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)</td><td>No</td></tr>
<tr><td>Coastal Regulation Zone (CRZ)</td><td>No</td><td>The Project Proponent has submitted the letter from the Government of Gujarat, Forest and Environment Dept vide Lr no.ENV-10-2023-170-T dated 19.07.2023 stating that the proposed project of mining at Padhiarka & Doliya mine lease (333.24 ha), District Bhavnagar is outside CRZ area.</td></tr>
<tr><td>Schedule-I species (No.s and name of schedule-I species with authenticated letter)</td><td>Yes</td><td>The Project Proponent has submitted the authenticated list of flora and fauna from the Office of the Deputy Forest Conservator vide Lr.No:</td></tr>
</table>

		A/Jaman/Te.11/2302/ 17-18 dated 05.02.2018 stating that there are three Schedule-I species such as Peafowl, Chinkara and Asiatic lion in the study area. After the amendment of the Wild Life (Protection) Amendment Act, 2022, No 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.
Wildlife Conservation Plan	Yes	On the basis of the fauna study findings & list of fauna authenticated by Forest Department, Wildlife Conservation Plan was prepared and submitted for approval. The Wildlife Conservation Plan was approved by the Chief Wildlife Warden vide Lr.No: WLP/32/C670-672 dated 20.12.2021 with a budget of Rs. 19.9 Lakhs for the conservation of wildlife in the study area.

x. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	18.50 Ha.
Budget for green plant & plantation till the end of life of mine.	Rs 56.10 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	-
No. of tree cuts in the mine lease area and compensatory afforestation	As per actual during mining
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	5.0
50 m safety zone of nallah, roads, electric lines	3.0
500 m safety zones of nearest habitation villages	-
Additional information (if any)	10.50 ha(Backfilled area (Govt. wasteland))

xi. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	01.03.2021 to 02.06.2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer
Predominant Wind direction (From)	South
Ambient Air Quality (no. of locations) and results – 16 locations	PM10: 27.6 - 71.1 µg/m^3 PM2.5: 11.2 – 40.0 µg/m^3 SO2: 2.7 – 10.2 µg/m^3 NO2: 3.6 – 14.5 µg/m^3
Noise level (no. of locations) and results – 16 locations	Day Time: 47.57 dB(A) – 52.46 dB(A) Night Time: 39.42 dB(A) - 42.89 dB(A)
Water Quality (no. of locations) and results - 12Ground water and 3 Surface water	All the parameters of ground water were well within the permissible limits as per IS 10500: 2012. The surface water quality in all samples was found B to below E class. The result indicates that the maximum and minimum values of DO ranges between 5.8 to 6.3 mg/l, hardness ranged between 360 - 8300 mg/l in surface water.
Soil Quality (no. of locations) and results – 12 locations	Soil quality was monitored at 12 no. of stations. The result indicates that the maximum and minimum values of pH ranges between 7.7 - 8.2, Potassium ranges from 157.0 - 845.0 kg/ha and Nitrogen ranges from 0.01 - 12.57mg/kg.
Hydro geological study and results	As per Hydrogeological & Hydrological Studies of core and buffer zone of Padhiarka & Doliya Limestone Mine, the qualitative aspects of ground water shows that salinity ingress from sea has taken place up to over 3 km from Arabian sea reaching center of buffer zone including mines falling in core zone.The ground water flow direction is towards south in general. The mining activity will not intersect the ground water table, no mine seepage is envisaged.
Traffic study (no. of locations) and results	The traffic volume survey was conducted on Bhavnagar to Una Road (NH8E/51) Near Vangar Village. Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day.There will be daily movement of 480 numbers of dumpers (to & fro) per day or 1440 PCU/ day on the road. V/C = 31.27.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional	26.03.2023 in Sandesh Newspaper (Gujarati) & Indian Express (English)

vernacular daily newspaper)	
Date of PH	28.04.2023 @ 01:00 PM
Venue	At the premises of Nirma Cement Plant Area, NH 8E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. Bhavnagar
Chaired by	Shri R.K Mehta (IAS), District Collector & District Magistrate, Bhavnagar District & Regional Officer, GPCB Bhavnagar
Main issues raised during PH	Air pollution, salinity ingression, wildlife protection, acquisition of agriculture land
Budget proposed for addressing issues raised during PH over 3 years	Rs 77 Lakhs

xiii. Resettlement & Rehabilitation (R&R):

R & R details	The total mine lease area is 332.24 ha, out of which Govt. land is 133.0154 ha and Private land is 199.2246 ha.Land will be required for quarrying an area of 100.61 ha of Private land and Government land including 08 houses/hutment in Padhiarka village and 27 houses/hutment in Doliya villages. The houses/hutment fall in the conceptual pits of the mine lease. There will be total of 683 project affected land losers. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 35.0 Lakhs. In addition to above, the registration cost of sale of the land and homesteads shall be borne by the Company. Assuming it to be 6% of theentire costs of sale, the total resettlement budget works out to be Rs. 59.93 lakhs (6% of land value).

xiv. Court case details:

Court Case, No and its present status	The Project Proponent has submitted an undertaking vide letter dated 07.10.2023 stating that there is no litigation on the project either at NGT or any other court of law related to environment and pollution matters in which the project proponent is a respondent.
Undertaking by Project Proponent w.r.t court case	

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted an undertaking by way of notarized Affidavit dated 09.10.2023 stating that the proposal does not involve violation of Ministry's OM dated 30.05.2018.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 04.01.2023 stating that the contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge of the undersigned (Shri Ashish Desai).

Undertaking by Consultant in EIA/EMP report	The Director of the EIA Consultant (M/s Centre for Envotech & Management Consultancy Pvt. Ltd) has informed that the baseline data was generated by MoEF &NABL Accredited Laboratory M/s Min Mec R&D Laboratory, a division of Min Mec Consultancy Pvt. Ltd., New Delhi and the same has been verified and also confirmed that he shall be fully accountable for any misleading information mentioned in this statement.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Pollution Control	0.271	9.66
Pollution monitoring	0.016	3.88
Occupational health	0.011	0.65
Environmental Studies, etc.	0.10	_
Green belt	_	5.10
Reclamation	_	5.85
Others (Environmental studies, Rehabilitation, Realignment, Expert advice, fencing etc.	_	6.03
Overheads	_	0.30
Total	0.3980	31.47

xvii. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	1.16
Project Cost	29
Employment (No.s)	55

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10 km radius. The Project Proponent has shown the boundary of the mine lease area and informed the EAC that the NH-51 (Una-Mahuva highway) is located at a distance of 0.7 km, N from the mine lease area. Madhiya Village is located at a distance of 0.5 km, N. Arabian Sea Coast is located at a distance of 0.5 km, S from the HTL and Bhambhali River is located at a distance of 3.6 km, W. A man made reservoir is located within 5km radius of the mine lease area on the eastern direction. Samdiyala Salinity ingress control bund is situated on the western side on the mine lease area. Part of the Doliya Village is located within the mine lease area on southern side. No mining activity is proposed in the side of the Doliya Village. Nearest distance of the village from the mine pit is 700m.

The EAC noted that Arabian Sea and there are few water bodies are present in the vicinity of the mine lease area and asked the Project Proponent whether there are any backwaters from Arabian Sea coming into the mine lease area or not. The Project Proponent has informed the EAC that the water within the mine lease area is due to accumulation of rain water that was accumulated during the rainy season and tends to remain during January - February. Water gets dried during summer season. The Project Proponent also shown the historical images of rainwater accumulation for different months over the past years. The mine pit elevation is 4-6m above MSL. Depth of mining proposed is 11 m. Water gets accumulated in the natural low lying areas. The EAC asked about the thickness of the over burden. The Project Proponent has informed the EAC that the average thickness of the over burden is varying between 1-1.5m. The EAC asked the Project Proponent that whether the enough material will be available for backfilling up to a depth of 11m. The Project Proponent has informed the EAC that the entire 11m will not be backfilled and only part of the area will be backfilled. The shallow pit of depth<4m will be backfilled i.e., Pit -2, 3 and 4. Backfilling is proposed after 2026-27/ 2027-28. Backfilled area shall be utilized for agriculture in case of private land and for plantation purpose in case of government land. Existing minerals were assessed through exploration carried out by CGM, GoG. Old mine pits are also existing within the mine lease area. The EAC asked the Project Proponent to submit the action plan for year wise exploration program.

The EAC asked to brief about the mode of transportation. The mined out material will be transported to the crusher proposed in the cement plant by internal haul road by means of dumper/tippers of 25 tonnes capacity and then from crusher to the Cement plant (adjacent to the mine lease) by conveyor. Village roads will be used for transporting the mined out material from different pits. The EAC asked about the width of the transportation road. The Project Proponent has informed the EAC that the existing width of the road is 4m which will be not adequate to transport the material. Hence, the lands adjacent to this road will be purchased and the width of the road will be increased to 6m. The dividers will be made in between transportation road. The Cement Plant is yet to be constructed and these lands will be purchased for expansion of road only at the time of construction of the cement plant. The EAC asked the Project Proponent till then how the mined out Limestone will be utilized. The Project Proponent has informed the EAC that there are two grades of Limestone such as Chemical Grade Limestone and Cement Grade Limestone available in this project. For utilization of Chemical Grade of Limestone for non-cement purposes, permission has been obtained from the State Govt. The company is having its Soda Ash manufacturing plant located at Bhavnagar at a distance of 100 km from the mine lease area. This manufacturing plant requires Chemical Grade Limestone. Hence, the Chemical Grade of Limestone from this instant mine will be transported to the Soda Ash manufacturing plant located at Bhavnagar through National Highway 51. The EAC asked the Project Proponent to increase the width of the road to 7m. The EAC asked the Project Proponent that

when will the Cement Plant will be commissioned. The Project Proponent has informed the EAC that matter regarding Cement Plant is pending before the Hon'ble Supreme Court.

The EAC asked the Project Proponent to show the KML file of other two adjacent mine leases by overlapping with the KML file of the instant project. The Project Proponent has informed the EAC that the Vangar & Madhiya Limestone Mine is proposed on the northern side and Gujarda, Dudheri & Dudhala Limestone Mine is proposed on the eastern side of the mine lease area to this instant mine lease belonging to M/s Nirma Ltd. The Project Proponent also shown the proposed mine pits in Vangar & Madhiya Limestone Mine and Gujarda, Dudheri & Dudhala Limestone Mine. A Cement Plant is proposed on the western side of the mine lease area. Internal haul roads passing through the mine lease area will be used for transportation. The EAC asked the Project Proponent to bypass the village road for transporting the material. The EAC also asked the Project Proponent that whether any school is present within the mine lease area or not. The Project Proponent has informed the EAC that a primary school is located in the village Vangar. A safety distance of 50m will be maintained. Greenbelt will be developed all along the school. No drilling and blasting will be practiced. Only Surface miner as well as ripper/dozer & rock breaker will be used. The EAC opined that there should be no activity of drilling and blasting near school premise.

The Project Proponent has informed the EAC that the Life of the mine will be 11 years and may increase subject to exploration. Marly Limestone occurs in mine lease area. The limestone is of the high / cement grade quality and is followed by Marly Limestone/ Marl. The Limestone production will be restricted till the commission of the Cement plant. The EAC asked the Project Proponent that how the Limestone will be sized and will be sent to the Soda Ash Plant. The Project Proponent has informed the EAC that by using the rock breaker the limestone will be sized and sent to the Soda Ash Plant. The EAC was of the view that the activities proposed under the Wildlife Conservation Plan is generalized and the Project Proponent needs to revise the activities of the Wildlife Conservation Plan which should be site specific. The EAC also asked the Project Proponent to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation. Turtle breeding centre is located about 70km from the mine lease area. The total mine lease area is 332.24 ha, out of which Govt. land is 133.0154 ha and Private land is 199.2246 ha.Land will be required for quarrying an area of 100.61 ha of Private land and Government land including 08 houses/hutment in Padhiarka village and 27 houses/hutment in Doliya villages. The houses/hutment fall in the conceptual pits of the mine lease. There will be total of 683 project affected families. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 35.0 Lakhs. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit

and justify the budget proposed for R&R. Budget proposed for addressing issues raised during public hearing is Rs 77.0 Lakhs over 3 years and the cumulative budget will be Rs 160 Lakhs by comprising all three mines.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the project is part of three contiguous projects namely Padhiarka and Doliya Limestone mine (332.24 ha), Vangar & Madhiya Limestone Mine (612.336 ha) and Gujarda, Dudheri & Dudhala Limestone Mine (681.62 ha) and together it extends over an area of 1626.196 ha. The mine lease area comprises of partly Private Agriculture land and partly Govt. land. Part of the Doliya Village is located within the mine lease area on southern side. Also villages are located close to the proximity of the mine lease area. The EAC was not convinced with the proposed backfilling plan and the activities proposed under the Wildlife Conservation Plan. The EAC observed that the pits are isolated and the mine lease area is partly Private and Govt. land. The EAC also observed that there will be direct purchase or leasing of private land with the willing consent of the private land owners. The EAC was of the view that what if the land owners are not willing to give their land. There are likely chances that mining will not take place sequentially if the land acquisition does not happen. There will be failure of scientific mining. Large no. of Project Affected Families is involved in all these projects. The EAC opined that the Saltwater intrusion through surface or ground water sources may diminish the availability or quality of source waters for drinking water utilities. Some salt pans i.e., salt manufacturing industries and few wind mills exists in the study area. Old mine pits are also existing within the mine lease area. The EAC noted that the Bhavnagar is categorized as a Severely Polluted Areas. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence".* Accordingly, EAC opined that PP should obtain NOC from Ministry of Defence.

Thus the EAC opined that there is a need to ascertain the ground reality w.r.t natural low lying areas, water logging areas, old mine pits, sequence of mining, feasibility for backfilling, impact on socio economic, agriculture land, transportation route, traffic congestion, salt pans, effectiveness of salinity ingress control bund, proximity of habitations, schools, water bodies, roads etc., The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. Since the mine site is located within 20 km from seaboard frontier, Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project.

iii. The Project Proponent needs to submit the action for laying common Over Land Belt Conveyor (OLBC) for transportation of mineral from mine lease area to the Cement Plant. The Project Proponent also needs to submit the action plan for expansion of road with a width of 7m and by passing the village road till the commission of the Over Land Belt Conveyor (OLBC).

iv. The Project Proponent needs to submit the protection measures to be taken for salt water intrusion and the effectiveness of the salinity ingress control bund.

v. The Project Proponent needs to submit the site specific mitigation measures for backwaters from Arabian Sea coming into the mine lease area.

vi. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

vii. The Project Proponent needs to revise the activities proposed under the Wildlife Conservation Plan.The Project Proponent also needs to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation.

viii. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit and justify the budget proposed for Resettlement & Rehabilitation (R&R). The Project Proponent also needs to submit the action plan for land acquisition and timeline.

ix. The Project Proponent needs to submit the action plan for year wise exploration program.

x. The Project Proponent needs to submit the copy of the permission letter obtained from the State Govt. for utilization of Chemical Grade of Limestone for non-cement purposes.

xi. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Gujarat clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Nirma Limited or not?

2.2 Vangar & Madhiya Limestone Mine of M/s Limited for mining of Limestone with production capacity of 1.6 MTPA in the mine lease area of 612.1336 ha, located at Villages Vangar & Madhiya, Tehsil: Mahuva, District: Bhavnagar, Gujarat - [F.No: J-11015/152/2016-IA.II(M), Proposal No: IA/GJ/MIN/443498/2023; EIA Consultant: M/s Centre for Envotech and Management Consultancy Pvt. Ltd] - Environmental Clearance

The proposal is for mining of Limestone in Vangar & Madhiya Limestone Mine of M/s Limited for mining of Limestone with production capacity of 1.6 MTPA in the mine lease area of 612.1336 ha, located at Villages Vangar & Madhiya, Tehsil: Mahuva, District: Bhavnagar, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 21º01'44.54" to 21º 03' 40.04" N and Longitude 71º39'18.3"E to 71º41'05"E. The mine lease area falls under the Survey of India Toposheet No: 41 O/12 (restricted)and falls in Seismic Zone-III.
ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category “A” as the mining lease area is greater than 250ha and appraised at the Central level.
iii. Details of Terms of Reference (ToR):

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
18.11.2022	IA/GJ/MIN/ 403568/2022 J-11015/152/ 2016-IA.II(M)	5-6 Dec., 2022	Terms of Reference (ToR) for mining of Limestone in Vangar & Madhiya Limestone Mine of M/s Nirma Limited for mining ofLimestone with production capacity of 1.6 MTPA in the mine lease area of 612.1336 ha, located at Villages Vangar & Madhiya, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study	23.12.2022

iv. Details of Mine Lease: -
d) The Project Proponent has submitted that initially the State Govt has granted the Letter of Intent for grant of mining lease vide letter no. MCR-102004-1827-

CHH dated 15.02.2008 for mineral Limestone and Marl over an area of 1225.8553 ha for a period of 30 years.

e) Then, the Govt. of Gujarat, Industries and Mines Department, vide Order no: MCR102004-1827-CHH dated 08.01.2017 granted the mining lease for Limestone and Marl to M/s Nirma Limited over an area of 612.1336 hafor a period of 50 years for its captive consumption.

f) The mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the Project Proponent, M/s Nirma Ltd. for a period of 50 years and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017under the provision of MMDR Amendment Act, 2015.

v. Land Use/Land Cover of the Mine Lease Area:-

Private land	586.4789 ha
Government land	25.6547 ha
Forest land	-
Total Mining lease area (MLA), ha	612.1336 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No any facilities outside the ML area. However crusher will be installed at company's Cement Plant.

vi. Mining plan details:

Review of Mining Plan including Progressive Mine Closure Plan was approved by Indian Bureau of Mines	Letter No.	File No.: 684(4)(1)/MP-347(196)/2021-22 GNR/1125
	Date	05.08.2021
	Mineral & (Major/Minor)	Limestone, Major mineral
	Mine Lease Area, Ha	612.1336
	Validity	2021-22 to 2025-26
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized	
Drilling/Blasting	Multi-row drilling and V-pattern drill holes for deep hole drilling and blasting. Slurry explosive -cap sensitive and non-cap sensitive.	
Geological Reserves	35.539 Million tonnes	
Mineable Reserves	14.913 million tonnes	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Top soil- 0.99 mi.cum OB/SB/IB/Mineral Rejects- Nil Waste-Nil	
Life of mine	13 years (Life of mine may be increased subjectto conversions of resources under 333 categoryinto category of reserves 111)	
Mine Bench Height & Bench Width	6.0 m, for working bench 12-15 m for closing (conceptual) bench Optimum	
No. of Mine Benches	2	

Existing Depth, m bgl	New mine
Ultimate Depth of Mining, m bgl	10 m
Ground Water Table, m bgl	15 m (Post monsoon)
Details of ground water intersection	No ground water will be encountered during planning stage i.e. in 5 years of working plan in neither pre monsoon nor post monsoon season in any of the pits. However, the ground water table may get touched in post monsoon in pit no. 4 & 5 when the proposed conceptual pit bottom level of +1.0 m AMSL is achieved. To avoid any accidental intersection of ground water table, the Company has now decided to restrict mining depth to +2.0 m AMSL in pit no. 4 & 5.
Individual bench slope	80-85°
Overall pit slope	~ 45°
Details of existing/ proposed Crusher	Proposed crusher will be installed at Cement Plant.
Mineral Beneficiation	-
RoM output size	-
Transportation details including capacity of dumper/tipper, mode of transport and distance	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease. For the Soda Ash Plant located at approx.100 km at Kalatalav, Bhavnagar limestone will be transported in dumpers/ trucks through National Highway 51. Internal haul road from mine face to crusher means of dumper/tippers of 25 tonnes capacity.
Generation of Topsoil/OB & its Management during plan period & conceptual period	Top soil at 1st plan period- 150000 cu.m, temporary stacking at one location Top soil at 2nd plan period- 840000 cu.m, temporary stacking at one location Top soil at conceptual period-380000 cu.m, simultaneously backfilling
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil
Additional information(if any)	Surface miner as well as ripper/dozer & rock breaker will be used for mining to minimize drilling & blasting.

vii. Water requirement:

Total water requirement	42 KLD	Fresh water	3 KLD
		Treated water	39 KLD
Source	i. Fresh water source Narmada water pipeline/Water tanker. ii. Water harvested within mine lease during rainy season.		

	iii. Treated water source- Reject water of RO /DM plant &Reject water of RO /DM plant (proposed at Cement plant)
Permission for withdrawal/ intersection along with details of grant and its validity	Permission for water withdrawal from Narmada water pipeline has been taken vide letter No. GWIL/ Bhavnagar/Ind.conn./1257 dated 4.06.2008.

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Vangar Madhiya	0.25 km, NW 0.25 km, SE
Town	Mahuva	6.2km, ENE
Highway	NH-51 (Una-Mahuva highway)	Within
Interstate Boundary	Rajasthan	Approx.500 KM,N
Railway Station/Railway line	Amrutvel	2.0 km, N
Water Bodies	Arabian Sea Coast	3.4 km S to the HTL
	Samdiyala Salinity ingress control bund	2.3 km, SSW
	Bhambhali River	0.9 Km, W
	Garasawo River	2.5 Km,NE
Forest	RF near Patwa	2.1 KM,S
	RF near Doliya	3.3 KM,SSE
	RF near Dudheri	3.9 KM,SE
	RF near Gujarda	4.3 KM,SE

ix. Presence of Environmentally Sensitive areas in the study area:

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/ No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	No	The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests vide Lr.No: WLP/32/C826-827/2021-22 dated 13.01.2022 regarding the map showing the location of protected areas within 10km of the Limestone mining project and the and distance of protected areas and proposed Limestone mine.
National Park	No	
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)	No	

Protected areas	Distance between Limestone mines and Protected areas
Gir National Park	76.0 km
Gir Wildlife Sanctuary	44.2 km

		<table><tr><td>Mitiyala Wildlife Sanctuary</td><td>43.5 km</td></tr></table> The Project Proponent has submitted the letter from the Office of the Deputy Chief Conservator of Forest, Bhavnagar vide letter no. A/GMN/T11/2075/22-23 dated 27.01.2023 certifying that the nearest turtle rearing/breeding site is located at a distance of about 70km away from the mines.
Coastal Regulation Zone (CRZ)	No	Arabian Sea Coast: 3.4 km S to the HTL The proposed project lies beyond distance of 0.5 km from High Tide Line of Arabian Sea Coast. The CRZ map has been prepared by Institute of Remote Sensing, Anna University, Chennai.
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	The Project Proponent has submitted the authenticated list of flora and fauna from the Office of the Deputy Forest Conservator vide Lr.No: A/Jaman/ Te.11/233/ 17-18 dated 08.02.2018 stating that there are three Schedule-I species such as Peafowl, Chinkara and Asiatic lion in the study area. After the amendment of the Wild Life (Protection) Amendment Act, 2022,No 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.
Wildlife Conservation Plan	Yes	On the basis of the fauna study findings & list of fauna authenticated by Forest Department, Wildlife Conservation Plan was prepared and submitted for approval. The Wildlife Conservation Plan was approved by the Chief Wildlife Warden vide Lr.No: WLP/32/C670-672 dated 20.12.2021 with a budget of Rs. 19.9 Lakhs for the conservation of wildlife in the study area.

x. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	26.50 Ha.
Budget for green plant & plantation till the end of life of mine.	Rs 80.35 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	-
No. of tree cuts in the mine lease area and compensatory afforestation	As per actual during mining
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	16.50
50 m safety zone of nallah, roads, electric lines	10.00

xi. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	01.03.2021 to 02.06.2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer
Predominant Wind direction (From)	South
Ambient Air Quality (no. of locations) and results – 16 locations	PM10: 27.6 –71.1 µg/m^3 PM2.5: 11.2 – 40.0 µg/m^3 SO2: 2.7 – 10.2 µg/m^3 NO2: 3.6 – 14.5 µg/m^3
Noise level (no. of locations) and results – 16 locations	Day Time: 47.57 dB(A) – 52.46 dB(A) Night Time: 39.42 dB(A) - 42.89 dB(A)
Water Quality (no. of locations) and results - 12Ground water and 3 Surface water	All the parameters of ground water were well within the permissible limits as per IS 10500: 2012. The surface water quality in all samples was found B to below E class. The result indicates that the maximum and minimum values of DO ranges between 5.8 to 6.3 mg/l, hardness ranged between 360 - 8300 mg/l in surface water.
Soil Quality (no. of locations) and results – 12 locations	Soil quality was monitored at 12 no. of stations. The result indicates that the maximum and minimum values of pH ranges between 7.7 - 8.2, Potassium ranges from 157.0 - 845.0 kg/ha and Nitrogen ranges from 0.01 - 12.57mg/kg.
Hydro geological study and results	As per Hydrogeological & Hydrological Studies of core and buffer zone of Vangar & Madhiya Limestone Mine, the qualitative aspects of ground water shows that salinity ingress from sea has taken place up to over 3 km from Arabian sea reaching center of buffer zone including mines falling in core zone.The ground water flow direction is

	towards south in general. As the mining (ultimate pit limit) is proposed up to (+) 1/ (+) 2m amsl, the mining pit will not have mine seepage till 13th year except direct rainfall as water level will not be intersected.
Traffic study (no. of locations) and results	The traffic volume survey was conducted on Bhavnagar to Una Road (NH8E/51) Near Vangar Village. Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day.There will be daily movement of 512 numbers of dumpers (to & fro) per day or 1536 PCU/ day on the road. V/C = 31.27.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	26.03.2023 in Sandesh Newspaper (Gujarati) & Indian Express (English)
Date of PH	28.04.2023 @ 9:30 AM
Venue	At the premises of Nirma Cement Plant Area, NH 8E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. Bhavnagar
Chaired by	Shri R.K Mehta (IAS), District Collector & District Magistrate, Bhavnagar District & Regional Officer, GPCB Bhavnagar
Main issues raised during PH	Air pollution, salinity ingression, wildlife protection, acquisition of agriculture land
Budget proposed for addressing issues raised during PH over 3 years	Rs 34 Lakhs

xiii. Resettlement & Rehabilitation (R&R):

R & R details	The total mine lease area is 612.1336 ha, out of which Govt. land is 25.6547 ha and Private land is 586.4789 ha.Land will be required for quarrying an area of 197.0 ha of Private land and Government land including houses/hutment in Vangar village (17 No.s)& houses/hutments Madhiyavillage (7 No.s). The houses/hutment fall in the conceptual pits of the mine lease. There will be total of 494 land losers. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 24.0 Lakhs. In addition to above, the registration cost of sale of the land and homesteads shall be borne by the Company.

xiv. Court case details:

Court Case, No and its present status	The Project Proponent has submitted an undertaking vide letter dated 07.10.2023 stating that there is no litigation on the project either at NGT or any other court of law related to
Undertaking by Project Proponent w.r.t court case	

	environment and pollution matters in which the project proponent is a respondent.

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted an undertaking by way of notarized Affidavit dated 09.10.2023 stating that the proposal does not involve violation of Ministry's OM dated 30.05.2018.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 04.01.2023 stating that the contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge of the undersigned (Shri Ashish Desai).
Undertaking by Consultant in EIA/EMP report	The Director of the EIA Consultant (M/s Centre for Envotech & Management Consultancy Pvt. Ltd) has informed that the baseline data was generated by MoEF &NABL Accredited Laboratory M/s Min Mec R&D Laboratory, a division of Min Mec Consultancy Pvt. Ltd., New Delhi and the same has been verified and also confirmed that he shall be fully accountable for any misleading information mentioned in this statement.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Pollution Control	0.241	9.54
Pollution monitoring	0.016	3.88
Occupational health	0.011	0.65
Environmental Studies, etc.	0.10	_
Green belt	_	5.10
Reclamation	_	11.39
Others (Environmental studies, Rehabilitation, Realignment, Expert advice, fencing etc.	_	5.28
Overheads	_	0.30
Total	0.3680	36.12

xvii. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	0.70
Project Cost	25
Employment (No.s)	58

3. Observation and Recommendation of the EAC: -

The EAC deliberated the instant proposal along withGujarda, Dudheri & Dudhala Limestone Mine and Padhiarka & Doliya Limestone mine. The Project Proponent has informed the EAC that the proposed method of mining is same in all three mines such as Vangar & Madhiya Limestone Mine, Gujarda, Dudheri & Dudhala Limestone Mine and Padhiarka and Doliya Limestone mine. NH-51 (Una-Mahuva highway) is passing within the mine lease area. A safety distance of 45m will be maintained. The underpass road has been proposed below Highway by NHAI for the safe passage of the villagers. The EAC asked the Project Proponent to explore the possibility of laying overbridge over the Highway. In the proposed 3rd pit, displacement will be taking place. Discrete houses are located within the mine lease area. The total mine lease area is 612.1336 ha, out of which Govt. land is 25.6547 haand Private land is 586.4789 ha. In this project, Pvt land is more than the previous project. There are 5 mine pits are proposed. Project Affected Families will be 494 no.s. In this project, a budget of Rs 34.0 Lakhs has been earmarked to address the concerns of the public hearing. The geological conditions, method of mining, environmental sensitivity and implications, impact on socio economic are similar in all these three mines.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the project is part of three contiguous projects namely Padhiarka and Doliya Limestone mine (332.24 ha), Vangar & Madhiya Limestone Mine (612.336 ha) and Gujarda, Dudheri & Dudhala Limestone Mine (681.62 ha) and together it extends over an area of 1626.196 ha. The mine lease area comprises of partly Private Agriculture land and partly Govt. land. NH-51 (Una-Mahuva highway) is passing within the mine lease area. Also, Vangar (0.25 km, NW) and Madhiya villages (0.25 km, SE) are located close to the proximity of the mine lease area. The EAC was not convinced with the proposed backfilling plan and the activities proposed under the Wildlife Conservation Plan. The EAC observed that the pits are isolated and the mine lease area is partly Private and Govt. land. The EAC also observed that there will be direct purchase or leasing of private land with the willing consent of the private land owners. The EAC was of the view that what if the land owners are not willing to give their land. There are likely chances that mining will not take place sequentially if the land acquisition does not happen. There will be failure of scientific mining. Large no. of Project Affected Families is involved in all these projects. The EAC opined that the Saltwater intrusion through surface or ground water sources may diminish the availability or quality of source waters for drinking water utilities. Some salt pans i.e., salt manufacturing industries and few wind mills exists in the study area. Old mine pits also exist within the mine lease area. The EAC noted that the Bhavnagar is categorized as a Severely Polluted Areas. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *“all activities connected with mining within 20kms from all the borders including seaboard frontier should be*

planned in consultation with Ministry of Defence". Accordingly, EAC opined that PP should obtain NOC from Ministry of Defence.

Thus the EAC opined that there is a need to ascertain the ground reality w.r.t natural low lying areas, water logging areas, old mine pits, sequence of mining, feasibility for backfilling, impact on socio economic, agriculture land, transportation route, traffic congestion, salt pans, effectiveness of salinity ingress control bund, proximity of habitations, schools, water bodies, roads etc., The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. Since the mine site is located within 20 km from seaboard frontier, the Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project.

iii. The Project Proponent needs to submit the action for laying common Over Land Belt Conveyor (OLBC) for transportation of mineral from mine lease area to the Cement Plant. The Project Proponent also needs to submit the action plan for expansion of road with a width of 7m and by passing the village road till the commission of the Over Land Belt Conveyor (OLBC).

iv. The Project Proponent needs to explore the possibility of laying overbridge over the Highway and shall submit the permission from the National Highways Authority of India (NHAI).

v. The Project Proponent needs to submit the protection measures to be taken for salt water intrusion and the effectiveness of the salinity ingress control bund.

vi. The Project Proponent needs to submit the site specific mitigation measures for backwaters from Arabian Sea coming into the mine lease area.

vii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

viii. The Project Proponent needs to revise the activities proposed under the Wildlife Conservation Plan. The Project Proponent also needs to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act,

2022 shall also be included in the Wildlife Conservation Plan for their conservation.

ix. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit and justify the budget proposed for Resettlement & Rehabilitation (R&R). The Project Proponent also needs to submit the action plan for land acquisition and timeline.

x. The Project Proponent needs to submit the action plan for year wise exploration program.

xi. The Project Proponent needs to submit the copy of the permission letter obtained from the State Govt. for utilization of Chemical Grade of Limestone for non-cement purposes.

xii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Gujarat clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Nirma Limited or not?

2.3 Gujarda, Dudheri & Dudhala Limestone Mine of M/s Nirma Limited for mining of Limestone with production capacity of 2.7 MTPA in the mine lease area of 681.62 ha, located at Villages Gujarda, Dudheri & Dudhala, Tehsil: Mahuva, District: Bhavnagar, Gujarat - [F.No: J-11015/153/2016-IA.II(M), Proposal No: IA/GJ/MIN/443968/2023; EIA Consultant:M/s Centre for Envotech and Management Consultancy Pvt. Ltd] - Environmental Clearance (EC)

The proposal is for mining of Limestone in Gujarda, Dudheri & Dudhala Limestone Mine of M/s Nirma Limited for mining of Limestone with production capacity of 2.7 MTPA in the mine lease area of 681.62 ha, located at Villages Gujarda, Dudheri & Dudhala, Tehsil: Mahuva, District: Bhavnagar, Gujarat.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 21°01'1.31"N to 21°03' 44.86" N and Longitude 71°41'15.21"E to 71°43'38.54"E. The mine lease area falls under the Survey of India Toposheet No: F42R12and falls in Seismic Zone-III.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category “A” as the mining lease area is greater than 250ha and appraised at the Central level.

iii. Details of Terms of Reference:

Date of application	Proposal No/ File No	Consideration by EAC	Details of ToR	Date of accord
18.11.2022	IA/GJ/MIN/	5-6 Dec., 2022	Terms of Reference	06.02.2023

	406830/2022 J-11015/153/ 2016-IA.II(M)	& 17-18 Jan, 2023	(ToR) for mining of Limestone in Gujarda, Dudheri & Dudhala Limestone Mine of M/s Nirma Limited for mining of Limestone with production capacity of 2.7 MTPA in the mine lease area of 681.62 ha, located at Villages Gujarda, Dudheri & Dudhala, Tehsil: Mahuva, District: Bhavnagar, Gujarat for undertaking detailed EIA/EMP study	

iv. Details of Mine Lease: -

a) The Project Proponent has submitted that initially the State Govt has granted the mining lease vide letter no. MCR-102004-1943-CHH dated 15.02.2008 for mineral Limestone and Marl over an area of 1497.4701 ha for a period of 30 years.
b) Then, the Govt. of Gujarat, Industries and Mines Department, vide Lr. No: MCR-102004- 1943-CHH dated 02.02.2011 have reduced the area of 8.0 ha falling in CRZ and the mine lease area was revised as 1489.4701 Ha.
c) Then, the Govt. of Gujarat, Industries and Mines Department, vide Order no: MCR102004-1943-CHH dated 08.01.2017 granted the mining lease for Limestone and Marl to M/s Nirma Limited over an area of 681.62 hafor a period of 50 years for its captive consumption.
d) The mining lease deed was executed on 11.01.2017 between Dist. Collector, Bhavnagar, State Govt. and the Project Proponent, M/s Nirma Ltd. for a period of 50 years and also registered the executed mining lease deed with Sub, Registrar, Mahuva on 11.01.2017under the provision of MMDR Amendment Act, 2015.

v. Land Use/Land Cover of the Mine Lease Area:-

Private land	565.9454 ha
Government land	115.6746 ha
Forest land	-
Total Mining lease area (MLA), ha	681.62 ha
Private land for crusher, workshop & other infrastructure outside the MLA	No any facilities outside the ML area. However crusher will be installed at company's Cement Plant.

vi. Mining Plan Details:

Review of Mining Plan	Letter No.	File No.: 684(4)(1)/MP-

includingProgressive Mine Closure Plan approved by Indian Bureau of Mines		348(197)/2021-22 GNR/1121
	Date	04.08.2021
	Mineral & (Major/Minor)	Limestone, Major mineral
	Mine Lease Area, Ha	681.62
	Validity	2021-22 to 2025-26
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized	
Drilling/Blasting	Multi-row drilling and V-pattern drill holes for deep hole drilling and blasting. Slurry explosive -cap sensitive and non-cap sensitive.	
Geological Reserves	57.280 Million tonne	
Mineable Reserves	20.574million tonne	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Top soil- 0.57 mi.cum OB/SB/IB/Mineral Rejects- Nil Waste-Nil	
Life of mine	11 years (Life of mine may be increased subjectto conversions of resources under 333 categoryinto category of reserves 111)	
Mine Bench Height & Bench Width	6.0 m, for working bench 12-15 m for closing (conceptual) bench Optimum	
No. of Mine Benches	2	
Existing Depth, m bgl	New mine	
Ultimate Depth of Mining, m bgl	10 m	
Ground Water Table, m bgl	15.5 m (Post monsoon)	
Details of ground water intersection	No ground water will be encountered during planning stage i.e. in working plan in neither pre monsoon nor post monsoon season in any of the pits. Ground water will also not intersect during mining at the end of mine life.	
Individual bench slope	80-85°	
Overall pit slope	~ 45°	
Details of existing/ proposed Crusher	Proposed crusher will be installed at Cement Plant.	
Mineral Beneficiation	-	
RoM output size	-	
Transportation details including capacity of dumper/tipper, mode of transport and distance	Internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease. For the Soda Ash Plant located at approx.100 km at Kalatalav, Bhavnagar limestone will be transported in dumpers/ trucks through National Highway 51. Internal haul road from mine face to crusher means of dumper/tippers of 25 tonnes capacity.	
Generation of Topsoil/OB & its Management during plan period	Top soil at plan period- 249806 cu.m, temporary stacking at one location	

&conceptual period	Top soil at conceptual period-321394 cu.m, simultaneously backfilling
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil
Additional information(if any)	Surface miner as well as ripper/dozer & rock breaker will be used for mining to minimize drilling & blasting.

vii. Water requirement:

Total water requirement	44 KLD	Fresh water	3 KLD
		Treated water	41 KLD
Source	i. Fresh water source Narmada water pipeline/Water tanker. ii. Water harvested within mine lease during rainy season. iii. Treated water source- Reject water of RO /DM plant & Reject water of RO /DM plant (proposed at Cement plant)		
Permission for withdrawal/ intersection along with details of grant and its validity	Permission for water withdrawal from Narmada water pipeline has been taken vide letter No. GWIL/ Bhavnagar/Ind.conn./1257 dated 4.06.2008.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Gujarda, Dudheri, Dudhala Madhiya Padhiarka	0.2-0.5 km 0.5 km, NW 0.5 km, W
Town	Mahuva	4.0km, NE
Highway	NH-51 (Una-Mahuva highway)	Within MLA
Interstate Boundary	Rajasthan	Approx.500 KM,N
Railway Station/Railway line	Amrutvel	2.0km, N
Water Bodies	Arabian Sea Coast	0.5 km, S from the HTL
	Samdiyala Salinity ingress control bund	4.5 km, WSW
	Malan Bandhara	1.5 km E
	Malan River	4.4 KM,E
	Bhambhali River	5.4 Km, W
	Garasawo River	0.9 KM,NE
Forest	RF near Patwa	2.8 KM,SW
	RF near Doliya	7.4 KM,E
	RF near Dudheri	0.6 KM,S
	RF near Gujarda	0.3 KM,S
	RF near Khared	2.1 KM,E

ix. Presence of Environmentally Sensitive areas in the study area:

<table>
<tr><td>Forest Land/ Protected Area/ Environmental Sensitivity Zone</td><td>Yes/ No</td><td>Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks</td></tr>
<tr><td>Forest Land within the mine lease area and (if yes) status of Forest Clearance</td><td>No</td><td rowspan="4">The Project Proponent has submitted the letter from the Office of the Principal Chief Conservator of Forests vide Lr.No: WLP/32/C826-827/2021-22 dated 13.01.2022 regarding the map showing the location of protected areas within 10km of the Limestone mining project and the and distance of protected areas and proposed Limestone mine.
<table>
<tr><td>Protected areas</td><td>Distance between Limestone mines and Protected areas</td></tr>
<tr><td>Gir National Park</td><td>80.9 km</td></tr>
<tr><td>Gir Wildlife Sanctuary</td><td>48.8 km</td></tr>
<tr><td>Mitiyala Wildlife Sanctuary</td><td>48.1 km</td></tr>
</table>

The Project Proponent has submitted the letter from the Office of the Deputy Chief Conservator of Forest, Bhavnagar vide letter no. A/GMN/T11/2075/22-23 dated 27.01.2023 certifying that the nearest turtle rearing/breeding site is located at a distance of about 70km away from the mines.</td></tr>
<tr><td>National Park</td><td>No</td></tr>
<tr><td>Wildlife Sanctuary</td><td>No</td></tr>
<tr><td>Elephant/Tiger Reserve</td><td>No</td></tr>
<tr><td>Eco-Sensitive Zone(ESZ) /Eco-Sensitive Area (ESA)</td><td>No</td></tr>
<tr><td>Coastal Regulation Zone (CRZ)</td><td>No</td><td>The Project Proponent has submitted the letter from the Government of Gujarat, Forest and Environment Dept vide Lr no.ENV-10-2023-170-T dated 19.07.2023 stating that the proposed project of mining at Gujarda, Dudheri and Dudhala mine lease (681.62 ha), District Bhavnagar is outside CRZ area.</td></tr>
<tr><td>Schedule-I species (No.s and name of schedule-I species with authenticated letter)</td><td>Yes</td><td>The Project Proponent has submitted the authenticated list of flora and fauna from the Office of the Deputy Forest Conservator vide Lr.No: A/Jaman/ Te.11/304/ 17-18 stating that there are three Schedule-I species such as Peafowl, Chinkara and Asiatic lion in the study area.

After the amendment of the Wild Life</td></tr>
</table>

		(Protection) Amendment Act, 2022, No 18 of 2022, a number of additional species have been added into Schedule-I such as Leopard, Striped hyaena, Jackal, Bengal fox, Indian porcupine, Jungle cat, Grey wolf, Dog faced water snake, Russell viper, Checkered Keelback, Indian Rat snake, Red sand boa and Naag/cobra.
Wildlife Conservation Plan	Yes	On the basis of the fauna study findings & list of fauna authenticated by Forest Department, Wildlife Conservation Plan was prepared and submitted for approval. The Wildlife Conservation Plan was approved by the Chief Wildlife Warden vide Lr.No: WLP/32/C670-672 dated 20.12.2021 with a budget of Rs. 19.9 Lakhs for the conservation of wildlife in the study area.

x. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	30.00 Ha.
Budget for green plant & plantation till the end of life of mine.	90.95 Lakhs
Budget for nursery	-
Details of existing plantation and its survival rate	-
No. of tree cuts in the mine lease area and compensatory afforestation	As per actual during mining
Particulars for Green belt/plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	10.0
50 m safety zone of nallah, roads, electric lines	10.0
Additional information (if any)	10.00 ha(Backfilled area (Govt. wasteland))

xi. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	01.03.2021 to 02.06.2021
Season (Summer / Pre-monsoon / Post-monsoon / Winter)	Summer
Predominant Wind direction (From)	South
Ambient Air Quality (no. of locations) and results – 16 locations	PM10: 27.6 –71.1 µg/m^3 PM2.5: 11.2 – 40.0 µg/m^3 SO2: 2.7 – 10.2 µg/m^3 NO2: 3.6 – 14.5 µg/m^3
Noise level (no. of locations) and	Day Time: 47.57 dB(A) – 52.46 dB(A)

results – 16 locations	Night Time: 39.42 dB(A) - 42.89 dB(A)
Water Quality (no. of locations) and results - 12Ground water and 3 Surface water	All the parameters of ground water were well within the permissible limits as per IS 10500: 2012. The surface water quality in all samples was found B to below E class. The result indicates that the maximum and minimum values of DO ranges between 5.8 to 6.3 mg/l, hardness ranged between 360 - 8300 mg/l in surface water.
Soil Quality (no. of locations) and results – 12 locations	Soil quality was monitored at 12 no. of stations. The result indicates that the maximum and minimum values of pH ranges between 7.7 - 8.2, Potassium ranges from 157.0 - 845.0 kg/ha and Nitrogen ranges from 0.01 - 12.57mg/kg.
Hydro geological study and results	As per planned mining and report of hydrogeological & hydrological studies of core and buffer zone of Gujarda, Dudheri & Dudhala limestone mine, the ground water table may get Intersected in post monsoon during 11thyear at conceptual pit bottom level of +1.0 AMSL. However, conceptual pit bottom level will be kept above ground water level i.e. +4.0m AMSL to avoid intersecting ground water level.
Traffic study (no. of locations) and results	The traffic volume survey was conducted on Bhavnagar to Una Road (NH8E/51) Near Vangar Village. Total numbers of vehicles were found as 6793 per day and equivalent PCUs is 9382 per day. There will be daily movement of 864numbers of dumpers (to & fro) per day or 2592 PCU/ day on the road. The proposed increase in traffic density will not cause significant impact on the traffic since the road is capable of handling this increase in traffic density.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	26.03.2023 in Sandesh Newspaper (Gujarati) & Indian Express (English)
Date of PH	28.04.2023 @ 4:00 PM
Venue	At the premises of Nirma Cement Plant Area, NH 8E/51, Survey No. 80, Village: Padhiyarka, Taluka: Mahuva, Dist. Bhavnagar
Chaired by	Shri R.K Mehta (IAS), District Collector & District Magistrate, Bhavnagar District & Regional Officer, GPCB Bhavnagar

Main issues raised during PH	Air pollution, salinity ingression, wildlife protection, acquisition of agriculture land
Budget proposed for addressing issues raised during PH over 3 years	Rs 49 Lakhs

xiii. Resettlement & Rehabilitation (R&R):

R & R details	The total mine lease area is 681.62 ha, out of which Govt. land is 115.6746 haand Private land is 565.9454 ha.Land will be required for quarrying an area of 114.24 ha of Private land and Government land including 18 houses/hutments in land of Gujarda (15 nos.), in land of Dudheri (3 Nos.) & Dudhala (0 Nos.) villages. There will be total of 656 land losers. There will be direct purchase or leasing of private land, with the willing consent of the private land owners. Approx. total compensation will be Rs 18.0 Lakhs. In addition to above, the registration cost of sale of the land and homesteads shall be borne by the Company. Assuming it to be 6% of the entire costs of sale, the total resettlement budget works out to be Rs. 78.17 lakhs.

xiv. Court case details:

Court Case, No and its present status	The Project Proponent has submitted an undertaking vide letter dated 07.10.2023 stating that there is no litigation on the project either at NGT or any other court of law related to environment and pollution matters in which the project proponent is a respondent.
Undertaking by Project Proponent w.r.t court case	

xv. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	The Project Proponent has submitted an undertaking by way of notarized Affidavit dated 09.10.2023 stating that the proposal does not involve violation of Ministry's OM dated 30.05.2018.
Undertaking by Project Proponent in EIA/EMP report	The Project Proponent has submitted an undertaking vide letter dated 14.02.2023 stating that the contents (information and data) as given by the Consultant in the EIA/EMP report are factually correct with full knowledge of the undersigned (Shri Ashish Desai).
Undertaking by Consultant in EIA/EMP report	The Director of the EIA Consultant (M/s Centre for Envotech & Management Consultancy Pvt. Ltd) has informed that the baseline data was generated by MoEF &NABL Accredited Laboratory M/s Min Mec R&D Laboratory, a division of Min Mec Consultancy Pvt. Ltd., New Delhi and the same has been verified and also confirmed that he shall be fully accountable for any misleading information mentioned in this statement.

xvi. Details of the Environmental Management Plan (EMP):

Activities	Capital cost (Crores)	Recurring cost (Lakhs/annum)
Pollution Control	0.291	10.12
Pollution monitoring	0.016	3.88
Occupational health	0.014	0.95
Environmental Studies, etc.	0.10	-
Green belt	-	5.10
Reclamation	-	10.03
Others (Environmental studies, Rehabilitation, Realignment, Expert advice, fencing etc.	-	5.48
Overheads	-	0.32
Total	0.421	35.87

xvii. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	1.19
Project Cost	25
Employment (No.s)	84

3. Observation and Recommendation of the EAC: -

The EAC deliberated the instant proposal along with Vangar & Madhiya Limestone Mine and Padhiarka and Doliya Limestone mine. The Project Proponent has informed the EAC that the proposed method of mining is same in all three mines such as Gujarda, Dudheri & Dudhala Limestone Mine, Vangar & Madhiya Limestone Mine, and Padhiarka and Doliya Limestone mine. Arabian Sea Coast is located at a distance of 0.5 km, S from the HTL. The Project Proponent has also informed the EAC that the letter from the Government of Gujarat, Forest and Environment Dept.has been obtained vide letter dated 19.07.2023stating that the proposed project of mining at Gujarda, Dudheri and Dudhala mine lease (681.62 ha), District Bhavnagar is outside CRZ area. There are 5 mine pits proposed in the mine lease area. The total mine lease area is 681.62 ha, out of which Govt. land is 115.6746 haand Private land is 565.9454 ha. Project Affected Families will be 656 no.s. A budget of Rs 49.0 Lakhs has been earmarked to address the issues raised during public hearing. The geological conditions, method of mining, environmental sensitivity and implications, impact on socio economic are similar in all these three mines.

After detailed deliberations made by the Project Proponent and the Consultant, the EAC noted that the project is part of three contiguous projects namely Padhiarka and Doliya Limestone mine (332.24 ha), Vangar & Madhiya Limestone Mine (612.336 ha) and Gujarda, Dudheri & Dudhala Limestone Mine

(681.62 ha) and together it extends over an area of 1626.196 ha. The mine lease area comprises of partly Private Agriculture land and partly Govt. land. Gujarda, Dudheri, Dudhala Villages are located at a distance of 0.2-0.5 km. NH-51 (Una-Mahuva highway) is passing within mine lease area. The EAC was not convinced with the proposed backfilling plan and the activities proposed under the Wildlife Conservation Plan. The EAC observed that the pits are isolated and the mine lease area is partly Private and Govt. land. The EAC also observed that there will be direct purchase or leasing of private land with the willing consent of the private land owners. The EAC was of the view that what if the land owners are not willing to give their land. There are likely chances that mining will not take place sequentially if the land acquisition does not happen. There will be failure of scientific mining. Large no. of Project Affected Families is involved in all these projects. The EAC opined that the Saltwater intrusion through surface or ground water sources may diminish the availability or quality of source waters for drinking water utilities. Some salt pans i.e., salt manufacturing industries and few wind mills exists in the study area. Old mine pits also existing within the mine lease area. The EAC noted that the Bhavnagar is categorized as a Severely Polluted Areas. The EAC reiterated the Ministry of Defence letter dated 08.05.2023 regarding security considerations for construction activities/other activities in Border areas/other areas wherein it has been mentioned that *"all activities connected with mining within 20kms from all the borders including seaboard frontier should be planned in consultation with Ministry of Defence".* Accordingly, EAC opined that PP should obtain NOC from Ministry of Defence.

Thus the EAC opined that there is a need to ascertain the ground reality w.r.t natural low lying areas, water logging areas, old mine pits, sequence of mining, feasibility for backfilling, impact on socio economic, agriculture land, transportation route, traffic congestion, salt pans, effectiveness of salinity ingress control bund, proximity of habitations, schools, water bodies, roads etc., The EAC was of the view that a site visit needs to be conducted by a sub-committee comprising of EAC Members and officers from MoEF&CC. The EAC opined that the Ministry may constitute a sub-committee and submit its report to enable the committee to take a decision on the proposal. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The site visit report of the subcommittee.

ii. Since the mine site is located within 20 km from seaboard frontier the Project Proponent shall submit No Objection Certificate from Ministry of Defence for consideration of the instant project.

iii. The Project Proponent needs to submit the action for laying common Over Land Belt Conveyor (OLBC) for transportation of mineral from mine lease area to the Cement Plant. The Project Proponent also needs to submit the

action plan for expansion of road with a width of 7m and by passing the village road till the commission of the Over Land Belt Conveyor (OLBC).

iv. The Project Proponent needs to explore the possibility of laying overbridge over the Highway and shall submit the permission from the National Highways Authority of India (NHAI).

v. The Project Proponent needs to submit the protection measures to be taken for salt water intrusion and the effectiveness of the salinity ingress control bund.

vi. The Project Proponent needs to submit the site specific mitigation measures for backwaters from Arabian Sea coming into the mine lease area.

vii. The Project Proponent needs to revisit the plan for backfilling with clearly indicating the voids area and the capacity available/required for backfilling.

viii. The Project Proponent needs to revise the activities proposed under the Wildlife Conservation Plan. The Project Proponent also needs to ensure that the Schedule-I species as per the latest Wildlife Protection Amendment Act, 2022 shall also be included in the Wildlife Conservation Plan for their conservation.

ix. The EAC was of the view that the compensation rate is very less and asked the Project proponent to revisit and justify the budget proposed for Resettlement & Rehabilitation (R&R). The Project Proponent also needs to submit the action plan for land acquisition and timeline.

x. The Project Proponent needs to submit the action plan for year wise exploration program.

xi. The Project Proponent needs to submit the copy of the permission letter obtained from the State Govt. for utilization of Chemical Grade of Limestone for non-cement purposes.

xii. The Project Proponent needs to submit a letter from the Department of Geology and Mining, Government of Gujarat clarifying whether any illegal mining within the mine lease area has been carried out or not and whether the same has been carried out by M/s. Nirma Limited or not?

2.4 Panchpatmali Central and North Block Bauxite Mine of M/s National Aluminium Company Limited (NALCO) for mining of Bauxite with production capacity of 6.825 MTPA of bauxite along with existing crusher of 2 x 900 TPH &SMCP- 1x900 TPH andproposed crusher of 1 x 900 TPH in the mine lease

area of 1315.264 ha, located at Village: Damanjodi, Tehsil: Pottangi, District: Koraput, Odisha - [File. No: J-11015/49/2008-IA.II(M), Proposal No: IA/OR/MIN/444819/2023; EIA Consultant: M/s Global Tech Enviro Experts Pvt Ltd]- Terms of Reference (SOP violation)

The instant proposal is for mining of Bauxite in Panchpatmali Central and North Block Bauxite Mine of M/s National Aluminium Company Limited (NALCO) with production capacity of 6.825 MTPA of bauxite along with existing crusher of 2 x 900 TPH & SMCP- 1x 900 TPH and proposed crusher of 1 x 900 TPH in the mine lease area of 1315.264 ha, located at Village: Damanjodi, Tehsil: Pottangi, District: Koraput, Odisha.

2. The details of the project as ascertained from the documents submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under: -

i. The mine lease area is located between Latitude: 18°49'04"N to 18°54'46”N and Longitude: 82°59'16"E to 83°03'29”E. The mine lease area falls under the Survey of India Toposheet No: 65J/13,65N/1 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category “A” as the mine lease area is greater than 250ha and appraised at the Central level.

iii. Details of previous Environmental Clearance (EC): -

a) The Project Proponent has submitted that initially Environmental Clearance (EC) has been obtained vide EC letter dated 20.02.2009 for annual production of 6.825 million tonnes of bauxite by opencast mechanized method in the mine lease area of 2414.263 ha.

iv. Details of Mine Lease:

a) The Project Proponent has submitted that initially mining lease was granted on 22.09.1982 for a period of 30 years over an area of 4692.05 ha.

b) The Project Proponent has submitted that the mine lease of Panchpatmali Central & North Block over an area of 3403.281 ha was valid upto 16.11.2012. Prior to renewal of mine lease, it was planned to part surrender the non-bauxite bearing lease to the State Govt. and accordingly an application was submitted to the State Govt. on 16.07.2010 to part surrender the lease area of 2087.919 ha out of 3403.281 ha.

c) Then, the Project Proponent has submitted the application for renewal of mining lease to the State Govt. vide dated 30.10.2010in the prescribed Form-J over an area of 1315.363 ha for a period of 20 years.

d) Thereafter, the Govt. of Odisha, Dept. of Steel and Mines vide Lr No: 6730/III(K)SM-19/2000(Pt)/SM, Bhubaneswar vide dated 08.09.2014 have accepted the 2nd part surrender of ML for Bauxite over 2087.919 ha out of the balance ML area of 3403.183 ha.

e) Subsequently, the Govt. of Odisha, Dept. of Steel and Mines videLr. No: 10370/IV(BX)SM-14/13/SM, Bhubaneswar dated 16.10.2015 have extended

the period of the validity of the mining lease of M/s NALCO for Bauxite over an area of 1315.264 ha for the period upto 31.03.2020.

f) Further, the Project Proponent has submitted that the Govt. of Odisha, Dept. of Steel and Mines vide Lr No. 8903/IV (BX) SM-14/13/SM, Bhubaneswar vide dated 27.10.2016 have extended the period of the validity of the mining lease of M/s NALCO for Bauxite over an area of 1315.264 ha in Village Panchapatmali (Central and North Block) in the District of Koraput is extended upto 16.11.2032 from the date of last extension i.e, beyond 01.04.2020.

g) Accordingly, the Project Proponent has executed the supplementary deed made on 26.09.2017 for extension of lease period upto 16.11.2032 over an area of 1315.264 ha.

v. Land Use/Land Cover of the Mine Lease Area: -

Private land	Nil
Government land	20.981ha
Forest land	1294.283 ha
Total Mining lease area (MLA)	1315.264 ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Details of Mine Plan: -

Review of Mining Plan along with Progressive Mine Closure Plan approved by Indian Bureau of Mines	Letter No.	RMP/A/22-ORI/BHU/2020-21
	Dated	09.11.2021
	Mine lease area	1315.264 Ha
	Mineral	Bauxite
	Validity	2022-23 to 2026-27
Mining Parameters	Quantitative Description	
Method of Mining	Opencast mechanized method with drilling and blasting	
Geological Reserves	94.29 million Tons as on 31.03.23	
Mineable Reserves	82.12 million Tons as on 31.03.23	
Breakup of Total Excavation (Topsoil/OB/SB/IB/Mineral Rejects/ Waste, MTPA)	Topsoil: 0.1 MTPA OB: 0.6 MTPA Bauxite ore : 6.825 MTPA	
Life of mine	20years	
Mine Bench Height & Bench Width	Topsoil H= 0.8m, W=75-100 mtr, Top OB H=2.0m, W=75-100 mtr, Top Bauxite H=8m, W= 75-100 mtr, Bottom Bauxite H= 5m, W=75-100 mtr	
No. of Mine Benches	Topsoil-0, OB-01, Top Bxt-01, Bottom Bxt -02	
Existing Depth, m bgl	OB-02 Mtr, Bauxite- 16 Mtr average	
Individual bench slope	85-90º	
Overall pit slope	45°with horizontal	
Ultimate Depth of Mining, m bgl	40m bgl	
Ground Water Table, m bgl	100m bgl	

Details of ground water intersection	No groundwater intersection
RoM output size	-150 mm
Details of existing/ proposed Crusher	Existing: 2 x 900 TPH & SMCP- 1x900 TPH Proposed: 1 x 900 TPH
Mineral Beneficiation	Not proposed
Transportation details including capacity of dumper/tipper, mode of transport and distance	Within the mining lease through 55T/100T dumpers from face to crusher & outside lease through 14.6 km conveyor Belt from crusher to Alumina Refinery.
Generation of Topsoil/OB & its Management during plan period & conceptual period	0.72 MTPA, Overburden is used for backfilling of excavated area and Top soil is laid over the backfilled area for plantation purpose.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	Nil

vii. Water requirement: -

Total water requirement 2300 m3 /day	i. Drinking, Domestic & canteen- 200 m3 /day, ii. Washing of machines- 200 m3 /day, iii. Dust suppression: 1700 m3 /day iv. Plantation: 200 m3/ day	Fresh water	2090 m3 / day
		Treated water	210 m3 / day
Source	Jholaguda Stream		
Permission for withdrawal/ intersection along with details of grant and its validity	Permission from State Water Resources Dept. exists for withdrawal of 0.5 MGD. Validity till expiry of lease.		

viii. Nearest village/town/ highway/interstate boundary/railway station/water bodies/monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Maliguda, Badaneraka	0.9 km, W
Town	Kakiriguma	3.5 km, NNW
Highway	NH - 26	20 km, SW
Interstate Boundary	Not within study area	
Railway Station/ Railway line	Damanjodi	20 km, SW
Water Bodies	DebaghatNallahDebagarh River Kalmugarh River HatigarhNallah Muran River	0.2 km in W 1.2 km in W 1.2 km in S 0.2 km in S 5.5 km in SW

ix. Presence of Environmentally Sensitive areas in the study area: -

Forest Land/Protected Area/Environmental Sensitivity Zone	Yes /No	Details of Certificate/letter issued by the concerned Department mentioning the

		Lr no, date of grant and remarks
Forest Land within the mine lease area and (if yes) status of Forest Clearance	Yes	Forest land: 1294.283 ha The Project Proponent has submitted the Forest Clearance (FC) has been granted by the MoEF&CC vide F.No 8-40/1993-FC(pt-I) vide dated 15.09.2014 under Section -2 of the Forest (Conservation) Act, 1980 for diversion of 1294.283 ha of forest land (including 372.583 hectares of unbroken forest land proposed for fresh breaking and safety zone of 25.275 hectares) within the mining lease area of Panchpatmali Central & North Block over an area of 1315.363 ha during first renewal of mining lease period for bauxite mining by M/s NALCO.
National Park	No	There is no national park, wildlife sanctuary or biosphere reserve within 10 km radius area of the project
Wildlife Sanctuary	No	
Elephant/Tiger Reserve	No	
Eco-Sensitive Zone (ESZ)/Eco-Sensitive Area (ESA)	No	
Coastal Regulation Zone (CRZ)	No	-
Schedule-I species (Nos. and name of schedule-I species with authenticated letter)	Yes	There are two Schedule-I species such as i.e., Elephant and Sloth bear. Authenticated letter has been obtained vide letter No. 4011/1 WL(C) SSP-397/2013 dated 19thMay 2014.
Wildlife Conservation Plan	Yes	Site Specific Wildlife Management plan prepared by NALCO has been approved by PCCF(Wildlife), Odisha, Bhubaneswar vide Memo No. 4011/1 WL(C) SSP-397/2013 Dt. 19th May 2014 for a budget of Rs. 2,269.92 Lakhs.

x. Green belt/plantation details:

Proposed area for green belt/plantation and no. of saplings proposed	Every year appx 70,000-85,000 trees are planted in and around Central and North Block Mining lease. Total area planted as on 31.3.2023 is 1089.29 hectares.
Budget for green plant & plantation till the end of life of mine.	Budget for Horticulture Dept. for developing and maintain plantationapprox is Rs. 94 lakhs every year
Budget for nursery	Approx Rs. 38 lakhs every year.
Details of existing plantation and its survival rate	The total number of saplings planted as on 31.3.2023 is 33,58,737 which are planted in mined out area safety zone, backfilled/

	reclamation area and other unused area. The survival rate is approx 80%.
No. of tree cuts in the mine lease area and compensatory afforestation	No of trees Cut: Nil Afforestation done over 1601.568 ha (i.e., 1001.568 ha of non-forest govt. land & 600 ha- degraded forest land)
Particulars for Green belt/plantation	Area covered (In Ha)
7.5 m barrier & non-mineralized zone 50 m safety zone of nallah, roads, electric lines 500 m safety zones of nearest habitation villages	Plantation details as on 31-3-2023 are as follows; i. Mining area including peripheralbarrier: 527.97 ha ii. Conveyor corridor: 38 ha iii. Auxiliary facilities: 33 ha iv. Water supply, power line: 3 ha v. Explosive magazine-35 ha vi. Central North Unused area: 27.27 ha vii. Outside lease area: (Putraghati, etc. surrendered lease area & urban plantation): 425.06 ha (A total of 1089.29 Ha)

xi. Details of CTE/CTO, Certified Compliance Report, Certified Production Details from the inception of the mine:

Particulars	Details of Letter along with date of grant and validity
Consent to Operate	The Project Proponent has submitted the Consent to Operate granted by the Odisha State Pollution Control Board vide order no: 4162/IND-I-CON-92 dated 17.03.2022 for production of 6.825 MTPA of Bauxite for the period upto 31.03.2024.
Certified Compliance Report and Inspection date	The Project Proponent submitted the certified compliance report issued by the Regional Office (IRO), Bhubaneshwar vide F.No. 101-836/EPE dated 10.05.2023 for the EC dated 20.02.2009. Site visit was conducted by IRO on 15.03.2023 & 16.03.2023. The Project Proponent has submitted that the status of compliance of non complied/partially complied conditions submitted to the Ministry's Regional Office (RO), Bhubaneshwar on 22.06.2023. RO vide letter no. 101-836/EPE dated 11.07.2023 has informed the Ministry that in response to the observations/non compliances, the project has submitted the action taken report to this office and the action taken report is enclosed for necessary action.
Certified Production Details from the inception of the mine (in tabular form against the EC capacity)	The Project Proponent has submitted the certified past production details from the Office of the Deputy Director of Mines, Koraput Circle vide No. 417/Mines, dated 15.03.2023 for the period 1993-94 to 2022-23 (upto February 2023).

S.No	Financial Year	Production of Bauxite in MT	EC Capacity, MTPA
1	1993-94	2435596	4.8
2	1994-95	2138344	4.8
3	1995-96	2408472	4.8
4	1996-97	2558002	4.8
5	1997-98	2661557	4.8
6	1998-99	2806288	4.8
7	1999-00	2822464	4.8
8	2000-01	2834189	4.8
9	2001-02	3522059	4.8
10	2002-03	4777003	4.8
11	2003-04	4816762	4.8
12	2004-05	4851726	4.8
13	2005-06	4854253	4.8
14	2006-07	4623278	4.8
15	2007-08	4684684	4.8
16	2008-09	4700027	6.825
17	2009-10	4878888	6.825
18	2010-11	4823908	6.825
19	2011-12	5002626	6.825
20	2012-13	5419391	6.825
21	2013-14	6292677	6.825
22	2014-15	5139120	6.825
23	2015-16	6340142	6.825
24	2016-17	6825000	6.825
25	2017-18	6825000	6.825
26	2018-19	6825000	6.825
27	2019-20	6729579	6.825
28	2020-21	6579835	6.825
29	2021-22	6414906	6.825
30	2022-23 (upto February 2023)	5854059	6.825

xii. If violation under SOP, dated 7thJuly, 2021. Point-Wise Compliance to SoP:

S. No.	SOP dated 07.07.2021			Compliance
1	S. No	Status of EC	Actions	Order to revert the activity/ production to permissible limits
	1	If no prior EC has been taken	Order to close its operation	
	2	If prior EC is available for existing/old unit	Order to revert the activity/ production to permissible limits	
	3	If prior EC was not	Restrict the	

	required for earlier production level but is now required	activity/production to the extent to which prior EC was not required	
2	Action under Environment (Protection), Act 1986		The Ministry to initiate action under section 15 read with section 19 of the Environment (Protection) Act, 1986 against the Project Proponent
3	Appraisal under EIA Notification, 2006		As per Ministry's SOP dated 07.07.2021
4	Penalty Provisions for Violation Cases and applications a. For new projects: i. Where operation has not commenced: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report; [Ex: Rs. 1 lakh for project cost of Rs 1 Cr] ii. Where operations have commenced without EC: 1% of the total project cost incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover during the period of violation. [Ex: For Rs. 100 Cr project cost and Rs.100 Cr total turnover, the penalty shall be Rs. 1 Cr + Rs 0.25 Cr = Rs 1.25 Cr]. b. For expansion projects: i. Where operation/ production with expanded capacity has not commenced: 1% of the total project cost attributable to the expansion, incurred up to the date of filing of application along with EIA/EMP report. ii. Where operation/ production with expanded capacity have commenced: 1% of the total project cost (attributable to the expansion activity), incurred up to the date of filing of application along with EIA/EMP report PLUS 0.25% of the total annual turnover (attributable to the expanded activity/capacity) involved during the period of violation.		The penalty shall be decided during the time of appraisal for EC.

xiii. Rehabilitation & Resettlement (R&R):

R & R details	There is no displacement frommines.

xiv. Court Case details:

Court Case, No and its present status	The Project Proponent has submitted a declaration vide letter dated 09.10.2023 stating that no litigation is pending against the project or project proponent or land on which the project is proposed.
Undertaking by Project Proponent w.r.t court case	

xv. Details of project cost and employment:

Particulars	(Rs. In Crore)
Project Cost	Rs 135.1 Crore
Employment (No.s)	474 persons

3. Observation and Recommendation of the EAC:

The EAC asked the Project Proponent/Consultant whether the instant proposal is for grant of Terms of Reference (ToR) or amendment in EC. The Project Proponent has informed the EAC that the instant proposal is for grant of Terms of Reference and the subject was mentioned wrongly. The EAC warned the Project Proponent/Consultant for being causal in submitting proposal. Then, the Project Proponent/Consultant presented the KML file to indicate the surface features in the study area of 10 km radius. The Project Proponent has informed the EAC that the mine lease area is located on the top of the hill and the height of the hill is about 300m.

The EAC noted that the violation was established earlier when the Project Proponent has submitted the proposal for amendment in EC dated 20.02.2009. The reiterated the minutes of EAC meeting held during 24-25 August 2023 wherein it has mentioned that “the mine was operating under deemed extension after the year 2012 and Project Proponent did not have EC for an area of 1315.264 ha.The EAC opined thatas per the judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause Versus Union of India and Ors *“the renewal of a mining lease after 27th January, 1994 will require an EC even if there is no expansion or modernization activity or any increase in the pollution load”.* The EAC observed that excess production was done against the EC capacity of 4.8 MTPA during the year 2003-04 (48,16,762 MT), 2004-05 (48,51,726 MT) and 2005-06 (48,54,253 MT). The Project Proponent accepted that the excess production was done against the EC capacity of 4.8 MTPA during the year 2003-04, 2004-05 and 2005-06. The Project Proponent also presented the details of Consent to Operate (CTO) from the year 1993-94 to till date. The Project Proponent has informed the EAC that the capacities of the CTO for the year 1993-94 to 1999-2000 were 2.4 MTPA.The EAC noted that the Project Proponent has exceed the production capacity of CTO during the year 1993-94 (24,35,596 MT), 1995-96 (24,08,472 MT), 1996-97 (25,58,002 MT), 1997-98 (26,61,557 MT), 1998-99

(28,06,288 MT), 1999-2000 (28,22,464 MT), 2000-01 (28,34,189 MT), 2001-02 (35,22,059 MT) and 2002-03 (47,77,003 MT) against the CTO capacity of 2.4 MTPA. The EAC opined that the instant proposal attracts the judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors and violation of the EIA Notification, 2006.Hence, the EAC asked the Ministry to take action against the Project Proponent under the provisions of the Environment (Protection) Act, 1986.

Based on the discussions held, the EAC under the provisions of EIA Notification, 2006 and subsequent amendments therein and as per Ministry's SOP dated 07.07.2021 for identification and handling of Violation cases under EIA 2006, **recommended** the proposal for grant of Terms of Reference (ToR) to Panchpatmali Central and North Block Bauxite Mine of M/s National Aluminium Company Limited (NALCO) for mining of Bauxite with production capacity of 6.825 MTPA of bauxite along with existing crusher of 2 x 900 TPH &SMCP- 1x900 TPH and proposed crusher of 1 x 900 TPH in the mine lease area of 1315.264 ha, located at Village: Damanjodi, Tehsil: Pottangi, District: Koraput, Odisha for undertaking detailed EIA/EMP study subject to the following specific conditions in addition to the standard ToR conditions applicable for non-coal mining projects:-

i. The Ministry has to initiate action under section 15 read with section 19 of the Environment (Protection) Act, 1986 against the project proponent. Further, no consent to operate to be issued till the project is granted EC. The action initiated by the State Govt./State PCB, status of the same may be submitted to the Ministry.

ii. The Project Proponent shall be required to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority. The bank guarantee shall be released after successful implementation of the EMP, followed by recommendations of the EAC and approval of the regulatory authority.

iii. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR) institution working in the field of environment.

iv. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.

v. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter in the EIA report by the accredited consultants.

vi. Details of benefit accrued during the violation period along with capital cost of the project needs to be submitted.

vii. The Project Proponent needs to submit the penalty provisions as per Ministry's SOP dated 07.07.2021 at the time of appraisal of EC.

viii. The Project Proponent needs to submit the action plan to monitor and prevent the pollution of surface water from the mining activity.

ix. Since the mine lease area is located in hilly terrain, the Project Proponent needs to submit the mitigative measures for surface runoff water management and measures to prevent soil erosion.

x. The Project Proponent needs to monitor the ambient air quality and noise level at the mine lease boundary, nearest village, crusher, predominant downwind direction and at other sensitive receptors. Accordingly, Project Proponent shall propose to install Continuous Ambient Air Quality Monitoring Station within certain timeline.

xi. The Project Proponent should prepare the EMP considering the scenario of pollution to be generated for normative and peak total excavation for assessing air and noise pollution.

xii. The Project Proponent needs to submit the implementation status of the Wildlife Conservation Plan.

xiii. The Project Proponent needs to submit the action plan for carrying out plantation along the 7.5m barrier, safety zone and gap plantation. PP should also submit the details of no of saplings planted and to be planted, type of saplings existing and proposed, existing survival rate and the area covered and to be covered under greenbelt/plantation along with the timeline and budget. The Project proponent also needs to submit the successful rate in compliance to the earlier EC.

xiv. The Project Proponent needs to carry out the Public Hearing as per provisions of EIA Notification, 2006. PP should also submit the time bound action plan on concerns of the public through a separate budget with capital expenditure with a timeline of 3 years. The Project proponent shall ensure that the activities proposed under the public hearing shall be different from

the CSR activities. The Project Proponent also needs to submit the implementation status of the earlier public hearing concerns.

xv. The Project Proponent shall carry out the assessment of impact due to the proposed project as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP. The project proponent shall conduct hydrological study for projects involving intersection of ground water table as per the guidelines issued by the Central Ground Water Authority from time to time and submit the same as a part of the EIA/EMP.

xvi. The Project Proponent shall explore the possibility of reduction of specific water requirement by optimization / technology up gradation, etc. The efforts shall be delineated in the EIA/EMP.

xvii. The Project Proponent shall prepare the scheme for mandatory recycle/re-use of water as specified by the Central Ground Water Authority for different category areas seeking NoC for ground water withdrawal and the shall submit as part of EIA/EMP report.

xviii. The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.I(M), dated 25.10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.

xix. The Project Proponent needs to submit the latest Certified Compliance Report (CCR) by the Ministry's Regional Office at the time of appraisal of EC.

xx. The Project Proponent shall conduct drone survey of the mine lease area and buffer area and submit during the appraisal for EC.

2.5 Gundlapalli Limestone mine of M/s NCL Industries Limited for mining of Limestone in the mine lease area of 130.37ha with expansion of Limestone production from 1.0 MTPA to 3.0 MTPA, Topsoil – Nil, OB/Waste – Nil, located at Gundlapalli Village, Matampally Mandal, Suryapet District, Telangana -[File. No: J-11011/576/2008-IA.II(I), Proposal No:IA/TG/MIN/433538/2023; EIA Consultant: M/s Pridhvi Envirotech Pvt Ltd]- Environmental Clearance

The instant proposal is for mining of Limestone in Gundlapalli Limestone mine of M/s NCL Industries Limited for expansion of Limestone production from 1.0 MTPA to 3.0 MTPA, Topsoil – Nil, OB/Waste – Nil,in the mine lease area of 130.37ha, located at Gundlapalli Village, Matampally Mandal, Suryapet District, Telangana.

2. Observation and Recommendation of the EAC:

The Project Proponent/Consultant has informed the EAC that the instant proposal is for expansion in Limestone production capacity from 1.0 MTPA to 3.0 MTPAin the mine lease area of 130.37ha and the proposal attracts the general conditions as the Interstate boundary of Telangana and Andhra Pradesh is located at a distance of 220 m, S from the mine lease area. The EAC asked the Project Proponent that what was the latest date of the site visit by the Regional Office of the MoEF&CC for certification of the compliance of the existing EC dated 15.12.2009. The Project Proponent has informed the EAC that the Regional Office of the MoEF&CC conducted the site visit on 13.04.2022 and granted the letter dated 19.04.2022. The EAC reiterated the Ministry's OM dated 08.06.2022 wherein it has mentioned that "*for the proposals involving expansion of existing EC, CCR issued by the concerned Authority shall be valid for a period of one year from the date of inspection of the project"*. Thus the EAC opined that the instant proposal to be considered only after the submission of the latest Certified Compliance Report (CCR) issued by the Regional Office of the MoEF&CC by the Project Proponent for further appraisal of the proposal. Therefore, the EAC **deferred** the proposal.

2.6 Amendment in Environment Clearance dated 14.05.2009 w.r.t change in mine lease area from 951.848 ha to 912.797 ha for Petnikota Limestone mine with existing Production Capacity of 4.0 Million TPA, located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh in favour of M/s UltraTech Cement Limited -[F. No:J-11015/243/2008-IA.II(M), Proposal No: IA/AP/MIN/439011/2023; EIA Consultant: J.M. Enviro Net Pvt. Ltd] - Amendment in EC

The instant proposal is for amendment in EC dated 14.05.2009 w.r.t change in mine lease area from 951.848 ha to 912.797 ha for Petnikota Limestone mine with existing Production Capacity of 4.0 Million TPA, located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh in favour of M/s UltraTech Cement Limited.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude:15º03'25.71"N to 15º06'37.48"Nand Longitude:78º01'20.96"E to 78º04'11.82"E. The mine lease area falls under the Survey of India Toposheet No: 57I/4and falls in Seismic Zone-II.
ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals and falls under Category "A" as the mine lease area is greater than 250 ha and appraised at the Central level.
iii. Details of previous Environmental Clearance (EC):

a) The Project Proponent has submitted that initially Environmental Clearance (EC) has been obtained vide EC letter dated 14.05.2009 for Petnikota Limestone Mine (ML area: 951.848 ha and production Capacity of 4.0 Million TPA), located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh in favour of M/s Grasim Industries Ltd.
b) Then, the Project Proponent has obtained amendment in EC on 09.02.2010 w.r.t 2nd and 3rd line of para 2 of EC dated 14.05.2009 in favour of M/s Grasim Industries Ltd.

iv. Details of Mine lease:

a) The total mine lease area is 912.797 ha, out of which 642.615 ha is a Pvt. Land and 270.182 ha is a Govt. land.
b) The Govt. of Andhra Pradesh vide G.O Ms. No 222, Ind & Com (M.I) Dept., dated 22.07.2003 granted the mining lease for Limestone mine over an extent of 951.848 Hectares in various Sy.Nos of Petnikota (V)1 Kolirnigundla .(M), Kurnool District for a period of (20) years from 27.04.2004 to 26.04.2024 as per the lease deed executed by the ADM&G, Banaganapalli vide his Progs, dt.27.04.2004in favour of M/s.Grasim Industries Limited.
c) The Govt. of Andhra Pradesh vide G.O Ms. No. 88 Industries & Commerce (M.III) Department dated 27.12.2022 has informed that the Director of Mines & Geology, A.P., Vijayawada has submitted that on verification of DGPS surveyed plan it is noticed that certain Sy.No's (i.e. 258, 259, 265, 268, 274, 275/1, 275/2, 276, 277, 278, 280, 281, 282 & 286 of Petnikota Village) for an extent of 29.409 Hectares are overlapping with the leased area of M/s.Madras Cement Ltd. Further, certain Sy.Nos. (770, 763,764, 765, 766, 767 & 787) for an extent of 9.255 Hectares are repeated in the total extent of 951.848 Hectares. As per the manual extent after deleting the overlapping area, repeated area and error as per the FMB, the area is arrived as 912.797 Hectares. But as per the DGPS the area is arrived as 923.478 Hectares. The difference in between manual and DGPS extent is 1.17%, which is well within the permissible limits. Keeping this minute, variation recommended for modified lease plan for 912.797 Hectares as this variation is on account of ground uneven surface and unpredictable and unforeseen satellite and transmission errors. This area of 912.797 Hectares virtually falls within the leased area of M/s. Grasim Industries Limited. Accordingly, the area of existing Mining Lease shrunken to 912.797 Hectares tothat of original granted area after initiating the DGPS Survey. The following Errata is used to the G.O.s dated 22.07.2003 and 25.03.2008 as mentioned below: - the words *"951.848 Hectares"* wherever they occur in the G.O.s dated 22.07.2003 and 25.03.2008 in respect of the area of Mining Lease, shall be substituted with the words *"912.797 Hectares".*
d) The Govt. of Andhra Pradesh vide G.O Ms. No. 89 Industries & Commerce (M.III) Department dated 27.12.2022 have accorded the permission to transfer the existing Mining Lease held by M/s.Grasim Industries Limited for Limestone over an extent of 912.797 hectares in Sy.No.659/3C etc., of

Petnikota (V), Kolimigundla (M), Kurnool District for a period of (20) years from 27.04.2004 to 26.04.2024 in favour of M/s.UltraTech Cement Limited for the unexpired portion of the lease period upto 26.04.2024. Project Proponent also submitted the transfer of lease deed made on 23.01.2023 over an area of 912.797 ha for the period upto 26.04.2024 in favour of M/s.UltraTech Cement Limited.

v. The Project Proponent also submitted that the Review of Mining Plan was approved by Indian Bureau of Mines (IBM) vide Lr No. AP/KNL/LST-214/HYD dated 14.03.2023 in respect of Petnikota Limestone mine of M/s UltraTech Cement Limited over an area of 912.797 ha.

vi. The Project Proponent has submitted that there is no change in the production capacity, mining methodology & requirements and only there is a reduction in Mine Lease Area from 951.848 ha to 912.797 ha and Name Change from M/s Grasim Industries Ltd., to M/s UltraTech Cement Limited.

vii. The Project Proponent has submitted the Affidavit bearing no: CY 418153 dated 29.07.2023 stating that “the company hereby undertakes to comply with all the statutory requirement and judgment of the Hon’ble Supreme Court order dated 2nd August 2017 in the matter of Writ Petition (Civil) No. 114 of 2014, Common Cause vs UoI”.

viii. The Project Proponent has submitted an undertaking vide letter dated 29.07.2023 stating that “there is no litigation pending against the project and/or any direction/order passed by any Court of Law against the project and/or land in which the project is proposed and that for any such litigation whatsoever, the sole responsibilities will be borne by the company”.

2. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant has informed the EAC that the instant proposal is for amendment in EC dated 14.05.2009 w.r.t change in mine lease area from 951.848 ha to 912.797 ha and Transfer of EC from M/s Grasim Industries Ltd., to M/s UltraTech Cement Limited for Petnikota Limestone mine. The Project Proponent has informed the EAC that initially EC was obtained on 14.05.2009 for Petnikota Limestone Minefor production Capacity of 4.0 Million TPA in the mine lease area of 951.848 hain favour of M/s Grasim Industries Ltd. Then, the Govt. of Andhra Pradesh vide G.O Ms. No. 88 dated 27.12.2022 has informed that the Director of Mines & Geology, A.P., Vijayawada has submitted that on verification of DGPS surveyed plan it was noticed that certain Sy.No's (i.e. 258, 259, 265, 268, 274, 275/1, 275/2, 276, 277, 278, 280, 281, 282 & 286 of Petnikota Village) for an extent of 29.409 Hectares are overlapping with the leased area of M/s.Madras Cement Ltd. Further, certain Sy.Nos. (770, 763,764, 765, 766, 767 & 787) for an extent of 9.255 Hectares are repeated in the total extent of 951.848 Hectares. As per the manual extent after deleting the overlapping area, repeated area and error as per the FMB, the area was arrived as 912.797 Hectares. But as per the DGPS the area is arrived as 923.478 Hectares. The area of existing mining lease shrunken to

912.797 Hectares to that of original granted area after initiating the DGPS Survey. Accordingly, the following Errata was used to the G.O.s dated 22.07.2003 and 25.03.2008 as mentioned below: - the words “951.848 Hectares” wherever they occur in the G.O.s dated 22.07.2003 and 25.03.2008 in respect of the area of Mining Lease, shall be substituted with the words “912.797 Hectares”.

The Project Proponent also informed the EAC that subsequently, the State Govt. has vide G.O Ms. No. 89 dated 27.12.2022 have accorded the permission to transfer the existing Mining Lease held by M/s.Grasim Industries Limited for Limes tone over an extent of 912.797 hectares in Sy.No.659/3C etc., of Petnikota (V), Kolimigundla (M), Kurnool District for a period of (20) years from 27.04.2004 to 26.04.2024 in favour of M/s.UltraTech Cement Limited. The transfer of lease deed was made on 23.01.2023 over an area of 912.797 ha for the period upto 26.04.2024 in favour of M/s.UltraTech Cement Limited. Mining Plan was also approved by Indian Bureau of Mines (IBM) vide letter dated 14.03.2023 over an area of 912.797 ha in favour of M/s UltraTech Cement Limited. Further, the Project Proponent has informed the EAC that there is no change in the production capacity, mining methodology & requirements apart from the reduction in mine lease area from 951.848 ha to 912.797 ha and name change from M/s Grasim Industries Ltd., to M/s UltraTech Cement Limited. The EAC was of the view that transfer of EC proposal may be dealt by the Ministry as per the provisions of EIA Notification, 2006 and its subsequent amendments.

After detailed deliberations, the EAC in its meeting held during 18-20 October, 2023 under the provisions of EIA Notification, 2006 and its subsequent amendments therein **recommended** the proposal for amendment in EC dated 14.05.2009 w.r.t. reduction in mine lease area from 951.848 ha to 912.797 ha for Petnikota Limestone mine of M/s UltraTech Cement Limited with existing Production Capacity of 4.0 Million TPA, located at Village: Petnikota, Taluk: Kolimigundla, District: Nandyal, Andhra Pradesh along with the following additional specific conditions mentioned below:-

i. The EC shall be valid till 26.04.2024.

ii. The Project Proponent needs to make provision for permanent water sprinklers so as to reduce the water consumption. About, 10 nos. of fog canon/mist sprayer of at least 40 m throw shall be installed at various locations in the mine area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.

iii. The real time data generated by continuous ambient air quality monitoring stations (CAAQMS) should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.

iv. The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years.

v. The Project Proponent needs to provide the apprenticeship to the local people. The data and the outcome should be maintained for the same imparted to the local people.

vi. The Project Proponent shall create awareness among the local people working within the project area as well as its surrounding area on the ban of Single Use Plastic (SUP) in order to ensure the compliance of Notification published by MoEF&CC on 12/08/2021. A report, along with photographs, on the measures taken shall also be included in the six monthly compliance report.

vii. The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Regional Office.

viii. All other terms and conditions mentioned in the EC letter dated 14.05.2009 and 09.02.2010 shall remain unchanged.

Day 3: 20th October, 2023 (Friday)

3.1 Color Granite Quarry of M/s Vishwaksen Industries Pvt. Ltd. with proposed production capacity of 2400m^3/Annum of Color Granite within the mine lease area of 15.0 ha, located at Village Gagarajupuram, Tehsil-Meliaputti Mandal, District Srikakulam, Andhra Pradesh- [File. No: J-11015/150/2013-IA.II(M), Proposal No: IA/AP/MIN/27523/2013; EIA Consultant: M/s. Southern Enviro Engineers Pvt. Ltd.] - Environmental Clearance (EC)

The instant proposal is for mining of Color Granite Quarry by M/s Vishwaksen Industries Pvt. Ltd. with proposed production capacity of 2400m^3/annum of Color Granite within the mine lease area of 15.0 ha, located at Village Gagarajupuram, Meliaputti Mandal, District Srikakulam, Andhra Pradesh.

2. Observation and Recommendation of the EAC: -

The Project Proponent/Consultant has informed the EAC that the instant proposal was earlier considered in the EAC Meeting held during June 24-26, 2015. During the EAC meeting, the EAC noted that this is a violation case as mine was operating from 2007-2013 without obtaining environmental clearance. The Committee deliberated at length the information submitted by PP and recommended the Proposal for environmental clearance for mining colour granite with proposed production capacity of 2,400 cum/annum in the MLA 15.0 ha with certain terms and

conditions. The Project Proponent also informed the EAC that the credible action against the Project Proponent/Project is yet to be initiated. The entire mine lease area of 15.0 ha is a Govt. land. The mine lease is valid upto 22.08.2027. Mining Plan was approved by the Department of Mines and Geology, Visakhapatnam vide letter dated 15.02.2023 for mining of Colour Granite over an area of 15.0 Ha for the period 2022-23 to 2026-27. Maximum Yearly Production proposed is 11,660.00 m^3/annum.

The EAC noted that the instant proposal was earlier recommended by the EAC in its meeting held during June 24-26, 2015 for grant of Environmental Clearance (EC) for mining colour granite with proposed production capacity of 2,400 cu.m/annum in the mine lease area of 15.0 ha. The EAC asked the Project Proponent whether there is any change in the scope of the proposal or not and what was the earlier production which has been recommended for grant of EC. The Project Proponent has informed the EAC that there is a change in the scope of the proposal w.r.t production. The earlier production was 2,400 cu.m/annum for which the EC was recommended and now it is proposed to mining of maximum yearly production of11,660.00 m^3/annum of Color Granite.

The EAC observed that there is a change in the scope of the proposal w.r.t production and the hence the instant proposal may not be considered further. The EAC noted that as on date, the instant proposal pertains to State Environment Impact Assessment Authority (SEIAA), Andhra Pradesh as per Ministry's Notification dated 20.04.2022 and 09.05.2022. The EAC asked the Project Proponent to submit the proposal to the State Environment Impact Assessment Authority (SEIAA), Andhra Pradesh as per the provisions of EIA Notification, 2006 and its subsequent amendments. The EAC also asked the Ministry to the send the concerned project file to State Environment Impact Assessment Authority (SEIAA), Andhra Pradesh for further necessary action. Therefore, the EAC **returned the proposal in present form.**

3.2 Proposal for Environmental Clearance for Mining of Bajri (Minor Mineral) with proposed production capacity 5.60 MTPA (ROM) in the mine lease area of 3843.098 Ha (19011.89 Bigha), located at Villages Annapurna, Arjiyana, Indrana, Kundal, etc. of Tehsil Siwana, District Barmer, Rajasthan by M/s Ridhi Siddhi Associates [File No. J-11015/427/2013-IA.II(M); Proposal No. IA/RJ/MIN/20595/2013; EIA Consultant: Enkay Enviro Services Pvt. Ltd] – Re-Consideration of Environmental clearance

The instant proposal is for mining of Bajri (Minor Mineral) with proposed production capacity 5.60 MTPA (ROM) in the mine lease area of 3843.098 Ha (19011.89 Bigha)., located at Villages Annapurna, Arjiyana, Indrana, Kundal, etc. of Tehsil Siwana, District Barmer, Rajasthan by M/s Ridhi Siddhi Associates.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area located between Latitude: 25º27'06.84"N to 25º51'39.72"N and Longitude: 72º15'14.89"E to 72º46'27.61"E and falls under the Survey of India Toposheet number No 45C/1, 45C/2, 45C/3, 45C/5, 45C/6, 45C/7, 45C/9, 45C/10, 45C/13, 45C/14 and 45C/15.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals.

iii. Details of previous EAC meetings:

a) Initially, the proposal was considered in the EAC meeting held during July 21-22, 2016 wherein the EAC deferred the proposal. Then, the Project Proponent submitted the information on 06.04.2018 in Parivesh portal.

b) The Environmental Clearance proposals for mining of Sand/Bajri which were received from the State of Rajasthan were deliberated and discussed in the EAC meeting held during May 30-31, 2018. The representatives of State Government of Rajasthan were also present during the meeting. Based on the detailed deliberations and discussions, the Committee was of the view that the complete appraisal may be done once the information as sought in the similar cases of State of Rajasthan for bajri/sand mining project may be submitted by the State Govt. of Rajasthan and Project Proponent. In view of the above, the Committee suggested that first State Govt. of Rajasthan and Project Proponent shall submit the above mentioned information for all similar case of the State of Rajasthan. Thereafter the proposals may be considered. The Committee also suggested that the proposals can only be considered before the EAC once all the complete information received from State Govt. of Rajasthan and Project Proponents. Accordingly, the Ministry vide letter dated 18.06.2018 requested the Project Proponent and Department of Mines and Geology, Govt. of Rajasthan to submit the requisite information for further necessary action. Then, the Project Proponent submitted the information on 09.03.2022.

c) Accordingly, the proposal was considered in the EAC meeting held during 19-21 April, 2022 wherein the EAC deferred the proposal. The Project Proponent submitted the information on 07.06.2022 in Parivesh portal.

d) Then, the proposal was again reconsidered in the EAC meeting held during 28 -29 June, 2022 wherein the EAC again deferred the proposal for want of requisite information. Due to incomplete submission of information by the Project Proponent, the Ministry sough several ADS and the Project Proponent submitted the information on 27.09.2023 in Parivesh portal.

e) Accordingly, the instant proposal is considered in the 21st EAC meeting held during 18-20 October, 2023 as per Ministry's OM dated 27.09.2022 which states that *"the proposals which have been considered/ appraised once by EAC either for TOR or EC, but final decision has not been taken, shall continue to be appraised at the Central level only, till final disposal for ToR/EC, even after the amendments in the EIA Notification are issued from to time regarding delegation of projects to SEIAAs".*

Based on observation of EAC in its EAC meeting held during 28 -29 June, 2022 and compliance of observation of EAC made by Project Proponent are detailed below:

S. No	Observation of EAC in its meeting held during 28 -29 June, 2022	Reply by the Project Proponent
1	The water quality on selected location where high TDS has been reported needs to be revisited and revised data needs to be submitted alongwith mitigation measures	The Project Proponent has submitted the revised iconic balance and submitted that the difference between sum of anions and cations as 1.22 which is equal to 0.404 % of total amount of ions.
2	The project proponent needs to submit the authenticated District Survey Report approved by SEIAA in accordance with Ministry's notification S.O 3611 (E) dated 25thJuly, 2018.	The Project Proponent has submitted the letter issued by the State Environment Impact Assessment Authority, Rajasthan vide F.1(4)/ SEIAA/SEAC/DSR/2023-24 dated 21.09.2023 stating that the District Survey Reports (DSRs) for Sand or River Bed mining for Barmer District of Rajasthan is approved by the authority vide its meeting dated 18.09.2023.
3	The project proponent submitted the Mining Plan along with Progressive Mine Closure Plan duly approved by SME, Jodhpur Circle, Jodhpur dated 08.01.2014, which is not valid. The PP needs to submit the latest approved Mining Plan.	The Project Proponent has submitted the Mining Plan along with the Progressive Mine Closure Plan approved by Office of Supdtg. Mining Engineer, Dept. of Mines and Geology, Jodhpur vide Letter No. SME/JO/CC/ Jalore/ML/9/2013/746 dated 19.01.2023 in respect of ML for mineral Bajri near Village falling Khasra of Nadi, Nalas, Balas, Tehsil Siwana, District Barmer for an area of 19011.89 Bigha (3843.098 Ha).
4	The project proponent needs to submit a legible copy of Letter of Intent (LOI) along with its chronology, if any. A copy of letter issued by Govt. of Rajasthan in the matter may also be provided.	The Project Proponent has submitted the letter issued by the Office of the Mining Engineer, Mines and Geology Dept, Jalore vide letter dated 31.03.2023 stating that the period of the mining lease will be effective from the date of the contract registration from 31.03.2023 to 13 months 09 days in addition to the terms and restrictions mentioned in the Rajasthan Minor Mineral Concession Rules 2017 and the amendments made from time to time and the conditions mentioned in the said order will remain effective. The Project Proponent also submitted

<table>
<tr><td></td><td></td><td>the copy of the mining lease contract executed on 29.03.2023 and registered on 31.03.2023 for an area of 3843.098 Ha.

Further, the Project Proponent submitted the letter from the Govt. of Rajasthan vide letter dated 01.10.2021 stating that the area is amended to 3843.098 ha instead of 19011.89 ha.</td></tr>
<tr><td>5</td><td>The project proponent needs to submit the DMG authenticated past production since inception of mine lease.</td><td>The Project Proponent has submitted the letter from the Office of the Mining Engineer, Mines and Geology Dept, Jalore vide letter dated 07.04.2022 for the period 27.12.2013 to 16.11.2017 as given below:
<table>
<tr><th>S. No</th><th>Particulars</th><th>Production (tonnes)</th><th>Dispatch (tonnes)</th></tr>
<tr><td>1</td><td>27.12.2013 to 31.03.2014</td><td>94856</td><td>94856</td></tr>
<tr><td>2</td><td>2014-15</td><td>377823.18</td><td>377823.18</td></tr>
<tr><td>3</td><td>2015-16</td><td>371693.26</td><td>371693.26</td></tr>
<tr><td>4</td><td>2016-17</td><td>319868.68</td><td>319868.68</td></tr>
<tr><td>5</td><td>01.04.2017 to 16.11.2017</td><td>228850.29</td><td>228850.29</td></tr>
</table></td></tr>
<tr><td>6</td><td>The project proponent needs to submit the undertaking regarding the following:
I. Not more than 1.0 m depth is permitted for mining. If the water level in the river bed is just 1.0 m below the surface, no mining will be done.
II. Transportation of the bajri has to be totally outside the villages with a proper bypass.
III. Avenue plantation along the road must be in three rows with a proper arrangement for their protection either by common fencing or individual gabion depending upon the density of the site with provision for regular irrigation.</td><td>The Project Proponent has submitted an undertaking vide letter dated 11.07.2022 stating that the Project Proponent is responsible for the following:
1. The mining depth will not more than 1.0m as permitted for mining. If the water level in the river bed is just 1.0 m below the surface, no mining will be done.
2. Transportation of the bajri will be totally outside the villages with a proper bypass.
3. Avenue plantation along the road will be maintained in three rows with a proper arrangement for their protection either by common fencing or individual gabion depending upon the density of the site with provision for regular irrigation.</td></tr>
</table>

3. Observation and Recommendation of the EAC:

The Project Proponent/EIA Consultant presented the KML file to indicate the site features in the study area of 10km radius. The Project Proponent has shown the boundary of the mine lease area through KML. The EAC asked about the length of the mine lease area. The Project Proponent has informed the EAC that the length of the mine lease area is about 56km.The EAC asked the Project Proponent whether the boundary pillars are fixed on the ground. The Project Proponent has informed the EAC that no boundary pillars are fixed on the ground. The EAC asked the Project Proponent to submit the proof of the boundary pillars fixed on the ground.

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent has informed the EAC that the District Survey Reports (DSRs) for Sand or River Bed mining for Barmer District of Rajasthan was approved by the authority vide its meeting dated 18.09.2023 and the same has been informed by the SEIAA vide letter dated 21.09.2023. The period of the mining lease will be effective from the date of the contract registration from 31.03.2023 to 13 months 09 days. The mining lease contract was executed on 29.03.2023 and registered on 31.03.2023 for an area of 3843.098 Ha. Mining Plan along with the Progressive Mine Closure Plan was approved by Office of Supdtg. Mining Engineer, Dept. of Mines and Geology, Jodhpur vide letter dated 19.01.2023 for mineral Bajri for an area of 19011.89 Bigha (3843.098 Ha). An undertaking has been submitted vide letter dated 11.07.2022 stating that the mining depth will not be more than 1.0m as permitted for mining. If the water level in the river bed is just 1.0 m below the surface, no mining will be done.

The EAC opined that the Project Proponent needs to submit the details of the annual replenishment of sand in the mining lease area. The EAC also opined that as per the Sustainable Sand Mining Management Guidelines, 2016, Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. The EAC was of the view that the replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excess sand extraction and for further appraisal. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the replenishment study showing the details of the annual replenishment of sand in the mining lease area in line with the guidelines of CMPDI.

ii. The Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material.

iii. The Project Proponent needs to increase the entry point of the transportation routes. Accordingly, the Project Proponent shall submit the revised traffic plan.

iv. The Project Proponent needs to verify the Schedule-I species and also to submit the authenticated list of Flora and Fauna from the Forest Dept. in reference to the Wild Life (Protection) Amendment Act, 2022 and shall include the Schedule-I species in their Wildlife Conservation Plan, if any new Schedule-I Species has been added. The Project Proponent needs to submit the activities proposed under Wildlife Conservation Plan along with the budget.

v. The Project Proponent needs to submit the proof of the demarcation of the boundary pillars fixed on the ground.

vi. The Project Proponent needs to submit the action plan for the approved DSR.

vii. The Project Proponent needs to submit the letter from the Dept. of Geology and Mining, Govt. of Rajasthan regarding whether any illegal mining has been carried out in the mine lease or not.

3.3 Bajri (Minor Mineral with production capacity of 3.64 million TPA ROM) Mining by M/s Chandak Associates located at Village (s) Kurasia, BanediaCharnan, Kawrawas, Chandpura, Saigyawas, Golahera, Ralawata, Thatha, Setiwas, Jethaliya, Jharkiya (Radhavallabhpura), MorBhatiyan, Morda, Modiyala, Chaan, Barwas and Chuli., Tehsil- Todaraisingh, DistrictTonk, Rajasthan (1260.96ha). [F.No. J-11015/180/2013-IA. II (M); Proposal No. IA/RJ/MIN/19962/2013; EIA Consultant – M/s Enkay Enviro Services Pvt. Ltd] – Environmental Clearance (EC)

The instant proposal is for mining of Bajri (Minor Mineral with production capacity of 3.64 million TPA ROM) in the mine lease area of 1260.96ha, located at Village (s) Kurasia, BanediaCharnan, Kawrawas, Chandpura, Saigyawas, Golahera, Ralawata, Thatha, Setiwas, Jethaliya, Jharkiya (Radhavallabhpura), MorBhatiyan, Morda, Modiyala, Chaan, Barwas and Chuli., Tehsil- Todaraisingh, District Tonk, Rajasthan by M/s Chandak Associates.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area located between Latitude: 25°53’04.66” N to 26°07’30.43” N and Longitude: 75°31’34.50” E to 75°39’07.09” Eand falls under the Survey of India Toposheet number No 45 O/9, 45 O/5 and 45 N/12 and falls in Seismic Zone-II.

ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals.

iii. Details of previous EAC meetings:

a) Initially, the proposal was considered in the EAC meeting held during June 22-23, 2016 wherein the EAC deferred the proposal. Then, the Project Proponent submitted the information on 26.04.2018 in Parivesh portal.

b) The Environmental Clearance proposals for mining of Sand/Bajri which were received from the State of Rajasthan were deliberated and discussed in the EAC meeting held during May 30-31, 2018. The representatives of State Government of Rajasthan were also present during the meeting. Based on the detailed deliberations and discussions, the Committee was of the view that the complete appraisal may be done once the information as sought in the similar cases of State of Rajasthan for bajri/sand mining project may be submitted by the State Govt. of Rajasthan and Project Proponent. In view of the above, the Committee suggested that first State Govt. of Rajasthan and Project Proponent shall submit the above mentioned information for all similar case of the State of Rajasthan. Thereafter the proposals may be considered. The Committee also suggested that the proposals can only be considered before the EAC once all the complete information received from State Govt. of Rajasthan and Project Proponents. Accordingly, the Ministry vide letter dated 18.06.2018 requested the Project Proponent and Department of Mines and Geology, Govt. of Rajasthan to submit the requisite information for further necessary action. Accordingly, information was submitted by the Project Proponent on 23.01.2020 in Parivesh portal.

c) Then, the proposal was considered in the 16thEAC(Non-coal) meeting held on 6thMay, 2020 wherein the EAC deferred the proposal for want of requisite information. The Project Proponent submitted the incomplete information on 25.01.2023 in Parivesh portal. Then, the Ministry sought additional details sough on 15.02.2023 in Parivesh portal and the Project Proponent submitted the information on 04.10.2023 in Parivesh portal.

d) Accordingly, the instant proposal is considered in the 21st EAC meeting held during 18-20 October, 2023 as per Ministry's OM dated 27.09.2022 which states that *"the proposals which have been considered/ appraised once by EAC either for TOR or EC, but final decision has not been taken, shall continue to be appraised at the Central level only, till final disposal for ToR/EC, even after the amendments in the EIA Notification are issued from to time regarding delegation of projects to SEIAAs".*

Based on observation of EAC in its EAC meeting held on 6th May, 2020 and compliance of observation of EAC made by PP are detailed below:

S. No	Observation of EAC in its meeting held on 6th May, 2020	Reply by the Project Proponent
1	In the replenishment study report details such as area under 7.5 meters statutory barrier, area under ¼ width of the river, area	The Project Proponent has submitted that w.r.t CEC report dated 23.12.2020, wherein it is stated *"The MoEF&CC will EC in respect of all the valid LOI*

<table>
<tr><td></td><td>under ¾ width of the river for both lease area and area demarcated by DMG needs to be mentioned. In addition to these details of the reserve available and block therein needs to be provided along with plan and section for area demarcated by DMG. In the study report the safeextractable volume and tonnage needs to be defined after the deducting the block reserves. The slice plan for the mining in the safe extractable zone needs to be provided in the report.</td><td>holders recommended by the EAC in the meeting held during 2014-2016 without insisting on submission of scientific study report as a precondition for grant of EC within a period of three months. MoEF&CC shall also prescribe detailed methodology in consultant with CMPDI for undertaking replenishment studyduring the course of mining”.In this regard, the Project Proponent has requested to allow the work without insisting for scientific report.

The Project Proponent also submitted the copy of the replenishment study carried out during Pre Monsoon & Post Monsoon – 2022.</td></tr>
<tr><td>2</td><td>The details of the area to be utilized & not to be utilized for mining, as approved mining plan at the end of 5 years needs to be provided. Whether area demarcated by DMG comes under the utilized zone or un-utilized zone. In addition to this, area required for mining in the next 5 years needs to be provided with proper justification. The details of any prohibited area within the LOI area or demarcated area needs to be provided.</td><td>The Project Proponent has submitted that out of total lease area of1260.96ha, an area of 945.72 ha will be utilized during plan period of five years. An area of 75.0 ha will be broken yearly and remaining area will be utilized for replenishment in natural course. Besides this 315.24 ha area will be left for safety zone, bridges, anicuts, 1/4 of lease boundary, 50 meter barrier as per Enforcement and Monitoring Guidelines for Sand Mining 2020. Each year mining area will be backfilled naturally by replenished sand and thus no void will be left.</td></tr>
<tr><td>3</td><td>Mining is proposed in the small area and still large area is left how PP will ensure to curb illegal mining in the demarcated area and rest of the area falling in the lease (provision of Enforcement and Monitoring Guidelines for Sand Mining ,2020 shall be referred for the same). In addition to this budget for installation surveillance equipment like CCTV, security guards weigh bridge etc., needs to be provided. The mining intensity of the original proposal considering larger area and the current proposal shall be compared and explained, as there is significant difference in mining intensity per</td><td>The Project Proponent has submitted that to curb the illegal mining in the remaining area, Project Proponent will ensure that there will be four entry point (Roads) from where the demarcated river may be approached. Therefore, four numbers of night vision camera will be installed and data will be made available to State Government. The budget earmarked for surveillance equipment are given below:
<table>
<tr><th>S. No</th><th>Particulars</th><th>Capital Cost (In Lakhs)</th><th>Recurring Cost (In Lakhs)</th></tr>
<tr><td>1</td><td>CCTV Camera</td><td>4.0</td><td>0.4</td></tr>
<tr><td>2</td><td>Weigh bridge</td><td>25.0</td><td>2.5</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>Ha area.</td><td>
<table>
<tr><td>3</td><td>Personal Computer with power backup</td><td>2.0</td><td>0.2</td></tr>
<tr><td>4</td><td>Mobile Application Barcode Scanner</td><td>2.0</td><td>0.2</td></tr>
<tr><td>5</td><td>Radio frequency identification tags (RFID) and Global Positioning System (GPS) tracking</td><td>25.0</td><td>25.0</td></tr>
<tr><td>6</td><td>Annual audit of each lease</td><td>-</td><td>10.0</td></tr>
<tr><td>7</td><td>Security Guard/Task Force</td><td>-</td><td>20.0</td></tr>
<tr><td></td><td>Total</td><td>58.0</td><td>38.3</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>PP needs to submit the compliance of ToR points wherein certificate is required for involvement of no forest land, distance from the protected area, authenticated list of schedule-1 species, conservation plan for schedule-1 species and proof of its submission to Chief Wildlife Warden if not already submitted. PP shall ensure that all these documents along with Annexure to EIA Report and other documents submitted to the ministry should be uploaded online on PARIEVSH Portal for public viewing.</td><td>The Project Proponent has submitted the letter the Office of the Deputy Conservator of Forest, Tonk vide dated 11.09.2020 stating that there is no forest land involved in the mine lease area and the applied area falls within 10km radius of Bisalpur Conservation Reserve. The Project Proponent also submitted the authenticated list of flora and fauna and the Forest Dept has informed that the Common Leopard, Rusty Spotted Cat, Monitor Lizard, India Flapshell Turtle, Pangolin, Crocodile, Python are found in the study area.

The Project Proponent has submitted the proof of submission of Conservation Plan submitted to the Chief Wildlife Warden, Jaipur vide letter dated 21.12.2022 for Schedule-I species found in the study area</td></tr>
<tr><td>5</td><td>PP needs to submit a letter from the State Government that there is no violation of Common Cause Judgment dated 2.08.2017 in respect of this mining proposal and there is no production before the</td><td>The Project Proponent has submitted the certified past production details issued by the Assistant Mining Officer, Tonk vide letter no. AME/Tonk/Bajri/ Todarasingh/2012/311 dated 26.08.2022 for the period 27.12.2013 -</td></tr>
</table>

<table>
<tr><td></td><td>SC Order dated 25.11.2013 & after SC Order dated 16.11.2017. An undertaking in this may also be submitted.</td><td>31.03.2014 to 01.04.2022 – 25.08.2022 as given below:
<table>
<tr><th>S. No</th><th>Particulars</th><th>Production (Tonnes)</th></tr>
<tr><td>1</td><td>27.12.2013 to 31.03.2014</td><td>1103224</td></tr>
<tr><td>2</td><td>2014-15</td><td>1461012</td></tr>
<tr><td>3</td><td>01.04.2015 to 31.03.2022</td><td>Nil</td></tr>
<tr><td>4</td><td>01.04.2022 to 25.08.2022</td><td>Nil</td></tr>
</table>

The Project Proponent has submitted a notarized affidavit dated 28.07.2022 stating that the project/activity pertaining to the mining lease has not been in violation of the Order dated 02.08.2017 of the Hon’ble Supreme Court in the matter of Writ Petition (Civil) No. 114 of 2014, Common Cause vs UoI.</td></tr>
<tr><td>6</td><td>The PP needs to submit time-bound, activity-wise action plan for EMP, Occupational Health, Planation, and CER along with the budgetaryprovision. In addition to details of Environmental Management Cell to be established for implementation of EMP needs to be submitted along with details of manpower and cost.</td><td>The Project Proponent has submitted that they are committed to establish an Environment Monitoring Cell which would headed by Mine Owner. Hierarchical system of administrative order will be dealt with regards to environmental issues and for ensuring the EC compliance. The breakup of the budget proposed for Environment Management Plan are given as under: -
<table>
<tr><th>S. No</th><th>Particulars</th><th>Capital Cost (In Lakhs)</th><th>Recurring Cost (In Lakhs)</th></tr>
<tr><td>I</td><td colspan="3">Air Pollution Control and Management</td></tr>
<tr><td>1</td><td>Water sprinkling arrangements for main haulage road including cost of water tanker</td><td>17.0</td><td>5.0</td></tr>
<tr><td>II</td><td colspan="3">Plantation</td></tr>
<tr><td>1</td><td>Greenbelt (Phase wise greenbelt development including maintenance)</td><td>20.25</td><td>3.0</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>2</td><td>Wildlife Conservation</td><td>4.0</td><td></td></tr>
<tr><td>III</td><td colspan="3">Public Hearing Action Plan (Community development activities)</td></tr>
<tr><td>1</td><td>Public Hearing Action Plan (CSR Activities for 5 years)</td><td>35.0</td><td>3.5</td></tr>
<tr><td>IV</td><td>Budget for surveillance equipment</td><td>58.0</td><td>38.3</td></tr>
<tr><td>V</td><td colspan="3">Environmental Management Cell</td></tr>
<tr><td>1</td><td>Infrastructure facility</td><td>5.0</td><td>1.0</td></tr>
<tr><td>2</td><td>Employment</td><td>1.0</td><td>7.0</td></tr>
<tr><td></td><td>Total</td><td>140.25</td><td>57.8</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>PP needs to ascertain the impact of transportation and details of transportation route viz. (length of the road, type of road, passing through the village or habitation) and mitigative measures to be taken for abatement of pollution due to transportation. The budget for the same needs to be provided.</td><td>The Project Proponent has submitted the map showing the transport route. To minimize the impact due to transportation, following precautions will be taken:
i. The transportation route will be tried to bypass the villages falling in the impact zone.
ii. Plantation will be carried out along the bypass road.
iii. Due to unavoidable circumstances, if villages cannot be bypass and vehicles have to move through the villages, the speed of the vehicles will be maintained low (25kmph).It will minimize the dust generation. However, due to low speed more vehicular exhausts will generate.
iv. To control the vehicular exhausts PUC certified vehicles will be used.</td></tr>
<tr><td>8</td><td>In case there any proposal for utilization of land outside the mining lease for transportation with a mutual agreement with villagers then details of the same needs to be provided along with proposed compensation details.</td><td>The Project Proponent has submitted that there is no requirement of land for transportation outside the mine lease area.</td></tr>
<tr><td>9</td><td>PP needs to re-estimate the requirement of water for plantation, dust suppression and domestic</td><td>The Project Proponent has re-estimated the water requirement as follows. The total water requirement will</td></tr>
</table>

	use. The source of water needs to be mentioned. The cost of water tanker etc. needs to be mentioned in EMP.	be 71.0 KLD (Domestic Purpose-70.0 KLD, Plantation 7.0 KLD and Dust Suppression 57.0 KLD). The domestic water requirement will be met from tanker water. The generation of waste water quantity will be 5.25 KLD and will be treated by using Modular STP. The cost of water tanker already included in EMP.
10	PP needs to confirm that is there any other homogeneous mining lease within 500 meters of this lease and forming cluster. If, yes details of the same needs to be provided.	The Project Proponent has submitted the letter from the Office of the Assistant Mining Engineer, Mines and Geology Dept, Tonk vide letter dated 07.07.2022 stating that the said cluster does not include mining leases registered before 09.09.2013. In 500m radius, the said Gansha Patra, the area of mining lease no. 10/2012 of similar mineral registered after 09.09.2013 is 1598.31 ha. Therefore, after adding the mining area of said cluster to the letter of intent area of the applicant as on 07.07.2022, the total area of the cluster becomes 2859.27 ha.
11	It has observed that PP has changed the consultant a letter in this regard needs to be submitted in pursuant to Ministry's O.M. No. J11013/41/2006-IA. II(I) dated 17.03.2010.	The Project Proponent has submitted a letter dated 23.01.2023 stating that as per Ministry's OM dated 17.03.2010 they would like to inform about the change of the EIA Consultant from M/s Overseas Min-Tech Consultant, Jaipur to M/s Enkay Enviro Services Pvt Ltd, Jaipur for the river bed sand mining project, area 1260.96 ha with all onus of mine data and the baseline data generated for a period of Post Monsoon Season (October – December 2013) owned by the former ACO. The Project Proponent also submitted the copies of the test reports of baseline data monitored during 01.11.2022 to 30.11.2022 for ambient air quality monitoring at 5 locations, noise level monitoring at 5 locations, surface water at locations, ground water at 5 locations and soil quality at 5 locations.
12	PP has provided details of many court cases which are on various issues. Therefore, PP needs to	The Project Proponent has submitted the details of the court case as given below: -

<table>
<tr>
<td></td>
<td>provide status of the case wherein the case is pertaining to issue of grant of EC to present proposal, grant of LoI, illegal mining by PP etc. The Complete details and status of the same needs to be provided.</td>
<td>
<table>
<tr><td>25.11.2013</td><td>Hon’ble Supreme Court vide Case. No. SLP (C) 34134/13, State of Raj. v/s Nature Club; in the matter Challenging State Notification dated 21/06/2012. Temporary working was awarded.</td></tr>
<tr><td>19.02.2020</td><td>Hon'ble Supreme Court-appointed Central Empowered Committee (CEC) to resolve the dispute between the Parties to the case in order to culminate illegal mining reported in the State.</td></tr>
<tr><td>23.12.2020</td><td>CEC submitted a report to resolve the issues of illegal sand mining and problems faced by various Stakeholders.</td></tr>
</table>
The CEC recommendation was: “The MoEF&CC will EC in respect of all the valid LOI holders recommended by the EAC in the meeting held during 2014-2016 without insisting on submission of scientific study report as a precondition for grant of EC within a period of three months. MoEF&CC shall also prescribe detailed methodology in consultant with CMPDI for undertaking replenishment studyduring the course of mining”.

In compliance to this MoEF&CC has issued EC to all the LOI holders of Bajri Mining, wherein EAC had recommended grant of EC subjected to submission of Scientific Study and Valid LOI. In order to comply with CEC, MoEF&CC has accorded EC to projects, wherein recommendations were made in the year 2014-2016. The Project Proponent has submitted that they are also party to all the interim orders issued by Hon'ble Supreme Court and were directed accordingly as per the same they are scheduled for appraisal in consensus with the CEC report to grant EC without insisting. On</td>
</tr>
</table>

		similar grounds our proposal may be considered. In this regard, the Project Proponent has requested the Hon'ble EAC to grant the EC in sync with the above cases and allow them to complete the scientific study as per the prescribed detailed methodology in consultation with CMPDI.
Additional Details sought by the Ministry		
1	A copy of approved DSR by SEIAA	The Project Proponent has submitted the letter issued by the State Environment Impact Assessment Authority, Rajasthan vide F.1(4)/ SEIAA/SEAC/DSR/2023-24 dated 21.09.2023 stating that the District Survey Reports (DSRs) for Sand or River Bed mining for Tonk District of Rajasthan is approved by the authority vide its meeting dated 18.09.2023 with the following conditions:- a. Mining Department will ensure compliance of all the directions of the Hon'ble Courts and Guidelines of Sustainable Sand Mining Management Guidelines, 2016 and Enforcement & Monitoring Guidelines for Sand Mining, 2020 (EMGSM-2020) before the auction/e-auction/grant of mining lease/Letter of Intent (LoI) b. As per MoEF&CC Notification dated 25.07.2018, all DSRs shall be updated once in five years c. All environmental concerns shall be taken care of and no damage is caused to the environment.
2	Revised undertaking as per point no (v) of the additional details sought by the EAC	The Project Proponent has submitted a revised affidavit dated 29.07.2023 stating that the project/activity pertaining to the mining lease has not been in violation of the Order dated 02.08.2017 of the Hon'ble Supreme Court in the matter of Writ Petition (Civil) No. 114 of 2014, Common Cause vs UoI and no illegal mining activity has been or is being carried out in the mining lease in violation of the Mines and Minerals (Development and Regulation) Act, 1957, Water

<table>
<tr><td></td><td></td><td>(Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Environment (Protection) Act, 1986 and other relevant laws.</td></tr>
<tr><td>3</td><td>Past production details</td><td>The Project Proponent has submitted the past production details approved from Assistant Mining Officer, Tonk vide letter no. AME/Tonk/Bajri/ Todaraisingh/2023/1143 dated 27.09.2023 as given below:-
<table>
<tr><th>S. No</th><th>Particulars</th><th>Production (Tonnes)</th></tr>
<tr><td>1</td><td>27.12.2013 to 31.03.2014</td><td>1103224</td></tr>
<tr><td>2</td><td>2014-15</td><td>1461012</td></tr>
<tr><td>3</td><td>01.04.2015 to 27.09.2023</td><td>Nil</td></tr>
</table></td></tr>
<tr><td>4</td><td>Approved Mining Plan</td><td>The Project Proponent has submitted that the Scheme of Mining including Progressive Mine Closure Plan has been approved from office of SME-Jaipur vide letter no. SME/Jaipur/M. Scheme/P.238/ 2022/01 dated 03.01.2023 for excavation from an area of 1260.96 Ha for the period 2022-23 to 2026-27.</td></tr>
<tr><td>5</td><td>Valid mine lease document</td><td>The Project Proponent has submitted that the mining lease in favor of M/s Chandak Associates is valid. Letter of Intent (LoI) has been sanctioned by the order of Government of Rajasthan vide letter no. P.7(9)Mines/ Group-2/ 2013 dated 05.03.2013 and is re-validated by the Department Of Mines & Geology Rajasthan's letter no P.10(23) KHAN/GROUP-2/2012 dated 14.10.2022. Sanction order for the lease was issued by the Department of Mines & Geology Rajasthan's letter no P.7(9)KHAN/GROUP-2/2013 dated 22.12.2022.</td></tr>
</table>

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10km radius. The Project Proponent has shown the boundary of the mine lease area through KML. The Project Proponent stated that river will be flowing for a period of 6-7 months. The EAC observed that the boundary of the two mine lease area seems to be overlapping. The project proponent informed

that the transportation route for this instant mine is separate and it is not connected with the adjacent mine. The EAC asked the Project Proponent whether the boundary pillars are fixed on the ground to differentiate as well as to prevent the illegal mining. The Project Proponent informed the EAC that no boundary pillars are fixed on the ground. The EAC was of the view that it is difficult to ascertain the boundary of the mine lease. The EAC asked the Project Proponent to submit the proof of the boundary pillars fixed on the ground.

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. District Survey Reports (DSRs) for Sand or River Bed mining for Tonk District of Rajasthan was approved by the authority vide its meeting dated 18.09.2023 and the same has been informed by the SEIAA vide letter dated 21.09.2023. Revised undertaking has been submitted by way of affidavit dated 29.07.2023 stating that the project/activity pertaining to the mining lease has not been in violation of the Order dated 02.08.2017 of the Hon'ble Supreme Court in the matter of Writ Petition (Civil) No. 114 of 2014, Common Cause vs UoI and no illegal mining activity has been or is being carried out in the mining lease in violation of the Mines and Minerals (Development and Regulation) Act, 1957, Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Environment (Protection) Act, 1986 and other relevant laws. Scheme of Mining including Progressive Mine Closure Plan has been approved from office of SME-Jaipur vide letter no. dated 03.01.2023 for excavation from an area of 1260.96 Ha for the period 2022-23 to 2026-27. Sanction order for the lease was issued by the Department of Mines & Geology Rajasthan's letter dated 22.12.2022. The EAC asked the Project Proponent to submit the letter from the Dept. of Mining and Geology clarifying whether any illegal mining has been carried out in the mine lease or not. The EAC also noted that the public complain received against the project. The EAC asked the Project Proponent to give explanation about the complain/litigation received against the project.

The Project Proponent has shown the replenishment study carried out during Pre Monsoon & Post Monsoon, 2022. The EAC noted that the details of the annual replenishment of sand in the mining lease area are not mentioned in the replenishment study. The EAC opined that as per the Sustainable Sand Mining Management Guidelines, 2016, Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. A budget of Rs 58.0 Lakhs has been earmarked towards surveillance equipment. Transportation will not happen through the village road. Water requirement has been re estimated as 71.0 KLD. Revalidation of baseline data was monitored during 01.11.2022 to 30.11.2022 for ambient air quality monitoring at 5 locations, noise level monitoring at 5 locations, surface water at locations, ground water at 5 locations and soil quality at 5 locations. The Project Proponent vide letter dated 23.01.2023 has submitted that as per

Ministry's OM dated 17.03.2010 they have changed the EIA Consultant from M/s Overseas Min-Tech Consultant, Jaipur to M/s Enkay Enviro Services Pvt Ltd, Jaipur for the river bed sand mining project, area 1260.96 ha with all onus of mine data and the baseline data generated for a period of Post Monsoon Season (October – December 2013) owned by the former ACO. The EAC asked the new EIA Consultant to submit the undertaking that they have gone through the EIA report and own the contents of the EIA/EMP report.

The EAC asked the Project Proponent whether there is any conservation reserve falls within the 10km radius. The Project Proponent has informed the EAC that the no conservation reserve is found within the 10km radius. The EAC noted that the Office of the Deputy Conservator of Forest, Tonk vide dated 11.09.2020 has stated the applied area falls within 10km radius of Bisalpur Conservation Reserve.The EAC expressed their dissatisfaction against the EIA Consultant for not revealing the actual information. The EAC warned the EIA Consultant for not bringing out the factual information. The EAC noted that the Wildlife Division of the MoEF&CC vide OM dated 30.01.2023 has mentioned that *"as per the revised Guidelines dated 21st July, 2022 (copy enclosed), projects/activities proposed to be located within Conservation Reserves notified under the Wild Life (Protection) Act, 1972 do not require consideration by the Standing Committee of National Board for Wild Life".* The EAC observed that the Bisalpur dam is situated at the upstream of lease area. The EAC opined that the Conservation Reserves are declared for the purpose of protecting landscapes, seascapes, flora and fauna and their habitat. The rights of people living inside a Conservation Reserve should not be affected. The EAC asked the Project Proponent to prepare and submit the Biodiversity Conservation Plan to ensure no net loss to biodiversity. Based on the discussions held, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to give explanation about the complaint/litigation received against the project. The public complaint regarding 'lease in question' also forwarded by Ministry to State DMG for status report.

ii. The Project Proponent needs to submit an action plan in accordance with the approved DSR.

iii. The Project Proponent needs to submit the replenishment study showing the details of the annual replenishment of sand in the mining lease area in line with the guidelines of CMPDI.

iv. The Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. Accordingly, the Project Proponent shall submit the revised traffic plan.

v. The Project Proponent needs to prepare and submit the Biodiversity Conservation Plan to ensure no net loss to biodiversity. The Project Proponent also should consult with the Water Resources Dept. for protection of Bisalpur dam and shall incorporate the same in the plan.

vi. The Project Proponent needs to verify the Schedule-I species and also to submit the authenticated list of Flora and Fauna from the Forest Dept. in reference to the Wild Life (Protection) Amendment Act, 2022 and shall include the Schedule-I species in their Wildlife Conservation Plan, if any new Schedule-I Species has been added. The Project Proponent needs to submit the activities proposed under Wildlife Conservation Plan along with the budget.

vii. The Project Proponent needs to submit the proof of the demarcation of the boundary pillars fixed on the ground.

viii. The Project Proponent needs to submit the letter from the Dept. of Geology and Mining, Govt. of Rajasthan regarding whether any illegal mining has been carried out in the mine lease or not.

ix. The new EIA Consultant needs to submit the undertaking that they have gone through the EIA report and own the contents of the EIA/EMP report.

3.4 River Sand (Bajri) Mining Project with production capacity of 16,56,120 TPA located at Villages Bhawgarh, Balunda, Jarela, Mundiya, Nand Ganwadi, Pagara, Singola, Mahtabpura, Piplda Khurd, Boreda, Piplda Kalan, Arjunpura, Bislai, Gorela, Takariya Dhani, Gopalpura, Pali Tehsil Mangrol & Kishanganj, District Baran, Rajasthan in the Mining lease area of 329.90 ha of M/s Pramod Meena Baran – [File No. J-11015/166/2014-IA.II(M); Proposal No. IA/RJ/MIN/25563/2014; EIA Consultant: M/s Overseas Min-Tech Consultants] - Reconsideration of Environmental Clearance

The proposal is for mining of River Sand (Bajri) with production capacity of 16,56,120 TPA in the Mining lease area of 329.90 ha, located at Villages Bhawgarh, Balunda, Jarela, Mundiya, Nand Ganwadi, Pagara, Singola, Mahtabpura, Piplda Khurd, Boreda, Piplda Kalan, Arjunpura, Bislai, Gorela, Takariya Dhani, Gopalpura, Pali Tehsil Mangrol & Kishanganj, District Baran, Rajasthan by M/s Pramod Meena.

2. Observation and Recommendation of the EAC: -

The EAC noted that the Project Proponent vide email dated 18.10.2023informed that they are unable to attend the 21st EAC (Non-Coal Mining) meeting and requested for deferment of the project. Based on the request of the Project Proponent vide email dated 18.10.2023, the EAC **deferred** the proposal.

3.5 Mining of Bajri(Minor Mineral) with proposed production capacity of 2.8 MTPA (ROM) in the mine lease area 905.206 ha, located at near revenue villages of Tehsil Pidawa, District Jhalawar, Rajasthan by M/s Shri Mukesh Sharma - [File No. J11015/113/2016-IA-II (M); Proposal No. IA/RJ/MIN/25369/2014, EIA Consultant: M/s Enkay Enviro Services Pvt. Ltd] - Reconsideration of Environmental Clearance

The instant proposal is for Mining of Bajri (Minor Mineral) with proposed production capacity of 2.8 MTPA (ROM) in the mine lease area 905.206 ha located at near revenue villages of Tehsil Pidawa, District Jhalawar, Rajasthan by M/s Shri Mukesh Sharma.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 24°09'56.30" N to 24°10'03.30" N and Longitude: 76°02'25.06" E to 76°02'41.01" E. The mine lease area falls under the Survey of India Toposheet No: 54D/ 3 and 54 D/4 and falls in Seismic Zone-II.
ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals.
iii. Details of previous EAC meeting:

a) The proposal was earlier considered in the EAC meeting held during March 22-23, 2018 wherein the Committee made detailed deliberations on the issues mentioned in preceding paragraphs and noted that there is a requirement of identification of active mining area within leased river stretches and subsequent identification and preparation of cross-section for assessing replenishment of sand in coming years. Hence, mining permission is technically required to be granted so as to conduct replenishment studies in future and demonstrate the same to State Govt. to regulate mining of paleo deposits in future. Accordingly, EAC recommended mining of river sand/ bajri up to 25% capacity of the annual proposed production capacity subject to submission of valid LOI along with the requisite information and undertaking. Then, the Ministry vide letter dated 18.04.2018 requested the Project Proponent to submit the desired information sought by the EAC in its meeting held during March 22-23, 2018. The Project Proponent submitted the information on 23.05.2018.
b) The Environmental Clearance proposals for mining of Sand/Bajri which were received from the State of Rajasthan were deliberated and discussed in the EAC meeting held during May 30-31, 2018. The representatives of State Government of Rajasthan were also present during the meeting. Based on the detailed deliberations and discussions, the Committee was of the view that the complete appraisal may be done once the information as sought in the similar cases of State of Rajasthan for bajri/sand mining project may be

submitted by the State Govt. of Rajasthan and Project Proponent. In view of the above, the Committee suggested that first State Govt. of Rajasthan and Project Proponent shall submit the above mentioned information for all similar case of the State of Rajasthan. Thereafter the proposals may be considered. The Committee also suggested that the proposals can only be considered before the EAC once all the complete information received from State Govt. of Rajasthan and Project Proponents. Accordingly, the Ministry vide letter dated 18.06.2018 requested the Project Proponent and Department of Mines and Geology, Govt. of Rajasthan to submit the requisite information for further necessary action. The Project Proponent submitted the information on 31.12.2021. Then, the Ministry vide letter dated 23.03.2022 requested the Project Proponent to submit the requisite information and accordingly the Project Proponent submitted the information on 25.03.2022.

c) Then, the proposal was considered in the 49thEAC Meeting (Non-Coal Mining) held during 19-21 April, 2022wherein the committee noted that the Consultant, Enkay Enviro Services Pvt. Ltd. wrongly informed to the committee that this proposal was earlier considered in the 47th EAC meeting held during 7 thto 9thMarch, 2022. The Committee warned the consultant for misleading the members of the Expert Appraisal Committee. The Committee also observed that the baseline data was more than six years old and supporting documents were not submitted according to the Enforcement &Monitoring Guidelines of Sand Mining 2020. In view of the above, the committee deferred the proposal and sought the requisite information. The Project Proponent submitted the information on 13.06.2022. The Ministry again sought additional details on 13.09.2022 and the Project Proponent submitted the information 04.10.2022.
d) Accordingly, the proposal was reconsidered in the EAC meeting held during 18-20, October, 2022 wherein the EAC deferred the proposal. Then, the Project Proponent has submitted the information on 17.02.2023 and 27.09.2023 in Parivesh portal.
e) Accordingly, the instant proposal was considered in the 21st EAC meeting held during 18-20 October, 2023 as per Ministry's OM dated 27.09.2022 which states that *"the proposals which have been considered/ appraised once by EAC either for TOR or EC, but final decision has not been taken, shall continue to be appraised at the Central level only, till final disposal for ToR/EC, even after the amendments in the EIA Notification are issued from to time regarding delegation of projects to SEIAAs".*

Based on observation of EAC in its EAC meeting held on 18-20, October, 2022 and compliance of observation of EAC made by PP are detailed below:

S. No	Observation of EAC in its meeting held on 18-	Reply by the Project Proponent

	20, October, 2022	
1	The Project Proponent needs to submit the District Survey Report (DSR) approved by SEIAA.	The Project Proponent has submitted the letter issued by the State Environment Impact Assessment Authority, Rajasthan vide F.1(4)/ SEIAA/SEAC/DSR/ 2023-24 dated 21.09.2023 stating that the District Survey Reports (DSRs) for Sand or River Bed mining for Jhalawar District of Rajasthan is approved by the authority vide its meeting dated 18.09.2023.
2	The Project Proponent needs to submit the action plan for planting Vetiver Grass on the banks of the river in consultation with the Forest Institute.	The Project Proponent has submitted that the details of action plan for planting Vetiver Grass on the banks of the river is being prepared as per guidelines given by Forest Department. The Characteristics of the plant are as follows: i. Vetiver (*Vetiveria zizanoides (Linn)* or Khus is a perennial multi-year and grass which can grow up to 2 to 3 meters high ii. The plant stems are erect and stiff and the leaves are 120-150 cm long and 0.8 cm wide and rather rigid. iii. The panicles are 15-30 cm long, brownish-purple in colour and have whorled 2.5-5.0 cm long branches. iv. The spikelets are in pairs, and there are three stamens. v. The root system of vetiver is finely structured and very strong. It has no stolons orrhizomes. Unlike most grasses, which form horizontally spreading mat-like root systems, vetiver's fibrous roots grow downward, 2-4 m in depth, and are strongly scented. vi. Vetiver is mainly cultivated for the fragrant essential oil distilled from its roots. vii. Vetiver is a type of grass that grows naturally. This grass is also capable ofproducing oil that is used in cosmetics, perfume and medicinal industries. Many farmers also use vetiver plantation in the boundaries of their farm due to soil erosion capacity of vetiver grass. The benefits of the Khas plant are as follows: i. It is considered stimulating and coolant. ii. Its massage gives relief from sprain. iii. Khas grass can also be used for agriculture land improvement. iv. Khas plant is capable of preventing water pollution of rivers, lakes and streams. v. Vetiveria can be used as natural water purification. vi. Vetiver grass absorb carbon dioxide vii. Government usually uses this important grass to convert barren land into fertile land viii. Can use wasteland for khas cultivation which directly

reduces the land preparation cost

ix. Vetiver grass is free of disease.

x. Animals usually do not damage it in case of damage they only eat leaves but root holds the whole value.

xi. It can easily survive in water logging land as well.

xii. To prevent soil erosion in the river, Lake Vetiver grass to be planted in the banks of the rivers.

Requirements for Vetiver Grass:

S.No	Requirement for vetiver	Details
1	Soil required for vetiver	Vetiver can be grown on almost every kind of soil. However, light soils, should be avoided as the roots grown in this soil produce very low percentage of oil. Well drained sandy loam and red lateritic soils rich in organic matter are considered to be ideal for cultivation. It can also be cultivated in clay loam soil but it is better to avoid clayey soil. It can be grown in wide pH range even in saline and alkaline soils with a pH of 8.5 to 10. A flat site is acceptable, but watering must be monitored to avoid water logging, that will stunt the growth of young plantlets. Mature vetiver, however, thrives under waterlogged conditions.
2	Land for vetiver	Vetiver plants naturally grow in wetland but it does not survive in marshy land. Land is ploughed to a depth of 20-25 cm by 2-3 deep ploughings and removes the perennial weeds. It can survive in water logging region. Khas grass easilysustains at ponds, rivers, drains and such regions where moisture is found more in the land. This grass contains soil erosion capacity therefore it ismostly planted on the slopes of the land to prevent soil conservation in the catchment area of the rivers. This grass is majorly grown in sandy and alluvial soilRajasthan state of India
3	Vetiver climate requirements	Vetiver grass naturally grows in tropical and subtropical regions. Khas grass is climate tolerant so it can grow in heavy rainfall regions as well as in low rainfall regions. Vetiver is tolerant to a wide range of temperature ranging from -15 °C to +55 °C, depending on growing region. Vetiver grass can easily grow in both circumstancesmeaning in low rainfall area (100 cm) and high rainfall area (200 cm).
4	Water requirement for vetiver	Very less water is required for this plant and at the same time it can survive in good rainfall region as well. It is a natural growing weed that does not demand forwater, instead it grows well in low rainfall regions as well as high rainfall regions. It can be grown in barren land as

<table>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td></td><td>well so you can use your waste land for this precious grass. In dry areas about 8-10 irrigations will be required toget the optimum yield.</td></tr>
<tr><td>5</td><td>Vetiver grass growing season</td><td>Rainy season is the ideal season to sow the vetiver seeds in a proper row. However, it can be planted from Januaryto March as well. While planting the vetiver slip, prepare a bund at 50 cm distance. Khas slip needs to be planted on both sides of the bund with a gap of 24 to 30 cm.</td></tr>
<tr><td>6</td><td>Vetiver grass spacing</td><td>Vetiver grass planting distance - 35 cm to 45 cm is ideal spacing for vetiver grass plantation.</td></tr>
<tr><td>7</td><td>Vetiver fertilizer</td><td>10 - 12 ton per hectare cow dung Nitrogen 25 kg per hectare after 1 month</td></tr>
<tr><td>8</td><td>Vetiver grass slips per hectare</td><td>35,000 vetiver slips per hectare</td></tr>
<tr><td colspan="3">Source:-
https://signuptrendingnature.com/vetiver-farming-india-profit-1-acre-khas/#google_vignette
https://www.vetiver.org/IND_Vetiver_essential%20oil%20prod%20in%20India.pdf</td></tr>
</table>

Total area for Vetiver Propagation is 50.0 ha with 35,000 vetiver slips per hectare and cost towards Vetiver Propagation will be Rs. 61,25,000/-</td></tr>
<tr><td>3</td><td>The project proponent needs to submit the valid mining plan on the Parivesh portal.</td><td>The Project Proponent has submitted that the Office of the Superintending Mining Engineer, Kota Circle has approved the Mining plan including Progressive Mine Closure Plan vide letter No. SME/ Kota-Circle/ M.Plan/ Bajri/ 2022/ 5202 dated 30.11.2022 for an area of 905.26 ha.

The Additional Director (Mines) vide email dated 03.10.2023 informed about that the validity of the mining lease along with the enclosure of letter from the Additional Director (Mines), Mines and Geology Department, Jaipur vide Lr No. ADM/JPR/ENV/2023/574 dated 29.09.2023 stating that Sh. Mukesh Sharma “River beds mine area of Tehsil Pidawa District Jhalawar is valid for 5 year lease period from date of registration of lease deed. The lease deed was registered on 31.03.2023 and so validity of lease is up to 30.03.2028.

The Project Proponent also submitted the letter granted by the Government of Rajasthan vide order. no. P.9(7)Mines/Group-2/2013 dated 28.03.2023 stating that the lease is valid for a period of 05 years from the lease agreement dated 31.03.2023. Further, the Project Proponent has submitted the copy of lease deed executed on 29.03.2023 and registered on 31.03.2023.</td></tr>
<tr><td>4</td><td>The project proponent needs to submit the</td><td>The Project Proponent has submitted the entire EIA/EMP report in Parivesh portal.</td></tr>
</table>

	chapter which are not included in the EIA/EMP report.	

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10km radius. The Project Proponent has shown the mine lease boundary and informed the EAC that the mine lease consists of two blocks A and B. The mine lease area is situated within the river bed which is a seasonal river and classified as a Gaur Mumkin Nadi Nallah. The total mine lease area is 905.206 ha and the mineable area is 333.30 ha. Baseline data was carried out during Mar-May, 2016 and revalidated during April - May, 2022. The EAC asked the Project Proponent whether boundary pillars are demarcated on the ground or not. The Project Proponent has informed the EAC that no boundary pillars were fixed. The EAC asked the Project Proponent to submit the proof of the demarcation of the boundary pillars fixed on the ground.

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent has informed the EAC that the mine lease is valid for a period of 05 years from the lease agreement dated 31.03.2023. Themine lease deed was executed on 29.03.2023 and registered on 31.03.2023. District Survey Reports (DSRs) for Sand or River Bed mining for Jhalawar District of Rajasthan was approved by the State Environment Impact Assessment Authority, Rajasthan vide its meeting dated 18.09.2023 and the same was informed by the SEIAA vide letter dated 21.09.2023. The Project Proponent presented the action plan for planting Vetiver Grass on the banks of the river. The EAC asked the Project Proponent that which Forest Institute has been consulted. The Project Proponent has informed the EAC that the no consultation has been done with the Forest Institute and the same will be consulted after starting mining operations. The EAC noted that the action plan submitted by the Project Proponent is generic in nature and it is not site specific. The EAC was not convinced with the statement of the Project Proponent. The EAC was of the view that the Project Proponent should have a prior action plan for undertaking plantation on the banks of the river. The EAC asked the Project Proponent to consult with the Forest Institute and asked to resubmit the action plan.

The EAC asked about the additional traffic road due to this project. The Project Proponent has informed the EAC that daily production will be 10,000 Tonnes per day and 500 trips/day (to and fro) will be added to the traffic. The EAC asked the Project Proponent to verify the Schedule-I speciesin reference to the Wild Life (Protection) Amendment Act, 2022 and also to submit the authenticated list of Flora

and Fauna from the Forest Dept. and shall include the Schedule-I species in their Wildlife Conservation Plan, if any new Schedule-I Species has been added.The EAC asked the Project Proponent whether replenishment study has been carried out or not. The Project Proponent has informed the EAC that the replenishment study was undertaken prior to 2017. After grant of EC, the replenishment study will be undertaken as per CMPDI guidelines.The EAC was of the view that the replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excess sand extraction. The EAC observed that when replenishment study was undertaken prior to 2017 and there is a question that whether the same has been included in the latest approved mining plan dated 30.11.2022. The EAC opined that as per the Sustainable Sand Mining Management Guidelines, 2016, Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. Therefore, the EAC **deferred** the proposal for want of following additional information: -

i. The Project Proponent needs to submit the replenishment study in line with the guidelines of CMPDI.

ii. The Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material.

iii. The Project Proponent needs to submit the map showing the transport network to bypass the existing village road along with its carrying capacity and the level of traffic as per IRC guidelines.

iv. The Project Proponent needs to verify the Schedule-I species and also to submit the authenticated list of Flora and Fauna from the Forest Dept. in reference to the Wild Life (Protection) Amendment Act, 2022 and shall include the Schedule-I species in their Wildlife Conservation Plan, if any new Schedule-I Species has been added.

v. The Project Proponent needs to consult with the Forest Institute and accordingly shall submit the site specific action plan for planting Vetiver Grass on the banks of the river.

vi. The Project Proponent needs to submit the proof of the demarcation of the boundary pillars fixed on the ground.

vii. The Project Proponent needs to submit the letter from the Dept. of Geology and Mining, Govt. of Rajasthan regarding whether any illegal mining has been carried out in the mine lease or not.

viii. The Project Proponent needs to submit an action plan in accordance with approved DSR.

3.6 Mining of Sand (Minor Mineral) with production capacity of 0.42 MTPA in the mine lease area 360.97 ha, located at Revenue Villages of Baran TehsilUlthi, Majrawta, KalyanpurGhata, Ghisri, Hanotiya, Koyla, Shahgarh, Revenue Villages of Kishanganj TehsilKaglaBamori,Mehrawata, Rani Badod District Baran, Rajasthan by M/s Shri Mukesh Sharma [File No. J11015/408/2015-IA.II(M); Proposal No. IA/RJ/MIN/32677/2015, EIA Consultant: Enkay Enviro Services Pvt. Ltd.] - Reconsideration of Environmental Clearance (EC)

The instant proposal is for mining of Sand (Minor Mineral) with production capacity of 0.42 MTPA in the mine lease area 360.97 ha, located at Revenue Villages of Baran Tehsil Ulthi, Majrawta, KalyanpurGhata, Ghisri, Hanotiya, Koyla, Shahgarh, Revenue Villages of Kishanganj Tehsil KaglaBamori, Mehrawata, Rani Badod District Baran, Rajasthan by M/s Shri Mukesh Sharma.

2. The details of the project as ascertained from the document submitted by the Project Proponent and revealed from the discussions held during the meeting are given as under:

i. The mine lease area is located between Latitude 25°15’13.07”Nto 25°03’47.68”N and Longitude: 76°35’22.26” E to 76°37’58.58” E. The mine lease area falls under the Survey of India Toposheet No: 54C/ 11 and 54C/12and falls in Seismic Zone-II.
ii. The proposed project activity is listed at schedule no. 1(a) Mining of Minerals.
iii. Details of previous EAC meetings:

a) The proposal was earlier considered in the EAC meeting held during February 26-27, 2018 and March 22-23, 2018and EAC its meeting held during March 22-23, 2018 wherein the Committee made detailed deliberations on the issues mentioned in preceding paragraphs and noted that there is a requirement of identification of active mining area within leased river stretches and subsequent identification and preparation of cross-section for assessing replenishment of sand in coming years. Hence, mining permission is technically required to be granted so as to conduct replenishment studies in future and demonstrate the same to State Govt. to regulate mining of paleo deposits in future. Accordingly,EAC recommended mining of river sand/ bajri up to 25% capacity of the annual proposed production capacity subject to submission of valid LOI alongwith the requisite information and undertaking.Then, the Ministry vide letter dated 18.04.2018 requested the

Project Proponent to submit the desired information sought by the EAC in its meeting held during March 22-23, 2018. The Project Proponent submitted the information on 23.05.2018.

b) The Environmental Clearance proposals for mining of Sand/Bajri which were received from the State of Rajasthan were deliberated and discussed in the EAC meeting held during May 30-31, 2018. The representatives of State Government of Rajasthan were also present during the meeting. Based on the detailed deliberations and discussions, the Committee was of the view that the complete appraisal may be done once the information as sought in the similar cases of State of Rajasthan for bajri/sand mining project may be submitted by the State Govt. of Rajasthan and Project Proponent. In view of the above, the Committee suggested that first State Govt. of Rajasthan and Project Proponent shall submit the above mentioned information for all similar case of the State of Rajasthan. Thereafter the proposals may be considered. The Committee also suggested that the proposals can only be considered before the EAC once all the complete information received from State Govt. of Rajasthan and Project Proponents. Accordingly, the Ministry vide letter dated 18.06.2018 requested the Project Proponent and Department of Mines and Geology, Govt. of Rajasthan to submit the requisite information for furthernecessary action. The Project Proponent submitted the information on 31.12.2021.
c) Then, the proposal was considered in the 47thEAC Meeting (Non-Coal Mining) held during 7-9 March 2022 wherein the EAC deferred the proposal. The Project Proponent submitted the information on 25.03.2022.
d) Again, the proposal was considered in the 49thEAC Meeting (Non-Coal Mining) held during 19 - 21 April, 2022 wherein the EAC deferred the proposal and sought the additional information. The Project Proponent submitted the information on 13.06.2022. The Ministry again sought additional details on 13.09.2022 and the Project Proponent submitted the information 04.10.2022.
f) Accordingly, the proposal was reconsidered in the EAC meeting held during 18-20, October, 2022 wherein the EAC deferred the proposal. Then, the Project Proponent has submitted the information on 17.02.2023 and 27.09.2023 in Parivesh portal.
g) Accordingly, the instant proposal was considered in the 21st EAC meeting held during 18-20 October, 2023 as per Ministry's OM dated 27.09.2022 which states that *"the proposals which have been considered/ appraised once by EAC either for TOR or EC, but final decision has not been taken, shall continue to be appraised at the Central level only, till final disposal for ToR/EC, even after the amendments in the EIA Notification are issued from to time regarding delegation of projects to SEIAAs".*

Based on observation of EAC in its EAC meeting held on 18-20, October, 2022 and compliance of observation of EAC made by PP are detailed below:

S.	Observation	Reply by the Project Proponent

No	of EAC in its meeting held on 18-20, October, 2022	
1	The Project Proponent needs to submit the District Survey Report (DSR) approved by SEIAA.	The Project Proponent has submitted the letter issued by the State Environment Impact Assessment Authority, Rajasthan vide F.1(4)/ SEIAA/SEAC/DSR/ 2023-24 dated 21.09.2023 stating that the District Survey Reports (DSRs) for Sand or River Bed mining for Baran District of Rajasthan is approved by the authority vide its meeting dated 18.09.2023.
2	The Project Proponent needs to submit the action plan for planting Vetiver Grass on the banks of the river in consultation with the Forest Institute.	The Project Proponent has submitted that the details of action plan for planting Vetiver Grass on the banks of the river is being prepared as per guidelines given by Forest Department. The Characteristics of the plant are as follows: i. Vetiver (*Vetiveria zizanoides (Linn)* or Khus is a perennial multi-year and grass which can grow up to 2 to 3 meters high ii. The plant stems are erect and stiff and the leaves are 120-150 cm long and 0.8 cm wide and rather rigid. iii. The panicles are 15-30 cm long, brownish-purple in colour and have whorled 2.5-5.0 cm long branches. iv. The spikelets are in pairs, and there are three stamens. v. The root system of vetiver is finely structured and very strong. It has no stolons orrhizomes. Unlike most grasses, which form horizontally spreading mat-like root systems, vetiver's fibrous roots grow downward, 2-4 m in depth, and are strongly scented. vi. Vetiver is mainly cultivated for the fragrant essential oil distilled from its roots. vii. Vetiver is a type of grass that grows naturally. This grass is also capable ofproducing oil that is used in cosmetics, perfume and medicinal industries. Many farmers also use vetiver plantation in the boundaries of their farm due to soil erosion capacity of vetiver grass. The benefits of the Khas plant are as follows: i. It is considered stimulating and coolant. ii. Its massage gives relief from sprain. iii. Khas grass can also be used for agriculture land improvement. iv. Khas plant is capable of preventing water pollution of rivers, lakes and streams. v. Vetiveria can be used as natural water purification. vi. Vetiver grass absorb carbon dioxide vii. Government usually uses this important grass to

convert barren land into fertile land

viii. Can use wasteland for khas cultivation which directly reduces the land preparation cost

ix. Vetiver grass is free of disease.

x. Animals usually do not damage it in case of damage they only eat leaves but root holds the whole value.

xi. It can easily survive in water logging land as well.

xii. To prevent soil erosion in the river, Lake Vetiver grass to be planted in the banks of the rivers.

Requirements for Vetiver Grass:

S.No	Requirement for vetiver	Details
1	Soil required for vetiver	Vetiver can be grown on almost every kind of soil. However, light soils, should be avoided as the roots grown in this soil produce very low percentage of oil. Well drained sandy loam and red lateritic soils rich in organic matter are considered to be ideal for cultivation. It can also be cultivated in clay loam soil but it is better to avoid clayey soil. It can be grown in wide pH range even in saline and alkaline soils with a pH of 8.5 to 10. A flat site is acceptable, but watering must be monitored to avoid water logging, that will stunt the growth of young plantlets. Mature vetiver, however, thrives under waterlogged conditions.
2	Land for vetiver	Vetiver plants naturally grow in wetland but it does not survive in marshy land. Land is ploughed to a depth of 20-25 cm by 2-3 deep ploughings and removes the perennial weeds. It can survive in water logging region. Khas grass easilysustains at ponds, rivers, drains and such regions where moisture is found more in the land. This grass contains soil erosion capacity therefore it ismostly planted on the slopes of the land to prevent soil conservation in the catchment area of the rivers. This grass is majorly grown in sandy and alluvial soilRajasthan state of India
3	Vetiver climate requirements	Vetiver grass naturally grows in tropical and subtropical regions. Khas grass is climate tolerant so it can grow in heavy rainfall regions as well as in low rainfall regions. Vetiver is tolerant to a wide range of temperature ranging from -15 °C to +55 °C, depending on growing region. Vetiver grass can easily grow in both circumstancesmeaning in low rainfall area (100 cm) and high rainfall area (200 cm).
4	Water requirement for vetiver	Very less water is required for this plant and at the same time it can survive in good rainfall region as well. It is a natural growing weed that does not demand forwater, instead it grows well in low rainfall regions as well as high rainfall regions. It can be grown

<table>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td></td><td>in barren land as well so you can use your waste land for this precious grass. In dry areas about 8-10 irrigations will be required toget the optimum yield.</td></tr>
<tr><td>5</td><td>Vetiver grass growing season</td><td>Rainy season is the ideal season to sow the vetiver seeds in a proper row. However, it can be planted from Januaryto March as well. While planting the vetiver slip, prepare a bund at 50 cm distance. Khas slip needs to be planted on both sides of the bund with a gap of 24 to 30 cm.</td></tr>
<tr><td>6</td><td>Vetiver grass spacing</td><td>Vetiver grass planting distance - 35 cm to 45 cm is ideal spacing for vetiver grass plantation.</td></tr>
<tr><td>7</td><td>Vetiver fertilizer</td><td>10 - 12 ton per hectare cow dung Nitrogen 25 kg per hectare after 1 month</td></tr>
<tr><td>8</td><td>Vetiver grass slips per hectare</td><td>35,000 vetiver slips per hectare</td></tr>
<tr><td colspan="3">Source:-
https://signuptrendingnature.com/vetiver-farming-india-profit-1-acre-khas/#google_vignette
https://www.vetiver.org/IND_Vetiver_essential%20oil%20prod%20in%20India.pdf</td></tr>
</table>

Total area for Vetiver Propagation is 31.0 ha with 35,000 vetiver slips per hectare and cost towards Vetiver Propagation will be Rs. 37,97,500/-</td></tr>
<tr><td>3</td><td>The project proponent needs to submit the valid mining plan on the Parivesh portal.</td><td>The Project Proponent has submitted that the Office of the Superintending Mining Engineer, Kota Circle has approved the Mining plan including Progressive Mine Closure Plan vide letter No. SME/ Kota-Circle/ M.Plan/ Bajri/ 2022/ 5197 dated 30.11.2022 for an area of 360.97 ha.

The Additional Director (Mines) vide email dated 03.10.2023 informed about that the validity of the mining lease along with the enclosure of letter from the Additional Director (Mines), Mines and Geology Department, Jaipur vide Lr No. ADM/JPR/ENV/2023/574 dated 29.09.2023 stating that Sh. Mukesh Sharma “River beds mine area of Tehsil Baran and Kishanganj District Baran for an area of 360.97 ha is valid for 5 years from date of registration of lease deed which is 30.03.2023. Thus, the mining lease is valid till dated 29.03.2028.

The Project Proponent also submitted the letter granted by the Government of Rajasthan vide order. no P.9(10)Mines/Group-2/2013 dated 28.03.2023 stating that the lease is valid for a period of 05 years from the date of lease agreement. Further, the Project Proponent has submitted the copy of lease deed executed on 29.03.2023 and registered on 30.03.2023.</td></tr>
<tr><td>4</td><td>The project proponent needs to submit the</td><td>The Project Proponent has submitted the entire EIA/EMP report in Parivesh portal.</td></tr>
</table>

	chapter which are not included in the EIA/EMP report.	

3. Observation and Recommendation of the EAC:

The Project Proponent/Consultant presented the KML file to indicate the site features in the study area of 10km radius. The Project Proponent has shown the mine lease boundary. The mine lease area is situated within the river bed which is a seasonal river and classified as a Gaur Mumkin Nadi Nallah. The total mine lease area is 360.97 ha and the mineable area is 199.95 ha. Baseline data was carried out during Dec, 2015 - Feb, 2016 and revalidated during April - May, 2022. The EAC asked the Project Proponent whether boundary pillars are demarcated on the ground or not. The Project Proponent has informed the EAC that no boundary pillars were fixed. The EAC asked the Project Proponent to submit the proof of the demarcation of the boundary pillars fixed on the ground.

The EAC deliberated on the additional details submitted by the Project Proponent and the Consultant. The Project Proponent has informed the EAC that the mine lease is valid for a period of 05 years from the lease agreement dated 30.03.2023. The mine lease deed was executed on 29.03.2023 and registered on 30.03.2023. District Survey Reports (DSRs) for Sand or River Bed mining for Jhalawar District of Rajasthan was approved by the State Environment Impact Assessment Authority, Rajasthan vide its meeting dated 18.09.2023 and the same was informed by the SEIAA vide letter dated 21.09.2023. The Project Proponent presented the action plan for planting Vetiver Grass on the banks of the river. The EAC asked the Project Proponent that which Forest Institute has been consulted. The Project Proponent has informed the EAC that the no consultation has been done with the Forest Institute and the same will be consulted after starting mining operations. The EAC noted that the action plan submitted by the Project Proponent is generic in nature and it is not site specific. The EAC was not convinced with the statement of the Project Proponent. The EAC was of the view that the Project Proponent should have a prior action plan for undertaking plantation on the banks of the river. The EAC asked the Project Proponent to consult with the Forest Institute and asked to resubmit the action plan.

The EAC asked about the equipments that will be utilized for mining. The Project Proponent has informed the EAC that the payloader (8 no.s) and tractor trolley (6 no.s).About 5000 TPD of material will be transported.The EAC asked the Project Proponent to verify the Schedule-I species in reference to the Wild Life (Protection) Amendment Act, 2022 and also to submit the authenticated list of Flora and Fauna from the Forest Dept. and shall include the Schedule-I species in their Wildlife Conservation Plan, if any new Schedule-I Species has been added. The

EAC asked the Project Proponent whether replenishment study has been carried out or not. The Project Proponent has informed the EAC that the replenishment study was undertaken prior to 2017. After grant of EC, the replenishment study will be undertaken as per CMPDI guidelines. The EAC was of the view that the replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excess sand extraction. The EAC observed that when replenishment study was undertaken prior to 2017 and there is a question that whether the same has been included in the latest approved mining plan dated 30.11.2022. The EAC opined that as per the Sustainable Sand Mining Management Guidelines, 2016, the Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. Therefore, the EAC **deferred** the proposal for want of following additional information:-

i. The Project Proponent needs to submit the replenishment study in line with the guidelines of CMPDI.

ii. The Mining Plan shall *inter-alia* include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material.

iii. The Project Proponent needs to submit the map showing the transport network to bypass the existing village road along with its carrying capacity and the level of traffic as per IRC guidelines.

iv. The Project Proponent needs to verify the Schedule-I species and also to submit the authenticated list of Flora and Fauna from the Forest Dept. in reference to the Wild Life (Protection) Amendment Act, 2022 and shall include the Schedule-I species in their Wildlife Conservation Plan, if any new Schedule-I Species has been added.

v. The Project Proponent needs to consult with the Forest Institute and accordingly shall submit the site specific action plan for planting Vetiver Grass on the banks of the river.

vi. The Project Proponent needs to submit the proof of the demarcation of the boundary pillars fixed on the ground.

vii. The Project Proponent needs to submit the letter from the Dept. of Geology and Mining, Govt. of Rajasthan regarding whether any illegal mining has been carried out in the mine lease or not.

viii. The Project Proponent needs to submit an action plan in accordance with approved DSR.

*****

List of members of Expert Appraisal Committee participated through VC

S.No	Member Name	Member Address	Designation	18th Oct., 2023	19th Oct., 2023	20th Oct., 2023
1	Dr. Dinesh Misra, IFS (Retd.)	Plot No 65, Sector 8, Gandhinagar, Gujarat, 382 008	Chairman	Yes	Yes	Yes
2	Sh. Niranjan Kumar Vasu, IFS (Retd.)	816, Shanti Nagar, Opposite Durgapur Railway Station, Jaipur-Rajasthan, 302018	Member	Yes	Yes	Yes
3	Dr. Asha Rajvanshi, Scientist 'G' (Retd.), WII	B/104/106 Rock Valley Apartments, GMSRoad, Sewla Kalan, P.O. Majra, Dehradun, Uttarakhand-248171	Member	Yes	Yes	Yes
4	Shri. Avijit Ghosh (CMD- Heavy Engineering CorporationLimited) (Retd.)	Singhee Marg, A- 604 Shahadeo Tower, P.P.Compound, Ranchi 834001, Jharkhand	Member	Yes	Yes	Yes
5	Shri. BandiRamchandra Reddy (Former CMD-South Eastern Coalfields Limited)-(Retd.)	Flat No-503 A, Jyoti Cosmos, White Fields, Hi-Tech City, Kondapur,Hyderabad-500081	Member	Yes	Yes	Yes
6	Prof. Pramod Kumar, Professor,ShriAurobindoCollege,University of Delhi	Shri Aurobindo College, University of Delhi 1372, B-1, Vasant Kunj, New Delhi- 110070	Member	No	No	No
7	Prof.DeveshWalia, Department of Environmental Studies	Department of Environmental Studies, NEHU,Shillong-793022 Meghalaya	Member	Yes	No	No
8	Dr. Suresh Tiwari Scientist-F	Indian Institute of Tropical Meteorology, Pune,New Delhi Branch, Prof. Ram NathVijMargRajinder Nagar, New Delhi - 110060	Member	No	No	No
9	Dr. K.G Asha Manjari, Professor,	10/B, "SPARSHA", 2nd Main, 2ndCross,BhogadiIInd	Member	Yes	Yes	Yes

	University of Mysore	Stage, Mysore-570026, Karnataka				
10	Prof. Dev Dutt Sharma, Vice-Chancellor	Sardar Patel University,Mandi H.P. 175001	Member	No	No	No
11	Shri V. K. Soni, Representative of India Meteorological Department	Government of India, Ministry of Earth Sciences, India Meteorological Department, MausamBhawan, Lodi Road, New Delhi – 110003	Member	No	Yes	No
12	Shri Yogesh Kale/ Abhay Agarwal, Representative of Indian Bureau of Mines	Controller of Mines, IBM Block D, Second Floor, Indira Bhavan, Civil Lines, Nagpur - 440001	Member	Yes	Yes	No
13	Shri Upendra Rapolu	Representative of Directorate General of Mines Safety	Member	Yes	Yes	Yes
14	Shri K. Gowrappan	No. 6, Ganesh Avenue II Street, Shakti Nagar, Porur, Chennai, Tamil Nadu - 600116	Special Invitee	Yes	-	-
15	Shri Pankaj Verma	3rdFloor, Vayu Block, Indira Paryawaran Bhawan, MoEF&CC, Jorbagh, New Delhi-110003.	Member Secretary	Yes	Yes	Yes
16	Dr. Saurabh Upadhyay	2ndFloor, Vayu Block, Indira Paryawaran Bhawan, MoEF&CC, Jorbagh, New Delhi-110003.	Scientist C	No	Yes	Yes

*****

F. No. J-11011/992/2007- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003

E-mail : ph.rastogi@nic.in
Teiefax : 011: 2436 7668

ANNEXURE-R-3

Dated 11th December, 2008

To,

M/s Nirma Ltd.
Nirma House, Ashram Road
Ahmedabad -38009, Gujarat

E.Mail : vndesai@nirma.co.in / cement project@nirma.co.in.
Fax No.: 079-27546999

Subject : Cement Plant (Cement Plant 1.91 MTPA; 1.50 Clinker), Coke Oven Plant (1.5 LTPA) and Captive Power Plant (50 MW) near Village Padhiarka, Taluka Mahuva, District Bhavnagar, Gujarat by M/s Nirma Ltd. - reg.

Ref. : Your letter no. NNL/CP/VND/2009/175/07-08 dated 5th September, 2007.

Sir,

This has reference to your letter no. NNL/CP/VND/2009/175/07-08 dated 5th September, 2007 alongwith project documents including Application in Form I, Prefeasibility Report, draft Terms of References and EIA/EMP seeking environmental clearance and subsequent clarifications furnished vide communications 9th January, 2008, 7th July, 2008, 8th & 10th October, 2008 regarding the above mentioned cement project.

2.0 The Ministry of Environment and Forests has examined your application. It is noted that proposal is for the Cement Plant (Cement Plant 1.91 MTPA; 1.50 Clinker), Coke Oven Plant (1.5 LTPA) and Captive Power Plant (50 MW) near Village Padhiarka, Taluka Mahuva, District Bhavnagar, Gujarat by M/s Nirma Ltd. Total project area is 268 ha. No National Park/Wildlife sanctuary/Reserve forest is located within 10 km radius of the project. Total cost of the project is Rs. 893.52 Crores.

3.0 Limestone from captive mine (Padhiarka); Clay from Goga, Gujarat, Sand from Bhavnagar, Gujarat; Gypsum from Barmer, Rajasthan, Coal (Import), Lignite from Kutch, Fly ash from CPP and Gandhinagar, Gujarat will be used as raw material. Lime will be sourced from captive limestone located at pit head and will be transported through conveyers. Mining lease is yet to be approved by the State Govt. Dry process technology will be adopted. Pre-calcination with rotary kiln and 6-stage cyclone pre-heater technology will be adopted for manufacturing Ordinary Portland Cement (OPC) and Pozollona Portland Cement (PPC). Coke oven (non-recovery type) will be adopted for coke manufacturing which will be used to generate power for the cement plant and also as fuel for lime plant. Circulating Fluidized Bed Combustion (CFBC)

boilers (2x25 MW) having Turbo-alternators with water-cooled condensers will be provided in Captive Power Plant (CPP).

4.0 Electrostatic precipitators (ESPs), bag house and bag filters will be provided to control emissions within 50 mg/Nm^3. Dust suppression will be provided at transfer points and coal/lignite handling area to control fugitive emissions. Total water requirement from Sea through desalination plant will be 8,500 m^3/day for the process and 20,000 m^3/hr sea water for the CPP. Permission has been accorded by Gujarat Water Infrastructure Ltd. vide letter dated 3rd September, 2004 for the drawl of 1.50 MGD water from Narmada pipeline. No effluent will be generated from the coke oven since the effluent will be used for quenching. No liquid effluent and solid waste will be generated from the cement plant. No by-products will be generated from the coke oven plant. Dust collected in various air pollution control equipments will be recycled back to the process. Fly ash will be used in manufacturing PPC. High calorific hazardous waste will be utilized in the kiln as fuel. Energy will be recovered through WHRB and used for the power generation.

5.0 Public hearing meeting was held on 9th September, 2008.

6.0 The Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 27th January, 1994 as amended subsequently subject to strict compliance to the following specific and general conditions:

A. SPECIFIC CONDITIONS :

i. Continuous stack monitoring facilities to monitor gaseous emissions from all the stacks shall be provided. After expansion, limit of SPM shall be controlled within 50 mg/Nm^3 by installing adequate air pollution control system such as electrostatic precipitator (ESP) to clinker cooler, waste heat recovery boiler (WHRB) and captive power plant (CPP), bag house to Kiln/Raw mill and Lignite/Coal mill, Cement mill and bag filters to coal mill and cement mill. Efforts shall also be made to reduce SO_2 and NO_x emissions. Stack emission monitoring reports shall be submitted to the Ministry's Regional Office at Bhopal, GPCB and CPCB regularly.

ii. Proper and full utilization of coke oven gases in power plant using heat recovery steam generators (WHRB) shall be ensured and no flue gas shall be discharged into the air.

iii. The prescribed emission standards for coke oven plants as notified vide notification no. GSR 46 (E) dated 3rd February, 2006 shall be complied with.

iv. Secondary fugitive emissions shall be controlled and shall be within the prescribed limits and regularly monitored. Guidelines / Code of Practice issued by the CPCB in this regard shall be followed.

v. The company shall install adequate dust collection and extraction system to control fugitive dust emissions from different sources viz. raw material storage yards, loading and unloading operations, transfer points, crusher, coal mill and packing plant. Bag filters and water sprinkling arrangements shall be made in raw material stock yards and cement bag loading areas etc. and all the raw material stock piles shall be covered. All conveyers shall be covered with GI sheets. Covered sheds for storage of raw materials and fully covered conveyers for transportation of materials shall be provided besides coal, cement, fly ash and clinker shall be stored in silos. Pneumatic system shall be

used for fly ash handling. Dust suppression system shall be provided at transfer points and coal/lignite handling area to control fugitive emissions. Automatic dust cleaning system for removing dust from floors, concrete/tar topped roads inside the plant to avoid dispersion of dust and good house keeping shall be adopted to control fugitive emissions.

vi. Asphalting/concreting of roads and water spray all around the stockyard and loading/ unloading areas in the cement plant shall be carried out to control fugitive emissions. Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM such as haul road, loading and unloading points, transfer points and other vulnerable areas. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

vii. Ambient air quality including ambient noise levels shall be monitored at different locations including fence of the sanctuary and must not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality, fugitive and stack emissions shall be carried out regularly in consultation with GPCB and reports submitted to the to the Ministry's Regional Office at Bhopal, GPCB and CPCB regularly.

viii. As proposed, total water requirement for cement plant from Narmada pipeline shall not exceed 1.50 MGD as per the permission accorded by Gujarat Water Infrastructure Ltd. vide letter dated 3rd September, 2004. Total water requirement from Sea through desalination plant shall not exceed 8,500 m^3/day for the process and 20,000 m^3/hr sea water for the CPP respectively. All the treated wastewater shall be recycled and reused in the process and/or for ash quenching, dust suppression, green belt development and other plant related activities etc. No process wastewater shall be discharged outside the factory premises and 'zero' discharge shall be adopted. All the effluent from the coke oven shall be used for quenching. Rejects from the desalination plant shall be disposed off in the Sea. Sewage treatment plant (STP) shall be installed to treat domestic effluent.

ix. Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land. All the raw materials including coal, fly ash, gypsum etc.shall be transported in the closed containers only and shall not be overloaded. Suitable steps shall be taken to avoid traffic congestion. Vehicular emissions shall be regularly monitored.

x. All the bag filter dust, raw meal dust, coal dust, clinker dust and cement dust from various pollution control devices shall be 100 % recycled and reused in the process and used for cement manufacturing. Coal and coke fines shall be recycled and reused in the process. Refractory bricks shall be sold to authorized agencies. All the solid waste generated from colony and STP shall be disposed after segregating the waste into bio-degradable and non-degradable. Treated STP sludge shall be used for green belt development. The spent transformer oil, waste oil, scrapped automobile batteries etc. shall be properly disposed off as per the Hazardous Waste (Management & Handling) Rules, 1989 and subsequent amendments and shall be sold to authorized recyclers / reprocessors only.

xi. An effort shall be made to use of high calorific hazardous waste in the cement kiln and necessary provision shall be made accordingly.

xii. Efforts shall be made to use low grade lime, more fly ash and solid waste in the cement manufacturing.

xiii. All the fly ash shall be utilized as per Fly ash Notification, 1999 subsequently amended in 2003. Efforts shall be made to use fly ash maximum in making Pozollona Portland Cement (PPC).

xiv. As proposed, green belt shall be developed in at least 33 % area in and around the plant as per the CPCB guidelines in consultation with the local DFO in collaboration with the State Forest Department.

xv. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Cement and Coke Oven Plants shall be implemented.

xvi. CRZ clearance for laying the pipeline in coastal area under the CRZ Notification shall be obtained from the concerned department/authority.

xvii. An impact assessment study shall be carried out for the disposal of treated effluent into the seawater and all the recommendations shall be implemented.

xviii. The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

B. GENERAL CONDITIONS :

i. The project authority must adhere to the stipulations made by Gujarat Pollution Control Board (G PCB) and State Government.

ii. No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.

iii. The gaseous (SO_2, NO_X, CO) and particulate matter emissions from various units shall conform to the standards prescribed by the Gujarat Pollution Control Board. Inter-locking facility shall be provided between pollution control equipment and the process operation so that in the event of the pollution control equipment not working, the respective unit(s) is shut down automatically.

iv. Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.

v. The company shall harvest surface as well as rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.

vi. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environmental (Protection) Act, 1986

Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). Compliance to all the standards for DG sets for noise shall be ensured and acoustic enclosures around DG sets shall be provided.

vii. Proper house keeping and adequate occupational health programmes must be taken up. All the persons working in the sensitive areas shall wear protective covers. Occupational Health Surveillance programme shall be done on a regular basis and records maintained. The programme must include lung function and sputum analysis tests once in six months.

viii. The company shall undertake ecc-development measures including community welfare measures in the project area.

ix. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the Rapid and Comprehensive EIA/EMP.

x. A separate environmental management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of Senior Executive.

xi. As proposed, Rs 38.79 Crores and Rs. 4.46 Crores shall be earmarked towards capital cost and recurring cost/annum for environmental pollution control measures shall be used exclusively to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. A time bound action plan along with the implementation schedule for all the conditions stipulated herein shall be submitted to the Ministry, GPCB and CPCB. The funds so provided shall not be diverted for any other purposes.

xii. The Regional Office of this Ministry at Bhopal/CPCB/GPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data alongwith statistical interpretation shall be submitted to them regularly.

xiii. The Project Authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

xiv. The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the GPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.

7.0 The Ministry or any competent authority may stipulate any further condition(s) on receiving reports from the project authorities. The above conditions shall be monitored by the Regional Office of this Ministry located at Bhopal.

8.0 The Ministry may revoke or suspend the clearance if implementation of any of the above conditions is not satisfactory.

9.0 Any other conditions or alteration in the above conditions shall have to be implemented by the project authorities in a time bound manner.

10.0. Any appeal against this environmental clearance shall lie with the National Environment Appeliate Authority, if preferred within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.

11.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 the Air (Prevention and Control of Pollution) Act, 1981 the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 alongwith their amendments and rules.

(Dr. P. B. Rastogi)
Director

Copy to :

1. The Secretary, Department of environment and forests, Govt. of Gujarat, Gandhi Nagar, Gujarat.
2. The Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (West), Link Road No. 3, E - 5, Arera Colony, Bhopal-462 016, M. P.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi – 110 032.
4. The Chairman Gujarat Pollution Control Board, Paryavaran Bhawan, Sector 10-A, Gandhi Nagar – 382 010, Gujarat.
5. Adviser-IA-II (I), Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
7. Guard File.
8. Monitoring File.
9. Record File.

11/12/06

(Dr. P.B. Rastogi)
Director

TRUE COPY
ADVOCATE

IN THE HIGH COURT OF GUJARAT AT AHMEDABAD

SPECIAL CIVIL APPLICATION No. 3477 of 2009

ANNEXURE-R-4

For Approval and Signature:

HONOURABLE THE CHIEF JUSTICE MR. S.J. MUKHOPADHAYA
HONOURABLE MR.JUSTICE AKIL KURESHI

==========

1 Whether Reporters of Local Papers may be allowed to see the judgment ?

2 To be referred to the Reporter or not ?

3 Whether their Lordships wish to see the fair copy of the judgment ?

4 Whether this case involves a substantial question of law as to the interpretation of the constitution of India, 1950 or any order made thereunder ?

5 Whether it is to be circulated to the civil judge ?

==========

SHREE MAHUVA BANDHARA KHETIWADI PARIYAVARAN BACHAV SAMITTEE & 1 - Petitioner(s)
Versus
UNION OF INDIA & 5 - Respondent(s)

==========

Appearance :
MR BHUSHAN B OZA for Petitioner(s) : 1 - 2.MR AJ YAGNIK for Petitioner(s) : 1 - 2.
None for Respondent(s) : 1, 5,
MR RITURAJ M MEENA for Respondent(s) : 2,
MR KB TRIVEDI, AG with MR PK JANI, GP and MS SANGITA VISHEN, AGP for Respondent(s) : 6.
MR.DA DAVE, SR. ADV. for M/S. TRIVEDI & GUPTA for Respondent(s) : 4,

==========

CORAM : HONOURABLE THE CHIEF JUSTICE MR. S.J. MUKHOPADHAYA

and

HONOURABLE MR.JUSTICE AKIL KURESHI

Date : 26/04/2010

CAV JUDGMENT

(Per : HONOURABLE MR.JUSTICE AKIL KURESHI)

1. With ever expanding cities and urbanization at a pace not imaginable before, constant need for growth and desire of citizens in general to reach higher end of income brackets, man - animal conflict sometimes spills over to man and man conflict. Requirement of growth, urbanization and industrialization on one hand, preservation of environment and common resources of the community on the other, has given rise to the concept of sustainable growth, a concept which is as difficult to define as it is often times difficult to implement due to the very nature of complex, varying and for-ever conflicting interests. One such issue of considerable importance has reached this Court for resolution of the legal issues arising therein by way of present public interest litigation.

2. Petitioners who are claiming to be espousing the interests of large number of agriculturists and other residents of cluster of villages around and including Samadhiyala village of Mahuva Taluka have filed this petition opposing setting up of a cement plant with captive electricity generation plant proposed by respondent No.4, M/s. Nirma Limited. The main grievance of the petitioners is that the land alloted by the Government for setting up of such a plant is situated right in the middle of sweet-water reservoir created by construction of 250 meters long wasteweir called Samadhiyala Bandhara. It is the case of the petitioners that the proposed site of the plant consists of part of land of Bandhara Reservoir. It is also the allegation of the petitioners that rest of the land falls in the catchment area of the reservoir and construction of the cement plant would in short time destroy the entire reservoir.

3. On the other hand, the case of the respondents is that apprehensions of the petitioners are ill-founded. Series of reports have been collected by the Government from expert bodies. Certain safeguards have been provided. There is no danger to the reservoir. In fact, the capacity of the reservoir upon implementation of the recommendations of the Expert Committees as directed by the Government would increase. Setting up of cement plant would provide employment to many people in the region.

4. Looking to the fact that the outcome of this litigation, one way or the other, would affect large number of people, we have invested considerable time in hearing the arguments of the learned advocates for the parties. Various issues have been presented before us for our consideration. Our prime concern, however, has been to protect the sweet water reservoir created by construction of Samadhiyala Bandhara. Undoubtedly, progress and development would require construction of factories. Such factories would inevitably increase production and generate employment in a remote rural area which is dependent mainly on agricultural activities, which in turn depends on unpredictable and erratic monsoons and inadequate other sources of irrigation. It will also mean perennial source of income for many. However, such development or generation of income cannot be at the cost of permanent damage to common community resources. It will be sad if a small farmer deprived of his rightful source of irrigation is turned overnight into land-less unskilled labourer forced to seek employment in some factory constructed on the land which till the other day was his agricultural field. At the same time, if without affecting the reservoir in any significant manner, it is possible to set up the factory, surely in the name of environment or any such similar slogan, such development cannot be stopped.

5. With the above parameters in mind, before adverting to the rival submissions, some facts need to be noted.

5.1 Petitioner No.1 is an Association of persons formed for the protection of Samadhiyala Bandhara Reservoir. Petitioner No.2 is an agriculturist in the locality. As already noted, the petitioners are opposing the setting up of cement plant by Nirma Limited in Mahuva Taluka. They have made following substantive prayers :-

> "(A) To issue a writ of mandamus or writ in the nature of mandamus or any other appropriate writ, order or direction directing the respondents, their agents and servants to restore that part of the land with Samadhiyala Check-dam of Padhiyarka and Doliya Villages of Mahuva Taluka and Gaucher Land containing with two check-dams and a natural lake of Vangar Village of Mahuva Taluka of Bhavnagar District to the respective Panchayats from the possession of the respondent No.4, Private Company.
>
> (B) To issue a writ of mandamus or writ in the nature of mandamus or any other appropriate writ, order or direction directing the respondent no.3 to make the necessary changes in the record to incorporate the water reservoir, lakes and dams as per the application of the petitioner No.1, dated 9th March 2009;"

It is the case of the petitioners that Nirma Limited has been granted land by the Government which forms part of the Samadhiyala Reservoir. Such allotment of land is without proper inquiry and construction of cement factory would effectively destroy the catchment area of the reservoir and thereby dry up the lake in a short time. It is the case of the petitioners that Samadhiyala Bandhara Reservoir is a water body and no part of the water body can be divested for any purpose as directed by a Division Bench of this Court in the case of **Shailesh R. Shah v. State**

of Gujarat & ors., 2002(3) GLH 642.

6. From the material on record, it can be gathered that near Samadhiyala village in Mahuva Taluka, there is a creek through which the sea-water during high tide used to enter the main land. This caused persistent problem of salty water entering in the region causing salinity problem in the area. This is also an area where during monsoon, through rivulets or other small tributaries, excess rain water would drain into the sea. The Salinity Division of the State of Gujarat, therefore, envisaged a plan to construct a wasteweir of 250 meters. This according to the proposal would on one hand prevent sea-water from entering the creek and on the other side of the weir, the rain water through rivulets and other minor sources would get collected. This construction of weir would not only arrest the sea water entering the main land and thereby solving the salinity problems, but would also create a sweet water reservoir with an estimated capacity of 62.31 million cubic feet (M.C.Ft.). The report further suggested that there is very fertile land in the region, but due to salinity ingress and less rainfall, the water table has gone down and water has become salty. With the above purpose in mind, Samadhiyala Bandhara was constructed. It had water storing capacity of 62.31 M.C.Ft.

6.1 The land going in submergence mainly came from the Government waste land, part of gaucher land of surrounding villages, which the Village Panchayats agreed to surrender to the Government and small portion came from private lands. The Bandhara was constructed in the year 1999.

7. In the year 2004, respondent No.4, Nirma Limited, approached the Government with a request to allot 280-89-42 hectors of land for its

cement plant and captive power project in Padhiyarka, Dodiya and Vanger villages of Mahuva Taluka of Bhavnagar District. The Government vide its order dated 16.4.2008 alloted a total 268-86-52 hectors of land on certain conditions.

7.1 There was resistance to the said allotment. Since admittedly nearly 100 hectares of land alloted to Nirma Limited was part of the Bandhara Reservoir, the Government decided to obtain a report from the Salinity Division on the impact of construction of factory on the Bandhara Reservoir. A detailed report, a copy of which is produced at Annexure U at page 198 of the compilation was submitted. The report notes that due to handing over 100 hectares of reservoir land to the Company, there would be reduction of capacity of reservoir to the extent of 21.18 million cubic feet. In view thereof, the report recommended taking following measures.

> "4.1) During the spot visit carried out on 21.09.2005 as clarified in the recommendations placed forward, on both the sides of the drowning down land drain "A" and drain "B" any flow does not seems to be obstructed in any way. Besides, the rain water from area situated in the middle of the above area can easily be brought by connecting drain "C" in the dam.
>
> 4.2) As per the previous recommendations the water that gets stored in the above land from that there is very much likely possible that there can be decrease in the strength of the dam and that can be compensated with the excavation work that can be carried out in areas which are shown in "X" in the map enclosed herewith, details thereof have been clarified in above paragraph-3.

4.3) It does not seem that there will be any kind of obstruction in the flow towards the dam on account of construction work of Nirma Company liable to be carried out for their cement factory in the above land in question.

4.4) As the suggested factory is adjoining to the dam, a consent letter will be required to be taken from the Nirma Company Ltd. that it will not release its industrial polluted water in the above stated dam.

4.5) As the above suggested factory is adjoining to the Nirma Company Ltd., the company shall not utilize the potable water through the dam or bore directly or indirectly in any way and regarding the same an assurance shall be obtained from the Nirma Company Ltd. Besides before making any bore in this area the company shall obtain permission from the department well in advance.

4.6) Whatever construction work that are liable to be carried out pertaining to the storing capacity of the dam on account of the suggested cement factory all such kind of construction work shall be carried out under the discussion of this department and under its direct supervision.

4.7) The responsibility of maintenance, investigation, examination and preserving and repairing of suggested drain A, B, C and the work of D-salining etc. shall be borne by the Nirma Company Ltd. And each year the Nirma Company shall carried out the above work and regarding the same the final decision will

be of the Executive Engineer, Saline Control Division, Bhavnagar.

4.8) The Company will have to keep its land surface at maximum 0.5 meter high from the dam level i.e. of 5.42 meter so that at the time of flood situation the company existing construction does not come under drowning down land and according the company will have to make arrangement for its roads and etc. in order to obtain maximum level of 6 meters instead of necessary basin regarding the dumping work the material shall be obtained outside rather than from the dam itself.

4.9) The face to face surface is 3.82 meters hence, by dumping with necessary sand and mud in the land in question, in suggested land and on reaching 3.82 meters level the perry ferry of the water bodies will come out and as per the directions given by the Honourable High Court of Gujarat in Special Civil Application No.10621/2000 dated 02.08.2002 regarding the water bodies perseverance at page No.48 para No.24(G) of the said judgment after prescribing the areas of he water bodies perry ferry decision can be taken. Further an assurance shall be obtained from the company that in the land within 60 meters nearer to the banks of the dam the company will use the land only for forestation or for residential purpose only.

Thus, in this way after taking the above matters for consideration as per the previous recommendations restricted to the terms and conditions as mentioned hereinabove in paragraph No.4 and taking the above possibilities at Paragraph No.3 into consideration it is hereby opined that, there is no difficulty in making recommendation to the appropriate department for releasing the

land for allotting the same to the industrial house."

8. Above measures did not satisfy the opponents of the Project. There was considerable resistance from certain quarters. The entire issue was referred to a High Level Committee constituted for the said purpose headed by Shri S.K.Shelat, Adviser to the Chief Minister as the Chairman. The Committee consisted of :

1. Shri S.K.Shelat
   Chairman
   Advisor to Chief Minister, Sachivalaya
   Gandhinagar.

2. Shri S.J.Desai
   Member
   Secretary
   Narmada Water Resources
   Water Supply & Kalpsar Department.

3. Shri C.L.Meena (IAS)
   Member
   Chairman
   Gujarat Pollution Control Board

4. Shri A.B.Panchal
   Member
   Ex.Collector
   Bhavnagar.

5. Shri K.N.Patel
   Member
   Retired Additional Director
   Geology & Minerals Department

6. The Commissioner
   Convener
   Geology & Minerals Department.

The Committee held public hearings of interested persons to

present their cases. Eventually, the Committee submitted its report dated 4.8.2009, copy of which is produced at page 582 of the compilation. The report is based on voluminous material collected by the Committee including technical data and reports submitted by various agencies. The Committee recorded that out of the land of Samadhiyala Bandhara, total 222.0624 hectares has been reclaimed out of which 100 hectares of land forms part of the submergence area of Bandhara whereas 122.0624 hectares of land was being kept open looking to the inflow of the water. The committee considered the representations, suggestions and objections from various quarters and gave its conclusions as under:

> "9.0 Conclusions of Committee:
>
> Considering the submissions of Hon'ble MLA, submissions of representatives of public, submission of M/s.Nirma Ltd., various technical opinions and procedures done by various departments, Committee has reached to following conclusion.
>
> 1. With reference to the submission of Hon'ble MLA regarding the inclusion of Technical Experts, Committee is empowered by the provisions of Government Resolution to take help of experts. Accordingly, for questions regarding agriculture, Director, Agriculture is included as an expert of agricultural field. Over and above, with regard to technical issues raised in submissions, opinions of established technical institutions have been obtained.
>
> 2. The scheme of Irrigation Department about increasing the depth in certain areas of dam for balancing the water storing capacity of dam which has reduced because of allotment of part of land of submerged area of Samdhiyada dam to Industrial Department and for transporting the water from catchment area to the dam, has been certified to be just and proper by the technical institution of Government of India, "Wapcos Limited", Gandhinagar. Further, the institution has stated that by digging upto the depth of 2.4 meter R.L. At the noted place in dam area,

there is no possibility of sea water ingress in dam from the bottom and by making depth in proposed area, storing capacity can be increased upto 21.23 million cubic foot.

3. As per the study of Director (Agriculture), water level of wells of surrounding areas have increased due to Nikol, Kalsar and Samdhiyada dams. There is change in cultivation of crops, cultivation area has increased but no considerable improvement in reduction of salinity of water of wells has been noted. Over and above that, through lift irrigation, maximum 23 hectares of land is irrigated at village Dodiya, which as compared to planned area of 150 hectares of dam is only 15%.

Land of no private land holder / farmer is included in the factory area so, there is no possibility of agriculture getting affected in that area. Out of the 3460 hectare area of mining under LOI, 2871 hectare area is of the private land holder/farmers which Nirma has to purchase from the private farmers as per their willingness. Government will not have to acquire these lands. If the farmers think it proper then they may sell these lands to Nirma as per the existing rules of the State.

4. As per the primary report of NEERI for mining area, M/s.Nirma Ltd. Have to conduct the procedure. It is the opinion of the committee that maintenance of environment should be done as MOEF guidelines as well as EIA/EMP compliance and suggested by NEERY on following points.

(1) Prevention of salinity ingress
(2) Restoration of mines area
(3) R and R Plan (Rehabilitation and Resettlement Plan).

5. Committee recommends to include the study in EIA report about threat to existence of various wild animals in mining area. It is hereby instructed to include this issue in the public hearing with regard to environment.

6. As stated in para 7.2, 120 hectares of mining lease area of Kalsar and Naip village, the principle approval of which has been granted, is away from the plan of Nirma Ltd. And it being small as compared to the area, if it is cancelled then there is no chance of arising of reduction in capacity of plant to be established.

7. Considering the availability of limestone in sea belt area of Saurashtra and development of small ports, there are ample opportunities of transportation and export of cement to other States, which cannot be overlooked. Thus, if cement industry is developed on this sea belt then there are ample opportunities of local employment and as a result there are circumstances that may lead to fast development of this area. So, in this context, along with development of cement industry, newly establishing industries will have to follow the legal provisions of prevention of environment. In past there had come opportunity of establishing cement industry but because of local objection the said industry was shifted to other place Kodinar/Rajula area. Committee has also noted in industrial development in talukas of Kodinar and Rajula.

8. In cement industry, indirect employment arises more as compared to direct employment and considering the fact that financial condition of surrounding areas also get improved, the Committee recommends for establishment of cement industry. So, it instructs the industries to strictly follow the legal provisions of prevention of environment along with the establishment of industries.

9. Committee recommends to make arrangement so that sweet water can be stored against the sea water ingress into mines because of mining work in mining area. By doing this, the salinity proportion in wells of this area will reduce and there are possibilities of increase in fertility of remaining land of mining area. "

8.1 The Committee suggested following alternatives:

"10. As a result of study conducted by the Committee, it submits the following three alternatives for consideration of Cabinet Committee of the Government.

(A) Alternative of establishing cement plant in 268 hectare area as per the submission of M/s.Nirma Ltd.

Following are the conclusions of the Committee with regard to alternative of establishing cement plant in 268 hectares of area.

Wapcos Ltd. has given the technical opinion that there will not be any major change with regard to water storing capacity and salinity ingress by this plant. Advocate General has given legal opinion that water body is not notified as water body. Considering the opinion of Director (Agriculture) with regard to crops, quality of water and irrigation, agriculture would not be affected by the land of factory. Agriculture in lands of private land holders of 2,871 hectares of land out of 3460 hectares of mining area will be affected. But the concerned farmers will have to willingly sell the land to M/s.Nirma Ltd. Company will have to follow the conditions of MOEF Environment Clearance obtained for the plant, for prevention of environment. MOEF Clearance is pending for mining area. The conditions that may be imposed in that will have to be followed by the Company. Over and above that, NEERI will have to fill the deficiencies shown in its report.

But, 100 hectare land of submerged area of Samdhiyada dam does not get open by this alternative therefore, public agitation is likely to continue. Feeling of public satisfaction for project does not arise with the help of this alternative. S.C.A.No.3477/2009 filed by Shri Mahuva Dam Agricultural Environment Protection Committee in Hon'ble Gujarat High Court is pending.

(B) Alternative suggested by Nirma Company to establish cement plant in remaining 214 hectare area after deducting 54.295 hectar area from 268 hectar area.

M/s.Nirma Ltd. has shown consent for establishing cement plant on remaining part of land after deducting 54.295 hectare land out of the allotted 268 hectar land which is attached with rea of dam, as a result of which construction of cement plant can be done on the decided place. As also balancing the water storing area, area that of original area can be maintained.

100 hectar land of submerged area of Samdhiyada dam does not get open by this alternative. By giving back of 54.295 hectar area by the company, surrounding farmers will not have any benefit because on all its three sides there is plant and mining lease area of M/s.Nirma Ltd. So, in future this area will be useful for the company itself. Further, the main issue in Special C.A. filed before the Hon'ble Gujarat High Court is of reservoir which will continue.

(C) Alternative suggested by NCCBM to establish the cement plant in 168 hectar area:-

Renowned institution like NCCBM, after detailed study, has given technical opinion to establish plant in 168 hectar area after deducing 100 hectar area.

Nirma Ltd. has shown its incapability to accept this alternative because financial arrangements for project, raising of experience and other facilities, they after starting with 1.5 million ton at first stage want to take it to 6.0 million ton stage wise. Over and above that, Company has clarified that there being chances of direct effect on financial capacity of the project by change in plan lay-out, it is really difficult to implement the request because the project with the proposed request can only be established after purchasing land for noted railway line and after removing existing electricity line, water pipeline, school, etc. which will halt the entire project for a considerable period of time.

Committee believes that considering the alternative given by renowned institution like NCCBM, company can start the plant of 1.5 million ton at first stage and because of that naturally public objections will decrease and there are possible chances for the company to get land willingly for mining purpose. The entire agitation against the project and the present public feelings for Samdhiyada dam will also get reduced. NCCBM after examining all aspects have given its opinion. It also requires to be taken into consideration that there is no mention with regard to coke oven plant in the land given by the Collector, Bhavnagar. So, Company shall think to establish the coke oven plant near soda ash project of Nirma Ltd.

Out of these alternatives, whichever is decided, the principle approval which has been granted for 120 hectare area of Naip/Kalsar under the mining lease, is recommended to be cancelled as shown in the conclusions above."

9. The Government acted upon the report of the Shelat Committee and by its order dated 8.12.2009 directed the Company to return 54 hectares of land which formed part of Samadhiyala Bhandara. The order also requires the Company to deepen 40 hectares of the said land

which according to the Government would ensure increase in the water carrying capacity of the Reservoir by 22.7%. The order requires the Irrigation Department to demarcate the remaining 214 hectares of land to be alloted to the Company.

10. The Company has accepted the said formula and agreed to accept the land minus 54 hectares which the Government has cancelled from its allotment. The Company has also agreed to deepen the land as per the order of the Government dated 8th December 2009. It may be noted that this is in addition to 75 hectares of Government waste land, which the Company is required to deepen as part of the Reservoir, the Company has also agreed to provide for three different channels of approximately 13 meters wide from three sides of the proposed site of the factory to ensure free flow of water from surrounding areas into the Reservoir.

11. Learned counsel Shri AJ Yagnik for the petitioners vehemently submitted that the allotment of land to the Company for cement factory is wholly illegal. Taking us through various documents, maps and satellite images of the area in question, he contended that the land allotted to Nirma Limited is part of the waterbody and in view of the decision of the Division Bench in the case of **Shailesh R. Shah (supra),** no part of such land can be alienated much less granted to private companies. He further contended that satellite images clearly show that water gets collected during monsoon where the land has been alloted to the Company. He contended that alternative suggested by the respondents to compensate for the loss of land and inflow of water are not adequate. He further contended that applying the doctrine of public trust and access to community resources requires that the allotment of land be cancelled. He further contended that contrary to the directions

issued by the Division Bench of this Court in the case of Shailesh R. Shah (supra), the State has not even notified Samadhiyala Bandhara as a water body.

11.1 Counsel on both sides have cited several decisions before us. However, not to make this judgment bulky and to avoid citations of several decisions on the same issue, in this order we refer only those decisions on which the counsel laid more emphasize.

11.2 Much stress has been put on the decision of this Court on waterbodies in the case of Shailesh R. Shah (supra) wherein the Division Bench has directed, inter alia, that the State Government or its Area Development Authorities, Local bodies will protect, maintain and preserve all the waterbodies in the State and further that they will not alienate or transfer or put to any use other than as waterbodies.

11.3 Reliance was also placed on a decision of the Supreme Court in the case of **M.C.Mehta v. Union of India,** (1997) 3 SCC 715 herein the Apex Court stressed the requirement to protect and improve forest, lakes, wildlife, etc. stating and reiterating that principle of sustainable development and precautionary principle.

11.4. Reliance was placed on a decision in the case of **M.C.Mehta v. Kamal Nath and others**, (1997) 1 SCC 388 where the Apex Court stressed the importance of ecology and public trust doctrine. On that basis, lease granted by the Government on various land for commercial purpose to a private company was quashed.

11.5 Reliance was placed on a decision in the case of **Intellectuals Forum v. State of A.P.**, (2006) 3 SCC 549 wherein the

Apex Court set aside the allocation of tank bed land by the State Government for construction of houses. The Supreme Court stressed the requirement of conservation of natural resources. Reliance was also on a decision of the Hon'ble Supreme Court in the case of **Vellore Citizens' Welfare Forum v. Union of India,** (1996) 5 SCC 647 pertaining to the issue of pollution caused by industries wherein it has been observed that while industries are vital for country's development, principle of Sustainable Development has to be adopted as a balancing concept. The counsel also relied on a recent decision of the Apex Court dated 5.4.2010 in Civil Appeal No.52 of 2008 in the case of **M/s. Jayabheri Properties Pvt. Ltd v. State of Andhra Pradesh and others** wherein the issue of construction outer ring road connecting Hyderabad and Secunderabad cities disturbing waterbodies was involved.

12. Learned Advocate General appearing for the State Government stated that only after collecting proper reports from experts, the land was allotted to respondent No.4. Even thereafter, required safeguards have been provided. Further reports were called for. Acting on S.K.Shelat Committee's report, allotment of 54 hectares of land has been cancelled. Several measures required to be taken by the Company would ensure the capacity of the reservoir would increase.

12.1 He relied on a decision of the Apex Court in the case of **Susetha v. State of T.N. And others,** (2006) 6 SCC 543 wherein the Apex Court observed in para 20 as under:

> "20. The Court has not, in the aforesaid decisions, laid down a law that alienation of the property held as a public trust is necessarily prohibited. What was emphasised was a higher decree of judicial scrutiny. The doctrine of sustainable development

although is not an empty slogan, it is required to be implemented taking a pragmatic view and not on ipse dixit of the court."

13. Learned counsel Shri Dushyant Dave appearing for Nirma Limited opposed the petition contending, inter alia, that no part of the alloted land to Nirma Limited is part of waterbody. He further contended that the Company has invested crores of rupees and at this belated stage, the petitioners have raised objections which should not be entertained. Reservoir was constructed only for controlling salinity and for ground water recharge. Our attention was drawn to the following decisions:

(1) In the case of **D.L.F. Universal Ltd v. Prof. A. Lakshmi Sagar & Ors.**, (1998) 7 SCC 1 wherein the Supreme Court relied on the assessment of the expert body in development of land which was opposed on the ground that approval of scheme would adversely affect the quality and quantity of water.

(2) **In the case of Delhi Development Authority v. Rajendra Singh & Ors.,** (2009) 8 SCC 582 wherein also the Apex Court relied on the expert opinion, such as, National Environmental Engineering Research Institute (NEERI) for approving change in use of land for Commonwealth Games.

(3) In the case of **T.N.Godavarman Thirumulpad v. Union of India** (2006) 1 SCC 1, wherein the Apex Court discussed the issues of compensatory afforestation charges for loss of natural forests for other purposes.

(4) The case of **R and M Trust v. Koramangala Residents Vigilance Group**, AIR 2005 SC 894 was cited to contend that delay would

be fatal in case of public interest litigation.

14. At the outset, we find that objection to the petition by the respondent No.4 on the ground of delay and laches must be rejected. Soon after the allotment of land to respondent No.4 Company, there was resistance from villagers and others. This forced the Government to seek further reports on the likely impact on the reservoir. Last report of the S.K.Shelat Committee was available in 2009 and the Government acted upon it in December 2009. Entire issue was thus alive. Land allotment in favour of the Company had thus not achieved finality. We see no inordinate delay on part of the petitioners. We must view the delay in the background of likely impact of the project on large number of people.

Since long right to pollution free water and right of access to water have been recognized by the constitutional courts in the country as an integral part of right to life under Article 21 of the Constitution of India. It is also considered as human right.

In the case of S.R.Shah (supra), the Division Bench stressed the importance of water for the mankind and nature as well in the following manner:

> "9. Water is essential to many of the mankind's most basic activities, such as agriculture, forestry, industry, power generation and recreation. Water being an integral part of the environment, its availability is indispensable to the efficient functioning of the biosphere. Without a safe, reliable and stable water supply, human and economic development would not be possible. Nearly every decision whether about housing, transportation, economic growth or developmental work is linked to the use of the water resources of the community. Fresh water is as essential to sustainable development as it is to life and water beyond its geographical,

> chemical, biological functions in the hydrological cycle, has the social, economic and environmental values that are interlined and mutually supportive. Safe water, adequate sanitation and education about hygiene are basic human rights that protect health, increase the sense of well-being and improve productivity. Water related leisure activities, such as water sports, contribute to a healthy life style. Human habitation near water resources was essential to the very existence of the human race and the ancient civilizations thrived near the vicinity of fresh water."

In the book "Reforming Institutions in Water Resource Management – Policy and Performance for Sustainable Development" by Lin Crase and Vasant P. Gandhi, the importance of water resource management in India has been explained as follows:

> "Water resource management is also critically important in India because of growing demand for food and because the incomes and employment of 60-70 per cent of the population depend directly or indirectly on agriculture. Small-sized private farms dominate Indian agriculture and the problem of water management is becoming increasingly serious as development proceeds. Local scarcities are now common and frequent. In the context of the challenges of water resource management in India, standard neoclassical theories usually have little to offer in terms of practical and durable solutions."

Such an important issue, therefore, cannot be scuttled on the ground of delay and laches which even otherwise we do not find exists in the present case.

15. Coming to the main challenge, from the material on record, it is clear that out of total 268 hectares of land initially alloted to Nirma Limited, 100 hectares comprise of land which was part of submerged area of Samadhiyala Bandhara. Upon submission of Shelat Committee Report, the State Government accepted one of the three alternatives suggested by the Committee and by its further order dated 8th December

2009 directed respondent No.4 Company to return 54 hectares of land out of 100 hectares falling part of Bandhara submergence area. Nevertheless, another 46 hectares remained with the Company which is part of Bandhara land.

16. Though it has been contended on behalf of the respondents that the sole purpose of construction of wasteweir was to control salinity by arresting sea water, the same flies on the face of the official records. In order dated 25th June 1999 passed by the Collector, Bhavnagar, produced at page 769/A to the compilation, by which gaucher land of various villages were transferred to the salinity control department for the Samadhiyala Bandhara scheme, it is clearly recorded that "the land in question is required to be transferred for the purpose of scheme of Samadhiyala Bandhara. The main object by way of this scheme of Bandhara is to restrict the increase of salinity of sea and for maintaining agriculture land as the salinity of the land may be minimized and to resolve the problem of drinking water. It is proper to transfer the land in question to the salinity control department under the beneficial scheme which is going to give advantage to the large number of people of the society". Even in the communication dated 19.5.2006 from the Superintending Engineer, Salinity Entrance Redress Circle, Rajkot, it is recorded that upon construction of three drains as suggested, there will be sufficient flow of water into the bed and 250 hectares of land in the region and 35 wells which depend on Bandhara there would be no adverse impact. Even in the report submitted by the Office of the Executive Engineer, Salinity Control Division, Bhavnagar to the S.K.Shelat Committee, which the Committee has exhibited as document M-1, it is stated that "Samadhiyala Bandhara Project near Samadhiyala village of Rajula Taluka of Amreli District on a local rivulet has been completed in July 2000. In this scheme 62.31 M.C.Ft. sweet water is

stored. From this project, 1000 hectares of lands of Dolia, Padhiyarka and Vangar villages of Mahuva Taluka of Bhavnagar District, Samadhiyala and Patva villages of Rajula Taluka of Amreli District benefit by re-charge and lift irrigation". This report also gives the break up of such benefits to agriculture lands in the annexure. It is stated that 700 hectares of land benefit out of ground water recharge and 300 hectares by lift irrigation. The season of irrigation however shown is Rabi meaning thereby that water for irrigation from the reservoir is available for only one season after monsoon and water does not last till summer season.

17. It can thus be clearly seen that as per the official records, construction of wasteweir serves three different purposes. First and foremost, arrest spread of salinity by preventing sea-water from entering the main land. However, it simultaneously arrests the sweet water flowing in monsoon season from draining into the see. This creates a reservoir with a maximum capacity of 62.31 million cubic feet. This collection of sweet water improves the sub-soil water quantity and quality. It also permits irrigation of nearby fields through lift irrigation. Existence of Samadhiyala Bandhara, therefore, cannot be viewed as serving a narrow purpose of only prevention of salinity. It's irrigation potential is however limited to Rabi season only.

18. It is true that the Government has suggested various measures to ensure that the reservoir is not adversely affected. As already noted, firstly, 75 hectares of Government waste land is to be excavated at the cost of the Company to add to the capacity of the reservoir to compensate for the loss of 100 hectares of land which was initially alloted to the Company out of submergence area of the reservoir. Since indisputably, the land alloted to the Company would under normal

circumstances obstruct the natural flow of water into the reservoir through different slopes of low lying areas, the Government has directed the Company to construct and maintain three drain canals shown as Canal A, B and C in the maps presented before us (and more particularly referred to in report Annexure U) which are of on average approximately 13 meters width. This according to the reports of Salinity Control Department would ensure that the inflow of rainwater in the reservoir will not be reduced. As per the calculations of the respondents, after the Company returns 54 hectares of land, excavates approximately 40 hectares out of it as directed by the Government order dated 8th December 2009, and also upon excavation of 75 hectares of Government waste land, the total water holding capacity of the reservoir, if at all, would increase.

19. Despite such measures suggested by the Government and presented before us, we were of the view that under no circumstances, the Company can be parted with 100 hectares of land out of the submergence area of the reservoir. We are also clear that out of the land alloted to the Company, 100 hectares of land was out of the submergence area of Samadhiyala Bandhara. This is unequivocally clear from the several reports of the Salinity Control Department as well as from the Shelat Committee Report. On this fact, there is neither a dispute possible, none raised. We had, therefore, put to the counsel whether the Company would surrender additional 46 hectares of land so that the total 100 hectares of land which the Company was allotted forming part of the reservoir would be restored. Counsel for the Company readily agreed to the suggestion and also agreed to file an undertaking to this effect with only one rider that the Company cannot afford to return such 46 hectares of land in one block adjacent to 54 hectares already ordered to be returned.

20. Accordingly, an affidavit dated 16th April 2010 has been filed by one V.N.Desai, Vice President of Nirma Limited, in which it is stated that in addition to surrender of 54 hectares of land pursuant to the Government order dated 8.12.09, respondent No.4 is willing to surrender further 46 hectares of land as demarcated in green colour on the map attached to the affidavit at Annexure I to the said affidavit. It is clarified that this 46 hectares of land does not include any area comprising of the canals to be constructed by the Company.

21. Question is whether all the measures provided by the Government coupled with the surrender of additional 46 hectares of land is sufficient safeguard to protect and preserve the Samadhiyala Bandhara reservoir so as to permit respondent No.4 Company to carry on with the further construction of the cement factory. In our view, with certain minor fine tuning and further conditions, it would be so.

22. Firstly further surrendering of 46 hectares of land would ensure that against total allotment of 100 hectares of submergence land of Samadhiyala Bandhara Reservoir, the Company would have surrendered equal area. We are conscious that it will not be exactly the same land. However, we have considered the fact that the Reservoir was created by construction of wasteweir in the year 1999 and is thus an artificial man-made lake. Without in any manner affecting its water carrying capacity or the total inflow of water, if by minor modifications, a major industry can be sustained in a rural area, in our view the Court should not interject by ignoring and discarding the reports of several agencies comprising experts in the field. Secondly, in addition to restoring 100 hectares of land, 75 hectares of additional Government land is to be excavated to increase the water carrying capacity of the reservoir. The

Company has also agreed to excavate further approximately 40 hectares of land out of 54 hectares to be surrendered under order dated 8th December 2009 passed by the Government. Thirdly, pursuant to our suggestion, as accepted by the Company, further 46 hectares of land will be returned. This can also be ordered to be excavated as per the suggestions of the Government Agencies. Fourthly, the Company is required to construct and maintain three canals which will act as drains into the Reservoir of rainwater from surrounding area. Fifthly, the Company is prevented from using any part of water of reservoir for its consumption.

23. Considering the above measures and taking into account the reports of various agencies, there is nothing before us to hold that even after implementation of these measures, either the water carrying capacity of the Reservoir would reduce or the availability of water during rainy season will in any manner be adversely affected. Significantly, surrendering of total 100 hectares of land by the Company is one of the alternatives suggested by the Shelat Committee Report also. Here also, we are aware that the location of the land to be returned differs.

24. In the case of Shailesh R. Shah (supra), the Division Bench was considering the question of protecting, preserving and maintaining the waterbodies in the State and safeguarding them against encroachments. The issues raised by the petitioners pertained to Chandola Lake and the encroachments surrounding in the city of Ahmedabad as also another lake called Lakhudi Talavadi in Vastrapur area of the city of Ahmedabad. In the said decision, the Division Bench considered various judgments of the High Court and the Supreme Court and stressed on the responsibility of the Government and other Governmental agencies such

as Municipalities and Panchayats to preserve and maintain waterbodies. It was observed that without removing the encroachments, the waterbodies under encroachments can hardly be rejuvenated. In this back ground, several directions were issued including to the Government to notify all lakes and ponds as may have been shown in the areas covered by the Town Planning Scheme and the Development Schemes as also those in the areas not covered throughout the State. The Government, Area Development Authorities and Local Bodies were directed to protect, maintain and preserve all waterbodies in the State which are identified as per the development plans, town planning schemes and the Government records and which will be notified in the official gazette as water bodies and they will not be alienated or transferred or put to any use other than as waterbodies.

In the present case, we do find that though initially substantial portion of the land which was part of submergence area of the Samadhiyala Bandhara was sought to be alienated in favour of respondent No.4 Company, by combination of orders passed by the Government, undertaking given by respondent No.4 Company and the directions that we are in the process of issuing in this order, virtually the entire area would stand restored to the Government.

In addition to return of 100 hectares of land to the Government, various measures directed by the Government as well as by us in the present order, we feel would, to a large degree restore the original position. In that view of the matter, we find that there would be substantial compliance with the directions of the Division Bench in the case of S.R.Shah (supra). Nothing stated in this order is, however, meant to dilute the said directions in any manner. However, when we find that by substantial compliance with the said directions and while

simultaneously preserving the waterbody, if an industry in which substantial investment has already been made can be allowed to be set up, such project should not be stalled. By preserving waterbody, if industrial development can still be achieved, surely the same should not be objected to. The cement plant would bring in substantial investment in addition to generating employment in the region and would also sustain ancillary and incidental industries and businesses.

25. Despite such optimism, we would like to trade cautiously and therefore, we are of the view that certain further guidelines and directions are required to be issued to ensure that the Company implements its obligations fully and further that the effect of construction of factory on the Reservoir is closely monitored.

26. Under the circumstances, this petition is disposed of with following directions:

1) Respondent No.4 Company shall, in addition to 54 hectares of land ordered to be surrendered by the Government in its order dated 8th December 2009, surrender further 46 hectares of land indicated in the map at Annexure I to the affidavit dated 16th April 2010, copy of which map is attached to this judgment at Exh.A and shall form part of this judgment. No part of this 46 hectares will include any land to be occupied by canals which the Company is obliged to construct;
2) Respondent No.4 Company shall strictly adhere to its obligation to construct canals A, B and C shown in the official maps and maintain the same as directed by the Government and further ensure that it is desilted periodically, so that the flow of rain water from the surrounding areas to the Reservoir is not obstructed;

3) Respondent No.4 Company shall excavate and deepen 75 hectares of Government waste land as directed by the Government;

4) Respondent No.4 shall excavate and deepen part of 54 hectares of land returned by it under the Government order dated 8th December 2009;

5) Respondent No.4 shall excavate and deepen any part of the additional 46 hectares of land as may be suggested by the Government. For this purpose, the Government shall have a survey carried out and make suggestions for excavation of the land as per the topography of the area to ensure that this additionally surrendered land also forms part of Samadiyala Bandhara and increases the water carrying capacity of the Reservoir.

6) Respondent No.4 Company shall not use any water from the reservoir for its activities.

7) Respondent No.4 Company shall ensure that its activities shall not pollute or contaminate the Reservoir water in any manner.

8) It will be open for the respondent No.4 Company to recommence its construction of the factory on condition that within four weeks from today, the Company after proper measurements by the DILR surrenders further 46 hectares of land as already directed hereinabove;

9) The Government shall ensure that respondent No.4 Company has complied with all the above directions before issuing certificate of completion of construction or before granting permission to start the factory;

10) The Government shall, on the basis of the records of rainfall in the region and the total amount of water collected in the Reservoir immediately after the monsoon, judge whether on account of setting up of the factory there has been any significant reduction

in income of the fresh water in the Reservoir. If so, the Government shall require respondent No.4 Company to take such remedial measures as may be found necessary.

27. With the above directions, the petition is disposed of.

(S.J.Mukhopadhaya, C.J.)

(Akil Kureshi, J.)

28. At this stage, counsel for the petitioner prayed for stay of this judgment for a period of four weeks. He has also requested that a certificate of fitness under Article 133 read with Article 134A of the Constitution that the case involves substantial question of law of general importance which needs to be decided by the Supreme, be granted.

29. We find that in the present petition stay against further construction was granted only on 16th March 2010 before which, during the pendency of this petition, no stay was granted by the High Court. In this judgment even while permitting further construction of the factory of respondent No.4, necessary safeguards have been provided. Request for stay of the judgment therefore is refused. With respect to certificate of fitness as prayed for, we do not find that the case involves substantial question of law of general importance which needs to be decided by the Supreme Court. Said request is also rejected.

(S.J.Mukhopadhaya, C.J.)

(Akil Kureshi, J.)

(vjn)

ANNEXURE-R-5

IN THE HIGH COURT OF GUJARAT AT AHMEDABAD

MISC.CIVIL APPLICATION No. 1473 of 2010
In
SPECIAL CIVIL APPLICATION No. 3477 of 2009

For Approval and Signature:

HONOURABLE THE CHIEF JUSTICE MR. S.J. MUKHOPADHAYA scl
HONOURABLE MR.JUSTICE AKIL KURESHI scl

1 Whether Reporters of Local Papers may be allowed to see the judgment ?

2 To be referred to the Reporter or not ?

3 Whether their Lordships wish to see the fair copy of the judgment ?

4 Whether this case involves a substantial question of law as to the interpretation of the constitution of India, 1950 or any order made thereunder ?

5 Whether it is to be circulated to the civil judge ?

SHREE MAHUVA BANDHARA KHETIWADI PARIYAVARAN RACHAV SAMITTEE & 1 - Applicant(s)
Versus
UNION OF INDIA & 5 - Opponent(s)

Appearance :
MR SB VAKIL, SENIOR ADVOCATE, WITH MR AJ YAGNIK for Applicant(s) : 1 - 2.
MR PS CHAMPANERI for Opponent(s) : 1,
MR RITURAJ M MEENA for Opponent(s) : 2,
MR KAMAL TRIVEDI, AG WITH MS SANGITA VISHEN, AGP for Opponent(s) : 3, 6,
MR DUSHYANT DAVE, SR. ADVOCATE WITH MR RAKESH GUPTA, MR RAMESH SINGH & MR ABHISHEK MEHTA FOR M/S TRIVEDI & GUPTA for Opponent(s) : 4,
MR MD PANDYA for Opponent(s) : 5,

CORAM : **HONOURABLE THE CHIEF JUSTICE MR. S.J. MUKHOPADHAYA**

and

HONOURABLE MR.JUSTICE AKIL KURESHI

Date : 27/09/2010

CAV JUDGMENT

(Per : HONOURABLE MR.JUSTICE AKIL KURESHI)

1. Applicants are the original petitioners. They seek review of judgment dated 26th April 2010 passed in Special Civil Application No.3477 of 2019.

2. In the writ petition filed in public interest, the applicants had prayed for a direction to restore possession of the land given to respondent No.4 Company which formed part of Samadhiyala Check-dam and the gaucher land of the villages and the natural lake. It was also prayed that the authorities should incorporate in records the existence of water reservoir. The petition was disposed of by this Court by the judgment and order dated 26th April 2010 giving certain guidelines and directions to ensure that the Company implements its assurances and to closely monitor the effect of construction of factory on the Reservoir.

3. Aggrieved by the said decision, the petitioners have approached the Apex Court. Pending SLP, they also filed the present review application. We have heard learned counsel for the parties at length.

4. Learned Senior Advocate Shri SB Vakil for the applicants, painstakingly took us through the entire judgment under review. He contended that certain contentions raised by the petitioners were not decided. In particular, he argued that the question of canceling environmental clearance was not dealt with. He pointed out that as per the applicants, the Company had obtained environmental clearance from

the Ministry of Environment and Forest by supplying inaccurate details. He further argued that the petition was disposed of without notice to Union of India.

4.1 He submitted that there was no basis to hold that after the Company returns 54 hectares of land and excavates approximately 40 acres out of this land as directed by the Government as also upon excavation of 75 hectares of land, total water holding capacity of the reservoir if at all would increase.

4.2 He contended that the decision is contrary to the ratio laid by the judgment of this Court in the case of **Shailesh R. Shah v. State of Gujarat & ors. 2002(3) GLH 642** wherein this Court has prohibited the Government from divesting any part of the land forming part of waterbodies of the State.

5. On the other hand, learned Advocate General appearing for the State opposed the review petition. He contended that the applicants have produced bulky records and the counsel have made lengthy arguments and that itself would suggest that error, if any, in the judgment is not apparent on the face of the record.

6. Counsel for the Union of India stated that environmental clearance was given to the project after following due process.

7. Counsel for respondent No.4 Company also contended that this is not a case for review. The Company had agreed to several terms suggested by the Court. Previously before the Government also, the Company had surrendered 54 hectares of land. The Company will take all steps as directed in the judgment.

8. Counsel for the petitioners referred to number of judgments mainly on the point that review power is available both on procedural and substantive review. Since this aspect is not in dispute, it is not necessary to refer to these judgments. On behalf of the respondents, judgments were cited to show cases in which review would be permitted. We do not propose to refer to all such judgments to avoid repetition except the following:

8.1 In the case of **A.T.Sharma v. A.P.Sharma,** AIR 1979 SC 1047, the Apex Court observed as follows:

> "It is true as observed by this Court in Shivdeo Singh v. State of Punjab (AIR 1963 SC 1909) there is nothing in Article 226 of the Constitution to preclude a High Court from exercising the power of review which inheres in every Court of plenary jurisdiction to prevent miscarriage of justice or to correct grave and palpable errors committed by it. But, there are definitive limits to the exercise of the power of review. The power of review may be exercised on the discovery of new and important matter or evidence which, after the exercise of due diligence was not within the knowledge of the person seeking the review or could not be produced by him at the time when the order was made; it may be exercised where some mistake or error apparent on the face of the record is found; it may also be exercised on any analogous ground. But, it may not be exercised on the ground that the decision was erroneous on merits. That would be the province of a Court of appeal. A power of review is not to be confused with appellate power which may enable an Appellate Court to correct all manner of errors committed by the Sub-ordinate Court."

8.2 In the case of **Smt.Meera Bhanja v. Smt.Nirmala Kumari Chaudhury,** AIR 1995 SC 455, the Supreme Court observed as under:

> "Now it is also to be kept in view that in the impugned judgment, the Division Bench of the High Court has clearly observed that

they were entertaining the review petition only on the ground of error apparent on the face of the record and not on any other ground. So far as that aspect is concerned, it has to be kept in view that an error apparent on the face of record must be such an error which must strike one on mere looking at the record and would not require any long drawn process of reasoning on points where there may conceivably the two opinions. We may usefully refer to the observations of this Court in the case of **Satyanarayan Laxminarayan Hegde v. Mallikarjun Bhavanappa Tirumale, AIR 1960 SC 137**, wherein, **K.C. Das Gupta, J.**, speaking for the Court has made the following observations in connection with an error apparent on the face of the record:

"An error which has to be established by a long drawn process of reasoning on points where there may conceivably be two opinions can hardly be said to be an error apparent on the face of the record. Where an alleged error is far from self-evident and if it can be established, it has to be established, by lengthy and complicated arguments, such an error cannot be cured by a writ of certiorari according to the rule governing the powers of the superior Court to issue such a writ."

8.3 In the case of **Parsion Devi v. Sumitri Devi, (1997) 8 SCC 715**, the Apex Court observed as under:

"9. Under Order 47 Rule 1 CPC a judgment may be open to review inter alia if there is a mistake or an error apparent on the face of the record. An error which is not self-evident and has to be detected by a process of reasoning, can hardly be said to be an error apparent on the face of the record justifying the court to exercise its power of review under Order 47 Rule 1 CPC. In exercise of the jurisdiction under Order 47 Rule 1 CPC it is not permissible for an erroneous decision to be "reheard and corrected". A review petition, it must be remembered has a limited purpose and cannot be allowed to be "an appeal in disguise"."

9. Bearing in mind the above parameters and adverting to the contentions raised on behalf of the applicants, we find that:

1) In the main petition, no prayer was made against Union of India. As already noted two-fold prayer made in the petition was (i) with respect to cancellation of allotment of land in favour of respondent No.4 Company which formed part of Bandhara and the reservoir or the gaucher land and (ii) for notification of the land forming part of the water-body. There was no prayer for cancellation of environmental clearance granted by the Union of India. Question of notice to respondent No.1 would arise only when any order is to be passed against it. Since obviously we had no intention of issuing any direction or to pass any order adverse to the Union of India, there was no necessity of issuing any notice to such respondent. In any case, the petitioners cannot make any grievance of non-issuance of notice to respondent No.1.

2) With respect to the question of increased capacity of the reservoir, in para 18 of the judgment, we had recorded that the Company has been directed to take steps by the Government such as excavating 75 hectares of Government waste land at their costs and also to construct and maintain three drain canals. In this context, it is observed as under:

> "This according to the reports of Salinity Control Department would ensure that the inflow of rainwater in the reservoir will not be reduced. As per the calculations of the respondents, after the Company returns 54 hectares of land, excavates approximately 40 hectares out of it as directed by the Government order dated 8th December 2009, and also upon excavation of 75 hectares of Government waste land, the total water holding capacity of the reservoir, if at all, would increase."

These observations were based on the Government order dated

8.12.09 wherein it is recorded that "upon surrender of 54 acres of land (by the Company) of the periphery approximately 40 hectares of land will be available for storage of water upon excavation where ground level is six meters. If such land is excavated down to 2.82 meters, water storing capacity can be increased 14.12 million cubic feet. This would result in increase of 22.7 per cent in the existing capacity of 62.31 million cubic feet. For this purpose, Nirma Company shall have to undertake necessary steps at its own cost in 40 hectares of land under the guidance of the Irrigation Department."

10. With respect to the ratio of the Division Bench judgment in the case of Shailesh Shah (supra), we had taken note of the said judgment in para 24 of the judgment and observed as under:

"In addition to return of 100 hectares of land to the Government, various measures directed by the Government as well as by us in the present order, we feel would, to a large degree restore the original position. In that view of the matter, we find that there would be substantial compliance with the directions of the Division Bench in the case of S.R.Shah (supra). Nothing stated in this order is, however, meant to dilute the said directions in any manner. However, when we find that by substantial compliance with the said directions and while simultaneously preserving the waterbody, if an industry in which substantial investment has already been made can be allowed to be set up, such project should not be stalled. By preserving waterbody, if industrial development can still be achieved, surely the same should not be objected to. The cement plant would bring in substantial investment in addition to generating employment in the region and would also sustain ancillary and incidental industries and businesses."

Since we have noticed the decision in the case of Shailesh Shah and also discussed its application to the present case, this is no ground for review.

/

11. In the result, we find no merit in the application for review. The same is therefore dismissed.

(S.J.Mukhopadhaya, C.J.)

(Akil Kureshi, J.)

(vjn)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH AT NEW DELHI,
NEW DELHI

Appeal No. 04 of 2012

ANNEXURE-R-6

In the matter of:

1. Nirma Ltd.
   Nirma House
   Ashram Road,
   Ahmedabad

..... Applicants

Versus

1. Ministry of Environment &Forests
   Government of India
   Parayavaran Bhawan,
   CGO Complex,
   Lodhi Road, New Delhi- 110003

2. Revenue Department
   (Through: Secretary)
   State of Gujarat
   Sachivalaya, Gandhi Nagar,
   Gujarat

3. Gujarat Pollution Control Board
   Through its Member Secretary
   Sector 10-A, Parayavaran Bhawan
   Opp. Bij Nigam
   Gandhinagar-382010

4. Shree Mahna Bandhara Khetiwadi
   Pariyavaran Bachav Samittee,
   Through its Secretary
   At SPO Madhiya
   District Bhavnagar,
   Gujarat

.....Respondents

Counsel for appellant:
Mr. Dushyant Dave, sr. advocate along with
Mr. Ramesh Singh, Mr. Prashanto sen, Mr. Ashish
Goel and Ms. Anushruti, Advs. for appellant

Counsel for Respondents:
Mr. Vikas Malhotra and Mr. M.P. Sahay Advs.
for respondent No. 1
Ms. Preeti Bhardwaj and Mr. Dhruve Pal Adv.
for Ms. Hemantika, Advs. for respondent no. 2 & 3.
Mr. Anand Yagnik and Mr. Abhimanue Shrestha,
Advs. for Respondent no. 4

Present:
Hon'ble Mr. Justice Swatanter Kumar (Chairperson)
Hon'ble Mr. Justice U.D. Salvi (Judicial Member)
Hon'ble Dr. D.K. Agrawal (Expert Member)
Hon'ble Mr. Dr. G.K. Pandey (Expert Member)

JUDGMENT

Per U.D. Salvi J.(Judicial Member)

Dated: 14th January, 2015

1. The Present Appeal is preferred against the order dated 1st December, 2011 issued by the Respondent No. 1- Ministry of Environment and Forest (shortly referred to MoEF) under section 5 of the Environment (protection) Act, 1986 ("hereinafter referred to as the Act") to revoke the Environment Clearance dated 8th December, 2008 to the cement plant (Cement plant 1.91MTPA, 1.50 Clinker), Coke oven plant (1.5 LTPA), and Captive Power Plant (50 MW) to be established and operated near village Padhiyarka Taluka, Mahuva, District Bhavnagar, Gujarat.
2. Briefly, speaking it is the case of the appellant that the Environment Clearance granted after detailed and

transparent enquiry in accordance with the provision of Act/Rules has been reviewed and recalled on account of extraneous and political considerations. A glance at the impugned order dated 1st December, 2011 gives paranomic view of respondent's case. It appears that the Expert Committee of five independent reputed scientists was constituted by the Hon'ble Supreme Court of India vide order dated 18th March, 2011 in special leave to appeal (civil) no. 14698/2010 from the Judgment and order dated 24th June, 2010 in 3477/2009 of the High Court of Gujarat at Ahmadabad disposing of the petition (PIL opposing setting up of the cement plant with captive electricity generation plant in question) to visit the site and answer the following issues:

a. Whether the lands in question were wet lands/water bodies?
b. Whether the project could come up on such wetlands/water bodies and if so what would be its impact on Environment? Would it lead to Environmental degradation?
c. If at all the project could come up what steps the user agencies would take in the interest of Environment Protection;
d. Prescribed current situation of the project may also be indicated by the Expert body.

3. In pursuance to the report of the Expert Committee, the impugned order further reveals, the **EAC** recommended **revocation** of the **environment clearance** on the ground that it was initially accorded on **undisclosed** and

incorrect postulates; Acting on the order dated 9th September, 2011 of the Hon'ble Supreme Court in the said SLP, the MoEF on examination of the material on record, namely, the Expert Committee report and the record of hearings given to the project proponent and the additional documents submitted by the project proponent revoked the environment clearance granted to the project of the appellants referred to herein-above.

4. Some of the facts giving the background of the land allotted to the project proponent, admeasuring 268-86-52 Ha. of villages Vangar, Padhiyarka and Doliya for total consideration of Rs. 8,30,39,736/- by the State Government vide order dated 27th December, 2007 can hardly be disputed. Topo sheet of the year 1952 of the land in question described the terrain as a waste land. On 17th July, 1978 the Government of Gujarat appointed a High Level Committee for the purpose of chalking out programme for fixing priority of works to be undertaken to arrest salinity ingress in the coastal areas of Saurashtra and Kutch. On 2nd March, 1983 the Committee recommended the construction of Bandharas and indicated detail regulation amongst other measures to arrest salinity ingress from flooding the areas of cultivation. On 25th May, 1999 the Collector, Bhavnagar passed an order transferring Government waste land and Gaucher land totalling to the tune of 222-06-24 Ha.(58-

07-26 Ha. of village Doliya and 163-98-98 Ha. of village Padhiyarka) to Executive Engineer, Salinity Control Department, Bhavnagar for the purposes of developing Samadhiyala Bandhara. On 17th June, 1999 the collector Amreli passed an order transferring Government waste land as well as Gaaucher land totalling to the tune 178-55-03 Ha. (103-55-03 Ha. of village Samadhiyala and 75-00-00 Ha. of village Patva) of Taluka, District Amreli to the Executive Engineer Salinity Control Department, Bhavnagar. Thus, the total land transferred in favour of Executive Engineer, Salinity Control Department for the aforesaid purpose was 400-61-27 Ha. Necessary order of transfer was passed after the order of resumption was passed in respect of Gaucher land as per the provisions of 108 of Panchayats Act. The construction work of Samadhiyala Bandhara was over in the July, 2000.

5. According to the appellant an application for grant of land of Vangar, Padhiyarka and Doliya was made to the Collector on 24th April, 2002. On 5th April, 2004 the Mamladar, Mahuva gave his report in respect of demand of the land referred to above with following recommendations;

I. The land in question is not claimed by any Government or Private Body and is also not useful for agricultural.

II. Gram Panchayat of village Vangarhas passed resolution agreeing to allot land in question including the Gaucher land to M/s Nirma Ltd.

III. Part of the land in question was transferred to the Salinity Control Department, but the said Department does not require the land anymore and so the same may be transferred to M/s Nirma Ltd.

IV. Mahuva Taluka it is not a developed area having no industry and hence the proposed plants will provide job opportunities to local villagers who may not have to migrate to other places seeking jobs which will also help for overall development of the area.

6. The Gujarat Pollution Control Board (**GPCB**), the respondent no. 3, opined on 30th April, 2004 that the Board has **no objections** for the allotment of proposed land to the project proponent, **provided**, it shall **obtain environment clearance** from MoEF, New Delhi as per the EIA Notification dated 27th January, 1994. The Executive Engineer, Salinity Control Department, Bhavnagar gave his report on 22nd April, 2004 favouring the proposed transfer of land of Samadhiyala Bandhara to the company. The Salinity Control Department on 13th December, 2005 gave a report in the matter of releasing some of the Bandhara land for industrial purposes subject to certain terms and conditions. Following a public hearing held the Executive Engineer, Salinity Control Department, Bhavnagar gave a positive report for allocation of the land in question to the project on 16th May, 2006.

7. It is an undisputed fact that the policy regarding the Conservation of wet land was issued by MoEF on 2nd February, 2007; and an application for grant of

Environmental Clearance to the project was made by the appellants to MoEF on 5th September, 2007.

8. On this backdrop, admittedly, the Government of Gujarat passed resolution approving the grant of land ad measure 268-52-5 Ha. of the said villages to the Company on some material terms and conditions. Which are reproduced herein below:

> "*iv) For equalizing the storage of rainwater, the company would undertake necessary digging of the lands of S.Nos. 27 and 179 of Samadhiyala village, which is Government waste/gaucher land at its own expense as suggested by the Superintending Engineer, Central Design Organisation Gandhi Nagar.*
> *v) Three channels i.e. two approach channels with one connecting channel, will have to be made as suggested by the NWRWS&K Department to draw the rain water in Samadhiyala Bandhara and the repairs and maintenance of these channels will have to be made by the company at its own expenses. Further, in case of any damage caused due to rainy water, the company will be solely responsible to carry out the works in that regard at its own expense.*
> *vi) The company will have to make separate arrangement for necessary quantity of water required for drinking and industrial use and that it would not make use of the bandhara water, directly or indirectly.*
> *vii) The company will have to carry out the additional work as suggested by the Central Design Organisation, Gandhi Nagar by making reverse small channels, i.e. reverse gradient channels for conveying water at the field locations.*
> *Viii) The company will have to carry out all the above works under Control of NWRWS&K Department.*

9. The Collector Bhavnagar passed consequential order allotting the aforesaid land to the company for setting up the said project on 16th April, 2008.

10. Chronology of events leading to the grant of environment clearance in question is as under:

1. On 5th September, 2007 an application for environment clearance was made to MoEF.
2. On 27th February, 2008 terms of Reference (TOR) was issued by the MoEF.
3. On 14th July, 2008 draft EIA report was submitted to GPCB.
4. On 1st August, 2008 Notice of Public Hearing was given by the GPCB in Gujarati as well as English newspaper.
5. On 9th September, 2008 the GPCB conducted public hearing in the matter of Environment Clearance to the project and the minutes are sent to MoEF.
6. On 6th October, 2008 the final EIA report submitted to MoEF.
7. On 8-11th December, 2008 the MoEF granted environment clearance to the appellants.
8. On 17th December, 2008 a newspaper advertisement regarding the grant of environment clearance appears in Indian Express and Aaj Kal.
9. On 17th December, 2008 Collector Bhavnagar conducted a public hearing in respect to the land allotted to the Nirma Ltd.

11. The Respondent No. 4 Shree Mahuva Bandhara Khetiwadi Pariyavaran Bachav Samittee filed PIL-SCA 3477/2009 opposing the said project before the Hon'ble Gujarat High Court on 25th March, 2009. This was followed by grant of consent to establish the said cement and captive power plant by the GPCB on 25th May, 2009.On the representation made by Dr. Kanubhai Kalsariyad, the State Government appointed an expert committee headed by Shri S.K Shelat,

then learned Advisor to Hon'ble Chief Minister and other experts in the field to visit the site, hear representations of the affected persons, consider the suggestions and objections, obtain reports/opinions source from various experts in the field and to report to the Government on the issue, on 29th May, 2009. The Hon'ble High Court directed the appellants to place their grievances before the said Committee and the Committee was directed to take note of the same including the note of other aspects in the matter and to take proper decisions accordingly, vide order dated 26th June, 2009. The Shelat Committee accordingly gave its report on 4th August, 2009. The State Government formed a sub-committee of the ministers to consider the said report and the said sub-committee gave its report and made following recommendations on 19th November, 2009:

(i) Out of the initial allotment of 268 hectares of land to the company for its proposed cement project, 54 hectares of land from the south should be returned back to the State Government and that the company should give consent in writing about the same.

(ii) Out of the aforesaid 54 hectares of land, after leaving periphery area, the company should deepen 40 hectares of land so as to increase the water capacity to the extent of 22.7 %.

(iii) As per the expert opinion of the Government of India undertaking called WAPCOS, the company should deepen about 62 hectares of land out of the available area of 75 hectares, so as to increase the

capacity of Bandhara water by 21.23 mcft (million cubic feet). The company shall have to undertake the said activity under the guidance of the Irrigation Department.

12. According to the appellant there occurred heavy monsoon in the year 2005 resulting in temporary submergence of Bandhara land for a few months; and the sub-committee had taken into considerations the record figures in respect of submergence of land in the said year into consideration as benchmark for calculating the rain water conservation capacity of Bhandhara land for the purposes of making the aforesaid recommendations. The State Government issued a GR dated in terms of the recommendations made by the sub-committee in its report dated 19th November, 2009. The appellants gave a written consent to surrender admeasuring54 Ha. as per the GR 8th December, 2009 on 9th December, 2009.

13. The Hon'ble Gujarat High Court vide order dated 16th December, 2009 directed the appellants to demarcate 54 Ha. of land; and accordingly on the 54 ha. of land of village Doliya was demarcated and surrendered by the appellant on 23rd December, 2009.

14. After hearing the parties and considering the facts and material on record, particularly, the Government order dated 16th April, 2008 allotting 268.86.56 Ha. of land on certain conditions, detailed report of the salinity division on the

impact of construction of factory on the Bhandhara reservoir, Shelat Committee report GR- 8th December, 2009. Shailesh R Shah's Case, various pronouncement of the Apex court and appellants willingness to surrender additional 46 Ha.of land, the Hon'ble High Court of Gujarat disposed off the PIL-SCA3477/09 with the following directions:

26. Under the circumstances, this petition is disposed of with following directions:

1) *Respondent No. 4 Company shall, in addition to 54 hectares of land ordered to be surrendered by the Government in its order dated 8th December 2009, surrender further 46 hectares of land indicated in the map at Annexure I to the affidavit dated 16th April 2010, copy of which map is attached to this Judgment at Exh. A and shall include any land to be occupied by canals which company is obliged to construct;*
2) *Respondent No. 4 Company shall strictly adhere to its obligation to construct canals A,B and C shown in the official maps and maintain the same as directed by the Government and further ensure that it is desilted periodically, so that the flow of rain water from the surrounding areas to the Reservoir is not obstructed;*
3) *Respondent No. 4 Company shall excavate and deepen 75 hectares of Government waste land as directed by the Government;*
4) *Respondent No. 4 shall excavate and deepen part of 54 hectares of land returned by it under the Government order dated 8th December, 2009;*
5) *Respondent No. 4 shall excavate and deepen any part of the additional 46 hectares of land as may be suggested by the Government. For this purpose, the Government shall have a survey carried out and make suggestions for*

excavation of the land as per the topography of the area to ensure that this additionally surrendered land also forms part of Samadiyala Bandhara and increase the water carrying capacity of the Reservoir.

6) *Respondent No. 4 Company shall not use any water form reservoir for its activities.*

7) *Respondent No. 4 Company shall ensure that its activities shall not pollute or contaminate the Reservoir water in any manner.*

8) *It will be open for the respondent no. 4 Company to recommence its construction of the factory on condition that within four weeks from today, the company after proper measurements by the DILR surrenders further 46 hectares of land as already directed herein above;*

9) *The Government shall ensure that respondent no. 4 Company has complied with all the above directions before issuing certificate of completion of construction or before granting permission to start the factory;*

10) *The Government shall, on the basis of the records of rainfall in the region and the total amount of water collected in the Reservoir immediately after the monsoon, judge whether on account of setting up of the factory there has been any significant reduction in income of the fresh water in the Reservoir. If so, the Government shall require respondent No.4 Company to take such remedial measures as may be found necessary.*

15. Order disposing of SCA No. 3477/2009 was challenged by the respondent no. 4 and one Khimja Bhai Barariya by preferring a two separate SLP's into (SLP No. 1501/10 and SLP No. 14698/10 respectively) before the Hon'ble Apex Court in the Month of May, 2010. A Review Petition seeking review of the Judgment and order dated 26.04.2010 being MCA No. 1473 of

2010 was also filed by the same parties initiating the SLP on 14.06.2010. On the orders of the Hon'ble Apex Court the Review Petition was expeditiously heard and dismissed on 27.09.2010.

16. During pendency of the SLP's before the Hon'ble Apex Court the respondent no. 1 MoEF issued a notification regarding Wetland (Conservation and Management) Rules 2010 on 04.12.2010. However, the MoEF filed an affidavit supporting the project pursuant to the directions of the Hon'ble Apex Court in the said SLP on 08.01.2011.

17. According to the appellants the MoEF took U-turn as to the validity of the project and the environmental clearance granted to it at the instance of one Ms. Sunita Narayan who addressed an email to the then Hon'ble Minister of Environment and Forest Mr. Jairam Ramesh to have a re-look into the project. The MoEF sought adjournment, when the aforesaid petitions came up before the Hon'ble Supreme Court for hearing on 17.05.2011, in order to buy time to start the process of reversing the environmental clearance granted to the project previously. The MoEF appointed an Expert Committee of 7 Members headed by Prof. C K Varshney to check the ground situation on 21.01.2011. Even before the Committee has visited the project site the Hon'ble Minister of MoEF Mr. Jairam Ramesh publicly declared that the appellants plant was situated on the wetland on 03.02.2011. Varshney Committee reported that Samadhiyala Bandhara

possessed all the characteristics features of wetland ecosystem. The report was considered by the EAC in its meeting held on 22nd/23rd.02.2011. On 11.03.2011 a show cause notice was issued to the appellants under section 5 of environment (Protection) Act 1986 to show cause as to why environmental clearance accorded to the project should not be revoked. This notice was challenged by the appellants before the Gujarat High Court in writ petition being SCA No. 3542 of 2011. The Hon'ble High Court issued the notice but refused to grant stay in the said writ petition. The appellants therefore moved the Hon'ble Apex Court by preferring an SLP bearing no. 559 of 2011 against the refusal to grant stay by the Hon'ble High court of Gujarat.

18. When the bunch of said SLPs preferred by the respondent no. 4 and another came up for the hearing before the Hon'ble Supreme Court on 18.03.2011 the Learned Solicitor General submitted that he would like to revisit the environment clearance granted to the project and there upon the Hon'ble Apex Court directed the Expert Appraisal Committee of the MoEF to call for the report of an Expert Body consisting of 5 independent reputed scientist who were to visit the site and answer the following issues:

(a) Whether the lands in question were wet lands/ water bodies;

(b) Whether the project could come up on such wet land/water bodies and if so, what would be its impact on

environment? Would it lead to environmental degradation?

(c) If at all the project could come up, what steps the user agency should take in the interest of environment protection; and

(d) The precise current status of the project may also be indicated by the Expert Body,

and further directed the MoEF to take decision upon the report of the Expert Body. The Expert Body was directed to give hearing to the project proponents and the objectors to the project. Learned Counsel appearing on behalf of the appellants the project proponents there upon made a statement before the Hon'ble Apex Court that the writ petition filed by them in the Hon'ble High Court would be withdrawn.

19. Accordingly, 5 Member Expert Body comprising of Independent Reputed Scientists headed by Prof. C. R. Babu was appointed to go into the fact situation and answer the aforesaid questions raised by the Hon'ble Apex Court. Later on one Mr. Paritosh Tyagi, Ex-Chairman of the Central Pollution Control Board was included in the body of experts at the instance of the Project Proponent. This Expert Body gave its findings upon making certain inquiries. According to the Expert Body headed by Prof. Babu (for short herein after referred to as Prof. Babu Committee)the Project site lies within the water spread of catchment, and the water run-off

terrain of Samadhiyala Bandhara; and what earlier was a costal saline natural eco system was converted into fresh water man-made eco system providing assistance of lift irrigation. According to the Prof. Babu Committee, the site may be classified only as a wet land and water body and the existence of the plant at the site is incompatible with ecology and the Project may not be proceeded with.

20. Prof. Babu Committee Report was placed before the Hon'ble Apex Court. The Hon'ble Apex Court while passing the order dated 9th September, 2011, observed that the narrow issue which arose for determination in a said Special Leave Petitions was whether the EC has been obtained by suppressing the material fact. The Hon'ble Apex Court noticed that the EAC in its Report dated 5th May, 2011 had concurred with the view expressed by the eminent scientist saying that the site has been appropriately re-classified as water bodies, and a Show Cause notice was issued by MoEF on 11th May, 2011 to Nirma Ltd accordingly, and therefore MoEF was obliged to the decide whether clearance dated 8th December, 2008 should or should not be revoked. The Hon'ble Apex Court directed the Appellant's Nirma Ltd., to give its objection / reply to the report dated 5th May, 2011 of EAC as also to the Show Cause Notice dated 11th May, 2013. The MoEF was directed to take its decision on revocation of the clearance dated 8th December, 2008 on the said of the objection / reply as aforesaid within 3 months from the date

of the order dated 9th September, 2011. The Hon'ble Apex Court also drew the attention of the MoEF to the directions passed in Lafarge Umiam Mining Private Ltd. v. Union of India, case (2011 (7) SCC 338) requiring framing of questions in appropriate cases wherever MoEF deemed fit and refer those questions to the experts (institutions) from its panel.

21. According to the Appellants, they undertook study on the issue of waste land through Department of Environmental Science and Engineering **GJU Institute of Science and Technology,** Hisar, Haryana, and as the study undertaken was not completed, it could not submit its additional / supplementary reply to the Respondent No. 1 (MoEF) and explain its position vide letter dated 23.11.2011addressed to the MoEF. The Appellants also informed the MoEF that they would be seeking appropriate directions from the Hon'ble Apex Court in that regard on 9.12.2011. The Appellant submits that the Respondent No. 1 (MoEF) without giving any heed to their request for granting one more opportunity for final hearing on critical issue proceeded to pass impugned order / direction dated 1.12.2011 with **undue haste**.

22. On 9.12.2011 the Hon'ble Apex Court was apprised of the impugned order, whereupon the Hon'ble Apex Court disposed of the aforesaid SLPS accepting the request of the Appellants to proceed against the impugned order in accordance with law.

23. It is on this back drop the present appeal has come up for hearing before us. Suffice it to state that the Respondent No. 1 (MoEF) has refuted the case of the Appellant and on the other hand the Respondent No. 2 and 3, the State of Gujarat and **Gujarat Pollution Control Board** maintain that the land in question was waste land / gauchar land/ intwado land and not a wet land / water body and the relevant revenue record makes a reference accordingly. According to the Respondent No. 3 **(Gujarat State Pollution Control Board)** a reference to Bandhara was made in the public hearing conducted for the grant of environmental clearance and there is no adverse environment impact of the Project on the land / Bandhara in question. The Respondent No. 4 is the most vociferous contending parties amongst the array of Respondents and has vehemently refuted the case of the Appellants and urged for the revocation of the environment clearance to be maintained both on the points of law and facts.

24. During the pendency of this Appeal, the Expert Members of the Bench inspected the Project site in question twice in order to have clear perspective with the reference to the waste land / water bodies Bandharas and adverse effect of the Project on the environment. First visit to this site in question of the Expert Members was during June 7-9, 2013. However, the Respondent No. 1 and Respondent No. 4 filed applications (M.A No. 504/2013 and 497/2013 respectively) for staying the

operation of the order of the Tribunal for site inspection by the Expert Members passed on 20th May, 2013. Parties were heard and these applications were duly dismissed on the same day. Inspection of this site by the Expert Members was conducted as ordered vide order dated 20th May, 2013. Interestingly on 23rd August, 2013 a common prayer was made by the Learned Counsel appearing for the parties asking for second visit to the site in monsoon season for assessing complete and **comprehensive** situation with regard to wet land and likely damage to the water body. The request for second visit was acceded to by us and accordingly a second inspection of the site in question was conducted by Expert Members on 7th September, 2013. Pertinently the Expert Members during their first visit in June 2013 observed that the Bandhara was totally dry despite goodover short period (75 mm rainfall recorded at Bhavnagar on 7th June, 2013). On the second visit in September, 2013 the Expert Members observed that the Bandhara was almost at full level with shallow level depth all over in submergence and growth of aquatic vegetation and presence of few water/migratory birds. They further the observed that no part of the Proposed plant was under submergence and the joint areas beyond the boundaries of the proposed cement plant were having a shallow water accumulation. Though there have been misgivings about the inspection done by the Expert Members of the Bench, we may like to clarify that the concept of inspection of any property or

thing by the adjudicatory authority – the court is not alien to the judicial process and the procedure adopted by the courts. Order XXVIII Rule 18 of the Code of Civil Procedure provides for the local inspection by the court. Local inspection of any property or thing is undertaken by the Judge or adjudicating authority for the purpose of understanding appreciating and better following of the evidence adduced by the parties and to bring acuity to the judicial view in relation to the evidence placed before it. Material placed before us by the parties including various Committees / Expert Body Reports can therefore be better appreciated by us in light of the observations made by the Expert Members for dispensation of Justice.

25. Before we appreciate the factual matrix of the case it is necessary to determine the scope of the Appeal in light of the Judgments passed by the Gujarat High Court and the Hon'ble Apex Court in the matters inter se parties. Admittedly, the environmental clearance dated 11-12-2008 accorded to the cement plant, Coke Oven plant and the captive power plant in question did not find any challenge in the manner prescribed under the law in force then from any quarters except the PIL (SCA3477/2009) preferred before Gujarat High Court by the respondent no. 4 herein. From the perusal of the Judgment dated 26-4-2010 passed by the Hon'ble High Court of Gujarat in the said petition, it appears that the main grievance of the petitioners therein was in respect of the allotment of land by

the Government of Gujarat for setting up of such plant in the middle of sweet water reservoir created by the construction of 250 meters long waste weir called Samadhiyala Bandhara; and the proposed site of the plant also occupied the land falling in catchment area of reservoir; and construction of the cement plant in such circumstances would destroy the entire reservoir. The respondents therein dismissed this application as ill-founded and contended that the capacity of the reservoir upon implementation of the recommendation of the Expert Committee as directed by the Government would increase and setting up of cement plant would generate local employment. The Hon'ble High Court of Gujarat took into account the facts, which prompted construction of Samadhiyala Bandhara and its dual purpose arresting - ingress of sea water with consequent resolution of salinity problem and creation of sweet water reservoir with an estimated capacity of 62.31 million cubic feet. A fact that the land going in the submergence due to said Samadhiyala Bandhara mainly came from Government waste land as well as part of Gaucher land from surrounding villages, which the village panchayats agreed to surrender to the Government was also taken into account by the High Court. It was also taken into consideration that nearly 100 Ha. Of land out of total land allotted i.e. 268.86.52 Ha. was part of Bandhara reservoir and there could be reduction in capacity of the reservoir to the extent of 21.18 million cubic feet of water. It appears that the

Hon'ble High court had in its view while passing the said judgment a report from the salinity division recommending certain measures for meeting the challenge posed by reduction of capacity of the reservoir due to the proposed allotment of land as well as the recommendations made by the High Level Committee headed by Shri Shelat, Advisor to the Chief Minister and the State Government's action on the said report to pass directions to the company Nirma Ltd. to return 54 Ha. of land which formed part of Samadhiyala Bandhara and to deepen 40 Ha. of the said land for increasing the water carrying capacity of the reservoir by 22.7 per cent. M/s Nirma Ltd. bowed down to the recommendations made by the Shelat Committee and agreed to carry out the directions passed by the state government to deepen the land in addition to 75 per cent of government waste land to be deepened and to provide for 3 different channels after measuring 13 meter in width following 3 sides of the factory to ensure free flow of water from surrounding areas into the reservoir on this back drop Learned Counsel for petitioners therein Vehemently contended that the land allotted to the Nirma Ltd. was part of the water body and in view of the Judgement passed by the Division Bench in case of Shailesh R. Shah's case no part of such land can be alienated much less granted to the private companies. He also point out from the satellite imagery of the area in question that water gets collected during monsoon where the land has been allotted to the company and

measures suggested to compensate the loss of land and in flow of water are not adequate he further contended that the state government had not even notified Samadhiyala Bandhara as the water body despite the directions issued by the Division Bench of the Gujarat High Court in the case of Shailesh R Shah (Supra). Besides laying stress on the decision of the Division Bench of the High Court of Gujarat in relation to the water bodies in the case of Salesh R Shah (Supra) the petitioner therein cited several decision of the Hon'ble Apex Court-Countering these submissions, several judgments of the Apex Court were also cited by the contending respondent M/s Nirma Ltd. we need not detain ourselves much on the submissions of the rival parties in light of the judgments cited by them as we do not propose to sit in Judgement over the decision of the Hon'ble High Court of Gujarat. Suffice it to say that the Hon'ble High Court of Gujarat did consider these judgments and the rival submissions and took into account respondent no. 4 M/s Nirma Ltd's willingness to surrender further 46 Ha. of land excluding area comprising of canals to be constructed by the company in addition to surrender of 54 Ha. of land pursuant to the Government order and proceeded to answer the pertinent question as to whether all the measures provided by the Government coupled with surrender of additional 46 Ha. of land was sufficient to safeguard, protect and preserve the Samadhiyala Bandhara reservoir so as to

permit the respondent no. 8 company to carry on with the further construction of the cement factory.

26. The Hon'ble High Court of Gujarat was of the view that with certain minor fine tuning conditions to surrender the land by the company was sufficient to safeguard, protect and preserve Samadhiyala Bandhara reservoir and with further surrender of 46 Ha. of land the company would have surrendered equal area of land going under submergence. It appears from the reading of the said judgment that the principle of sustainable development was at the back of the mind of the Hon'ble High Court of Gujarat while delivering the said judgment. This could be perceived from the para 24 of the Judgment.

27. Pertinently, the Hon'ble High Court of Gujarat after hearing the parties dismissed the Review Application preferred by the petitioners in special 3477/2009, on merits and the petition for special leave to appeal (civil) (14698/2010) preferred against the Judgment and order dated 26-04-2010 passed by the Hon'ble High Court of Gujarat in SA 3477/2009, was disposed of following the statement made on behalf of M/s Nirma Ltd that the competent authority under Environment (Protection) Act, 1986 had passed an order against Nirma on 1st December, 2011 and the company would proceed in appeal before us vide order dated 9th December, 2011.Thus the entire controversy over the project being established on the land in question came to an end except the narrow issue whether environmental clearance dated 8thDecember, 2008 had been

obtained by suppressing the material facts. This could be read from the prelude to the order dated 9th December, 2011 disposing of the said petition.

28. On 18th March, 2011 the Hon'ble Apex Court without expressing any opinion on merits of the case sought answers to certain pertinent questions as regards the nature of the land in question and its impact on environment as well as the current states of the project from the expert body consisting of 5 independent reputed scientists and directed the MoEF to take its decision uninfluenced by any observations made in the pending proceedings. In light of the answers given by the expert body. The Hon'ble Apex Court On 9th September, 2014 observed that the narrow issue before the MoEF was whether his decision of granting environmental clearance should be recalled being based on the footing that the cement plant would be constructed on the waste land and the MoEF was required to decide whether environmental clearance should or should not be revoked. The Hon'ble Apex Court set the calendar for taking appropriate decision in the matter by the MoEF and directed the MoEF to complete the exercise of decision making within 3 months from the date of the said order. It is pursuant to these directions that the impugned decision was taken and the Hon'ble Apex Court having found nothing more to consider on merits disposed of the said petitions by order dated 9th December, 2011. Thus, we have only to examine in the present appeal whether the action of

revocation of the environmental clearance on the ground of material suppression of fact was justified or not. No other issues by virtue of the Judgments passed by the Hon'ble High Court of Gujarat and the Hon'ble Apex Court, therefore, survive for our consideration.

29. Learned Counsel for the appellant at the outset submitted that the Central Government could not have done or revoked the environment clearance granted to the project by due process of law in directly by invoking the provisions of Section 5 on the specious premise of the land being *"wetland as per Ramsar Convention"* which otherwise could have been directly done by duly declaring the same land as wetland-an ecologically sensitive area. He pointed out from the revenue record and Wet land At-lass that the land in question allotted to the project was not identified as a wetland/ water body but were shown in the revenue record as wetland /Gauchar land/Intwado land. He further submitted that public hearing was conducted for transfer of the same land in question from salt department to the revenue department before it was allotted to the project. He further pointed out that the process as prescribed under EIA Notification, 2006 for grant of EC was duly gone through including second public hearing for EC purposes was conducted wherein reference to Bandhara was made; and it is only after the due process of law being followed the EC was granted. He further submitted that the grant of EC found no challenge except the aforesaid writ petition

preferred to the Hon'ble High Court of Gujarat; and the Hon'ble High Court of Gujarat had duly disposed of the said petition after taking into consideration all aspects in relation to the artificial water body created on construction of Bandhara. The Hon'ble Apex Court having dismissed the petitions preferred against the Judgment of the Hon'ble High Court of Gujarat, he argued no issue regarding the water body artificially created by the Bandhara and possible adverse environmental impact of the project on the water body survived for judicial consideration. According to him invoking of the provisions of Section 5 for revoking the EC duly granted at the instance of one Sunita Narayan vide email dated 14.01.2011 was inappropriate and demonstrated malice in law, and as such the impugned order of revocation deserved to be set aside. He invited our attention to the Judgment delivered by the Hon'ble Apex Court in Smt. Venkataraman Case-(1979) 2 SCC Cases 491: Smt. S.R. Venkataraman Vs Union of India and Another:

30. Answering these submission learned Counsel for the Respondent No. 4 submitted that the plea of malice in law cannot be raised for the first time in the appeal when this issue was not raised before the Hon'ble Apex Court in reply to the notice issued on the SLP. He further submitted that neither Sunita Narayan the author of the email dated 14.01.2011, nor the then Hon'ble Minister of Environment and Forest Mr. Jai Ram Ramesh have been made parties to the

present appeal and, therefore, the real facts regarding the episode of email have remained shrouded for want of authentic material on record; and as such the plea of malice in law must fail. He further pointed out that there existed enough material on record to suggest the existence of water body/wetland as defined under Ramsar convention and therefore it cannot be said that the action taken by the Central Government for revocation of EC was without just cause or excuse, reasonable or probable cause. It is for this reason he argued that the plea of malice in law must fail. To buttress his submissions and to further enrich our understanding regarding malice or jurisprudence of power he placed reliance on the several judgments of the Hon'ble Apex Court, more particularly,

1. (1979) 3 SCC 229: State of U.P. and Ors. Vs Hindustan Aluminium Corporation & Ors.

2. (1985) 3 SCC 1: Raja Ram Jaiswal Vs Collector Allahabad & Anr.

3. (1980) 2 SCC 471: State of Punjab Vs Gurdial Singh & Anr.

He particularly laid emphasis on para no. 9 of the Judgment delivered by the Hon'ble Apex Court in State of Punjab and Anr. Vs Gurdial Singh & Anrs case in order to make a submission that if the power is used for a legitimate object no malice can be attributed to such use.

31. On going through the Judgment passed in Venkataraman case we come across the meaning of "malice in law" as expounded by the Hon'ble Apex Court in the following words:

> *"para 5 ..... Thus malice in its legal sense means malice made by such as may be assumed from the doing of wrongful Act intentionally but without just cause or excuse or for want of reasonable or probable cause".*

32. In instant case the Central Government invoked Section 5 of the Environment Protection Act 1986-the Act to revoke environmental clearance which was granted by following the process stipulated in Environment Clearance Regulation 2006 framed in exercise of powers conferred by sub section 1 and clause (V) of sub section 2 of section 3 of the Act read with clause (b) of sub rule 3 of Rule 5 of the Environment (Protection) Rules 1986. Pertinently as observed herein above the said EC had attained finality for the reason of it not being challenged as per the provisions of the Act and or the challenge to it by way of the writ petition coming to an end as aforesaid. Section 5 of the Environment Protection Act 1986 permits the Central Government, subject to the provisions of the said Act, to issue directions in writing to any person in exercise of its powers and performance of its functions under the said Act. The Central Government therefore could not have invoked the provisions of Section 5 for revoking the EC which had attained finality particularly when there existed a specific provision under the Environment Clearance

Regulation, 2006 for revocation under sub para (vi) of para 8 of the Regulation.

33. This takes us to further enquiry as to whether the action initiated purportedly under Section 5 of the Environment Protection was without any probable cause or legitimate object. Such enquiry is necessitated not only in light of the meaning expounded by the Hon'ble Apex Court in Venkataraman case but also para 9 of the Judgement in Gurdial Singh case which is quoted herein below:

> *"The question, then, is what mala fides in the jurisprudence of power is? Legal malice is gibberish unless juristic clarity keeps it separate from the popular concept of personal vice. Pithily put, bad faith which invalidated the exercise of power- sometimes called colourable exercise or fraud on power and oftentimes overlaps motives, passions and satisfactions – is the attainment of ends beyond the sanctioned purposes of power by simulation or pretension of gaining a legitimate goal. If the use of the power is for the fulfilment of a legitimate object the actuation or catalysation by malice is not legicidal. The action is bad where the true object is to reach an end different from the cue for which the power is entrusted, goaded by extraneous considerations, good or bad, but irrelevant to the entrustment. When the custodian of power is influenced in its exercise by considerations outside those for promotion of which the power is vested the court calls it a colourable exercise and is undeceived by illusion. In a broad, blurred sense, Benjamin Disraeli was not off the mark even in law when he stated: "I repeat. that all power is a trust- that we are accountable for its exercise- that, from the people, and for the people, all springs, and all must exist". Fraud on power voids the order if it is not exercised bona fide for the end designed. Fraud in this context is not equal to moral turpitude and embraces all cases in which the action impugned is to effect some object which is beyond the purpose and intent of the power, whether this be malice-laden or even benign. If the purpose is corrupt the resultant act is bad. If considerations, foreign to the scope of the power or extraneous to the statute, enter the verdict or impel*

the action, mala fides or fraud on power vitiates the acquisition or other official act".

34. Assuming that Ms. Sunita Narayan addressed the email to the then Hon'ble Minister Jai Ram Ramesh of the MoEF pointing out that there were sufficient grounds to hold existence of water body which called for revocation of the EC, then it would be prudent to examine whether Ms. Sunita Narayan was prompted to address this email for some legitimate object. We have before us the reports of Shelath Committee, Prof. Varshney Committee and Prof. Babu Committee. All have pointed out unanimously that there existed a Bandhara which laid to the creation of water body due to accumulation of rain water. Prof. Babu Committee recommended classification of the land in question as 'wetland' and 'water body' and observed that it had manifold ecological utility besides helping recharge of ground water, sustain rich biodiversity, provide pastures and support settlements and as such common property resource. It appears that accepting the findings and recommendations of the Babu Committee and in its wake the MoEF was prompted to invoke the provisions of Section 5 of the Environment Protection Act. It is therefore difficult to hold that there was no probable cause or the legitimate object for initiation of such action. We are, therefore, of the considered opinion that the actuation or catalysation of such action by the email purportedly addressed by Ms. Sunita Narayan was not legicidal and, therefore, the plea of there being malice in law in

actuation of the proceedings under Section 5 as raised by the appellant must fail.

35. However, the revocation of EC granted as per EIA Notification 2006 ought to have been done in the manner provided under para 8 sub-para (vi) of the Regulation, 2006 which reads as under:

> "(vi) Deliberate concealment and/or submission of false or misleading information or data which is material to screening or scoping or appraisal or decision on the application shall make the application liable for rejection, and cancellation of prior environmental clearance granted on that basis. Rejection of an application or cancellation of a prior environmental clearance already granted, on such ground, shall be decided by the regulatory authority, after giving a personal hearing to the applicant, and following the principles of natural justice".

36. Reading of this provision makes it abundantly clear that the prior environmental clearance granted following deliberate concealment and/or submission of false or misleading information or data, which is material to any of the stages leading to the grant of environmental clearance qualifies for cancellation of such clearance. Act of concealment and or submission of false or misleading information or data, however, should be a deliberate one.

37. Revocation of the environmental clearance mainly proceeded on the premise that the environmental clearance accorded was founded on undisclosed and incorrect postulates mainly as regards the character of the land in question recognised by the Prof. Babu Committee as a "Wetland". It is true that the

appellant described it as "Wasteland" when the proposal for the grant of EC was initiated and not as a wetland. Explanation offered for this aberration is that the land in question was not identified as a wetland by the authorities concerned and was shown in the revenue records throughout by the State of Gujarat as a wasteland and the confusion in understanding of its nature led to such aberration which cannot be termed as an act of deliberate concealment and/or submission of false or misleading information or data to the authorities under the Environment Clearance Regulations 2006. According to the appellants the existence of the Bandhara and formation of water body as a result of accumulation of rain water during monsoons surfaced in the public hearing and the decision of grant of EC was taken in light of such revelations. We find from the records that there was disclosure regarding Bandhara during the public hearing conducted by GPCB in the process leading to the EC in question; and following such disclosure the project proponent had clarified the issues specifically relating to salinity control Samdiyala Bandhara, school crematorium and road at the time of its presentation in 86th meeting of the EAC held at MoEF New Delhi on 22nd October, 2008 vide presentation slide no. 58 and 59. The decision recommending the grant of EC was thus consequentially taken and the grant was recommended by EAC to the MoEF. Fact of the existence of the water body and the effect of the project there upon was

also taken into account in the proceedings before the Hon'ble High Court of Gujarat while passing the verdict which had attained finality.

38. Issue of conservation of wetlands worldwide vis. a vis. development was taken cognisance of by the international community in Ramsar Convention in the following words:

Wetland should be conserved by ensuring their **wise use**. Wise use is defined as "Sustainable utilisation for the benefit of mankind in a way compatible that the maintenance of the natural properties of the ecosystem" – Sustainable utilisation is understood as "Human use of wetland so that it may yield the continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. *"Wise use"* may also require strict protection.

39. The Ramsar Convention defined wetlands as below:

> *"Wetlands are area of Marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static are flowing, fresh, brackish or salt, including areas of marine water, the depth was at low tide does not exceed six metres".*

40. Following the Ramsar Convention the Central Government made the wetlands (Conservation and Management) Rules 2010 for conservation and management of wetlands in exercise of the powers conferred by Section 25, read with sub section (1) and clause (V) of sub section (2) and sub section (3) of section 3 of the Environment (Protection) Act, 1986. Definition of wetland is available at Rule 2 (g) of the wetlands

(Conservation and Management) Rules 2010 in the following words:

> *2(g) "Wetland" means an area of Marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static are flowing, fresh, brackish or salt, including areas of marine water, the depth was at low tide does not exceed six metres and includes all inland waters such as lakes, reservoir, tanks, backwaters, lagoon, creeks, estuaries and manmade wetland and the zone of direct influence on wetlands that is to say the drainage area or catchment region of the wetlands as determined by the authority but does not include main river channels, paddy fields and the coastal wetland covered under the notification of the Government of India in the Ministry of Environment and Forest, S.O. Number 114(E), dated the 19th February, 1991 published in the Gazette of India, Extraordinary, Part II, Section 3, sub-section (II) of dated the 20th February, 1991.*

41. Rule 3 therein speaks about the **Protected Wetlands** in the following words:

> *"3. Protected wetlands-Based on the significance of the functions performed by the wetlands for overall well being of the people and for determining the extent and level of regulation, the following wetlands shall be regulated under these rules, namely-*
>
> *(i) Wetlands categorised as Ramsar Wetlands of International Importance under the Ramsar convention as specified in the Schedule.*
> *(ii) wetlands in areas that are ecologically sensitive and important, such as, national parks, marine parks, sanctuaries, reserved forests, wildlife habitats, mangroves, corals, coral reefs, areas of outstanding natural beauty or historical or heritage areas and the areas rich in genetic diversity;*
> *(iii) wetlands recognised as or lying within a INESCO World Heritage Site;*
> *(iv) high altitude wetlands or high altitude wetland complexes at or above an elevation of two thousand five hundred metres with an area equal to or greater than five hectares;*
> *(v) wetlands or wetland complexes below an elevation of two thousand five hundred metres with*

an area equal to or greater than five hundred hectares;

(vi) any other wetland as so identified by the Authority and thereafter notified by the Central Government under the provisions of the Act for purposes of these rules.

It has been pointed out to us that the land in question is not a **Protected Wetland** falling in any of the categories of Protected Wetlands spoken of in Rule 3 of the said Rules and there is no blanket moratorium on its development except a regulatory regime prescribed under Rule 4 of the said rules.

42. Visit of the Expert Members twice to the project site, firstly in the first week of June 2013 and secondly in the month of September 2013 brought to light some material facts concerning the water body. On the first visit of the Expert Members it was noticed that the Bandhara was totally dry despite good rains over short period ("75 mm false" recorded at Bhavnagar) and on second visit it was noticed that the Bandhara was almost at full level with shallow water depth all over in submergence and no part of the proposed project land was under submergence and the adjoining areas beyond the boundaries of the proposed project land was having shallow water accumulation. Expert Members also noticed during their second visit that there was growth of aquatic vegetation and the presence of few migratory birds around the water body. One wonders how Prof. Babu Committee could document exhaustive list of birds, presence of endangered vulture and Asiatic lions and could give soil type extra in two hours of field visit without any backing of any specific

scientific study in relation to the project site. On visits to site in question the Expert Member had made pointed enquiry and asked for data/information as regards month wise rainfall pattern over the years, month wise water levels in the Bandhara, month wise irrigation area provided from the reservoir, soil type and its characteristics in the project area and adjoining area, lay out maps of the area in question along with superimposition of project boundaries from the parties to the Appeal. This information/data was made available to us and was exchanged between the parties. Having gone through the entire information/data thus made available we are of the considered opinion that the Samdiyala Bandhara serves as a temporary storage of water, which gets used by farmers or gets evaporated due to its large spread or gets percolated due to fairly high porosity of soil and as such cannot be called as a productive wetland having all perennial features of a wetland.

43. As noted above, the revenue records described the area in question as a 'waste Land' and it was never, even till today, identified as wet land by the Central Wetlands Regulatory Authority and so notified by the Central Government under the provisions of the Act for the purposes of Wetland (Conservation & Management) Rules, 2010. The Hon'ble High Court of Gujarat, however, considered the issue of water body thus created by Samadhiyala Bhandhara on such Waste Land, particularly in light of the concerns of the local persons whom the respondent no. 4 professes to represent.

44. In the given circumstances it is difficult to hold that there was any deliberate concealment and or submission of false or misleading information or data to the authorities according environmental clearance. Moreover, the Hon'ble High Court of Gujarat, whose verdict has attained finality as aforesaid, had taken into account the recompense the appellants have made by foregoing 100 hectares of land, 80 per cent of which was under submergence, and by deepening certain portion of the land and channelizing the storm water towards the water body. We have also noticed that the project proponent have given up Captive Power Plant and Coke Oven Plant and the project is designed not to discharge any effluent or any material in the water body created by Samdiyala Bandhara. These aspects of the matter were not fully taken into account either by Prof. Babu Committee or MoEF during the process leading to the revocation of the environmental clearance granted to the project proponent.

45. In our considered opinion, therefore, this Appeal needs to be allowed and is accordingly allowed. The Impugned Order dated 1st December, 2011 issued by respondent no. 1- MoEF is set aside.

46. With a view to enrich our understanding regarding the wise use of such sites we feel that the effect of the project on the water bodies of such nature thus created by the Samdiyala Bandhara need to be monitored and study undertaken in that regard for a period of 2 years on the commencement of the

project. We, therefore, direct the respondent no. 3-State Pollution Control Board to monitor and undertake study of the effects of running of the project on the water body of such nature created by Samdiyala Bandhara in conjunction with CPCB Zonal Office at Baroda from the date of the commencement of the project. The applicant- project proponent shall bear the expenses incurred by the State Pollution Control Board and CPCB for monitoring and conducting such study. Liberty is granted to the State Pollution Control Board and CPCB to take assistance of such expert body/institution in the field of Environmental Monitoring of water bodies as they deem fit. Parties shall bear their own cost. At the end of the study the report shall be tendered before us.

……., CP
(Swatanter Kumar)

……., JM
(U.D. Salvi)

……., EM
(Dr. D.K. Agrawal)

……., EM
(Dr. G.K. Pandey)