BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BENCH AT PUNE
IN
APPEAL NO. 58 OF 2020

IN THE MATTER OF:

BHAGWANBHAI BHANABHAI SOLANKI & ANR
…APPELLANTS

VERSUS

UNION OF INDIA & OTHERS …RESPONDENTS

AND

IN THE MATTER OF:

M/S ULTRATECH CEMENT COMPANY LIMITED
[NARMADA CEMENT – JAFRABAD WORKS
…APPLICANT/ RESPONDENT NO.12

INDEX

5.	**ANNEXURE R12/4** Copy of the Environment Clearance dated 12.11.2020 granted for the mining area of 14.2045 Ha	152-156
6.	**ANNEXURE R12/5** Copy of Form-I under MMR-1961-Reg No.6 dated 02.12.2020 for the mining area of 14.2045 Ha	157-158
7.	**ANNEXURE R12/6** Copy of the extracts of 14th Lion Estimate Report-2015	159-161
8.	**ANNEXURE R12/7 (Colly.)** Copy of the Monthly Return in Form F-8 for the month of December 2020 along with a covering letter dated 10.01.2021 and for the month of January 2021 along with a covering letter dated 09.02.2021	162-175
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Vanita Bhargava

KHAITAN & CO
ADVOCATES FOR THE APPLICANT/ RESPONDENT NO.12
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24, BARAKHAMBA ROAD
NEW DELHI – 110 001
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NEW DELHI
DATED: 2 AUGUST 2021

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BENCH AT PUNE
IN
APPEAL NO. 58 OF 2020

IN THE MATTER OF:

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…APPLICANT/ RESPONDENT NO.12

ADDITIONAL DOCUMENTS ALONGWITH AFFIDAVIT ON BEHALF OF RESPONDENT NO.12

MOST RESPECTFULLY SHOWETH:

1. That the Appellants above-named have filed the aforesaid Appeal under Section 16 read with Section 18 of the National Green Tribunal Act, 2010 (hereinafter referred to as **'NGT Act'**) praying for quashing and setting aside of the Environment Clearance (hereinafter referred to as **'EC'**) dated 12.11.2020 granted by State Environment Impact Assessment Authority (hereinafter referred to as **"SEIAA"**) vide letter No. SEIAA/GUJ/EC/1(a)/1400/2020 to the Narmada Cement – Jafrabad Works unit of the Respondent No. 12/Applicant herein for mining of limestone in the Babarkot Limestone Area in District Amreli in State of Gujarat (hereinafter referred to as **'mining lease area'**).

Vide order dated 30.06.2021, this Hon'ble Tribunal after hearing the counsel on behalf of the Appellant, appointed an eight-member joint committee to ascertain the compliance status of environmental norms in the grant of EC and compliance of EC conditions in the functioning of the project. It was observed that the Committee meeting may be held within two weeks of receipt of copy of the order. The Committee was further directed that a factual and action taken report may be furnished within three months with an advance copy to the project proponents.

2. That the Applicant/Respondent No. 12 herein has filed an Application for Recall of the order dated 30.06.2021 passed by this Hon'ble Tribunal vide Filing Number 2704105011602021 dated 17.07.2021. The averments made in the application may be considered as part and parcel of the present request to place additional documents on record and are not repeated herein for the sake of brevity.

3. That the Applicant/Respondent No. 12 requests to place on record the following additional documents which are relevant to effectively adjudicate the Application for recall of the Order dated 30.06.2021 in the present Appeal:

I) Form I for the mining area of 14.2045 Ha based on which the scoping for the Project has been done as per EIA Notification, 2006 amended as on date. Copy of the Form-I is annexed hereto and marked as **ANNEXURE R12/1**.

II) Pre-Feasibility Report for the mining area of 14.2045 Ha. Copy of the Pre-Feasibility Report is annexed hereto and marked as **ANNEXURE R12/2**.

III) Report on the Adequacy of the Green Belt carried out in the study period of October 2019 for the Narmada Cement Jafrabad Mines Unit. Copy of the Report on the Adequacy of Green Belt is annexed hereto and marked as **ANNEXURE R12/3.**

IV) Environment Clearance granted to Narmada Cement-Jafrabad Works of M/s Ultratech Cement Limited for the mining area of 14.2045 Ha dated 12.11.2020 by the State Level Environment Impact Assessment Authority, Gujarat. Copy of the Environment Clearance dated 12.11.2020 is annexed hereto and marked as **ANNEXURE R12/4.**

V) Form-I regarding the actual date of opening of Babarkot Limestone Mine-I for the mining lease area of 14.2045 Ha of M/s. Narmada Cement- Jafrabad Works dated 02.12.2020 submitted to the Director General of Mines Safety. Copy of the Form-I submitted to the Director General of Mines Safety dated 02.12.2020 is annexed hereto and marked as **ANNEXURE R12/5.**

VI) The 14th Lion Population Estimate Report of 2015 published on the website of the State ENVIS Hub of the State of Gujarat (Earlier, Gujarat Ecology Mission). Copy of the extract of the 14th Lion Population Estimate Report of 2015 is annexed hereto and marked as **ANNEXURE R12/6.**

VII) Monthly return forms in Form-8 for the month of December 2020 vide letter no. BKT-I/MN/45/20-21/526 dated 10.01.2021 and for the month of January 2021 vide letter no. BKT-II/MN/45/20-21/537 dated 09.02.2021 for limestone in respect of the Babarkot Limestone Mine-II of an area of 14.2045 Ha submitted to the Regional Controller of Mines. Copy of the Monthly Return Forms in Form-8 with a covering letter dated 10.01.2021 and 09.02.2021 are annexed hereto and marked as **ANNEXURE R12/7 (Colly.).**

4. That the aforesaid documents are pertinent for further adjudication of the present case. Therefore, it is prayed that the aforesaid documents may be taken on record by this Hon'ble Tribunal.

APPLICANT/RESPONDENT NO.12

THROUGH

Vanita Bhargava

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PHONE NO: + 91 11 4151 5454

NEW DELHI
DATED: 2 AUGUST 2021

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BENCH AT PUNE
I.A. NO._____ OF 2021
IN
APPEAL NO. 58 OF 2020

SERIAL NO. : 1765 20 21
DINESHKUMAR K. VAGHASIA
NOTARY
GOVT. OF INDIA
31 JUL 2021

IN THE MATTER OF:

BHAGWANBHAI BHANABHAI SOLANKI & ANR
...APPLICANTS

VERSUS

UNION OF INDIA & OTHERS **...RESPONDENTS**

AND

NOTARY DINESHKUMAR K. VAGHASIA AHMEDABAD CITY & DIST. GUJARAT STATE REG No. 12555/17 GOVERNMENT OF INDIA

IN THE MATTER OF:

M/S ULTRATECH CEMENT COMPANY LIMITED
NARMADA CEMENT – JAFRABAD WORKS
...APPLICANT/ RESPONDENT NO.12

AFFIDAVIT

I, Gopika Prasad Tiwari, son of Shri Ramavatar Tiwari, aged about 59 years, resident of Sufal Parivesh, Prahlad Nagar, Ahmd, do hereby solemnly affirm and state as hereunder:-

1. That I am the authorized signatory of the Applicant/Respondent No.12 in the above-mentioned matter and I am well aware of the facts and circumstances of the case. I am therefore competent and authorized to affirm the present affidavit on behalf of the Respondent No.12.

2. That I have read and understood the contents of the accompanying Application, which has been drafted under my instructions and state that the contents of the same are true and correct to my knowledge based on the records maintained by the Respondent No.12.

3. I say that the contents of the para no. 1 and 2 of the affidavit are true and correct.

NOTARY DINESHKUMAR K. VAGHASIA AHMEDABAD CITY & DISTRICT GUJARAT STATE REG No. 12555/17 GOVERNMENT OF INDIA

DEPONENT

C Gopika P Tiwari

VERIFICATION:

I, the Deponent above named, do hereby verify that the contents of foregoing affidavit are true and correct to my knowledge, no part of it is false and nothing material has been concealed therefrom.

Verified at Ahmedabad on this 31st day of July, 2021.

DEPONENT

C Gopika P Tiwari

NOTARIAL NOTARIAL NOTARIAL NOTARIAL NOTARIAL

NOTARIAL NOTARIAL NOTARIAL NOTARIAL NOTARIAL

NOTARY DINESHKUMAR K. VAGHASIA AHMEDABAD CITY & DISTRICT GUJARAT STATE REG No. 12555/17 GOVERNMENT OF INDIA

Solemnly Affirmed Before Me
By. Gopika Pravinchandra Tiwari
Who is Identified by. Abhishek Bhardwaj
Whom She/ He Know Personally

DINESHKUMAR K. VAGHASIA
NOTARY
GOVT. OF INDIA

31 JUL 2021

IDENTIFIED BY ME

PERSON / ADVOCATE
Name : Abhishek Bhardwaj
Sanad No.....
ID.No.

FORM-I
14.2045 HECTOR MINING LEASE AREA
IN VILLAGE BABARKOT, TAL- JAFARABAD, DIST.- AMRELI
MINING PROJECT OF 2.5 LAKH TPA
ULTRATECH CEMENT LTD. UNIT- NARMADA CEMENT – JAFARABAD WORKS.

1 FORM-1

The scoping for the project has been done based on FORM 1, as per EIA Notification, dated September 14, 2006 amended as on date. The scoping details are as follows:

I. Basic Information

S. No.	Item	Details
1	Name of the Project/s	Babarkot Limestone Area with Production capacity of 250000 TPA (ROM) of Limestone by Unit:- Narmada Cement-Jafarabad Works. Of M/s UltraTech Cement Ltd. located at Survey No. **219,220 and others** of village Babarkot, Taluka Jafarabad, District Amreli, Gujarat (Area-14.2045 ha)
2	S. No. in the Schedule	As per EIA Notification, 2006 project S. No. 1(a).
3	Proposed capacity / area / length / tonnage to be handled/ command area / lease area / no. of wells to be drilled	Limestone Area with Production capacity of 250000 TPA mining of Limestone ROM.
4	New / Expansion / Modernization	New
5	Existing Capacity / Area etc.	NA
6	Category of Project (A or B)	Screening Category: B (Project Category 1(a) as per EIA Notification, 2006).
7	Does it attract the general conditions? If yes, please specify.	No
8	Does it attract specific condition? If yes, please specify	No
9	Location	Babarkot Limestone Area
	Plot Survey / Khasra No.	219,220 and others (list attached as Annexure)
	Village	Babarkot
	Tehsil / Taluka / Mandal	Jafarabad
	District	Amreli
	State	Gujarat
10	Nearest railway station / airport / along with distance in km.	Nearest Railway station is at Rajula in NE direction about 16 km from lease Nearest airport is at Diu- at 55 Kms in SW direction from lease area
11	Nearest town, city, district headquarters along with distances in km	Nearest town is Rajula in NE direction about 16 km from lease area

FORM-I
14.2045 HECTOR MINING LEASE AREA
IN VILLAGE BABARKOT, TAL- JAFARABAD, DIST.- AMRELI
MINING PROJECT OF 2.5 LAKH TPA
ULTRATECH CEMENT LTD. UNIT- NARMADA CEMENT – JAFARABAD WORKS.

S. No.	Item	Details
		District headquarter is Amreli at a distance of 80 km in N direction from lease
12	Village Panchayat, Zila Parisad, Municipal Corporation, Local Body (complete postal address with telephone nos. to be given)	Babarkot Village Panchayat, Village Babarkot, Taluka Jafarabad, District Amreli Pincode-365540 Sarpanch- 09824998627 Talati- 09429365245
13	Name of the applicant	Unit:- Narmada Cement-Jafarabad Works, Of M/s UltraTech Cement Ltd.
14	Registered address	Ultratech Cement Ltd. B-Wing, 2nd Floor, Ahura Centre, Mahakali Caves Road, Andheri (East) Mumbai-400093
15	Address for correspondence	Unit:- Narmada Cement-Jafarabad Works, M/s UltraTech Cement Ltd.
	Name	Mr. Deepak Mahule
	Designation	Agent-Mines
	Address	Narmada Cement-Jafarabad works, Village-Babarkot,Tal-Jafarabad-365540, Dist.- Amreli, Gujarat.
	Pin Code	365540
	E-mail	deepak.mahule@adityabirla.com
	Telephone no.	(O):02794-245121, (M):07622011414
	Fax no.	02794-245110
16	Details of alternative sites examined, if any. Location of these sites should be shown on the Topo-sheet	No alternative sites Examined Applied lease area is site Specific. Key Plan & Topo-sheet Enclosed.
17	Interlinked Projects	Narmada Cement- Jafarabad Works. (Limestone produced from the mine will be used as raw material for the Narmada Cement-Jafarabad Works)
18	Whether separate application of interlinked project has been submitted?	No
19	If yes, date of submission	Not Applicable
20	If no, reason	No plan to increase the production of Narmada – Cement- Jafarabad works
21	Whether the proposal involves approval / clearance under: if yes, details of the same and their status to be given: The Forest (Conservation) Act, 1980	No

S. No.	Item	Details
	The Wildlife (Protection) Act, 1972 The C.R.Z Notification, 2011	
22	Whether there is any Government order / policy, relevant / relating to the site	Letter of Intent granted vide letter no.MCR-102011-ML-738-CHH.1 by Industries & Mines Dept. Govt. of Gujarat dated 04.02.2012
23	Forest land involved (ha.)	No
24	Whether there is any litigation pending against the project and / or land in which the project is proposed to be set up? Name of the Court Case No. Order / directions of the Court, if any and its relevance with the proposed project	No litigation pending against the project

II. Activity

1. Construction, operation or decommissioning of the project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

<table>
<tr><th>S. No.</th><th>Information/Checklist Confirmation</th><th>Yes / No?</th><th>Details thereof (with approximate quantities / rates, wherever possible) with source of information data</th></tr>
<tr><td>1.1</td><td>Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)</td><td></td><td>This applied area is Private land of 14.2045 hectares. This will be used for mining of Limestone mineral, road and green belt development. There will be a permanent change in topography in form of pits.
Due to mining it will be change in land use and increase in intensity of land use in next five year and up to the lease period are given as below:
Existing Land Use Pattern (in ha)
<table>
<tr><th>Particulars</th><th>Private/ Ag. Land</th><th>Total</th></tr>
<tr><td>a) Pits (old pits)</td><td>0.24</td><td>0.24</td></tr>
<tr><td>b) Dumps of ore Waste & O.B./ Soil stack</td><td>-</td><td>-</td></tr>
<tr><td>c)Infrastructure including of office, haul roads</td><td>-</td><td>-</td></tr>
<tr><td>d) HT line</td><td>-</td><td>-</td></tr>
<tr><td>e) Others
(i) Govt. land
(ii)Private/Ag. land</td><td>-
13.9645</td><td>-
13.9645</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>S. No.</th><th>Information/Checklist Confirmation</th><th>Yes / No?</th><th>Details thereof (with approximate quantities / rates, wherever possible) with source of information data</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Total occupied Area</td><td>14.2045</td><td>14.2045</td></tr>
<tr><td colspan="3">Land Use Pattern at the end of first five years (in ha)</td></tr>
<tr><td>Particulars</td><td>Private/ Ag. Land</td><td>Total</td></tr>
<tr><td>a) Pits & Quarries</td><td>9.10</td><td>9.10</td></tr>
<tr><td>b) Dumps of ore Waste & O.B./ Soil stack</td><td>0.74</td><td>0.74</td></tr>
<tr><td>c)Infrastructure including of office, haul roads</td><td>0.50</td><td>0.50</td></tr>
<tr><td>d) HT line</td><td>-</td><td>-</td></tr>
<tr><td>e) Others
(i) Govt. land
(ii)Private/Ag. land</td><td>
-
3.8645</td><td>
-
3.8645</td></tr>
<tr><td>Total occupied Area</td><td>14.2045</td><td>14.2045</td></tr>
</table>
Land Use Pattern at end of mine life (in ha)
<table>
<tr><td>Particulars</td><td>Private/ Ag. Land</td><td>Total</td></tr>
<tr><td>a) Pits & Quarries</td><td>12.70</td><td>12.70</td></tr>
<tr><td>b) Dumps of ore Waste & O.B./ Soil stack</td><td>Nil</td><td>Nil</td></tr>
<tr><td>c) Infrastructure including of office</td><td>-</td><td>-</td></tr>
<tr><td>d) Haul roads/ roads</td><td>0.5</td><td>0.5</td></tr>
<tr><td>e) Others
(i) Govt. land
(ii) Private/Ag. land</td><td>-
-
1.0045</td><td>-
-
1.0045</td></tr>
<tr><td>Total occupied Area</td><td>14.2045</td><td>14.2045</td></tr>
</table>
</td></tr>
<tr><td>1.2</td><td>Clearance of existing land, vegetation and buildings?</td><td>Yes</td><td>Clearance of some Bushes will take place.
No building, houses or huts etc. within the applied area and applied area is free from forest.</td></tr>
<tr><td>1.3</td><td>Creation of new land uses?</td><td>No</td><td>Limestone mining will change the land use in form of Mining pits, green belt, roads etc.
Detail breakup of the Land use during the life of the mine is as follows:</td></tr>
</table>

<table>
<tr><th>S. No.</th><th>Information/Checklist Confirmation</th><th>Yes / No?</th><th>Details thereof (with approximate quantities / rates, wherever possible) with source of information data</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Particulars</th><th>Present Land use</th><th>By the end of Fifth year</th><th>At the end of the life</th></tr>
<tr><td>a) Pits & Quarries</td><td>0.24</td><td>9.1</td><td>12.70</td></tr>
<tr><td>b) Dumps of ore Waste & O.B./ Soil stack</td><td>-</td><td>0.74</td><td>Nil</td></tr>
<tr><td>c) Infrastructure including of office</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>d) Haul roads/ roads</td><td>-</td><td>0.50</td><td>0.50</td></tr>
<tr><td>e) Others
(i) Govt. land
(ii) Private/Ag. land</td><td>-
-
13.9645</td><td>-
-
3.8645</td><td>-
-
1.0045</td></tr>
<tr><td>Total occupied Area</td><td>14.2045</td><td>14.2045</td><td>14.2045</td></tr>
</table>
</td></tr>
<tr><td>1.4</td><td>Pre-construction investigations e.g. bore houses, soil testing?</td><td>Yes</td><td>Core drilling will be carried out after grant of mining lease for detailed exploration of the limestone reserves.</td></tr>
<tr><td>1.5</td><td>Construction works?</td><td>No</td><td>Temporary portable rest shelter with drinking water facility will be provided No construction is proposed in the applied area.</td></tr>
<tr><td>1.6</td><td>Demolition works?</td><td>No</td><td>No demolition is proposed at Mining site.</td></tr>
<tr><td>1.7</td><td>Temporary sites used for construction works or housing of construction workers?</td><td>No</td><td>No temporary sites proposed for construction.</td></tr>
<tr><td>1.8</td><td>Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations</td><td>Yes</td><td>Excavation of limestone by forming benches of 6 m height (Area in Ha.)
<table>
<tr><th>PARTICLUARS</th><th>Present Land use</th><th>By the end of Fifth year</th><th>At the end of the life</th></tr>
<tr><td>Mining Pits</td><td>0.24</td><td>9.10</td><td>12.70</td></tr>
<tr><td>Road/ Building</td><td>0</td><td>0.50</td><td>0.50</td></tr>
</table>
</td></tr>
</table>

S. No.	Information/Checklist Confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
1.9	Underground works including mining or tunnelling?	No	N.A
1.10	Reclamation works?	Yes	Plantation on mined out benches will be carried out in 2.5 hect. Area as per conceptual mining plan. About 1.55 hect area will be backfilled.
1.11	Dredging?	No	Not applicable.
1.12	Offshore Structure?	No	Not applicable.
1.13	Production and manufacturing processes?	No	Mining operations is proposed to be carried out by opencast fully mechanized method of mining by making benches of 6M involving drilling, blasting, transportation of ROM up to crusher outside the mining lease and by surface Miner.
1.14	Facilities for storage of goods or materials?	No	Limestone so produced will be dispatched same day to the cement plant.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	No solid or liquid waste will be generated from the mining operations. No trade effluent will be discharged.
1.16	Facilities for long term housing of operational workers?	No	The mine workers which belong to nearby village will be provide transportation for up & down.
1.17	New road, rail or sea traffic during construction or operation?	No	-------
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	----------.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	---------
1.20	New or diverted transmission lines or pipelines?	No	-------.

S. No.	Information/Checklist Confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	No seasonal drains exist in the applied ML area. The rainwater falling in the catchment area of the mine pits is proposed to be stored in the sump. The applied area is situated nearby sea coast beyond the 500 m limit of Coastal Regulation Zone. Observation from nearby wells & bore wells in the area reveals that depth of water table is up to or below mean sea level. The water table observed in the piezometers installed in the nearby ML area is -2.0m msl
1.22	Stream crossings?	No	
1.23	Abstraction or transfers of water from ground or surface waters?	Yes	The daily water demand will be 10 KLD, for raising plantation, dust suppression & wet drilling. The requirement of water will be fulfilled by existing sources in the adjacent operative mining lease hence permission to withdraw ground water is not necessary
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	No change in water bodies. The land surface will be change due to mine pit but there will not any change affecting drainage or runoff.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Transportation of personnel will be arranged by lessee vehicles and Minerals will be transported by road.
1.26	Long-term dismantling or decommissioning or restoration works?	No	------
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	-------
1.28	Influx of people to an area either temporarily or permanently?	Yes	Total employment in the mining lease will be 14 persons.
1.29	Introduction of alien species?	No	------
1.30	Loss of native species or genetic diversity?	No	-------
1.31	Any other actions?	No	--------

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S. No.	Information/Checklist confirmation	Yes / No?	
2.1	Land especially undeveloped or agricultural land (ha)	No	Undeveloped 14.2045 hect. land
2.2	Water (expected source & competing users) unit: KLD	Yes	Water requirement 1. Domestic – 2.00 KLD (Drinking water) 2. Industrial - 8.00 KLD (Plantation & dust suppression) Total 10.00KLD
2.3	Minerals (MT)	Yes	2,50,000 tones/annum
2.4	Construction material stone, aggregates, sand / soil (expected source, MT)	No	------
2.5	Forests and timber (source, MT)	No	------
2.6	Energy including electricity and fuels (source, competing users) unit: fuel (MT), energy (MW)	Yes	Electricity will be not be required as mining will be carried in one shift and Fuel(HSD) of about – approx. 525 lits. /day will be require. To cater the need of fuel for HEMM,
2.7	Any other natural resources (use appropriate standard units)	No	----

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S. No.	Information / Checklist confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	No	------

S. No.	Information / Checklist confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	-----
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	The project shall help in developing socio-economic condition of surrounding villages.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	NA
3.5	Any other causes	No	-

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

S. No.	Information/Checklist confirmation	Yes /No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
4.1	Soil, overburden or mine wastes	Yes	About 70361 cu.m. of waste will be generated during the Next five year and will be used to backfill the mined out area. At the end of life of the mine about 1.5 Ha. is proposed to be back filled by OB sand.
4.2	Municipal waste (domestic and or commercial wastes)	No	----
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	No	-----
4.4	Other industrial process wastes	No	----
4.5	Surplus product	No	----
4.6	Sewage sludge or other sludge from effluent treatment	No	NA
4.7	Construction or demolition wastes	No	No construction is involved.
4.8	Redundant machinery or equipment	No	After useful life of machinery it will be disposed in systematic manner.
4.9	Contaminated soils or other materials	No	Not Applicable
4.10	Agricultural wastes	No	No Agricultural waste will be generated.
4.11	Other solid wastes	No	No other solid waste will be produced.

5. Release of pollutants or any hazardous, toxic or noxious substances to air (kg/hr)

S. No.	Information/Checklist confirmation	Yes /No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	HSD (525 lit/day) will be used in mining machineries. It will be short term and very less in magnitude, which will not cause any negative impact on environment.
5.2	Emissions from production processes	No	The production (ROM) will be approx.1000 tones per day. The dust generation shall be suppressed at source (use of wet drilling and water sprinkling on haul roads and loading, unloading & transfer points) Which will generate emissions very less in magnitude and will not cause any negative impact on environment
5.3	Emissions from materials handling including storage or transport	Yes	No storage is proposed, dust emission from handling of material and transport, which will be very less and not cause any negative impact.
5.4	Emissions from construction activities including plant and equipment	No	-----
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	Yes	Only dust emission from handling of material 1000 tonnes per day of ROM which will very less and not cause any negative impact.
5.6	Emissions from incineration of waste	No	----
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	----
5.8	Emissions from any other sources	No	----

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S. No.	Information/Checklist confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	Equipment: Surface Miner; Make / Model No.: L & T KSM 223; Range in dBA: 80-100

<table>
<tr><th>S. No.</th><th>Information/Checklist confirmation</th><th>Yes / No?</th><th>Details thereof (with approximate quantities / rates, wherever possible) with source of information data</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Excavator</td><td>L & T Poclain, 3.7 cu.m.</td><td>80-95</td></tr>
<tr><td>Loader</td><td>HM 2021,1.7 cu.m.</td><td>80-95</td></tr>
<tr><td>BackHoe Loader</td><td>L & T CASE 580-3,0.9cu.m.</td><td>80-95</td></tr>
<tr><td>Tipper</td><td>Leyland 16 t</td><td>80-90</td></tr>
<tr><td>Drill</td><td>Atlas Copco ICM-260</td><td>90-100</td></tr>
</table>
Mitigation Measures:-
• Good and regular maintenance of machinery.
• Plantation of green belt around the haul roads.
PPE’s will be provided.</td></tr>
<tr><td>6.2</td><td>From industrial or similar processes</td><td>No</td><td>-----</td></tr>
<tr><td>6.3</td><td>From construction or demolition</td><td>Yes</td><td>Emission of noise of very low magnitude and temporary in nature.</td></tr>
<tr><td>6.4</td><td>From blasting or piling</td><td>Yes</td><td>Blasting noise will momentary. There will be vibrations from blasting, which will be very short term and momentary. Delay detonators, shock tubes will be used to minimise ground vibration up to permissible limits and surface miner will be used as option to avoid blasting where required.
(13 holes/day will be blast.).</td></tr>
<tr><td>6.5</td><td>From construction or operational traffic</td><td>Yes</td><td>During operation only 2 dumper will be used for transportation of limestone no major change will occur in existing environmental scenario.</td></tr>
<tr><td>6.6</td><td>From lighting or cooling systems</td><td>No</td><td>-----</td></tr>
<tr><td>6.7</td><td>From any other sources</td><td>No</td><td>-----</td></tr>
</table>

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea

S. No.	Information/Checklist confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	No provision of storing of hazardous material at site.
7.2	From discharge of sewage or other effluents to water or the land	No	No sewage or other effluents will be discharge.

S. No.	Information/Checklist confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
	(expected mode and place of discharge)		
7.3	By deposition of pollutants emitted to air into the land or into water	Yes	The dust generated from the operations will be kept in the limit by suppressing at source thus no major effect create on air No water will get polluted by this project.
7.4	From any other sources	No	No other sources are there.
7.5	Is there a risk of long term build-up of pollutants in the environment from these sources?	No	No any risk of long term pollution is there however detailed study will be carried out during Environmental Impact Assessment

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S. No.	Information/Checklist confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	Yes	Only hazardous substance handled is explosive for which there are separate laws which will be strictly followed. Explosives are stored in duly licensed magazine and handled and used by persons certified under MMR 1961.
8.2	From any other causes	yes	The risks of accidents are envisaged due to the operation of equipment's, failure of mine pit etc. Pits slope will be kept at 45°. Face slope will be kept at 80°. No loose stone or debris will be allowed to remain near the edges of excavation and along the sites of haul road. However, good safety practices will be adopted at the site. All precautionary measures will be adopted and use of protective equipment's will be mandatory. However, to meet the minor

S. No.	Information/Checklist confirmation	Yes / No?	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
			incidences and accidents first aid measures at site will be provided.
8.3	Could the project be affected by natural disasters causing environmental damage e.g. floods, earthquakes, landslides, cloudburst etc)?	No	Area falls under Zone III of Seismic zone as per Institute of Seismological Research. As per the "Vulnerability Atlus – 2nd Addition; Peer Group, MoH & UPA; based on digitized data of SOI, GOI; Flood Atlus, Task Force Report, C.W.C., GOI" the project site does not fall under "area liable to flood"

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S. No.	Information/Checklist confirmation	Yes / No?	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
9.1	Lead to development of supporting Facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • housing development • extractive industries • supply industries, (other)	Yes No No No	No supporting facilities are proposed to the project. The proposed project will directly/indirectly positively developed the area by providing employment opportunities. With the proposed development in and around the area there will be many supporting facilities/ infrastructure eventually leading to the development of the area.
9.2	Lead to after-use of the site, which could have an impact on the environment	Yes	After use Plantation will be carried out after backfilling the part of the mined out area, which could have some positive impacts, in terms of enriching the micro ecology and bio-diversity in the area. Mined out pits that cannot be backfilled are converted into water reservoirs/ Rain water harvesting pit

S. No.	Information/Checklist confirmation	Yes / No?	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
			are commonly used by locals as a source of irrigation for agriculture, which is normally acceptable to mine owners, as part of a general social compact between the mine owners and locals.
9.3	Set a precedent for later developments	No	Mined out area will ultimately be fenced properly all around its periphery to prevent any entry into the area.
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	Yes	There are other mines of Ultra Tech Cement Ltd. which have cumulative impact to the environment. Mitigation measure to control environment pollution in each mine is carried out to minimize the impact.

III. Environmental Sensitivity

S. No.	Information/Checklist confirmation	Yes / No?	Aerial distance (within 15 km.) of Proposed Project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	No	-----
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	No	Sea shore is 1.2 KM far from the applied area toward south.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	No	-
4	Inland, coastal, marine or underground waters	Yes	
5	State, National boundaries	No	----
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	Yes	S.H-34 (2.27 Km toward NW.)
7	Defence installations	No	Not Applicable
8	Densely populated or built-up area	No	----

S. No.	Information/Checklist confirmation	Yes / No?	Aerial distance (within 15 km.) of Proposed Project location boundary
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Yes	Hospitals -6.0 km at Kovaya, beside this Company is managing a higher secondary school for providing education facility to the children of company employees as well as surrounding villagers. Govt. Hospital, at Jafarabad, is about 6km far towards SW direction Primary schools as Babarkot (2.6 km toward south), Places of worship & Community facilities at Babarkot ((3.0 km toward south east). Other such places will be covered in EIA report
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	No	------
11	Areas already subjected to pollution or environmental damage. (Those where existing legal environmental standards are exceeded)	No	-------
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	No	The project site is far from any active faults or thrusts and hence makes the site to fall in safe seismic zone (i.e. Zone-III of Seismic Zoning Map). Hence the risk of earthquake at the site is minimal and can be said to be located in an area of moderate seismic risk by national Standards. As per the “Vulnerability Atlus – 2nd Addition; Peer Group, MoH & UPA; based on digitized data of SOI, GOI; Flood Atlus, Task Force Report, C.W.C., GOI” the project site does not fall under “area liable to flood”

FORM-I
14.2045 HECTOR MINING LEASE AREA
IN VILLAGE BABARKOT, TAL- JAFARABAD, DIST.- AMRELI
MINING PROJECT OF 2.5 LAKH TPA
ULTRATECH CEMENT LTD. UNIT- NARMADA CEMENT – JAFARABAD WORKS.

DECLARATION:

"I hereby give an undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost".

Date: Signature of the applicant with full name and address
Place: Jafarabad

Mr. Deepak Mahule
Asst. Vice President (Mines)
UltraTech Cement Ltd.
Unit: - Narmada Cement- Jafarabad Works.

2 PRE-FEASIBILITY REPORT

2.1 INTRODUCTION

2.1.1 The Project Proponent

Narmada Cement-Jafarabad Works a unit of UltraTech Cement Ltd. had setup a cement clinkerisation unit at village Babarkot, Taluka-Jafarabad in Dist. Amreli of Gujarat having capacity of 1.5 million tons per annum. The cement plant was commissioned in 1981.

UltraTech Cement Limited, a flagship of Aditya Birla Group, is today the youngest and one of the most dynamically growing cement companies in India. UltraTech has always been proud of its part in nation-building and creating lasting relationships. It is among the leading cement manufacturer in the world. UltraTech is India's single largest producer with 69.3 MTPA capacity with market share of 18% and also the largest exporter of cement clinker spanning over to export markets in countries across the Indian Ocean, Africa, Europe and the Middle East. UltraTech and its subsidiaries have a presence in 5 countries through 12 integrated plants, 1 white cement plant, 1 clinkerisation plant, 19 grinding units,2 wall care putty plants, 7 bulk terminals and more than 100 RMC plants. The company is set for further increasing its market share with its ambitious plan of acquisition of JP Associates 21.20 MT capacity.

2.1.2 The Project Background

Govt. of Gujarat issued Letter of Intent (LOI) vide letter no. MCR-102011-ML-738-CHH.1 dt.04.02.2012 over an area of 14.2045 ha for grant of lease and advised to submit an approved Mining Plan under MCR. (Annexure - I)

The State Govt. has finalized guidelines for grant of applied area of limestone and identified pending cases under sec.10 A (1) (C) of MMDR Amendment Act-2015. The case of Narmada Cement-Jafarabad Works of UltraTech Cement Ltd. was also included in the list and under active consideration for grant. (Annexure-II)

This 14.2045 Hector mine is proposed to enhance the life of clinkerisation plant of Narmada cement – Jafarabad works. Presently Narmada cement mine (565.9394 Hector) is main source of raw material for the plant and it is adjacent to this proposed project. The mine will operate by open cast mechanized method of working through same machinery, infrastructures and resources available in existing adjacent mine. The 14.2045 ha. mine is surrounded by two major limestone mines owned by UltraTech Cement, so there is no additional impact will be create on the environment as the major part of the machinery and infrastructures, roads and other facilities etc. will be common. The Mining plan for approval for grant of the lease as per conditions of LOI has been submitted.

2.1.3 Brief Description of the Nature of the Project

The project is proposed to mining of limestone to meet raw material requirement of existing Clinkerisation plant of Narmada cement- Jafarabad works. It is proposed for production of 250000 TPA ROM. The mine lease is a piece barren land covered with windblown sand for the purpose of agriculture it is privet purchase by project proponent. Total reserves of 3.69 Million Tons (36,90,000 tones)of limestone in different category of limestone reserves estimation.

The applied area and even the surroundings are exposed as comparatively sub undulating terrain of limestone dominated by the milliolitic limestone. The applied area is surrounded by two working and captives mines of UltraTech Cement Ltd, The Narmada Cement-Jafarabad Works & Gujarat Cement

works. The surrounding applied areas are under active working feeding to its two clinkerisation units. The applied area is lying in between these applied areas and geologically no changes observed.

2.1.4 Demand-Supply Gap

The Narmada Cement – Jafarabad works is operated since 1981 thus the major mineable reserves are depleted and there will create gap between demand- supplies of limestone for the plant. The proposed applied area is crucial to overcome demand- supply gap to increase life of this clinkerisation plant having vital economic importance in this remote area of Gujarat.

2.1.5 Imports v/s Indigenous Production

This is an additional source of raw material for clinkerization plant because available minable reserves are not enough to sustain life of plant for long term and it is not also feasible to import limestone as per present scenario. The proposed area is adjacent to existing operative applied area and there is potential to produce required grade raw material.

Limestone produced from this proposed mine will be used for producing cement and clinker in the existing plant of Narmada Cement- Jafarabad works.

2.1.6 Domestic / Export Markets

The limestone produce from the mine only restricted to captive use of the plant. No sale is proposed for mineral mined from the mine.

2.1.7 Employment Generation (Direct and Indirect) due to the Project

Direct

There is following direct employment potential in the proposed mine.

Officer* and Staff (Highly Skilled)	03
Skilled	07
Semi-Skilled	-
Un-Skilled	4
Total	14

Indirect

Few people would be engaged in providing support services to the mining operation including transportation of ROM, supply of Drinking water, water tanker for Dust suppression etc. The exact number of such persons is likely to be in the order of ~ 20 for the proposed mine. Limestone produced from mine will be fed to plant of Narmada Cement- Jafarabad works and final product clinker will be sent to our grinding units Magadalla near Surat in Gujarat and Ratnagiri in Maharashtra

for cement making and supply to open market and some part of clinker will be grind our plant to supply cement in local market.

2.2 Project Description

The information presented in this chapter is based on Mining Plan being submitted to Indian Bureau of Mines. (IBM)

2.2.1 Type of Project including Interlinked and Interdependent Projects

The mine is a captive mine for Narmada cement Plant located at village-Babarkot, Tal- Jafarabad, Dist.-Amreli, Gujarat.

2.2.2 Location (Map Showing General Location, Specific Location and Project Boundary and Project Lay Out with Coordinates)

LOCATION

Applied ML Area: 14.2045 ha, Babarkot Limestone Area is located east of Jafarabad town, in the Amreli district of Gujarat. The whole applied area falls in revenue area of Babarkot village. Jafarabad is approachable by State Highway SH-34 which branches off from National Highway 8E (NH 8E) near Rajula. Rajula Railway junction is about 30 km from the applied area and is the terminus of broad gauge railway line from Ahmedabad. The road to Babarkot branches off from SH 34 about 3 km before Jafarabad town. The area is located about 2 km down this road. The nearest airport is Diu (65 km) and Bhavnagar (160 km) is connected by daily air service to Mumbai.

Table 2.1 Details of village survey falling in ML area

Survey no.	Area in Ha.	Survey no.	Area in Ha.
217	2.0437	219/4	0.9712
218	1.0320	220/1	1.4973
219/1	1.5783	220/2	1.4872
219/2	1.5783	221	2.1954
219/3	1.5681	Total	14.2045

Table 2.2: Co-ordinates of extremities applied ML Boundary

Point ID	Latitude	Longitude	Point ID	Latitude	Longitude
1	N20^0 52’ 41.4”	E71^0 24’ 14.4”	21	N20^0 52’ 50.5”	E71^0 24’ 26.4”
2	N20^0 52’ 43.7”	E71^0 24’ 12.9”	22	N20^0 52’ 47.3”	E71^0 24’ 26.4”
3	N20^0 52’ 43.4”	E71^0 24’ 12.4”	23	N20^0 52’ 44.1”	E71^0 24’ 26.2”
4	N20^0 52’ 44.6”	E71^0 24’ 11.4”	23A	N20^0 52’ 42.6”	E71^0 24’ 26.1”
5	N20^0 52’ 45.6”	E71^0 24’ 11.1”	24	N20^0 52’ 40.8”	E71^0 24’ 26.1”

6	N20^0 52' 46.2"	E71^0 24' 11.2"	24A	N20^0 52' 39.2"	E71^0 24' 26.1"
7	N20^{0}52' 47.9"	E71^0 24' 12.4"	25	N20^0 52' 38.5"	E71^0 24' 25.9"
8	N20^{0}52' 48.4"	E71^0 24' 12.5"	26	N20^0 52' 38.8"	E71^0 24' 24.2"
9	N20052' 49.8"	E710 24' 14.3"	27	N200 52' 38.7"	E710 24' 22.6"
10	N20^0 52'49.6"	E71^0 24' 14.4"	28	N20^0 52' 39.5"	E71^0 24' 22.2"
11	N20^0 52'50.0"	E71^0 24' 15.1"	29	N20^0 52' 40.6"	E71^0 24' 21.9"
12	N20^0 52'49.5"	E71^0 24' 15.6"	30	N20^0 52' 40.2"	E71^0 24' 21.2"
12A	N20^0 52'49.6"	E71^0 24' 16.6"	31	N20^0 52' 40.2"	E71^0 24' 20.6"
13	N20^0 52'50.0"	E71^0 24' 17.7"	31A	N20^0 52' 40.9"	E71^0 24' 20.3"
14	N20^0 52'53.2"	E71^0 24' 19.2"	32	N20^0 52' 41.4"	E71^0 24' 20.2"
15	N20^0 52'55.0"	E71^0 24' 22.1"	33	N20^0 52' 42.4"	E71^0 24' 20.6"
16	N20^0 52'54.5"	E71^0 24' 22.6"	34	N20^0 52' 43.1"	E71^0 24' 19.7"
17	N20^0 52'54.6"	E71^0 24' 23.7"	35	N20^0 52' 43.0"	E71^0 24' 18.5"
18	N20^{0}52'55.0"	E71^0 24' 25.1"	36	N20^0 52' 43.4"	E71^0 24' 17.9"
19	N20^0 52'55.4"	E71^0 24' 25.6"	36A	N20^0 52' 41.8"	E71^0 24' 14.9"
20	N20^0 52'53.8"	E71^0 24' 26.6"			

2.2.3 Details of Alternate Sites Considered and the Basis of Selecting the Proposed Site

No alternate site has been considered because the proposed site is mineral bearing area and the location of site is most suitable in every aspect.

2.2.4 Size or Magnitude of Operation

Opencast method of mining will be practiced with fully mechanized means by drilling and blasting. Occasionally surface miner is proposed to be deployed as a second option. Overburden (sand) removal is envisaged from the Babarkot Limestone Area.

Total mineable reserves quality stands at 42-45% CaO. To meet the plant quality requirement the ROM supply is optimized at 97 LSF. Thus lower grade mineral from area will be utilized which will eventually lead to mineral conservation. It is proposed to produce 2.5 lakh TPA of limestone from the area and remaining from the existing mine and one another applied mine in the vicinity.

ROM quantity comprise of limestone. The production target shall be proposed in line with Consent to Operate. Accordingly development blocks are being proposed.

The stripping ratio of limestone to overburden for the first five years of mining operations will be 1:0.06. Details of bench-wise year-wise development and production for the first five years has been given in table below.

Table 2.3: Expected excavation during first five years plan period (* in cum)

Year	Over-burden Sand*	Waste Rock	ROM Mineral (in tonnes)	Ore:OB
	(in cum)			(tonnes:cum)
1st	24774	Nil	250000	1:0.10
2nd	33512	Nil	250000	1:0.13
3rd	-	Nil	250000	1:0.00
4th	-	Nil	250000	1:0.00
5th	12075	Nil	250000	1:0.05
Total	**70361***	**Nil**	**1250000**	**1:0.06**

* Overburden sand is windblown sand which is not fertile in nature.

Table 2.4: Expected excavation during first five years plan period (in tonnes)

Year	Saleable/ usable ROM mineral (tonne)	Sub grade mineral (tonne)	Reject (tonne)
1st	250000	Nil	Nil
2nd	250000	Nil	Nil
3rd	250000	Nil	Nil
4th	250000	Nil	Nil
5th	250000	Nil	Nil
Total	**1250000**	**Nil**	**Nil**

2.2.5 Project Description with Process Details

Salient Features of Mode of Working

Mining operations is proposed to be carried out by opencast fully mechanized method of mining by making benches of height 6 m (normally 6m) with width of 15m and maintaining working bench slope of 75°. Conventional method i.e. drilling and blasting is proposed. Surface Miner is also proposed for winning of mineral in case of additional option. Limestone so produced is proposed to be feed to crusher directly.

The blasting zone would be fixed away from local vicinity in the lease area or may be selected in the running development block with suitable measures.

The mineral being free from overburden (except sand) therefore there is no need for any mine development work during mining operation except removal of sand. The excavation, loading and transportation is proposed to be carried out by hydraulic excavator, loader, dumpers and tippers. Drilling is proposed to be done by ICM 260 drill machine with blast hole burden 4.0 m and spacing 5.0m. ANFO is proposed to be used with slurry explosive. Blasting frequency shall be 2 to 3 times

a week. Safe and controlled basting shall be practiced by competent authority as the same is being in practice in nearby working mines of the same unit. Excavator of capacity 4.0 cum shall be used for loading of fragmented rock mass of mineral and transported to crusher situated outside the ML through dumpers and tippers. The details of the installed crusher is: -

Type of Crusher - Impact Crusher

Capacity – 500 tonnes/hr

Hourly output- 450 tonnes

Output per day 8100 tonnes

Besides conventional method, surface miner is proposed in a specific situation which is eco-friendly especially in blocks near 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 thickness and 2-2.2 m width.

The Broad parameters of mining operation will be as below:

Number of working days : 300 days/year

Working shift/day : 1 shift of 8 hours

Working benches : 3

Height : 6.0 +/– 2.0 m

Width : For running bench 15 m (min.)

: For closing bench 4.5 m

Bench slope : 75^0

Ultimate Pit slope : 45^0

There are old pits (OP-1 to OP-2) present in the mine with maximum level up to 17.49 & 14.21 mRL respectively. The grid reference of extent of all the old pits is from 415N-353N/207 W-237W & 213N-164N / 74W-117W respectively.

Year wise Production For The ensuring Five years Period

Table 2.5: Proposal of Excavation of mineral with R.O.M. Quality and overburden sand to be removed during 1st year

Location	Bench RL(m)		Area	Avg. bench Ht.	Vol. cum	Vol. OB Soil	ROM Tonnes	Quality
	From	To	(sq.mt)	(m)	(cum)			LSF
W237 to 425W and 145N to 315N.	24	18	24774	1	-	24774		97
	24	14	27778	5	138890	-	250002	
Total						24774	250002	

Table 2.6: Proposal of Excavation of mineral with R.O.M. Quality and overburden sand to be removed during 2nd year

Location	Bench RL(m)		Area	Avg. bench Ht.	Vol. cum	Vol. OB Soil	ROM Tonnes	Quality
								LSF
	From	To	(sq.mt)	(m)	(cum)			
237W to 100W and 129E to 490W.	22	17	34512	1	-	34512		97
	22	14	34722	4	138888	-	249998	
Total						34512	249998	

Table 2.7: Proposal of Excavation of mineral with R.O.M. Quality and overburden sand to be removed during 3rd year

Location	Bench RL(m)		Area	Avg. bench Ht.	Vol. cum	Vol. OB Soil	ROM Tonnes	Quality
								LSF
	From	To	(sq.mt)	(m)	(cum)			
425W to 274W and 129N to 316N.	14	6	23149	6	138894	-	250009	97
	Total						250009	

Table 2.8: Proposal of Excavation of mineral with R.O.M. Quality and overburden sand to be removed during 4th year

Location	Bench RL(m)		Area	Avg. bench Ht.	Vol. cum	Vol. OB Soil	ROM Tonnes	Quality
								LSF
	From	To	(sq.mt)	(m)	(cum)			
W274 to 158W and 238N to 374N.	14	6	23149	6	138894	-	250009	97
Total						-	250009	

Table 2.9: Proposal of Excavation of mineral with R.O.M. Quality and overburden sand to be removed during 5th year

Location	Bench RL(m)		Area	Avg. bench Ht.	Vol. cum	Vol. OB Soil	ROM Tonnes	Quality LSF
	From	To	(sq.mt)	(m)	(cum)			
158W to 00WE and 60N to 495N.	14	6	17111	6	102666	-	184799	97
	22	17	12075	1	12075	12075	-	
	21	14	12075	3	36225	-	65205	
Total						12075	250004	

Life of Mine

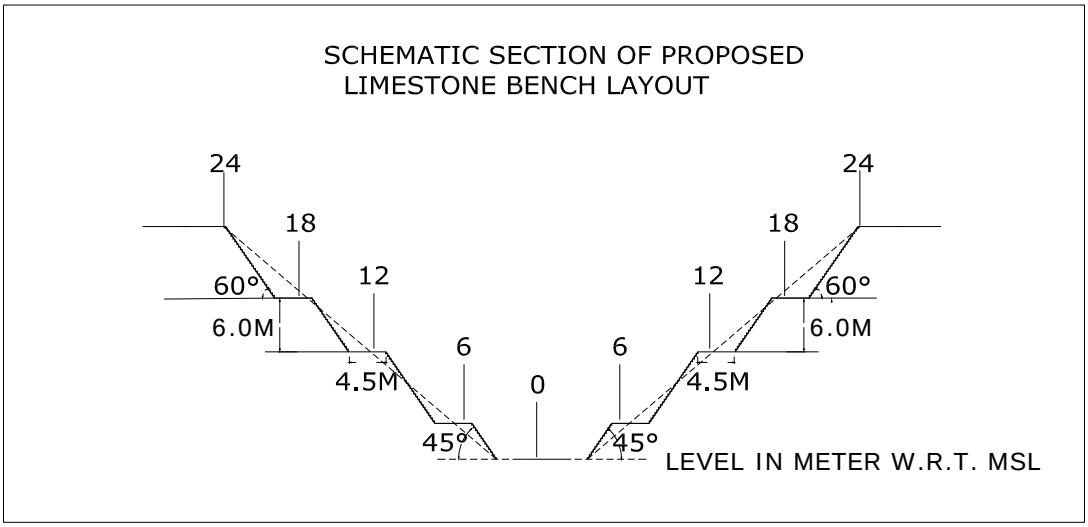
Mining will be carried out at a maximum production of 2.5 lakh TPA and as per Mining Plan submitted to IBM the life of mine would be 10 years. Life of mine may be increased subject to conversions of resources under 333 category into category of reserves 111

Conceptual Mining Plan

Ultimate Pit Limit

Mining shall not be carried out in the area of 7.5 m barrier along the either sides of the public road and boundary line. Permission shall be obtained from competent authority i.e. DGMS to work in statutory boundary barrier along common lease boundaries looking towards conservation of valuable minerals.

No other feature is present in the ML area which is likely to affect the design of ultimate working. At places where mining is not feasible due to narrow spaces has also been affected ultimate pit limit. The layout of ultimate pit extension and depth has been designed to reach ultimate angle of 45 degree by keeping bench height 6m, width 4.5m depth up to 0 mRL. The schematic section of ultimate layout of mine working with bench configuration is shown in figure below



The broad parameters of conceptual mine design is as below:

Benches to be developed	:	4
Ultimate bench height	:	6.0 m
Ultimate bench width	:	4.5 m
Ultimate face slope	:	60^0
Ultimate pit slope	:	45^0

Total four pits shall be there at the end of mine life as detailed below: -

Table 2.10: Ultimate Dimensions of Pits at the end of mine life

S. No.	Pit No.	Dimensions of Pit (m*m)	Pit bottom (m AMSL)	Overall Pit slope	Area covered (ha)
1.	I	450*280	+0.0	45^0	12.70
Total					**12.70**

Fresh area of ML shall be taken up for development and exploitation simultaneously. After the entire exhaustion and as backfilling is not envisaged, the voids shall be used for accumulation of rainwater which will be part of rainwater harvesting plan.

Thus the excavated areas will be beneficial to human being, flora and fauna, in this water starved region of Amreli district of Gujarat State

Stacking of mineral reject and disposal of waste

Since no waste/ mineral reject is available so no dumping is required. Also no sub-grade limestone will be generated; hence no arrangement is required for stacking the same. On sand is required to be stacked temporarily which ultimately is proposed to be backfilled in worked out area.

Reclamation

The mining area covering 12.70 ha shall be gradually developed and exploited for limestone. Part of the mined out area is envisaged for backfilling with the available overburden soil. The voids below the general ground level shall be used for storage of rainwater and surface run-off water which could be used for agricultural and domestic purposes in this area. This accumulated water shall be kept suitably fenced off all around. There are plans for developing pisciculture and picnic spot. It is proposed to create single large water storage during the mine life. These rainwater storages will cover an area of 11.14

Plantation

Company has a plan to plant saplings of trees and shrubs all along the statutory barrier around the applied lease boundary. Plantation is proposed to be done at the rate of 1000 saplings per hectare and area 0.5ha per year. Soil, if any removed during mining is proposed to be used for plantation purposed.

By the end of this mining plan period, an area of 2.50 ha area under greenbelt shall be developed. When the mine is exhausted completely, entire area of ML will have a single large and big gardens with trees and shrub, which will be beneficial of human population of the region in Jafarabad Taluka of Amreli District.

The following trees/ saplings are recommended: -

Table 2.11 Species of saplings proposed

S. No.	Botanical Name	Local Name
1.	Acacia auriculiformis	Bangalibaval
2.	Acacia catechu	Khair
3.	Acacia nilotica	Deshi babul
4.	Albezialebbeck	Siras
5.	Azadirectaindica	Neem
6.	Bamboo spps.	Vans
7.	Cassia fistula	Amaltas
8.	Cassia seamea	Kashod
9.	Casuarinaequisetifolia	Saroo
10.	Cordiasebestina	Cordia
11.	Dalbergiasissoo	Shisam
12.	Delonixregia	Gulmohar

S. No.	Botanical Name	Local Name
13.	Erythrinaindica	Pangaro
14.	Ficusreligiosa	Pipal
15.	Gmelinaarbora	Shavan
16.	Jetrophaspps.	RatanJyot
17.	Kigeliapinnata	Kigelia
18.	Padocarpuschinenses	Teak
19.	Parkinsonia spp.	Rambaval
20.	Peltoforumferrungium	Sonmohar
21.	Pithecelobiumdulse	Gorasimli
22.	Phyllanthusembelica	Amla
23.	Pongamiapinnata	Karanj
24.	Salvadoraspps.	Pillu
25.	Samaniasaman	Raintree
26.	Sygiumcumini	Jambun
27.	Tabubiaspps.	Tabubia
28.	Terminaliacuttappa	Almond
29.	Thespeciapopulanee	Portia tree
30.	Cocosnuciphera	Coconut
31.	Sapotasps	Chiku
32.	Others	

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

Table 2.12: Proposed Plantation

Year	Number of Plants	Area to be covered (ha)	Location
1st	500	0.50	Statutory barrier of 7.5 mtrs along the lease boundary.
2nd	500	0.50	
3rd	500	0.50	
4th	500	0.50	
5th	500	0.50	

Total	**2500**	**2.50**	

2.2.6 Extent of Mechanization

Drill Machines:- In order to calculate the number of drill machines required, it is essential to know the drilling capacity/ rate of drilling of one machine and the total drilling required taking into consideration burden, spacing, sub-grade drilling etc. It is proposed to deploy compressed air operated down the hole Atlas-ICM 260 of 110 mm dia. holes.

Drilling capacity of drill machine: Based on the performance of drill machine at Narmada Cement Mine, Atlas ICM-260 is able to drill about 20 meters/ hour. For the purpose of calculations same drilling rate has been assumed. Therefore, taking into consideration 8.0 hours a shift, 300 working days in year & 70% utilization & 85% as availability, the annual drilling capacity of one drill machine works out as follows: -

20 * 8 * 300 * 0.70 * 0.85 * 1 = 28560 say 28600 meters/ drill/ year

Drilling Pattern: With 110 mm dia. drill holes, the present practice in the nearby mine is to keep burden of average 4.5m & spacing of average 3.25 m. However, for the purpose of calculating the total drilling required the above drilling pattern is being assumed.

Drilling Specification for ICM-260 working in limestone works out to 4.50 x 3.25 x 1.8 =26.32 tonnes or say 26 tonnes/meter of drilling. Therefore, the total drilling required for mining 2.5 lakh tonnes per annum works out to be 9498.48 m say 9500 m. Taking into consideration 5% drilling required towards collapse of holes, misfires, abandoning of holes ect. total drilling required will be about 10000 m.

Loading of Limestone from Face: As indicated earlier, it is proposed to use hydraulic excavator of 3.8 cum. Bucket capacity & loader of 3.7 cum bucket capacity for loading of blasted/cutting material & O/B sand removal from the mine face. The production from the mine can be maintained during the first five years by working one day shift.

Loading Capacity of Excavators & Loader: The loading capacity of Excavator & Loader are given by the following equation:

$$L = B \times r \times n \times t \times E/K$$

Where L = Loading capacity per shift in cum

B = Bucket capacity in cum (3.7 cum)

r = Co-efficient of filling (assumed 0.8)

n = Avg. number of lading cycles/hr.

(taken as 90 on the basis of cycle time of 30 seconds)

t = No. of effective working hours in a shift (taken as 6.0)

E = Efficiency of utilization (assumed as 0.70)

K = Swell factor (taken as 1.33 i.e. 33%)

For Loader :

a) For O/B Sand:

L = 1.6 x 0.8 x 90 x 6 x 0.70/ 1.33 = 363.79 cum /shift (say 364 cum)

b) For Surface miners:

L = 5.70 x 0.8 x 90 x 6 x 0.70 / 1.33 = 1296.00 cum /shift (say 1296 cum.)

For Excavator:

L = 3.70 x 0.8 x 90 x 6 x 0.70 / 1.33 = 864.00 cum /shift (say 864 cum.)

The handling capacity of Loader with 1.60 cum bucket capacity works out to 364 cum/ shift for sand. Taking an average density of 1.80 for limestone, loader with 5.70 bucket capacity works out to 2332.8 (say 2333 tonnes) per shift & excavator with 3.80 bucket capacity works out to 1555.2 (say 1555 tones) per shift.

Number of Excavators Required: One loader & one excavator are sufficient for the proposed production capacity.

Tipper requirement: Average load per cycle of the excavator/loader with 3.80/5.70 cum. bucket capacity assuming 33% as swell factor, 80% as the fill factor and 1.80 as the density for limestone works out to be:

For Excavator = 3.80 x 0.8 x 1.80/ 1.33 = 4.11 tones

For Loader = 5.70 x 0.8 x 1.80 / 1.33 = 6.17 tones.

Taking average carrying of a tippers as 10 & 20 tonnes, total number of cycle required to fill a truck works out to

For Excavator = 10/ 4.11 = 2.43 say 3.0

For Loader = 20 / 6.17 = 3.24 say 3.0

Taking an average cycle time of an loader as 30 seconds, assuming 70% as coefficient of utilization, the time required for an excavator & loader to fill a 10 & 20 tonnes tippers works out to:

For Excavator & Loader = 3 x 0.5/ 0.7 = 2.14 or say 2 min.

Cycle Time of Tippers for Limestone

Spotting Time = 0.5 mins.

Loading Time = 5.0 mins.

Travel time loaded @ 20 km/ Hr.

With avg. distance of 4 km. = 12.0 mins.

Unloading Time = 0.5 mins.

Travel time Unloaded @ 20 km/Hr.

Avg. distance of 4 km. = 12.0 mins.

TOTAL = 30 mins.

With a cycle time of 30 mins. a tippers will be able to make about 12 trips to the crusher i.e. about 720 tonnes per day with one shift working. Therefore, the number of tippers required for transport of limestone from the face to the crusher works out to 740/720 = 1.02 say 2.

Therefore in all 2 tipper/dumpers in operation will be required per day for the mines. Taking 80% as the availability the total number of tippers required for the mine works to be 02 Tippers.

Table 2.13: Machinery Required at Mine

Type of Machinery/ Equipment deployed	Capacity of each unit (Cu.M/Tonnes)	No. of units
SHOVEL (HYD. EXCAVATOR)		
L&T EXCAVATOR-POCLAIN-300 CK	3.7 Cu-Mtr	1
COMPRESSOR & DRILL		

Type of Machinery/ Equipment deployed	Capacity of each unit (Cu.M/Tonnes)	No. of units
Atlas ICM-260 Drill machine*	4" dia hole	1
DUMPERS		
BEML DUMPER-HAULPAK	31.72 T	2
BEML DUMPER -HAULPAK (WT) *	Water Sprinkler	1
DOZER		
DOZER D-155 A-KOMATSU JAPAN*	65 D B P	1
WHEEL LOADERS		
WHEEL LOADER 2021(STD) *	1.7 Cu-Mtr	1
BACKHOE LOADER		
L&T BACKHOE WHEEL LOADER* 580	0.9 Cu-Mtr -B	1
PRODUCT SUPPORT EQUIPMENT		
LIGHTING TOWER	9 Mtrs High	2
MINE JEEP (BOLERO) *	6 seater	1
EXPLOSIVE VAN-EXPLOSIVE VAN *	10 T	1
FUEL DISPENSING UNIT-DIESEL TANKER *	300 Ltrs	1
TATA MAINTENANCE VAN *	7 T	1
Surface Miner #	275 TPH	1

2.2.7 Transport

Transport of Limestone in the Mine: As mentioned earlier the limestone from the face will be loaded by the hydraulic excavator & loader in to 20 tonnes tippers and transported to the crusher.

2.2.8 Blasting

No. of Blasting Drills required: Taking into consideration the drilling capacity of one drill machine and the total drilling required, the number of drill machines required works out to: 10000/57000 = 0.18 say 1.0 drill machine

Assuming 85% as the availability, the number of drill machine required works out to 1 ICM-260 drills. No secondary drilling is proposed.

Explosives: In medium hard rock like limestone, shale etc. ANFO along with some other high explosive as the booster/ base charge is most suitable. It is therefore proposed to use ANFO as the primary column charge and some cap sensitive high explosive like Aqua-dyne/ Super dyne etc. as the booster/ base charge for blasting. However, during the rainy season or in water holes it is proposed to use slurry or emulsion explosives. It has been estimated that consumption of ANFO & other high explosives shall be in the ratio of 80:20.

In order to calculate the explosive consumption per day, powder factor of 10 tonnes/ kg for limestone. Therefore, the monthly requirement of explosive will be:

10000/ 10 = 1000 Kg.

The breaking of big size boulders generating due to blasting is proposed to be done by breaker attached to L & T Backhoe wheel loader. Taking into consideration the feed size of the crusher the maximum size of the boulder which it can handle works out to 600 mm size.

Explosive Magazine: As calculated above about 1000 kg of explosive will be required for blasting per month. The unit already has one explosive magazine within nearby lease area where no mining activity will be undertaken. The total capacity of storing 20,000 kg of category 2 explosive, 44,000 detonators & 40,000 m of detonating fuse. As this storage capacity is considered adequate to meet the requirement therefore, no additional explosive magazine is proposed for this applied ML.

2.2.9 Raw Materials Required along with Quantity likely Source, Marketing area of Final Product Mode of Transport of Raw Material & Finished Products

The project is captive mine of existing clinker- cement plant of Narmada Cement- Jafarabad Works.

Marketing

Company is seeking lease for its captive consumption. So, No marketing is required for mineral produced from the mine

Table 2.14: Market Assessment

Closing stock of material	Not Applicable
Buyers	Not Applicable
Maintenance of competitive pricing	Not Applicable
Re-negotiation option	Not Applicable
Price of Material	Production cost will be around Rs.160 per tone of limestone(Pit mouth Value)
Volume	Not Applicable

Mode of Transport

No transport is required to any market purpose, except mine to crusher though tipper and dupmers.

2.2.10 Resource Optimization / Recycling and Reuse Envisaged in the Project

Resource optimization will be through blending of higher grade limestone with inferior grade limestone to achieve 97 LSF (Lime Saturation Factor).

2.2.11 Availability of Water its Source and Energy/Power Requirement

Water

The water for mining is required in terms of industrial use and domestic use. Domestic water (2 KLD) requirement shall be fulfilled from existing Desalination & RO plant installed within cement plant area and water for industrial use (8 KL) shall be sourced from mine sump water of nearby

mines. Domestic waste water generated will be discharge through septic tank and soak pit.

Spraying of water on the haul roads will not generate any waste water as the same would evaporate or percolate to lower levels through the strata below (which are normally porous). There shall be no recycling of water on this account.

No waste water is proposed to be discharged from the applied area.

Water Requirement per day		**Discharge per day**
Activities	**Quantity (m^3)**	**Quantity (m^3)**
Domestic Use (Drinking water water for use of persons working)	2	Zero
Industrial Use (Plantation, sprinkling on road etc)	8	Zero
Total Requirement	**10**	**Zero**

Fuel/Power Requirement

The diesel will be used as fuel and supplied though diesel tanker which feeds all the HEMM and other machinery as per requirement around 525 liters diesel will be used for the limestone production. No electrical energy will be used in connection with production except lighting.

2.2.12 Waste Generation and Management

Nature of Waste & Rate of yearly generation

On an average about 1.0m cover of overburden sand is available in the applied ML area. The thickness of overburden sand is comparatively more towards Kovaya villages while the thickness decreases towards village Babarkot which is on higher ground.

The entire deposit contains windblown sand and is about minimum 0.5 m and at places even 4m thick. OB sand available is very low in quantity and useless. The OB sand shall be removed separately and shall be used for backfilling as well as for plantation/ green belt purposes. During first five years of working, OB sand shall be removed from fresh area. This shall be disposed of by means of stacking covering an area 1.10ha (110m*140m*6m) near boundary pillars during first five years. The yearly generation/ use of overburden sand is furnished in table below: -

Generation of OB Sand during first five years (in cum)

Year	OB sand
1st	24774
2nd	33512
3rd	-
4th	-
5th	12075
Total	**70361**

Quantity of Waste

Waste is not available as well either in the form of overburden or in inter-burden. Only OB sand is available which is non – toxic in nature.

Selection of Dumping Site

In the proposed mining plan period it is proposed that over burden sand generated will be stacked at earmarked site temporarily and will be subsequently backfilled in the mined out area simultaneously and soil will be spread on backfilled area. Part of mined out land will be used as water reservoir.

Method of Dumping & Maximum Height and Spread of dumps

Limestone is partly out-cropping, overburden sand is negligible. Therefore, no backfilling of excavated out area is envisaged during this plan period. Sand is proposed to be stacked temporarily at earmarked site.

Liquid Waste Management

Sewage

Not Applicable as there will be no discharge.

Schematic Representation of Feasibility Drawing which gives Information for EIA Purpose

Mining plan plates are attached along with pre-feasibility report.

2.3 Site Analysis

2.3.1 Connectivity

Applied ML Area: 14.2045 ha, Babarkot Limestone Area is located east of Jafarabad town, in the Amreli district of Gujarat. The whole applied area falls in revenue area of Babarkot village. Jafarabad is approachable by State Highway SH-34 which branches off from National Highway 8E (NH 8E) near Rajula. Rajula Railway junction is about 30 km from the applied area and is the terminus of broad gauge railway line from Ahmedabad. The road to Babarkot branches off from SH 34 about 3 km before Jafarabad town. The area is located about 2 km down this road. The nearest airport is Diu (65 km) and Bhavnagar (160 km) is connected by daily air service to Mumbai.

2.3.2 Land Form, Land Use and Land Ownership

The existing & proposed land use pattern will be as follows

Table 2.15: Stage Wise Land Use and Reclamation Area (ha)

S. No.	Land Use Category	Pre-Operational (Present)	Operational (At the end of first five years)	Post-Operational (At the end of mine life)
1.	Overburden Sand Dump	Nil	0.74	Nil
2.	Waste Dump	Nil	Nil	Nil
3.	Excavation	0.24 (old pits)	9.1	12.70
4.	Road, mine road etc.	Nil	0.50	0.50

S. No.	Land Use Category	Pre-Operational (Present)	Operational (At the end of first five years)	Post-Operational (At the end of mine life)
5.	Infrastructure	Nil	Nil	Nil
6.	Township Area	Nil	Nil	Nil
7.	Natural Water Bodies	Nil	Nil	Nil
8.	Mineral Storage (Sub-grade/mineral)	Nil	Nil	Nil
9.	Undisturbed area	13.9645	3.8645	1.0045
10.	Total	14.2014	14.2014	14.2045
11.	Backfilled area	Nil	Nil	1.5
12.	Plantation & Greenbelt	Nil	2.50	2.5

2.3.3 Topography

The applied lease area is undulating land with elevated mounds partly occupied by limestone outcrops. The topographical elevation varies between 48m to 30 m above MSL. No seasonal/ perennial river/ nallah passed through the area. Rainwater flows as per natural slope of the area.

2.3.4 Geology of the Mine Lease

The Deccan-Trap-covered coastal region of Saurashtra had experienced a number of marine transgressions and regressions during the late Tertiary Period. The rich limestone beds of the region were deposited by the accumulation of calcium-rich foramineferal (Miliolitic) crust and chemical precipitation of carbonates from the shallow sea. Land-derived material from volcanic constituted the impurities in the limestone deposit. The regional geological set up of the Coastal Saurashtra Region is given in Table: A1.1.

Table 2.16: Regional Stratigraphic Sequence of Rocks

Age	Formation	Lithology
Holocene	Recent	Wind-blown sand, Fluviao-marine deposits.
Sub-recent to Pleistocene	Porbandar Beds	Miliolitic limestone, Marl, Calcareous shale, etc.
Pleistocene to Pliocene	Dwarka Beds	Cherty limestone, Clay, Silt.
Pliocene to Miocene	Gaj Beds	Variegated clay, Marl, Impure limestone, etc.
Eocene	Supratrappean	Impure limestone, Calcareous sandstone, Lateritic rock.
Eocene to Cretaceous	Deccan Trap and Intertrappean	Basaltic rock, with minor Intertrappean clay.

Traps: Deccan Traps occupy most of the area. They include several types of volcanic rocks, which have come up through fissures in several eruptive phases. The main rock types encountered are intermediate types of basalt, trachyte, diorite, rhyolite, etc. The hilltops generally contain the hard and tough, compact massive flows, whereas the soft type occupies the valley floors and the plains. The hard flows stand out, whereas the softer ones are weathered to form low areas. The entire trap rocks show shearing and multi-directional fracturing.

Gaj Beds: Gaj beds occur as isolated outcrops at the margin of traps towards coast and as small mounds in the alluvium. They are marine sediments, comprising fossiliferrous yellow marly limestone with clay.

Miliolite Limestone: The limestone deposits of the area are termed as "Coastal deposits". It is marine limestone commonly known as Miliolite Limestone which occurs as thick cross-laminated beds. The name "miliolite" has apparently been derived from the Miliolidae, belonging to the common foraminifera present in the rock. Occurrence of such distinctive type of rocks is reported only along the Saurashtra (Kathiawar) coast and Kutch in Gujarat.

Recent Deposits: The youngest deposits in the district are represented by various types of soils, alluvium, windblown sand, fluvio-marine mud deposits of tidal flats and shell and shingle deposits of shore area.

2.3.5 Existing Landuse Pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ)), shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco-sensitive areas, water bodies (distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the Gazette notification should be given

The lease areas granted are private land, and no forest land is involved in the area. Existing land use pattern of the site along with the proposed one is given in Table 2.14.

Table 2.16: Important Features and Sensitive Ecological locations around mine site:

S. No.	Feature	Name	From Project Site	
			Arial Distance (km)	Direction
1	Forest Land	Forest Land is there in study area	0.60 1.27 6.03	W E ENE
2	National Park	-	-	-
3	Wild Life Sanctuary	GIR Sanctuary	35 Kms	North-East
		Mitiyala Sanctuary	25 Kms	NE
4	Water Body	Raidi River	8 Kms	NE
5	CRZ Zone	-	-	-
6	Nearest Railway station	Rajula	30 Kms	East
7	Airport	Bhavnagar	65 km	East
8	Highway	SH-34 NH-8E	~2.27 Kms 30 Kms	NW East

2.3.6 Existing Infrastructure

There is no infrastructure present in the area at present.

2.3.7 Climatic Data from secondary sources

The climate of the area is characterized by general dryness (except during the south-west monsoon season) and hot summer. The rainy season extends from mid-June to mid-September. The mean annual rainfall has been recorded as 644.5 mm. The relative humidity is generally high during the period from June to September and is least during the January-February period.

Table 2.17: Month wise Predominant Wind Direction-Diu

Predominant Wind Direction	First Predominant Wind Direction		Second Predominant wind Direction		Third Predominant wind Direction	
Month	**Mor**	**Eve**	**Mor**	**Eve**	**Mor**	**Eve**
January	NE	SW	N	N	NW	W
February	N	SW	NE	W	NW	S
March	N	SW	NW	W	CALM	S
April	W	SW	NW	W	N	NW
May	W	W	NW	NW	SW	SW/S
June	W	SW	SW	W	S	S
July	W	SW	SW	W	NW	NW
August	W	W	SW	SW	NW	NW
September	W	W	CALM	SW	NW	NW
October	CALM	SW	N/NE	W	W	S
November	NE	E	N	SE	CALM	SW
December	NE	SW	N	E	NW	N

RainfallError! Bookmark not defined.

Annual rainfall in the region is 644.5 mm. About 91% of the annual rainfall in the region is received during the southwest monsoon months i.e. June to September. July is the rainiest month. Maximum rainfall in any one month was recorded in the month of August in year 1959 which was about 702.6 mm

HumidityError! Bookmark not defined.

Most humid conditions are found in the monsoons. Mornings are more humid than evenings and humidity ranges from a high of 80-85% in monsoon mornings to a low of 49-52% in winter evenings.

Table 2.18: Average Meteorological Conditions at IMD DIU

Month	Mean Daily Temperature		Rainfall (mm) Monthly Total	No. of Rainy days	Relative Humidity (%), Morning	Relative Humidity (%), Evening
	Max	Min				
January	27.5	15.1	0.5	0.1	49	56
February	28.2	15.8	1.2	0.2	50	58
March	30.8	18.9	0.5	0.1	53	61
April	32.4	21.5	0.3	0.0	65	66
May	32.5	24.3	0.8	0.1	75	72
June	32.1	25.6	154.4	5.4	80	77

Month	Mean Daily Temperature		Rainfall (mm) Monthly Total	No. of Rainy days	Relative Humidity (%), Morning	Relative Humidity (%), Evening
	Max	Min				
July	30.4	24.7	256.1	9.6	83	80
August	29.5	23.7	134.1	8.1	85	80
September	30.6	23.1	64.9	3.7	80	75
October	32.6	22.1	10.5	0.8	62	66
November	31.1	19.7	20.7	0.7	51	61
December	28.5	16.7	0.5	0.0	52	60
Total / Mean	**30.5**	**20.9**	**644.5**	**28.8**	**65**	**68**

2.3.8 Social Infrastructure

The land proposed for the project is private and has no vertical development over it. There is no social infrastructure available at the site. Jafrabad which is about ~4 km form site have good marketing facilities and apart form that is also have a P & T office, a primary health center, dispensary, maternity and child welfare center.

2.4 Planning Brief

2.4.1 Planning Concept

- Type of Industry: Mining of Limestone
- Facilities: Drinking water, rest shelter
- Transportation: Limestone will be transported through dumpers
- Town and Country Planning Development Authority Classification: not applicable, since this is a mining project

2.4.2 Population Projection

Not applicable since the project entails mining of limestone.

2.4.3 Landuse Planning

As mentioned in Table 2.14 above.

2.4.4 Assessment of Infrastructure Demand

A temporary rest shelter for labour will be constructed at mine site. A water tank (capacity of 500 liters) will be installed for storing drinking water. Haul road will be maintained and water sprinkling will be carried out time by time in order to maintain the road condition.

2.4.5 Amenities / Facilities

Facilities for drinking water and first aid will be provided in the mine office and an office-cum-rest shelter already existing in the adjacent lease area.

2.5 Proposed infrastructure

2.5.1 Industrial Area (Processing Area)

Not applicable.

2.5.2 Residential Area (Non-Processing Area)

Not applicable.

2.5.3 Greenbelt

Table 2.19: Proposed Greenbelt

Year	Number of Plants	Area to be covered (ha)	Location
1st	500	0.50	Statutory barrier of 7.5 mtrs along the lease boundary.
2nd	500	0.50	
3rd	500	0.50	
4th	500	0.50	
5th	500	0.50	
Total	**2500**	**2.50**	

2.5.4 Social Infrastructure

Discussed in ***Section 2.3.8***

2.5.5 Connectivity (Traffic and Transportation Road / Rail / Metro / Waterways)

As per ***Section 2.3.1***

2.5.6 Drinking Water Management (source & supply of water)

Discussed in ***Section 2.2.11***

2.5.7 Power Requirement and Supply / Source

Discussed in ***Section 2.2.11***

2.5.8 Industrial Waste Management

Discussed in ***Section 2.2.12***

2.5.9 Solid Waste Management

Discussed in ***Section 2.2.12***

2.5.10 Sewage System

Discussed in ***Section 2.2.12***

2.6 Rehabilitation and Resettlement (R& R) Plan

No rehabilitation and resettlement is either required or proposed for the project.

2.7 Project Schedule and Cost Estimates

2.7.1 Project Schedule

Company will start production at proposed rate only after obtaining necessary clearance from Central and State Government

2.7.2 Estimated Project Cost along with Analysis in Terms of Economic Viability of the Project

Capital Investment:

a) Land & building	- Rs. 4,26,13,500/-
b) Financial Assurance	- Rs. 2,51,620/-
Total cost	**- Rs. 4,28,65,120/-**

(B) Operational cost-

Yearly salary of staff	- Rs. 26,00,000/-
Operational & Development cost	- Rs. 40,00,00,000/- annum
Total cost	- Rs. 40,26,00,000/- annum

The mineral will be mined from the applied lease area, and the cost of per tonne of mining of Limestone is envisaged app. Rs. 160.00 per tonne including excavation, and transportation of limestone from Mines to Plant (including Royalty & Pls. note that all excavated mineral which will be use as captive for making cement in own plant. Cess). This cost is based on nearby limestone mines of the same unit.

The applied ML shall be for captive use of UltraTech Cement Limited, Unit: Narmada Cement-Jafarabad Works. Company is able to manage capital expensive and working capital as UltraTech Cement Ltd. is a flagship company of the Aditya Birla Group, ranks among India's largest private sector companies and economically very sound.

2.8 Analysis of proposal (Final Recommendations)

2.8.1 Financial and Social Benefits with Special Emphasis on the Benefit to the Local People including Tribal Population, if any, in the Area

Critical analysis of the existing socio-economic profile of the area vis-à-vis its scenario with proposed project activities identifies the following:

About 14 people will be engaged in mining activities for the project.

The proposed activities shall generate indirect employment in the region due to the requirement of workers in supply auxiliary such as higher machinery service and limestone Transport services afford from the ancillary works, which would marginally improve the economic status of the people.

Further the additional benefits from the downstream industries in the chain also add value to the society.

CSR Activities proposed to be carried out

The CSR activities are taking up by the project proponent since the inception of Narmada Cement-Jafarabad works, the company has established separate CSR cell to looking after community development in the area. There are number of activities are carried out by company in major Five Key Fields.

- Education
- Health care
- Sustainable lively hood
- Infrastructure development
- Social Changes

Expenses incurred towards community development by the company during last five years is tabulated below: -

Particulars	Expenses incurred (in Lacs Rs.)
1. Education	28.89
2. Health care	20.85
3. Sustainable lively hood	50.37
4. Infrastructure development	100.05
5. Social Changes	41.24
Total	**241.4**

The activities will certain increase in proposition of works.

EVALUATION OF ADEQUACY OF GREENBELT

PROJECT PROPONENT,

M/s ULTRATECH CEMENT LIMITED

UNIT: NARMADA CEMENT JAFARABAD WORKS,

VILLAGE: BABARKOT, JAFARABAD TALUKA, Dist.: AMRELI

GUJARAT-365 540

Prepared by: **November - 2019**

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Environment Auditing & Consultancy Service
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ACKNOWLEDGEMENT

We are very much thankful to **"M/s Ultratech Cement Limited, Unit: Narmada Cement Jafrabad Works"** by assigning the **"Evaluation of Adequacy of Green Belt"** at Narmada Limestone Mine, Village: Babarkot, Tal.: Jafrabad, Amreli, Gujarat.

We sincerely acknowledge the efforts made by Shri. Bharat Gokhru & Shri Hemant Dhankar & other team member of company for co-ordination & support during this assignment visit in November 2019 to our representative Mr. Parth Godhani We are very much thankful to M/s Ultratech Cement Limited, Unit: Narmada Cement Jafrabad Works for giving us an opportunity to work with you.

Royal Environment Auditing & Consultancy Service

Digvijay Jadeja

CONTENTS

1 INTRODUCTION:

1.1 Scope of study:

The main objective of the present study is to evaluate the green belt developed in the mining lease area. The baseline survey for green belt evaluation in the mining lease area, wherever the plantation has been undertaken was carried out during Post monsoon season (September, 2019) to generate a database existing green belt cover to enable M/s ULTRATECH CEMENT LTD, unit Narmada, Jafrabad Works to fulfil the requirement, of its Green belt agenda.

1.2 Identification of operational sites:

- Babarkot Mine lease area in 565.95 hectors. This mining lease area is captive to the cement plant
- Cement Plant premises

1.3 Geographical location:

1.3.1 Mining Lease area:

565.95 hectors of, this mining lease area, captive to the cement plant is situated near Babarkot village of Jafrabad Taluka in Amreli District, Gujarat state

1.3.2 Factory Premises:

The Unit Narmada Cement, Jafrabad Works located, along the coastal area of Babarkot village, Amreli district of Gujarat state, is one of the two units of M/s Ultratech Cement Limited in this area.

1.4 Other Green Cover as Protected area under Mining Lease:

Total 177.25 hectares Notified Reserve Forest was granted under mining lease. It is located in two separate blocks - 80.93 ha in Survey # 69p and 96.32 ha in survey # 366/P.

The current position of this reserve forest is as under: Survey # 69/P:

(i) Area broken up for mining & allied activities – 34.71 ha ,

(ii) Unbroken area- 46.22 ha.

The current position of this reserve forest is as under: Survey # 366/P :

(i) Area broken up for mining & allied activities – 70.42 ha

(ii) Unbroken area - 25.9 ha

The Unbroken area of 46.22 hectors in Survey # 69p and the Unbroken area of around 25.9 hectors in survey # 366/P is covered with thick shrub forest . This unbroken reserve forest area mainly contains thick vegetation of *Prosopis juliflora* (Gandobaval) .

1.5 Concept of green belt development:

Conventional air pollution management programs focus on controlling the source of air pollutants. Innovative approaches can be adopted to remove existing air pollutants thereby reducing air pollution concentrations to an acceptable level.

One way to reach that goal is the use of green belt vegetation, which can reduce air pollutants through a dry deposition process and microclimate effects. The high surface area and roughness provided by the branches, twigs, and foliage make vegetation an effective sink for air pollutants.

Greenbelts act as an effective mode of control of air pollution, where green plants form a surface capable of absorbing air pollutants and forming a sink of pollutants. Leaves with their vast area in a tree crown, sorbs pollutants on their surface, thus effectively reduce pollutant concentration in the ambient air.

Often the adsorbed pollutants are incorporated in the metabolic pathway and the air is purified. Hence, plants grown to function as pollution sink are collectively referred as greenbelts. Apart from function as pollution sink, greenbelt would provide other benefit like aesthetic improvement of the area and providing suitable habitats for birds and animals.

An important aspect of a greenbelt is that the plants are living organism with their varied tolerance limit towards the air pollutants. A green belt is effective as a pollutant sink only within the tolerance limit of constituent plants. Planting few, known pollutant sensitive species along with the tolerant species within a green belt however, do carry out an important function of indicator species.

1.5.1 Selection of plants for greenbelts:

The main limitation for plants to function as scavenger of pollutants are, plant's interaction to air pollutants, sensitivity to pollutants, climatic conditions and soil characteristics. While making choice of plants species for cultivation in green belts, due consideration has to be given to the natural factor of bio- climate. Xerophytes plants are not necessarily good for greenbelts; they with their sunken stomata can withstand pollution by avoidance but are poor absorber of pollutants.

Character of plants mainly considered for affecting absorption of pollutant gases and removal of dust particle are as follows.

- **For absorption of Gases:**

1. Tolerance towards pollutants in question, at concentration, that are not too high to be instantaneously lethal
2. Longer duration of foliage
3. Freely exposed foliage
4. Adequate height of crown
5. Openness of foliage in canopy
6. Big leaves(long and broad laminar surface)
7. Large number of stomatal apertures

- **For Removal of Suspended Particular matter**

1. Height and spread of crown.
2. Leaves supported on firm petiole
3. Abundance of surface on bark and foliage
4. Roughness of bark
5. Abundance of axillary hairs
6. Hairs or scales on laminar surface
7. Protected Stomata

1.6 Emission from cement industries:

The main emissions from the production of cement are emissions to air from the kiln system. Releases come from the physical and chemical reactions of the raw materials and the fuels. The main constituents of the exit gases are nitrogen and excess oxygen from the combustion air and carbon dioxide and water from the raw materials and the combustion process which is an integrated part of the process. The exit gas also contains small quantities of air pollutant. The following pollutants have been listed as per the Best Available Techniques Reference (BREF) document on the issue (European Commission, 2010):

- Oxides of nitrogen (NOx);
- Sulphur dioxide (SO_2) and other sulphur compounds;
- Dust;
- Volatile organic compounds (VOC);
- Polychlorinated dibenzodioxins and dibenzofurans (PCDDs and PCDFs);
- Metals and their compounds;

- Hydrogen fluoride (HF);
- Hydrogen chloride (HCl);
- Carbon monoxide (CO);
- Ammonia (NH_3).

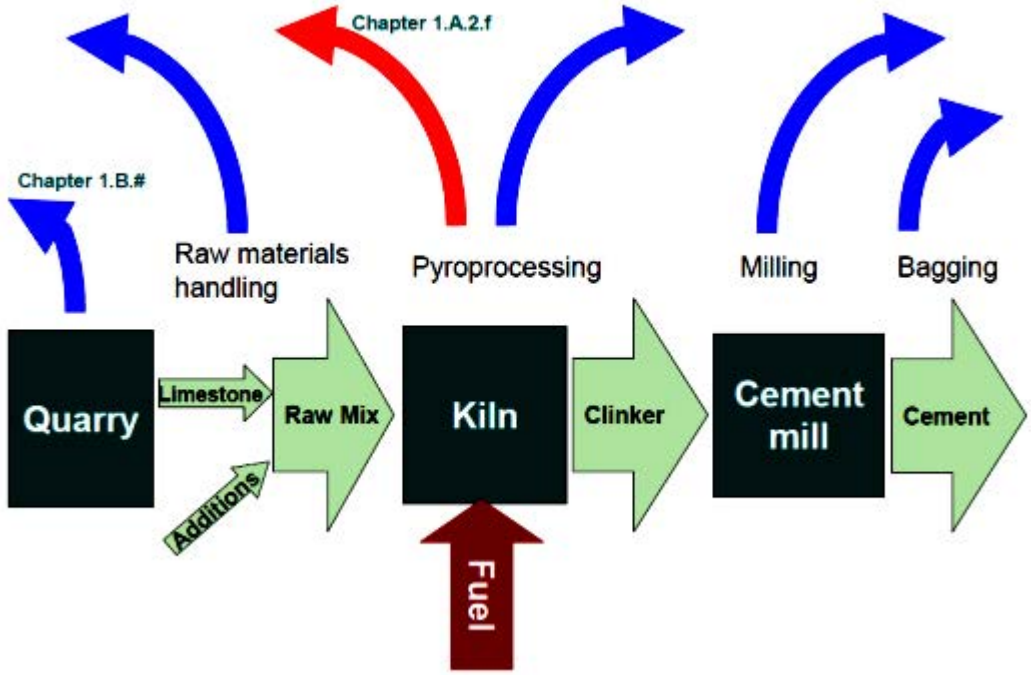
NOx are formed in the combustion process either by oxidation of the nitrogen in the combustion air (thermal NOx), or by oxidation of the nitrogen compounds in the fuel (fuel NOx). Thermal NOx, form at temperatures above 1200˚C. Due to the very high temperatures in the cement kiln thermal NOx dominate. Nitrogen monoxide accounts for about 95 % and nitrogen dioxide for about 5 %.

SO_2 emissions from cement plants are primarily determined by the content of volatile sulphur in the raw materials. This sulphur is emitted as SO_2 from the low temperature end of the kiln system. Sulphur present as sulphates in the raw materials is only partly decomposed at high temperatures and almost completely discharged from the kiln system with the clinker. Sulphur introduced into the kiln with the fuels is oxidized to SO_2 and will not lead to significant SO_2 emissions at the hot end of the kiln system reacts with the reactive, fine raw materials in the sintering zone, the pre-calciner and the hot part of the preheater.

Dust (including particulate matter) emissions have traditionally been one of the main environmental concerns in relation to cement manufacture. Today, however dust emissions are reduced and controlled by very efficient filters.

The main sources of dust are the stacks of the kiln system. In addition some channelled dust emissions occur in connection with the various grinding processes (raw materials, fuels, cement), and diffuse dust emission may arise from storage and handling of raw materials, fuels, clinker and cement, as well as from vehicle traffic used at the manufacturing site

The cement industry, like other industrial activities, is strictly regulated via national and international legislation regarding environmental protection. Emission levels of pollutants are, therefore, to a large extent determined by the abatement technologies applied (e.g. dust filtration) in order to comply with regulation.



Cement plants combustion emission area indicated as red process emission are indicated as blue

SOURCE EMEP/EEA emission inventory guide book 2013

2 EXISTING GREEN BELT COVERAGE IN THE MINE LEASE AREA

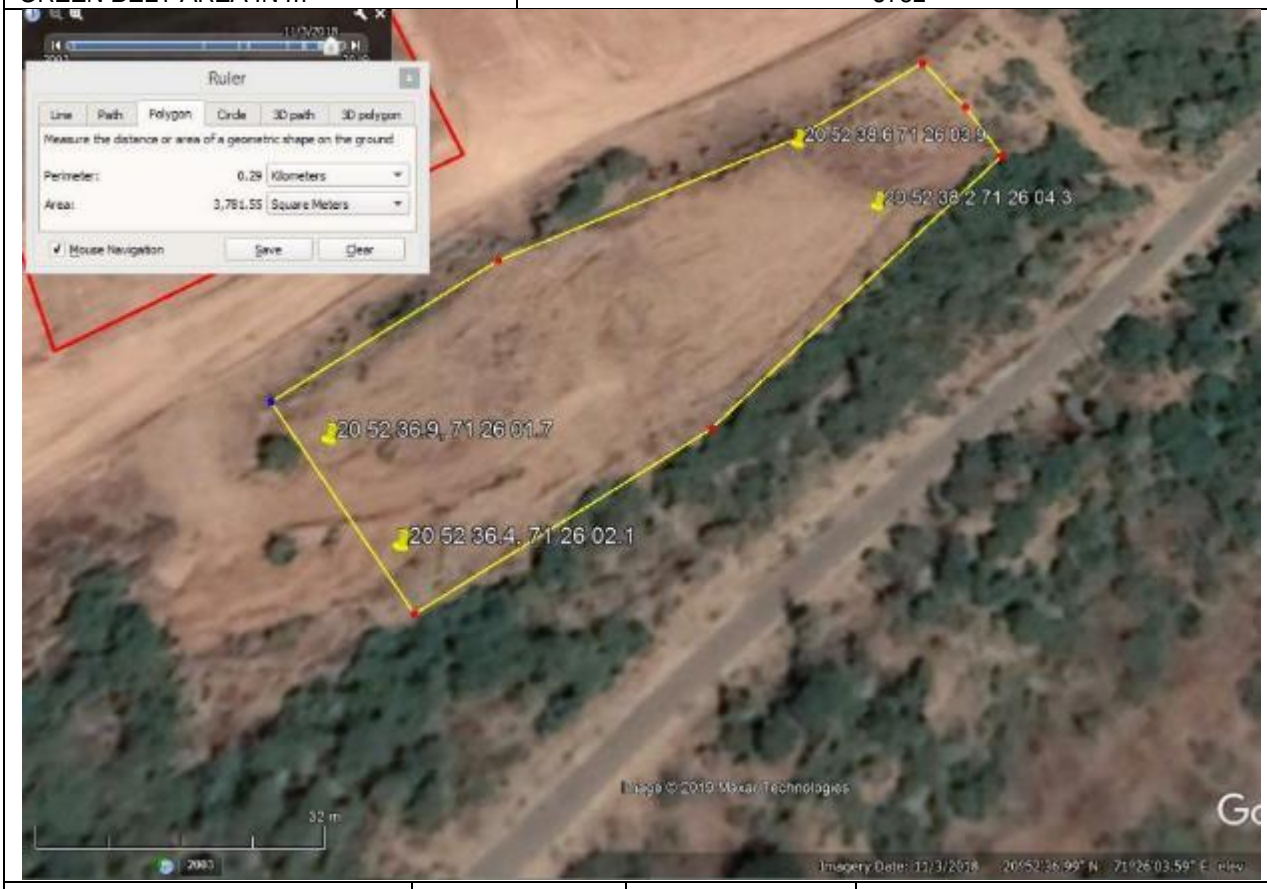
LOCATION-I	Mine Eastern Boundary (New Plantation)	
COORDINATES	20°52'37.6"	71°26' 00.3."
	20° 52 '39.5"	71°25' 59.4."
	20°52'40.3"	71°26' 01.1."
	20° 52 '38.5"	71°26'01.9."
GREEN BELT AREA IN m²	4457	

SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plots 500 m²
Pongamia pinnata	Karanji	Tree	120
Senna siamea Lam.	Kasida	Tree	77
Peltophorumpterocarpum	Sonmukhi	Tree	12
Total (Trees and Shrubs)			209/500m²






LOCATION-II	Between the mine approach road and village Road opposite to Eastern block plantation	
COORDINATES	20⁰52'36.9"	71⁰26' 01.7."
	20⁰ 52 '38.6"	71⁰26' 03.9."
	20⁰52'38.2"	71⁰26' 04.3."
	20⁰ 52 '36.4"	71⁰26' 02.1."
GREEN BELT AREA IN m^2	3782	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot 500 m^2
Senna siamea Lam.	Kasida	Tree	185
Pongamia pinnata	Karanji	Tree	15
Albizialebbeck L.	Sirid	Tree	2
Total (Trees and Shrubs)			202/500 m^2





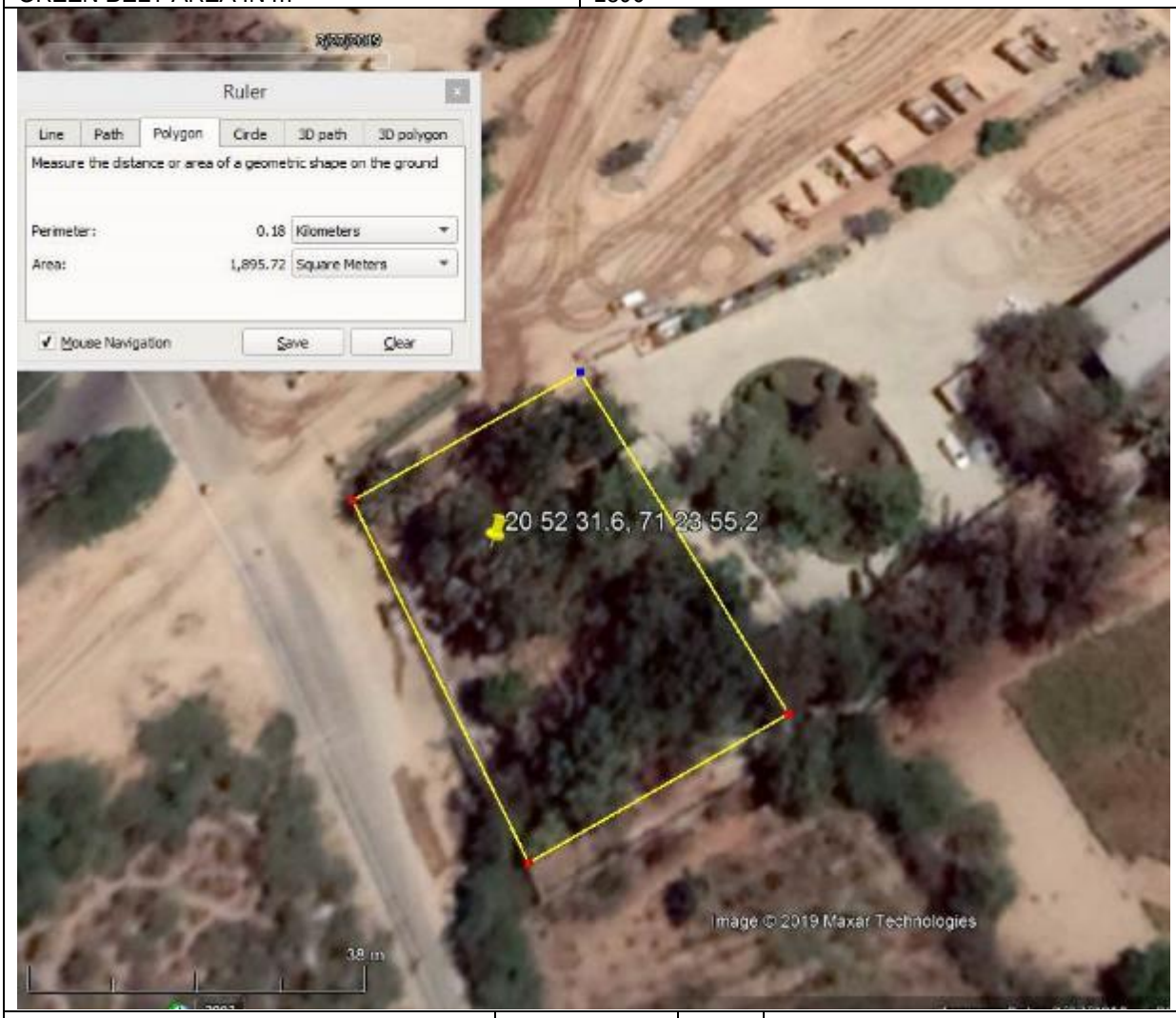

Severe ingression of *Prossopis julifora* observed in this plantation area. More over cutitting of the newly plantated sapling observed at several places If not provided protection by fensing in this area, the effort for develping the green belt will not be frutful as expected

LOCATION-III	Near the Boundary wall	
COORDINATES	20°52'58.1"	71°26' 03.1."
	20° 52 '57.7"	71°26' 03.2."
	20°52'57.3"	71°26' 02.3."
	20° 52 '57.5"	71°26' 02.3."
GREEN BELT AREA IN m^2	1938	

SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Senna siamea Lam	Kasida	Tree	Thick plantation
Total (Trees and Shrubs)			

This area of green belt planation is affetced by severe ingression *of Prosopis juliflora*

LOCATION-IV	Mine office Left side	
COORDINATES	22⁰52'31.6"	71⁰23 55.2"
GREEN BELT AREA IN m^2	1896	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Eucalyptus citriodora	Nilgiri	Tree	49
Cordia ghraf	Gundi	Tree	1
Tectona grandis L.	Sag	Tree	65
Azadirachta indica A.Juss	Limbado	Tree	5
Delonix regia (Boj.)	Gaulmor	Tree	1
Pithecellobium dulce	Gorasmli	Tree	3
Casuarina equisetifolia	Sharu	Tree	5
Cycas sp.		Tree	2
Terminalia catappa L.	Badam	Tree	2
Ixora		shrub	8
Total (Trees and Shrubs)			141




20 09 2019 09 31


LOCATION-V	Mine office back side	
COORDINATES	20°52'31.7"	71°23' 57.1"
GREEN BELT AREA IN m^2	2640	

SCIENTIFIC NAME	LOCAL NAME	Habitat	Abundance in the sampling plot
Peltophorum pterocarpum	Sonmukhi	Tree	16
Ficus religiosa L	Piplo	Tree	3
Senna siamea Lam.	Kasida	Tree	2
Leucaena leucocephala	PardesiBaval	Tree	2
Terminalia catappa L.	Badam	Tree	6
Polyalthia longifolia	Asopalav	Tree	5
Casuarina equisetifolia	Sharu	Tree	14
Delonix regia (Boj.)	Gaulmor	Tree	11
Azadirachta indica	Limbado	Tree	8
Pithecellobium dulce	Gorasmli	Tree	4
Moringa oleifera Lam	Sargavo	Tree	2
Kigelia pinnata (Jacq.)	Tabudiyo	Tree	3
Thespesia populnea L.	Paras pipalo	Tree	2
Mangifera indica L.	Ambo	Tree	1
Cocos nucifera L	Narial	Tree	5
Cassia fistula L.	Garmalo	Tree	5
Total (Trees and Shrubs)			89







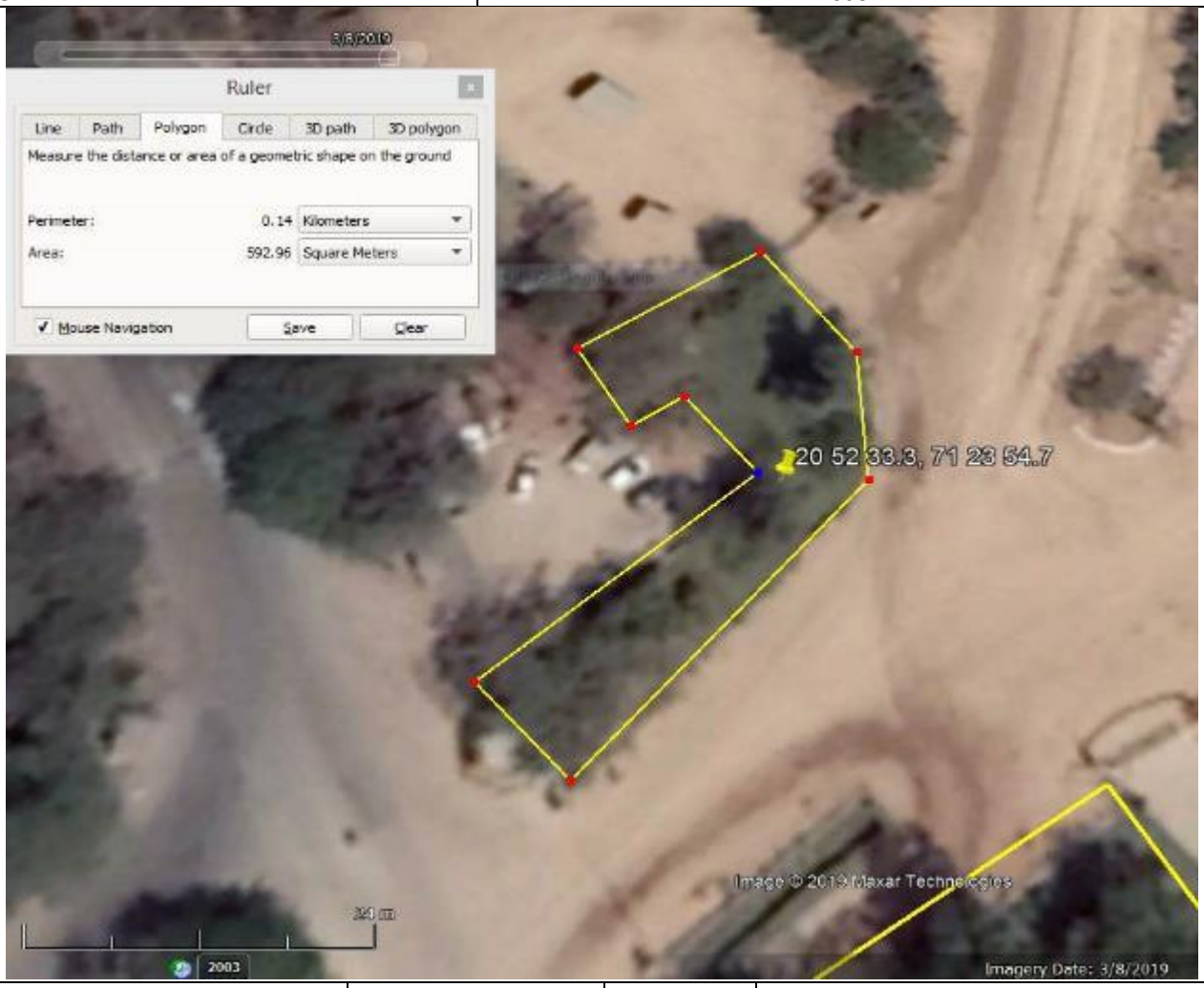

LOCATION VI	Mine office Front side and surroundings	
COORDINATES	$20^0$52'32.6"	$71^0$23' 56.5"
GREEN BELT AREA IN m^2	580	

SCIENTIFIC NAME	LOCAL NAME	Habitat	Abundance in the sampling plot
Araucaria columnaris	CHRISTMAS TREE	Tree	1
Pithecellobium dulce	Gorasmli	Tree	4
Terminalia catappa L.	Badam	Tree	6
Polyalthia longifolia	Asopalav	Tree	15
Azadirachta indica	Limbado	Tree	2
Ficus ps.		Tree	4
Ixora		Shrub	5
Thevetia peruviana	Pili karen	Shrub	4
Hibiscus		Shrub	2
Total (Trees and Shrubs)			43


20.09.2019

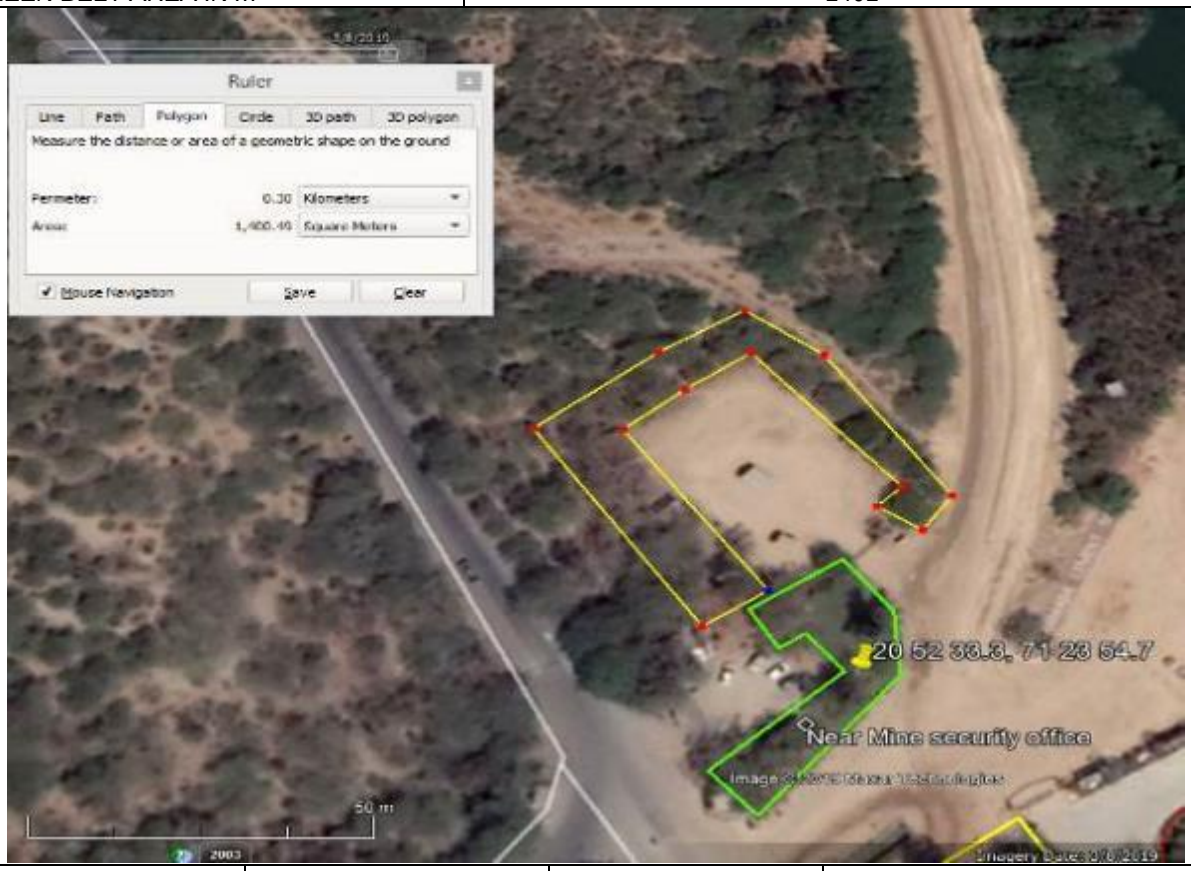

Ultratech Cement Limited
20.09.2019

`LOCATION-VII	Near Mine Security Cabin	
COORDINATES	$20^0$5233.3"	$71^0$23' 54.7"
GREEN BELT AREA IN m^2	593	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Pithecellobium dulce	Gorasmli	Tree	5
Azadirachta indica	Limbado	Tree	11
Peltophorum pterocarpum	Sonmukhi	Tree	20
Delonix regia (Boj.)	Gaulmor	Tree	5
Total (Trees and Shrubs)			41

LOCATION-VIII	Surrounding the Fuel pump station	
COORDINATES	20°52'34.3"	71°23' 54.9"
GREEN BELT AREA IN m^2	1401	

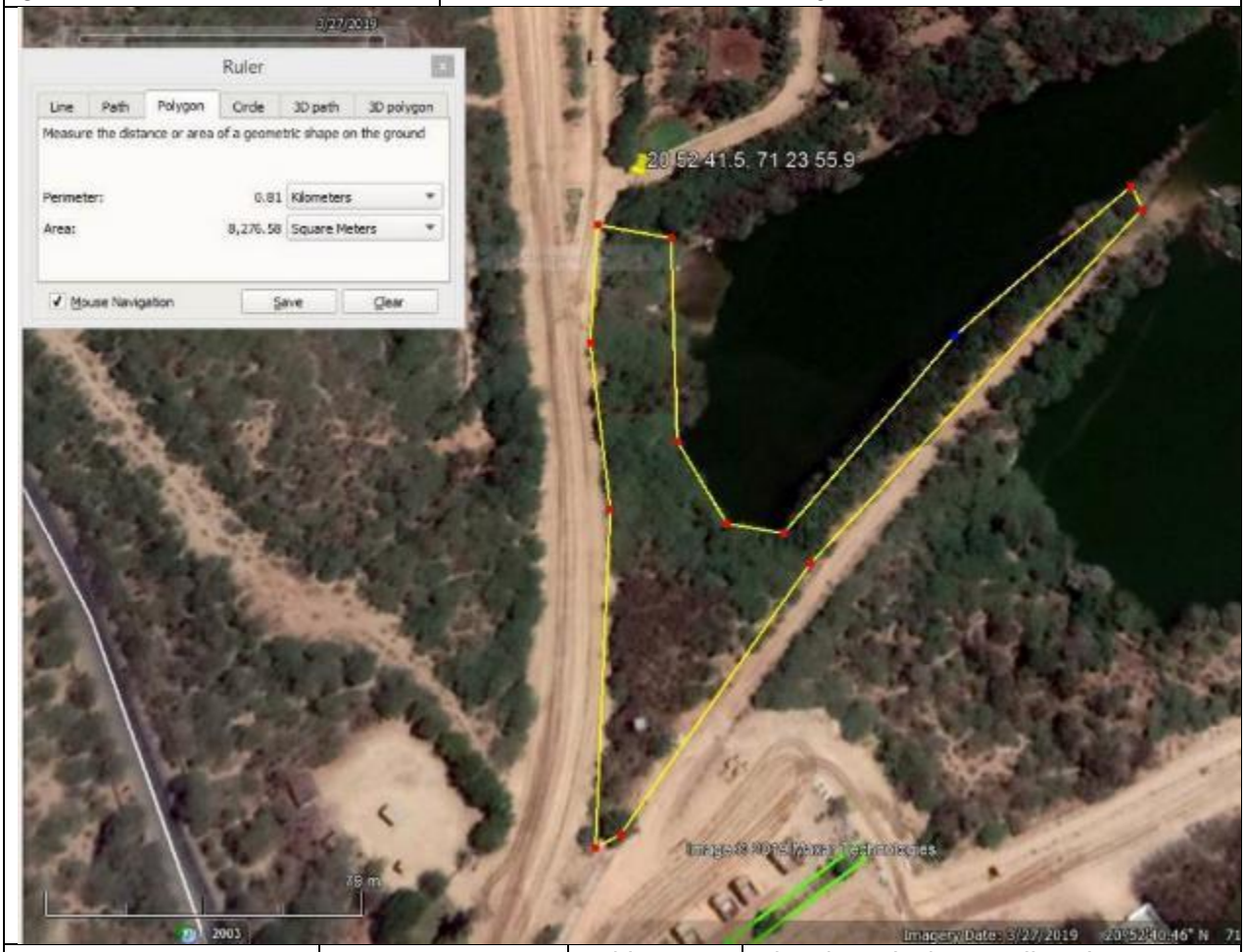


SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Pithecellobium dulce	Gorasmli	Tree	5
Azadirachta indica	Limbado	Tree	12
Peltophorum pterocarpum	Sonmukhi	Tree	22
Delonix regia (Boj.)	Gaulmor	Tree	5
Total (Trees and Shrubs)			44

LOCATION-IX	Mine office along the approach Road	
COORDINATES	20°52'32.9",	71°23' 55.9"

GREEN BELT AREA IN m^2		329	
SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Azadirachta indica	Limbado	Tree	19
Cordia ghraf	Gundi	Tree	2
Delonix regia (Boj.)	Gaulmor	Tree	4
Eucalyptus citriodora	Nilgari	Tree	1
Peltophorum pterocarpum	Sonmukhi	Tree	2
Pithecellobium dulce	Gorasmli	Tree	3
Plumeria obtuse L	Chambo	Tree	3
Total (Trees and Shrubs)			34

LOCATION-X		**Along the Mine approach road towards Mines Garden lake side**
COORDINATES	22⁰52'34.2"	71⁰23'55.8"
GREEN BELT AREA IN m^2	8277	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot 200m2
Senna siamea Lam.	Kasida	Tree	52
Azadirachta indica	Limbado	Tree	6
Pithecellobium dulce	Gorasmli	Tree	2
Total (Trees and Shrubs)			60/200m2






Note : Severe *Posopis julifora* ingression observed in this region

LOCATION-XI	Mines Garden and Lake view point	
COORDINATES	$20^0$52'41.5"	$71^0$23'55.9"
GREEN BELT AREA IN m^2	53852	Green cover Density/hector

SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance
Manilkara zapota L	Chiku	Tree	**127**
Casuarina equisetifolia	Sharu	Tree	**272**
Acacia auriculiformis L	Austrialanbaval ,Bangali Babul	Tree	**76**
Annona squamosa	Sitaphal	Tree	**429**
Syzygium cumini (L)	Jamun	Tree	**4**
Emblica officinalis	Ambla	Tree	**6**
Cocos nucifera L	Narial	Tree	**98**
Palm Species	Palm Species	Tree	**11**
Ficus elastica	Rubber Plant	Tree	**2**
Delonix regia	Gaulmor	Tree	**1**
Senna siamea Lam.	Kasida	Tree	**28**
Ravenala madagascariensis	Traveller Palm	Tree	**1**
Veitchia arecina	Vietchia Palm	Tree	**5**
Bismarckia nobilis	Bismarkia Palm	Tree	**9**
Murraya paniculata	Madhukamini	Tree	**6**
Pithecellobium dulce	Mithi Emli/Katri (	Tree	**8**
Plumeria rubra L.	Champa	Tree	**17**
Thevetia peruviana	Pili karen	Shrub	**92**
Conocarpus erectus	Conocarpus Tree	Shrub	**25**
Polyalthia longifolia	Asopalav	Tree	**182**
Caryota mitis	Fishtail Palm	Tree	**14**
Roystonea regia	Bottel Palm	Tree	**33**

Araucaria columnaris	Chrismus Tree	Tree	**4**
Ficus religiosa L	Piplo	Tree	**1**
Bougain villea	Bougainvellia	Tree	**19**
Cassia montana	Moti Aaval	Tree	**32**
Citrus limon	Limbu	Tree	**11**
Citrus sinensis	Santra	Tree	**26**
Zizyphus mauritiana	Ber (Bordi)	Tree	**33**
Pisidium guajava	Guava (Jamrukh)	Tree	**44**
Azadirachta indica	Neem	Tree	**219**
Dalbergia latifolia	Sisam	Tree	**5**
Punica granatum	Dadam	Tree	**20**
Eucalyptus citriodora	Eucaliptus (Nilgiri)	Tree	**12**
Manilkara hexandra	Ryan, Rayana	Tree	**2**
Pongamia pinnata	Karanj	Tree	**6**
Spathodea campanulata	Tulip Tree, Scarlet Bell Tree	Tree	**1**
Dentrocalamus strictus	Vans	Grass	**41**
Ficus bengalensis L	Vad	Tree	**1**
Jatropha curcas L.	Ratanjot	Shrub	**102**
Total (Trees and Shrubs)			**2027**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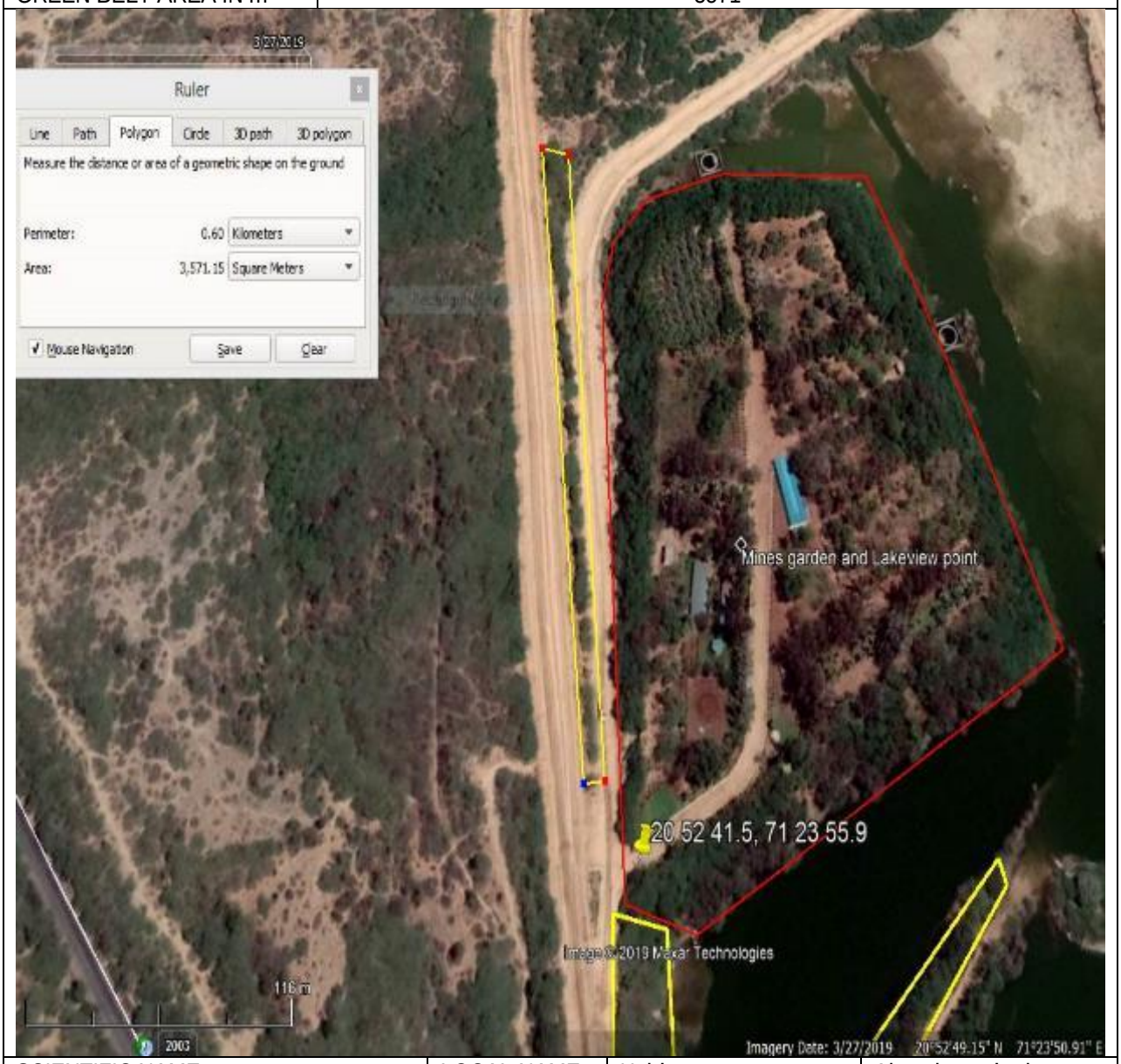
LOCATION-XII	Between two mine approach roads in front of Mines Garden	
COORDINATES	$20^0$52'59.7"	$71^0$23' 34.8"
GREEN BELT AREA IN m^2	3571	

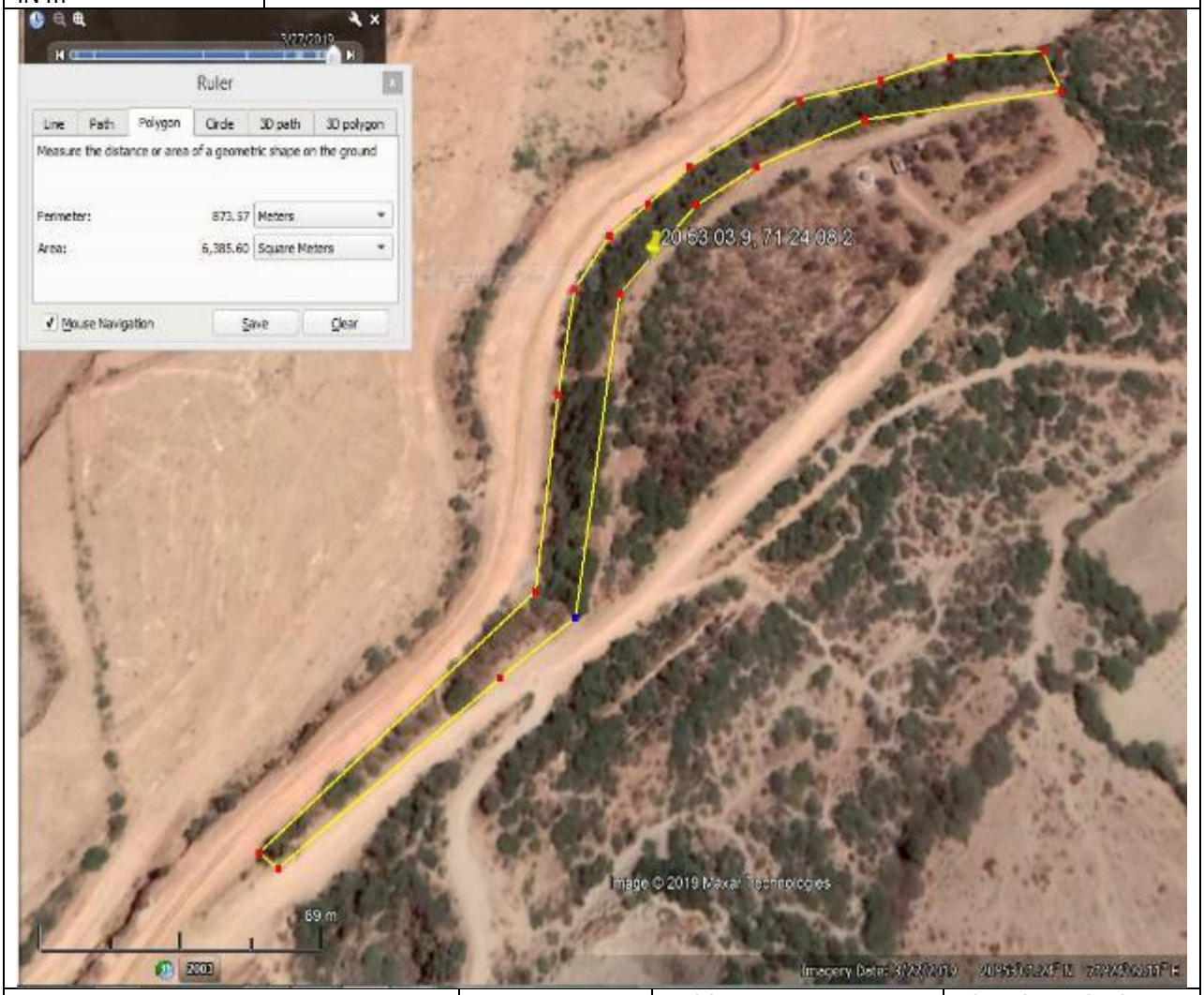


SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Senna siamea Lam.	Kasida	Tree	28
Azadirachta indica	Limbado	Tree	32
Total (Trees and Shrubs)			60




This area is domminated by *Prosopis juliflora* ingression which has supresesed the plantation done as apart of green belt development

LOCATION-XIII	Along the mines approach road	
COORDINATES	20°52'57.8"	71°24' 04.4"
GREEN BELT AREA IN m^2	6386	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Ailanthus excelsa	Moto Aurdso	Tree	>60
Cordia dichotoma	MotaGunda	Tree	4
Butea monosperma		Tree	8
Senna siamea Lam.	Kasida	Tree	>80
Jatropha sp.	Ratanjot	Shrub	>50
Total (Trees and Shrubs)			>202






This area is domminated by *Prosopis juliflora* ingression which had supresesed the plantation done as apart of green belt development

LOCATION-XIV	View point and surroundings	
COORDINATES	20°53'04.9"	71°24' 11.1"
GREEN BELT AREA IN m^2	10472	

SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot 400 m^2
Senna siamea Lam.	Kasida	Tree	124
Ailanthus excelsa	Moto Aurdso	Tree	18
Acacia nilotica (L.)	Baval	Tree	6
Jatropha gossypifolia	Paerdesidivalo	Shrub	40
Euphorbia nerifolia		Shrub	22
Total (Trees and Shrubs)			210






This area is domminated by *Prosopis juliflora* ingression which had supresesed the plantation done as apart of green belt development

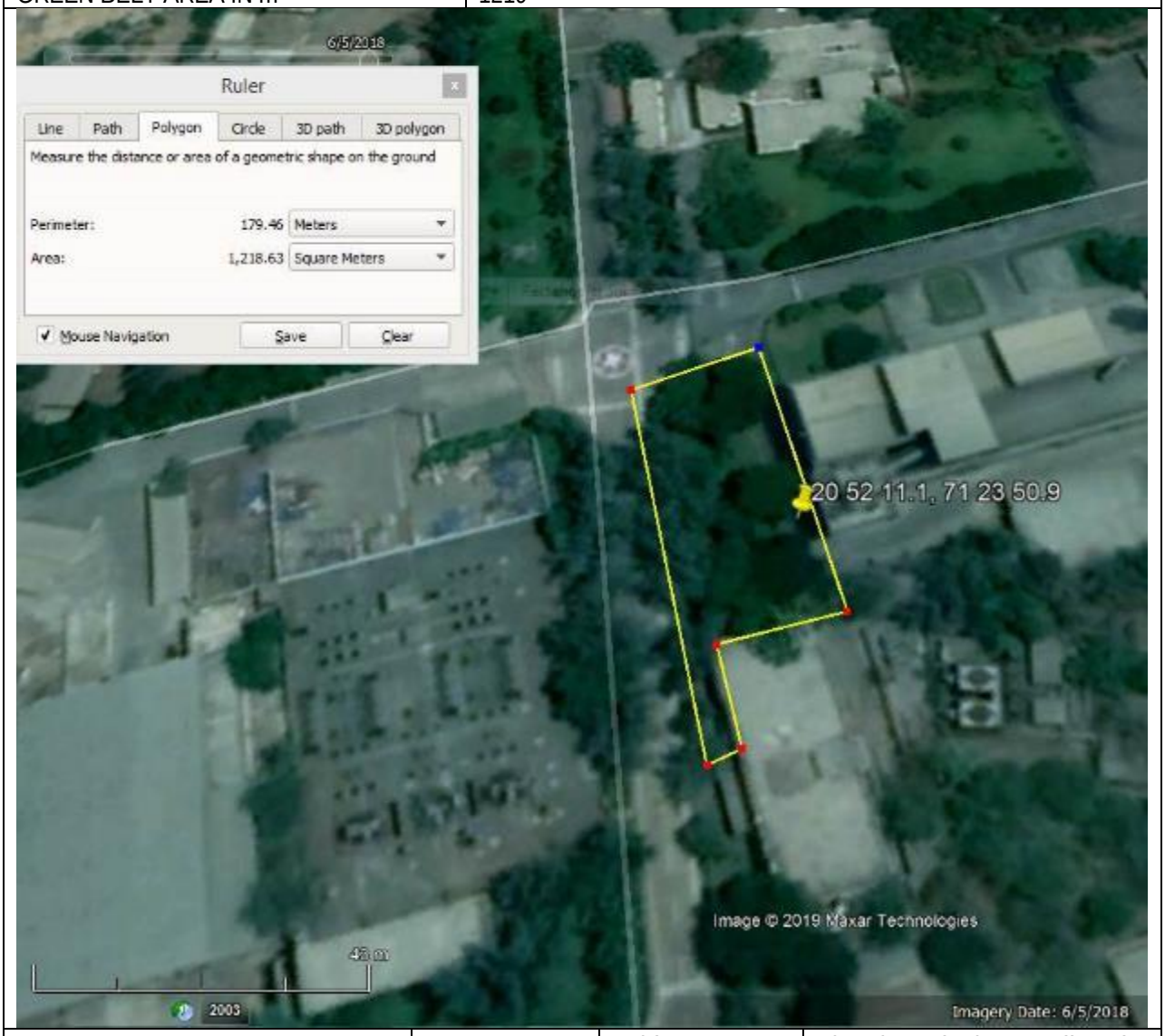
LOCATION-XV	New plantation area	
COORDINATES	$20^0$53'30.8"	$71^0$23' 56.5"
GREEN BELT AREA IN m^2	3618	

SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot 200 m^2
Ailanthus excelsa	Moto Aurdso	saplings	84
Total (Trees and Shrubs)			84/200 m^2




3 EXISTING GREEN BELT COVERAGE IN THE PLANT AREA

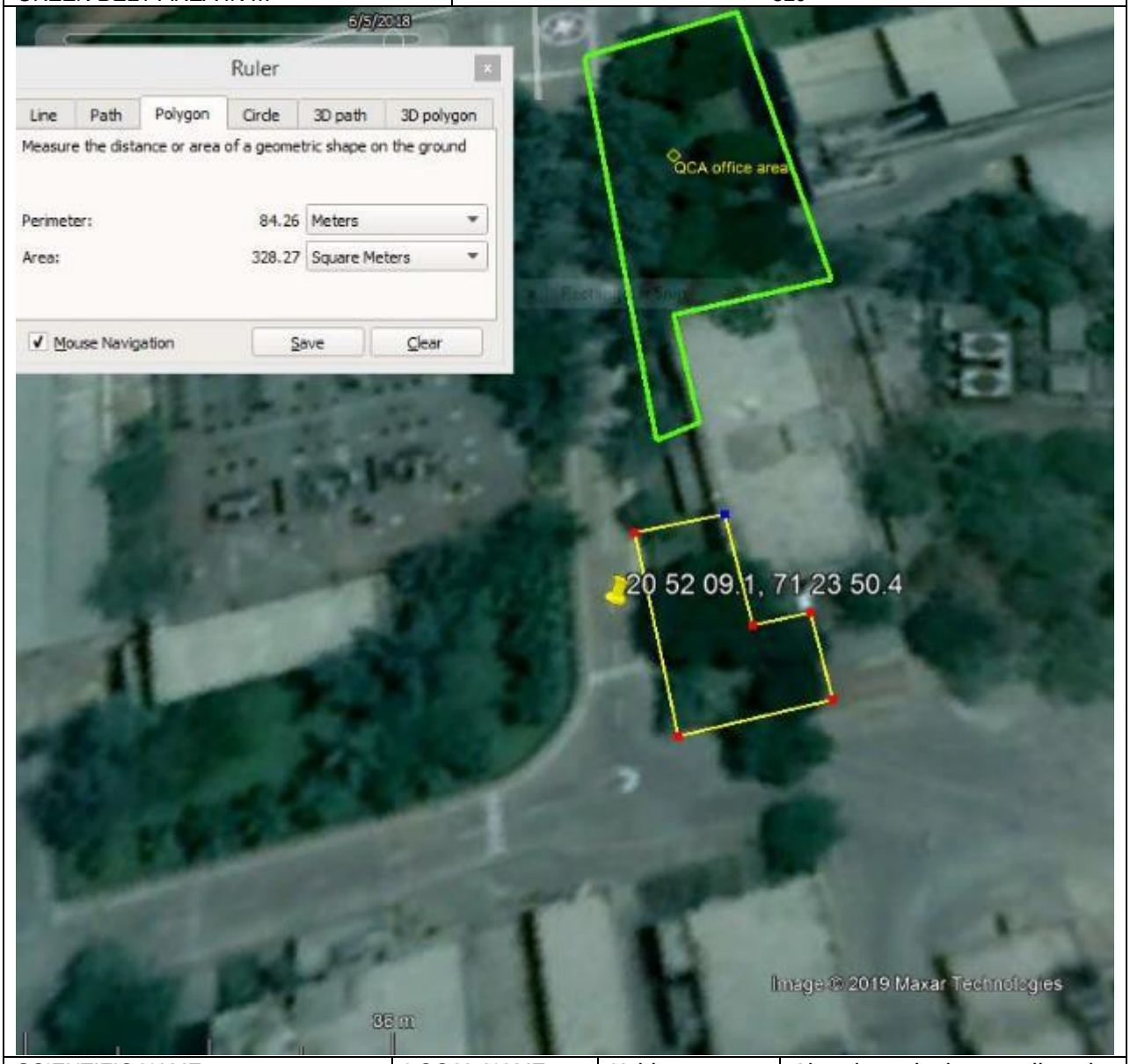
LOCATION-XVI	Near QC Lab	
COORDINATES	20°52'10.9"	71°23'50.6"
GREEN BELT AREA IN m^2	1219	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Cassia fistula L.	Garmalo	Tree	6
Azadirachta indica	Limbado	Tree	4
Casuarina equisetifolia	Sharu	Tree	5
Roystone a regia	Bottle palm	Tree	5
Ficus religiosa L	Piplo	Tree	2
Peltophorum pterocarpum	Sonmukhi	Tree	5
Delonix regia (Boj.)	Gaulmor	Tree	2
Cordia dichotoma	MotaGunda	Tree	8
Thespesia populnea L.	Paras pipalo	Shrub	2
Total (Trees and Shrubs)			39




LOCATION-XVII	Near Quality Assurance office	
COORDINATES	20°52'09.2"	71°23'50.4"
GREEN BELT AREA IN m^2	329	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Terminalia catappa L.	Desi Badam	Tree	2
Roystonea regia	Bottle palm	Tree	6
Azadirachta indica	Limbado	Tree	1
Peltophorum pterocarpum	Sonmukhi	Tree	2
Total (Trees and Shrubs)			11

LOCATION-XVIII	Contractor Work shop area JME	
COORDINATES	20°52'11.4"	71°23'46.4"
GREEN BELT AREA IN m^2	966	

SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Mimusops elengi	Indian Medlar, Bakul, Borsali	Tree	26
Azadirachta indica	Limbado	Tree	36
Peltophorum pterocarpum	Sonmukhi	Tree	3
Delonix regia (Boj.)	Gaulmor	Tree	2
Cassia fistula L.	Garmalo	Tree	4
Tecoma satans	Yellow bell	Shrub	>70
Total (Trees and Shrubs)			>153





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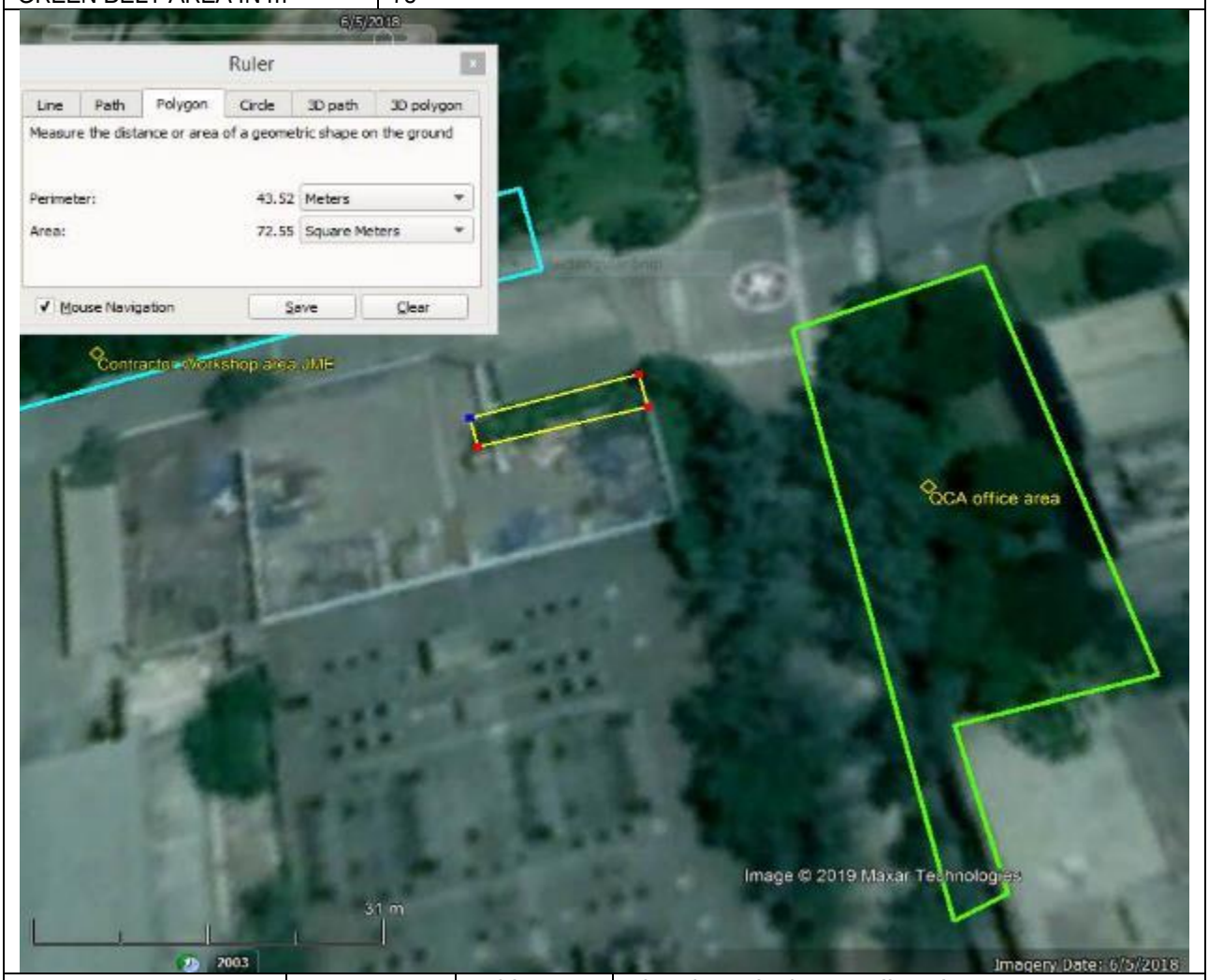
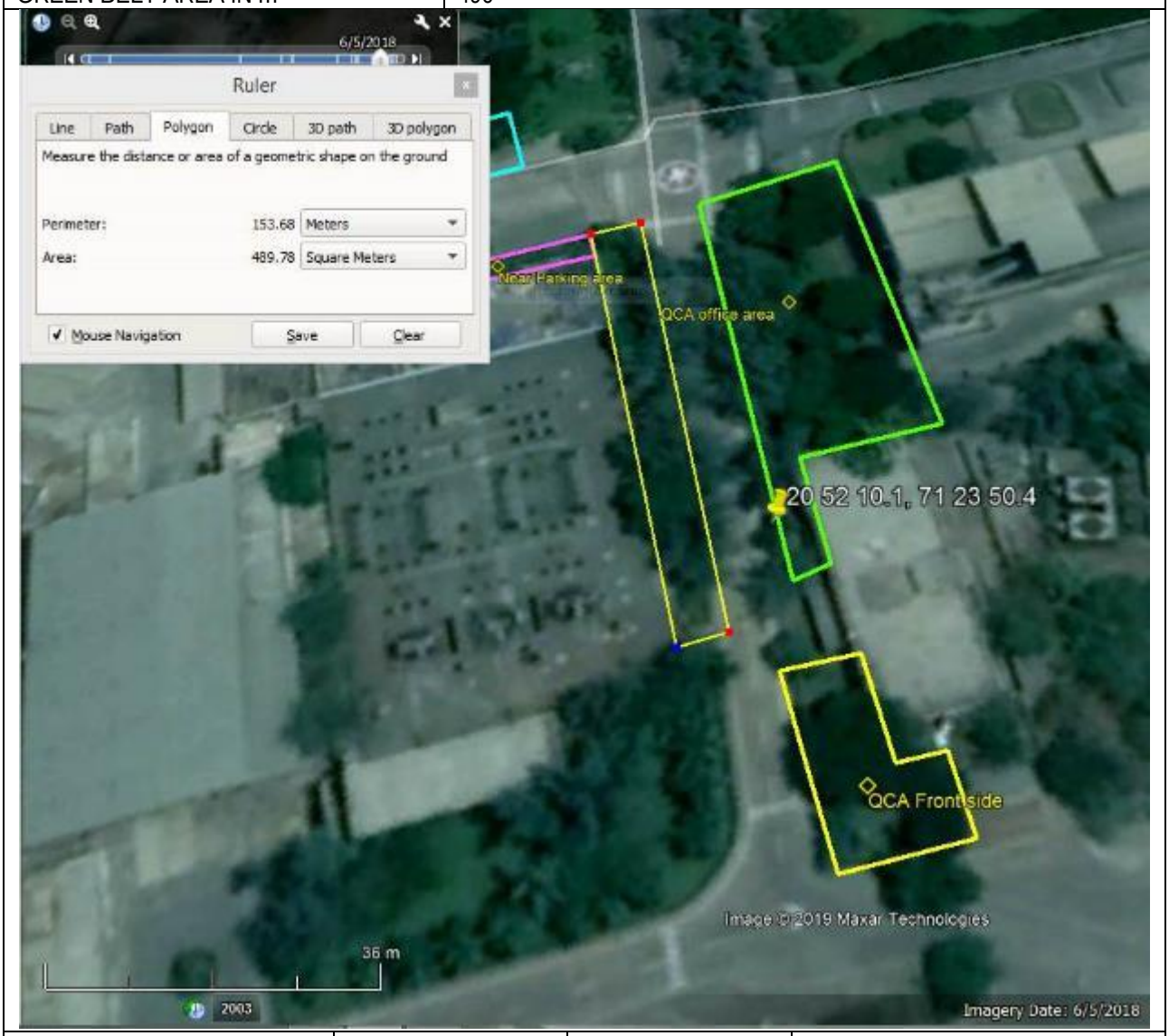
LOCATION-XIX	Parking Area	
COORDINATES	20°52'11.6"	71°23'48.8"
GREEN BELT AREA IN m^2	73	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Cordia sebastiana	Scarlet Cordia	Tree	10
Tecoma satans	Yellow bell	Shrub	11
Total (Trees and Shrubs)			21

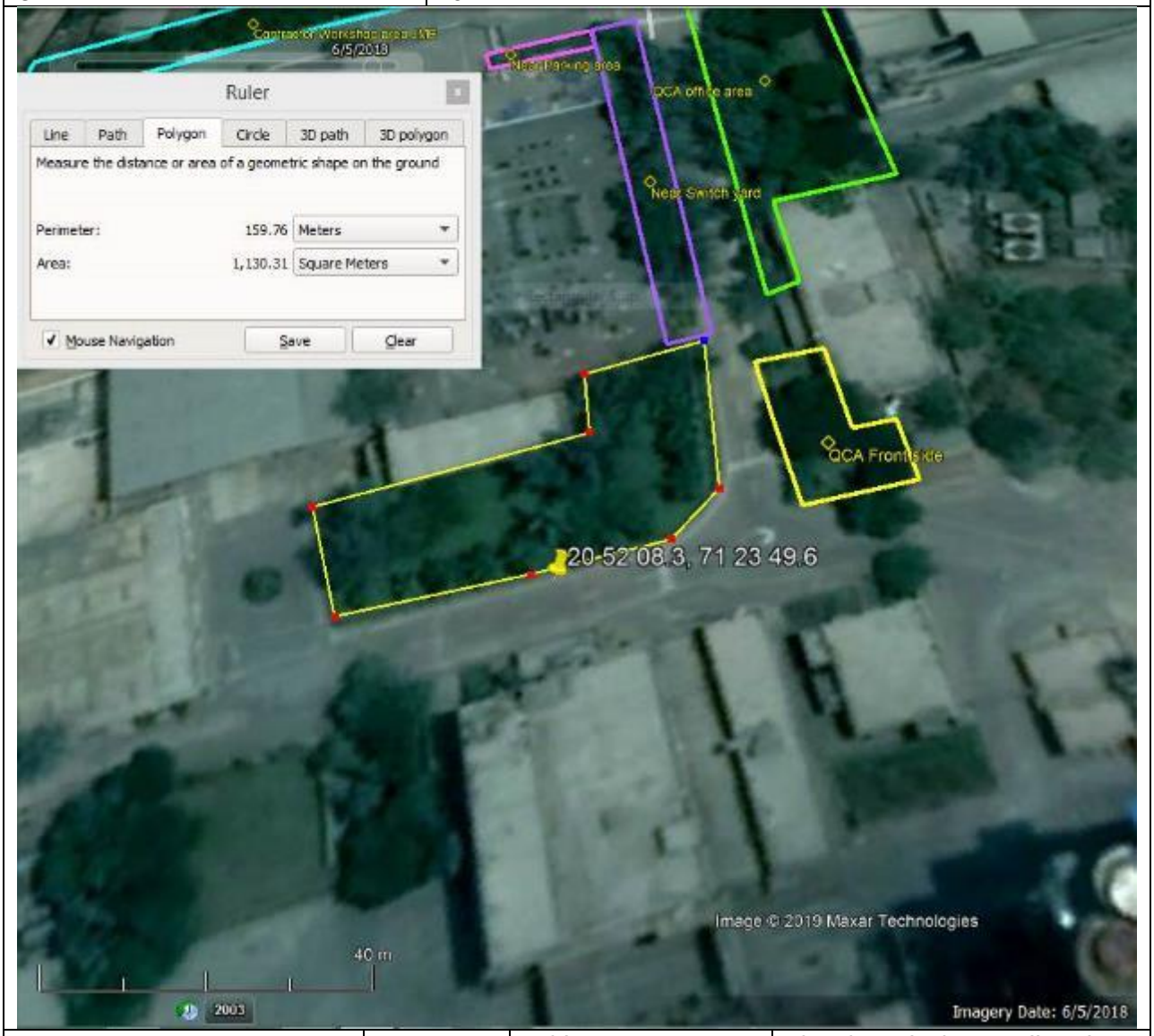
LOCATION-XX	Near Switch Yard	
COORDINATES	$20^0$5210.1”	$71^0$23’50.4”
GREEN BELT AREA IN m^2	490	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Casuarina equisetifolia	Sharu	Tree	14
Azadirachta indica	Limbado	Tree	3
Roystonea regia	Bottle palm	Tree	3
Aegle marmelos	Bel, Bili, Golden apple	Tree	1
Livistona rotundifolia	Foot stool palm	Saplings	>10
Total (Trees and Shrubs)			>31


ASSEMBLY
POINT
B

LOCATION-XXI	Near CCR Building	
COORDINATES	20^0 52 '08.3"	$71^0$23'49.6"
GREEN BELT AREA IN m^2	1842	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Roystonea regia	Bottle palm	Tree	14
Casuarina equisetifolia	Sharu	Tree	14
Peltophorum pterocarpum	Sonmukhi	Tree	4
Livistona rotundifolia	Foot stool palm	Tree	7
Ixora		Shrub	2
Total (Trees and Shrubs)			41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21.09.2019 12:08


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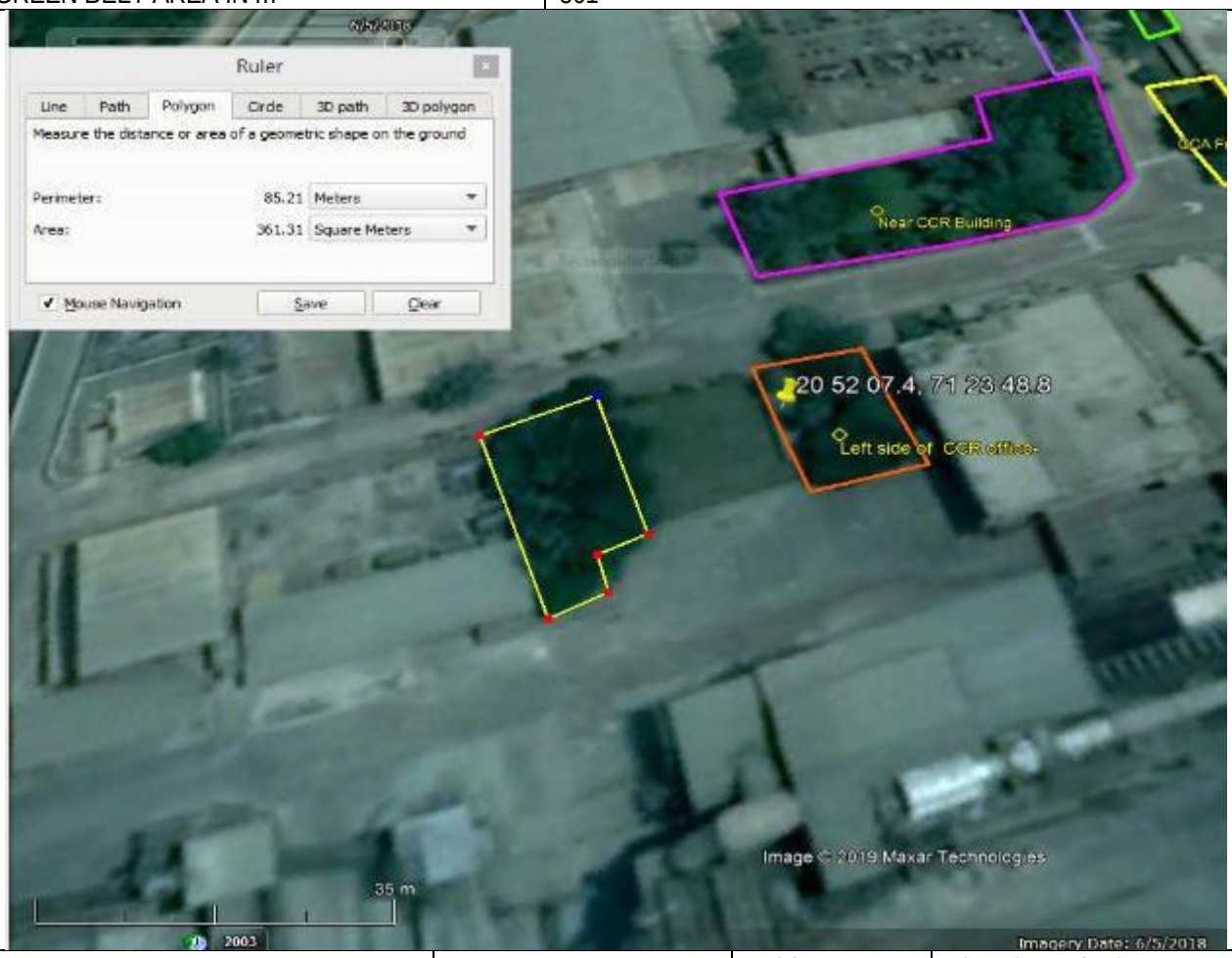
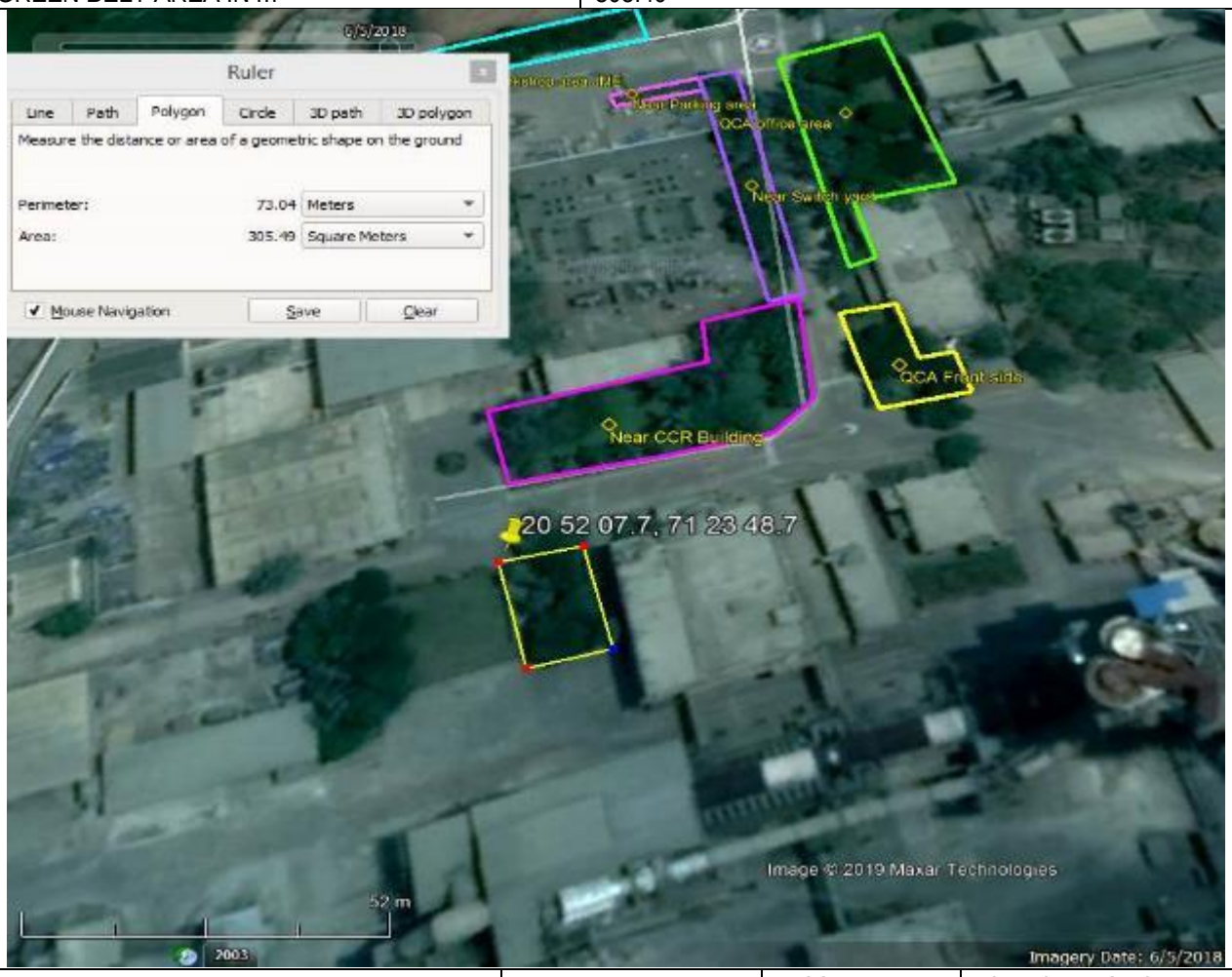
LOCATION-XXII	Front Side of material storage	
COORDINATES	20°52'07.7"	71°23'48.7"
GREEN BELT AREA IN m^2	361	



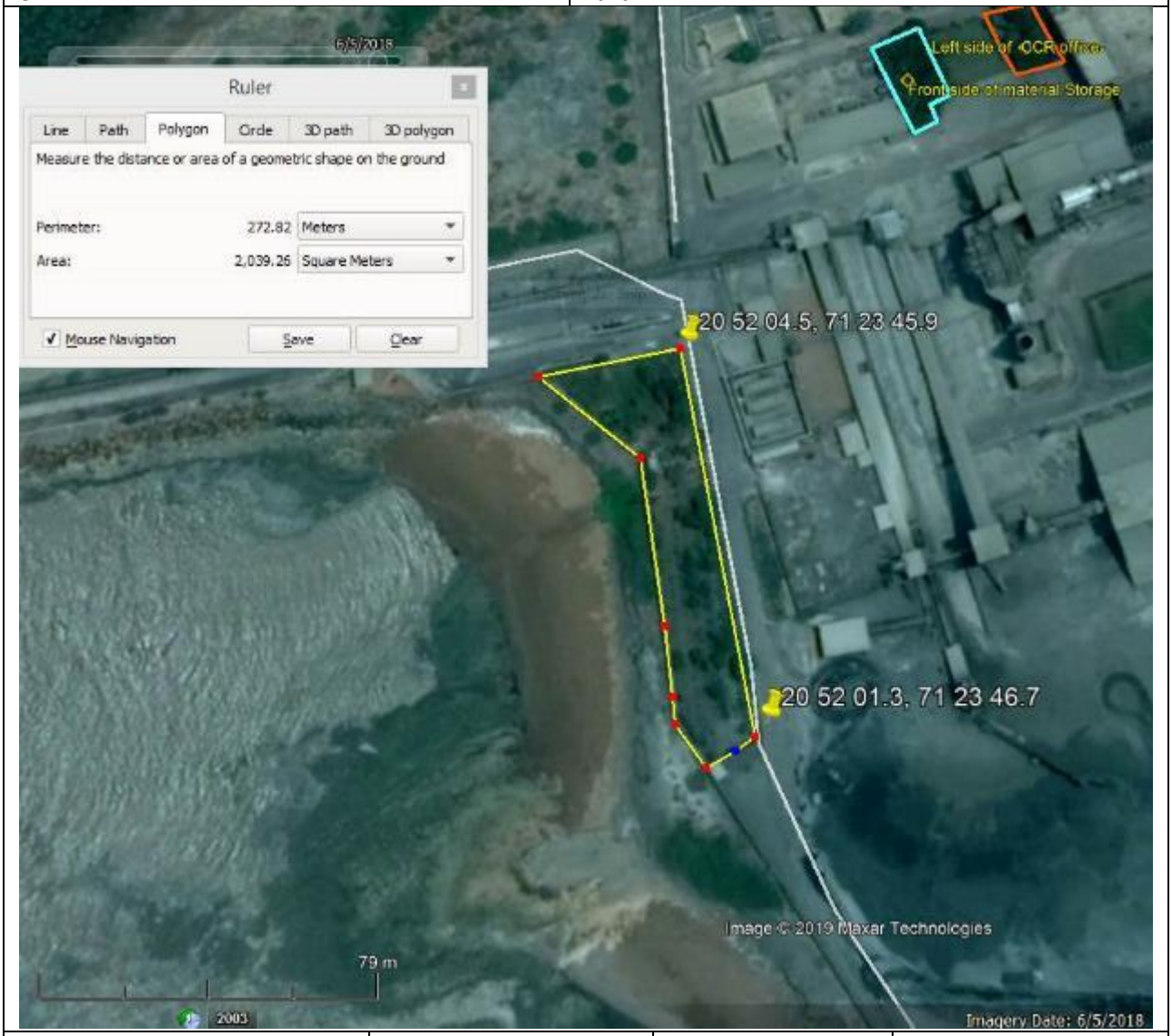
SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Peltophorum pterocarpum	Sonmukhi	Tree	37
Casuarina equisetifolia	Sharu	Tree	11
Mimusops elengi	Indian Medlar, Bakul, Borsali	Tree	17
Total (Trees and Shrubs)			65

LOCATION-XXIII	Near CCR Building-II	
COORDINATES	20°52'07.7"	71°23'48.7"
GREEN BELT AREA IN m^2	305.49	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Terminalia catappa L.	Desi Badam	Tree	3
Casuarina equisetifolia	Sharu	Tree	4
Peltophorum pterocarpum	Sonmukhi	Tree	8
Total (Trees and Shrubs)			15

LOCATION-XXIV	Jetty gate Area	
COORDINATES	20°52'01.3."	71°23'46.7."
	20°52'04.5."	71°23'45.9."
GREEN BELT AREA IN m^2	2040	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Thespesia populnea L.	Paras pipalo	Tree	42
Ficus religiosa L	Piplo	Tree	4
Ficus sp.		Tree	4
Moringa oleifera Lam	Sargavo	Tree	1
Casuarina equisetifolia	Sharu	Tree	10
Azadirachta indica	Limbado	Tree	8
Senna siamea Lam.	Kasida	Saplings	112
Delonix regia (Boj.)	Gaulmor	Tree	1
Conocarpus erectus	Buttonwood	Saplings	148
Total (Trees and Shrubs)			330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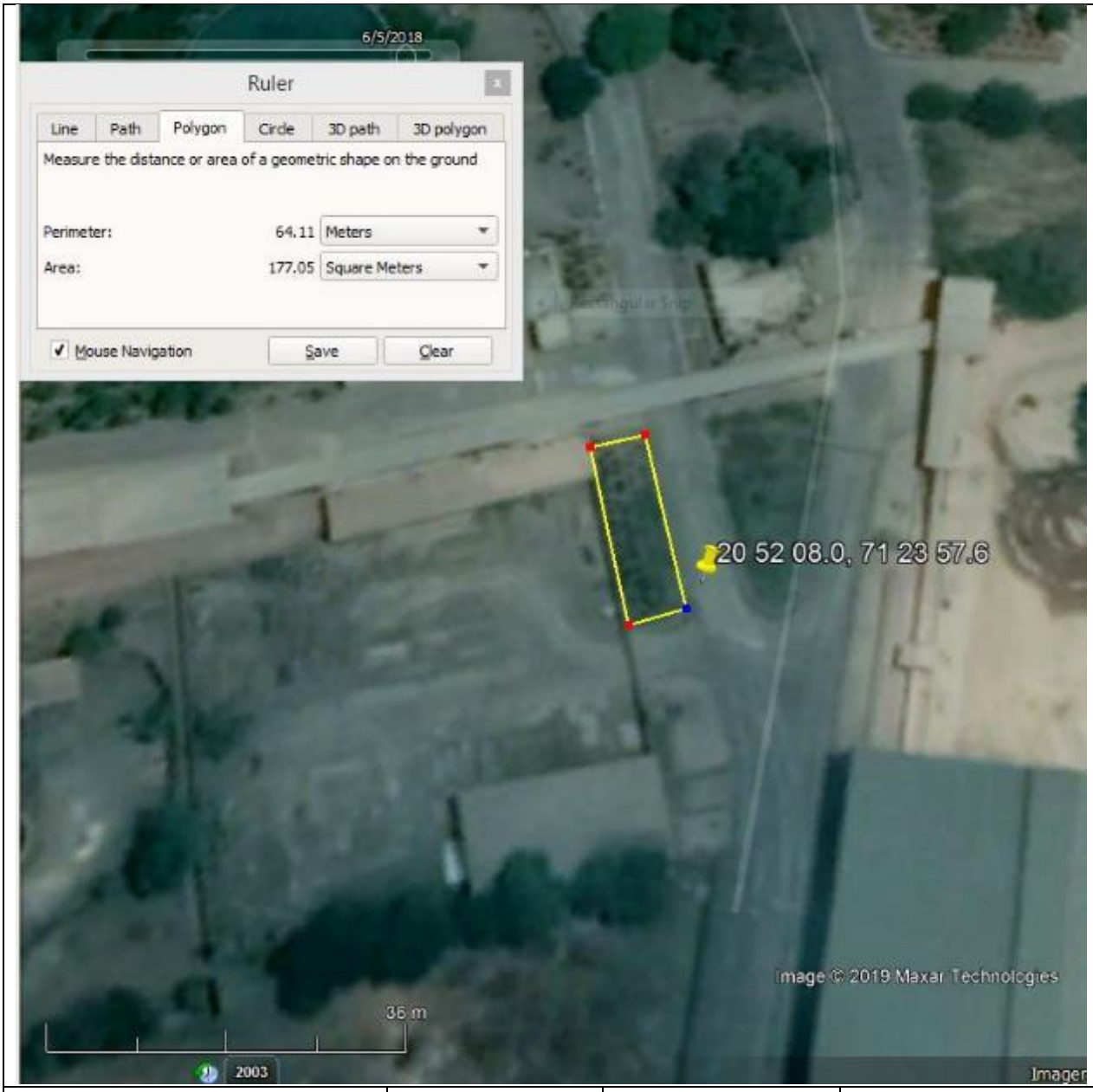
21 09 2019 12:20

LOCATION-XXV	Neem Plot area	
COORDINATES	20°51'58.1"	71°23'52.0"
	20°51'58.4"	71°23'59.3"
GREEN BELT AREA IN m^2	6581	

SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Azadirachta indica	Limbado	Saplings	Thick plantation
Total (Trees and Shrubs)			

LOCATION-XXVI	Near Steel stock yard Two patches	
COORDINATES	20°52'08.0"	71°23'57.6"
GREEN BELT AREA IN m^2	432	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Peltophorum pterocarpum	Sonmukhi	Tree	38
Mimusops elengi	Indian Medlar, Bakul, Borsali	Tree	40
Nerium indicum	Lalkaren	Shrub	>50
Total (Trees and Shrubs)			>128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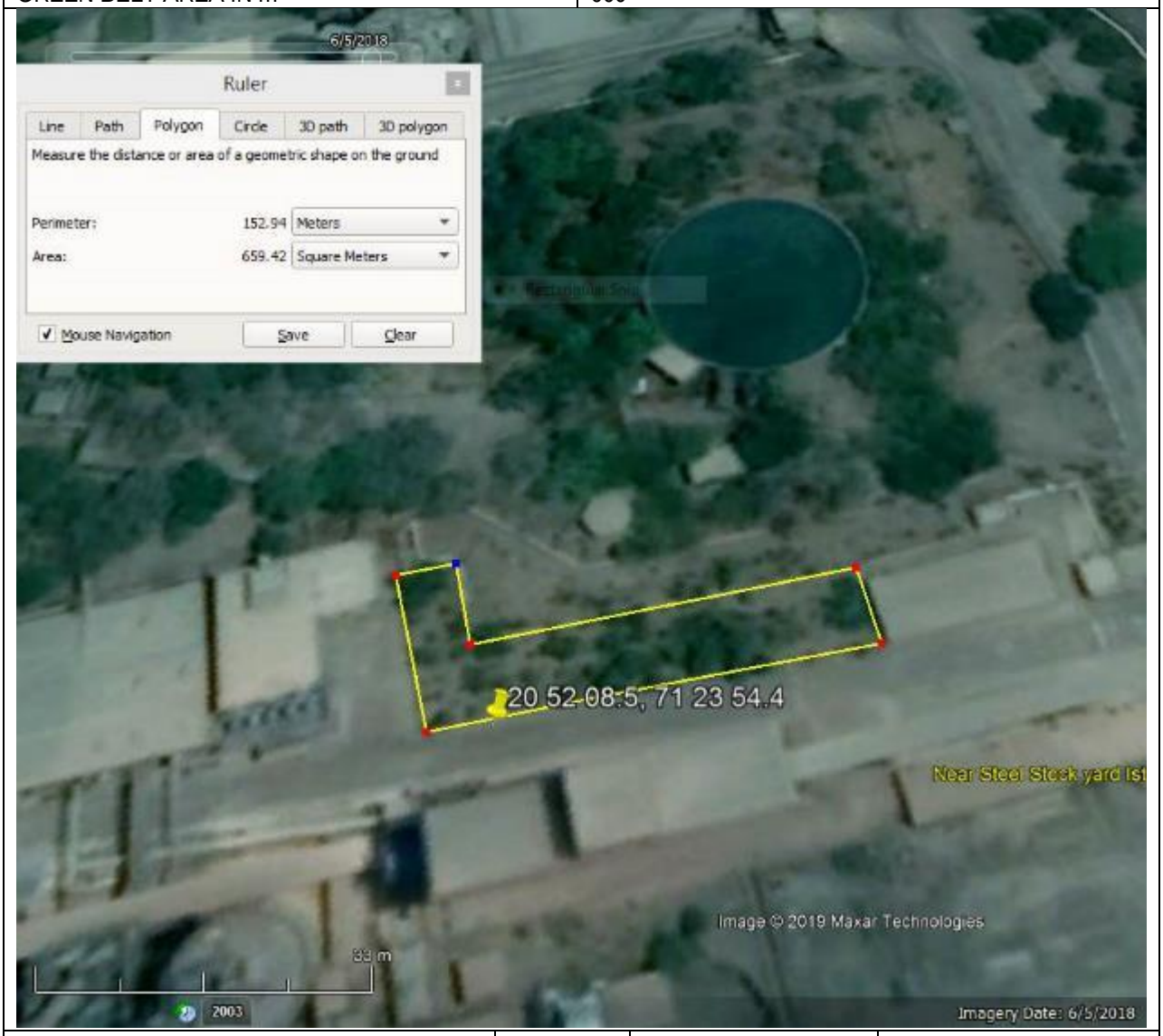
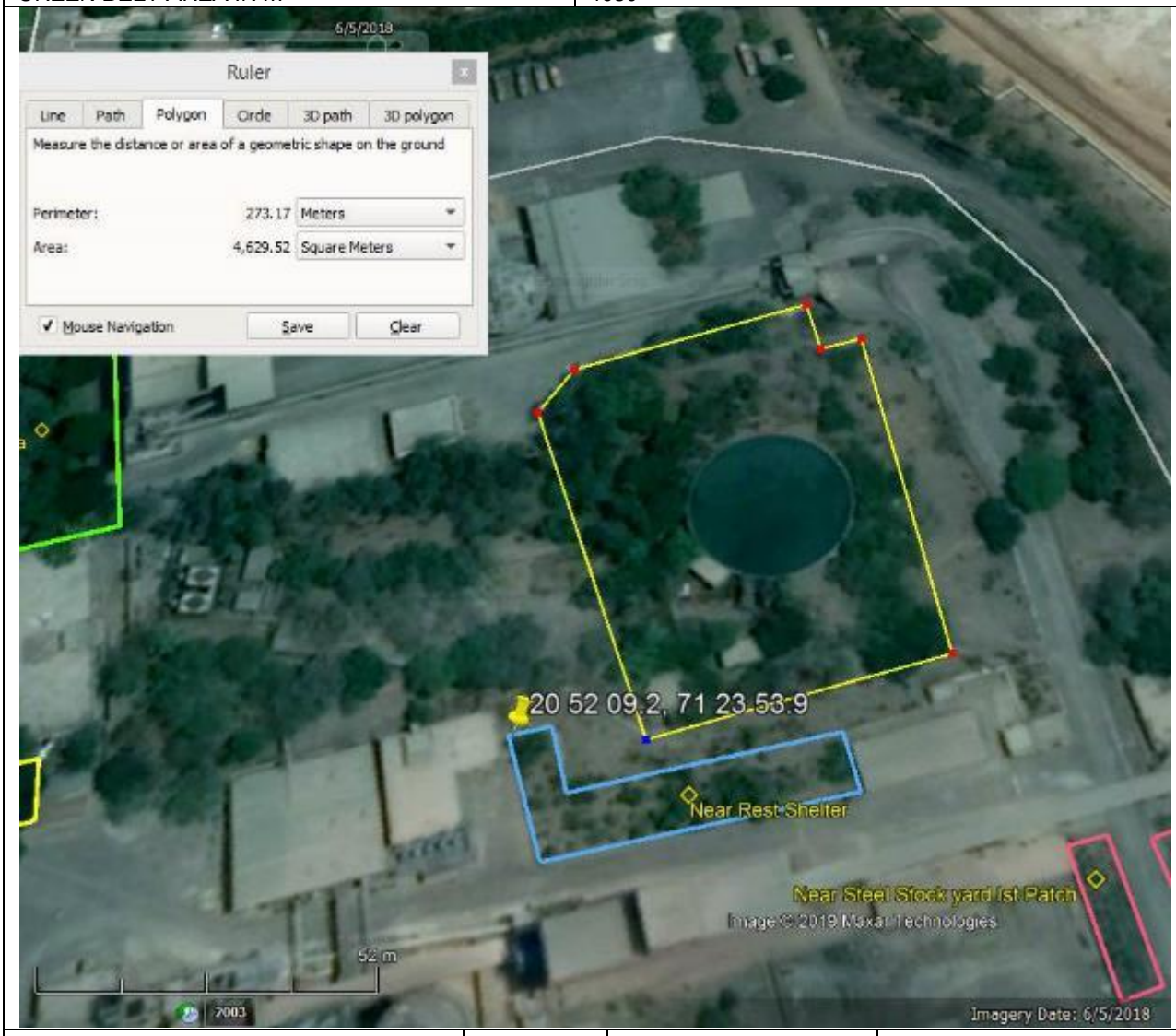
LOCATION-XXVII	Near Rest Shelter	
COORDINATES	20°52'08.5"	71°23'54.4"
	20°52'08.9"	71°23'55.9"
GREEN BELT AREA IN m^2	660	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Azadirachta indica	Limbado	Tree	35
Delonix regia (Boj.)	Gaulmor	Tree	45
Total (Trees and Shrubs)			80

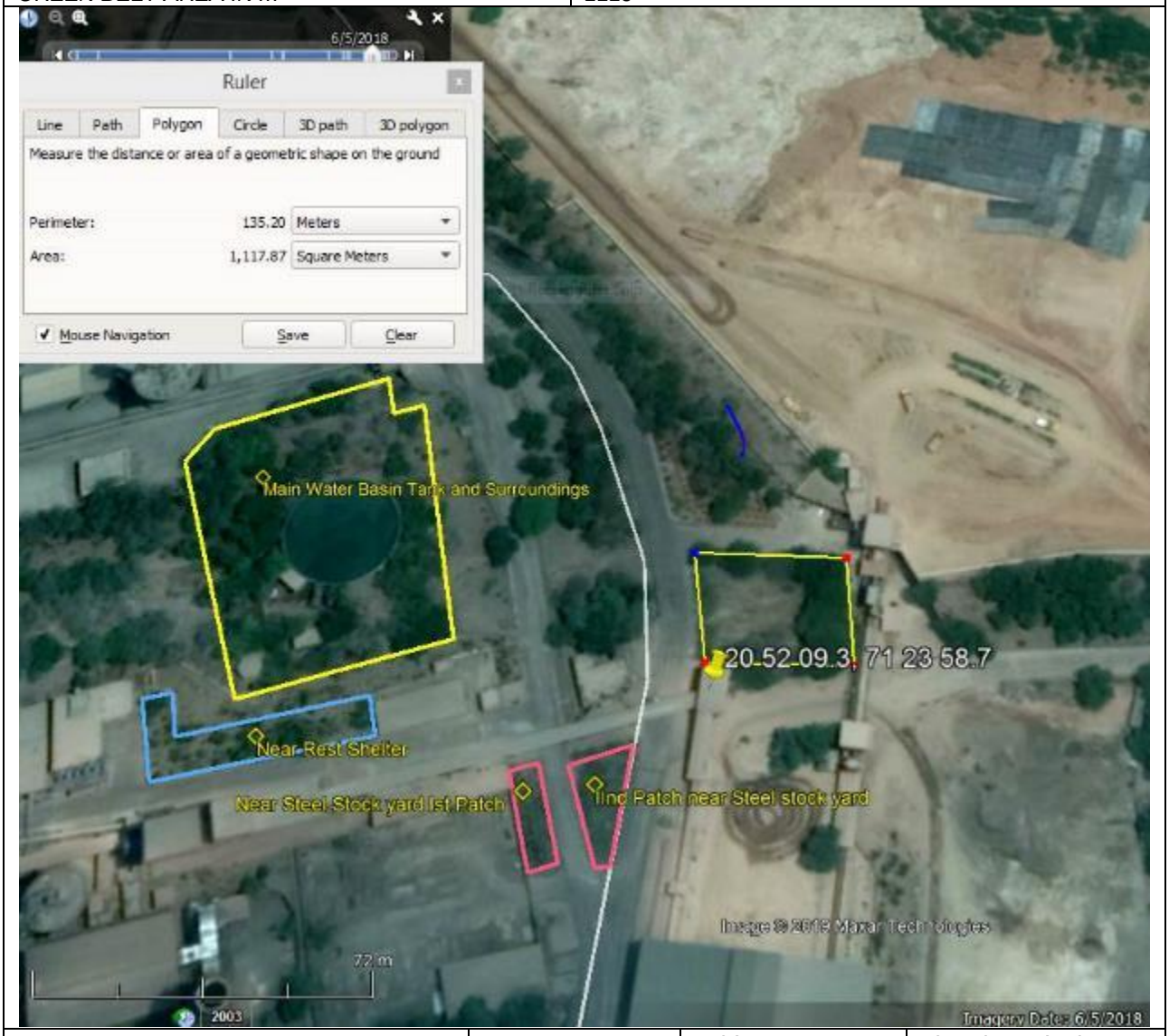
LOCATION-XXVIII	Main Water Basin Tank	
COORDINATES	20°52'09.2"	71°23'53.9"
GREEN BELT AREA IN m^2	4630	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot Scattered plantation
Ficus bengalensis L	Vad	Tree	>20
Ficus religiosa L	Piplo	Tree	>10
Pithecellobium dulce	Gorasmli	Tree	>12
Eucalyptus citriodora	Nilgari	Tree	>20
Peltophorum pterocarpum	Sonmukhi, Khasid	Tree	>50
Total (Trees and Shrubs)			




LOCATION-XIX	Near Crusher area	
COORDINATES	$20^0$52'09.3."	$71^0$23'58.7"
GREEN BELT AREA IN m^2	1118	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Peltophorum pterocarpum	Sonmukhi	Tree	78
Thevetia peruviana	Pili karen	Shrub	Thick patches
Bougain villea	Bougainvel	Climber	Thick patches
Total (Trees and Shrubs)			>78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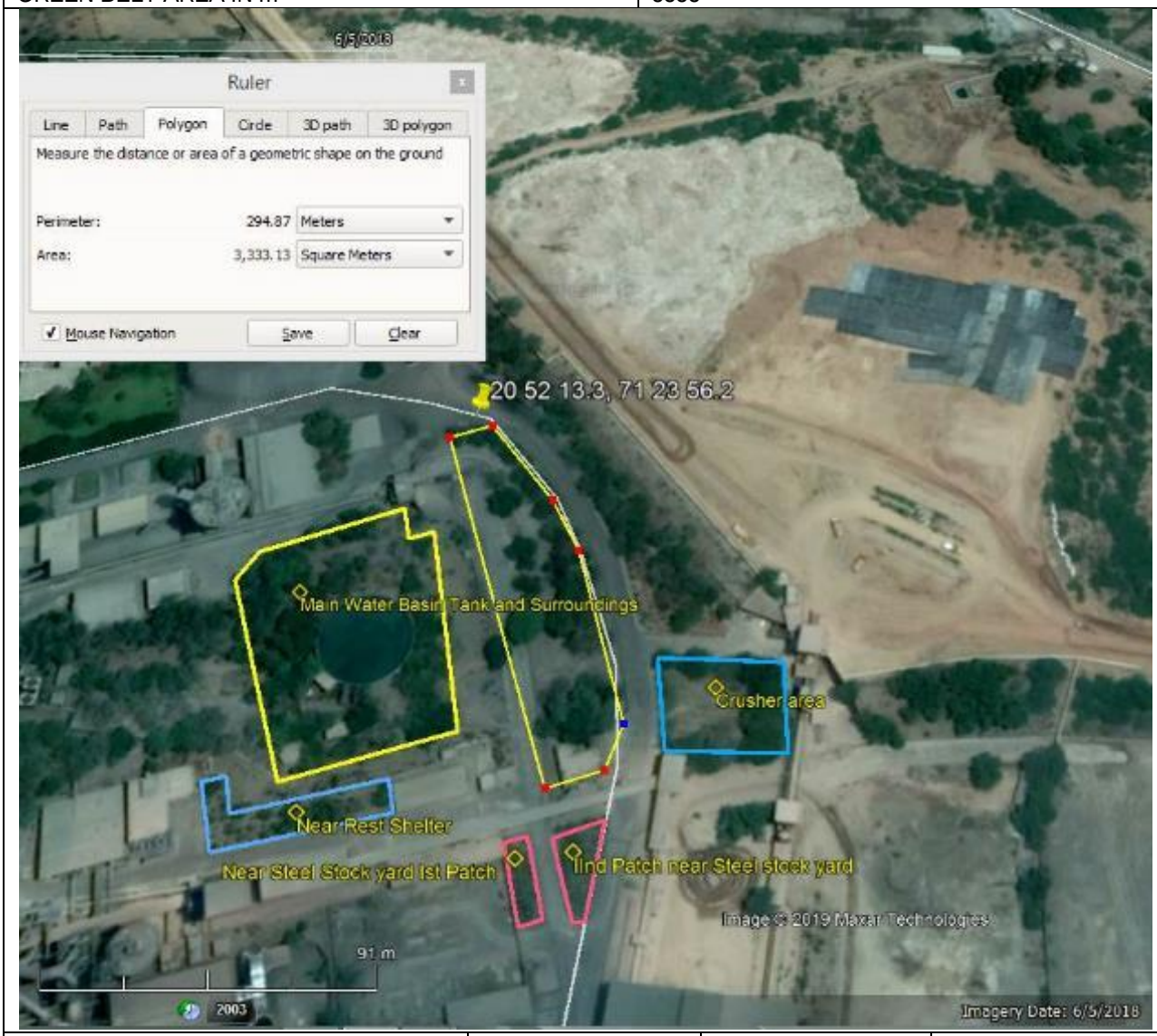
LOCATION-XXX	Opposite Crusher Towards main gate –Left	
COORDINATES	20°52'10.1"	71°23'58.4"
	20°52'13.3"	71°23'56.2"
GREEN BELT AREA IN m^2	3333	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Ficus religiosa L	Piplo	Tree	5
Thespesia populnea L.	Paras pipalo	Tree	24
Azadirachta indica	Limbado	Tree	45
Delonix regia (Boj.)	Gaulmor	Tree	46
Casuarina equisetifolia	Sharu	Tree	14
Albizia lebbeck L.	Sirid	Tree	5
Total (Trees and Shrubs)			139

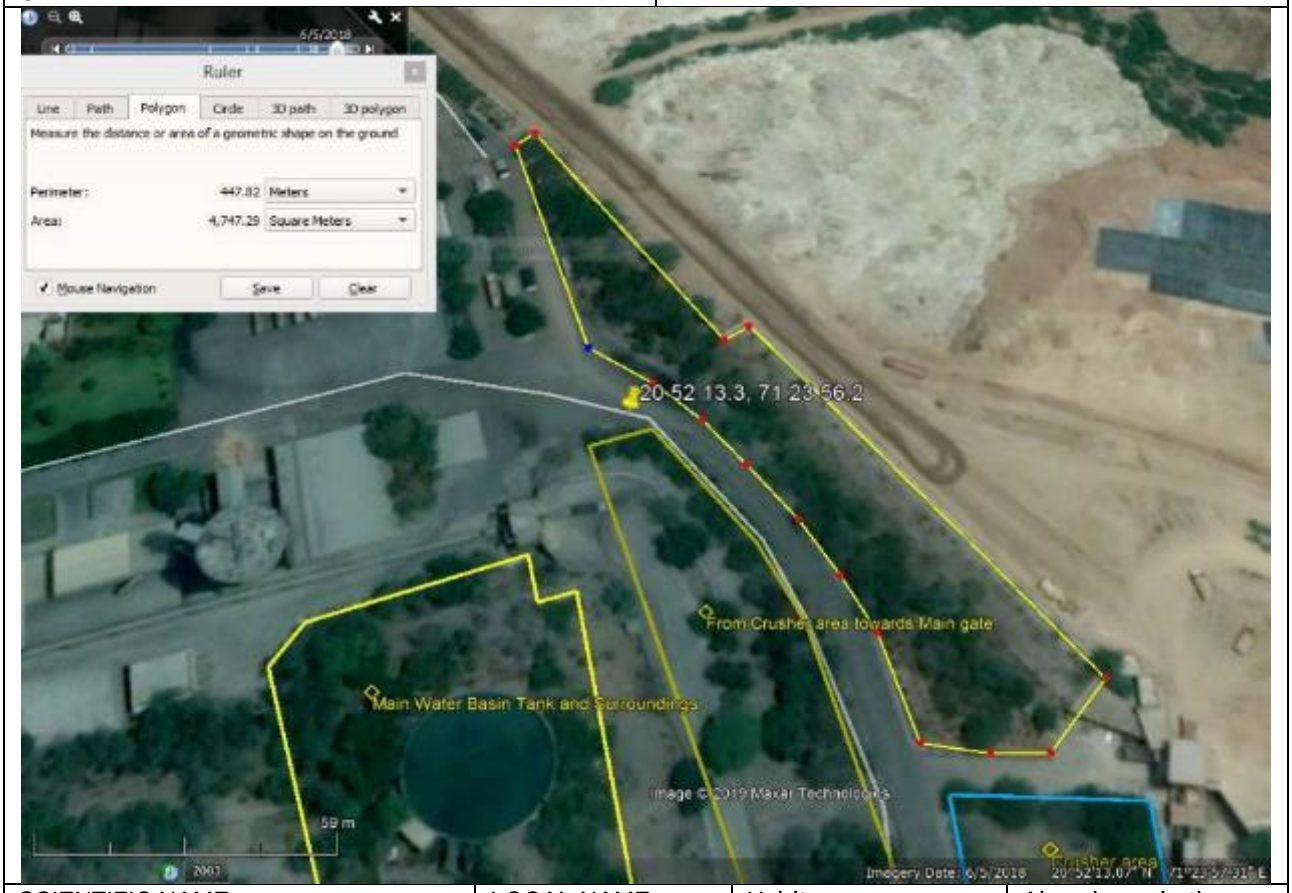

21.09.2019 13:14


21.09.2019 13:17


21.09.2019 13:21

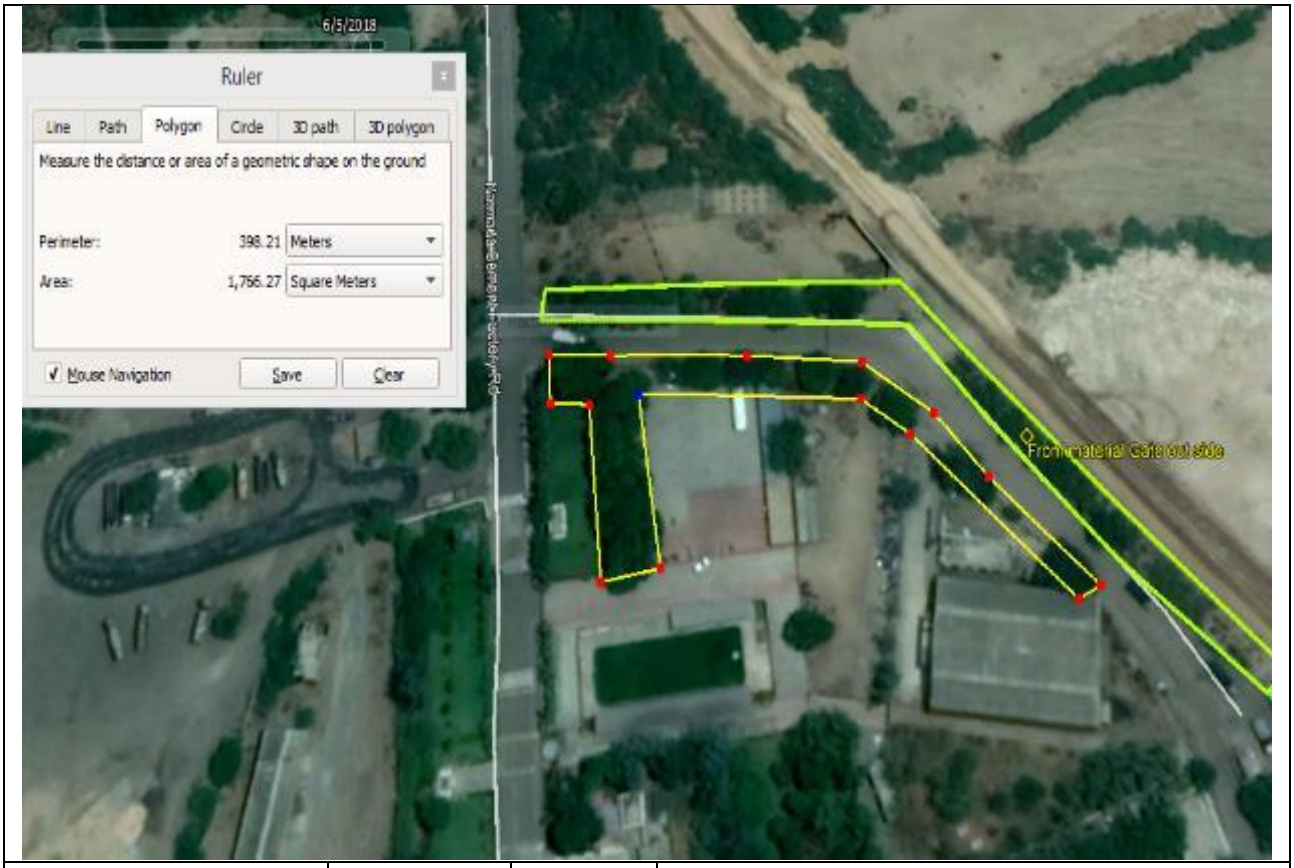

21.09.2019 13:24

LOCATION-XXXI	Opposite Crusher Towards main gate –Right	
COORDINATES	20°52'10.1"	71°23'58.0"
	20°52'14.1"	71°23'55.8"
GREEN BELT AREA IN m^2	4747	



SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Azadirachta indica	Limbado	Tree	58
Peltophorum pterocarpum	Sonmukhi	Tree	195
Thespesia populnea L.	Paras pipalo	Tree	7
Acacia auriculiformis L	Austrialanbaval	Tree	9
Total (Trees and Shrubs)			269

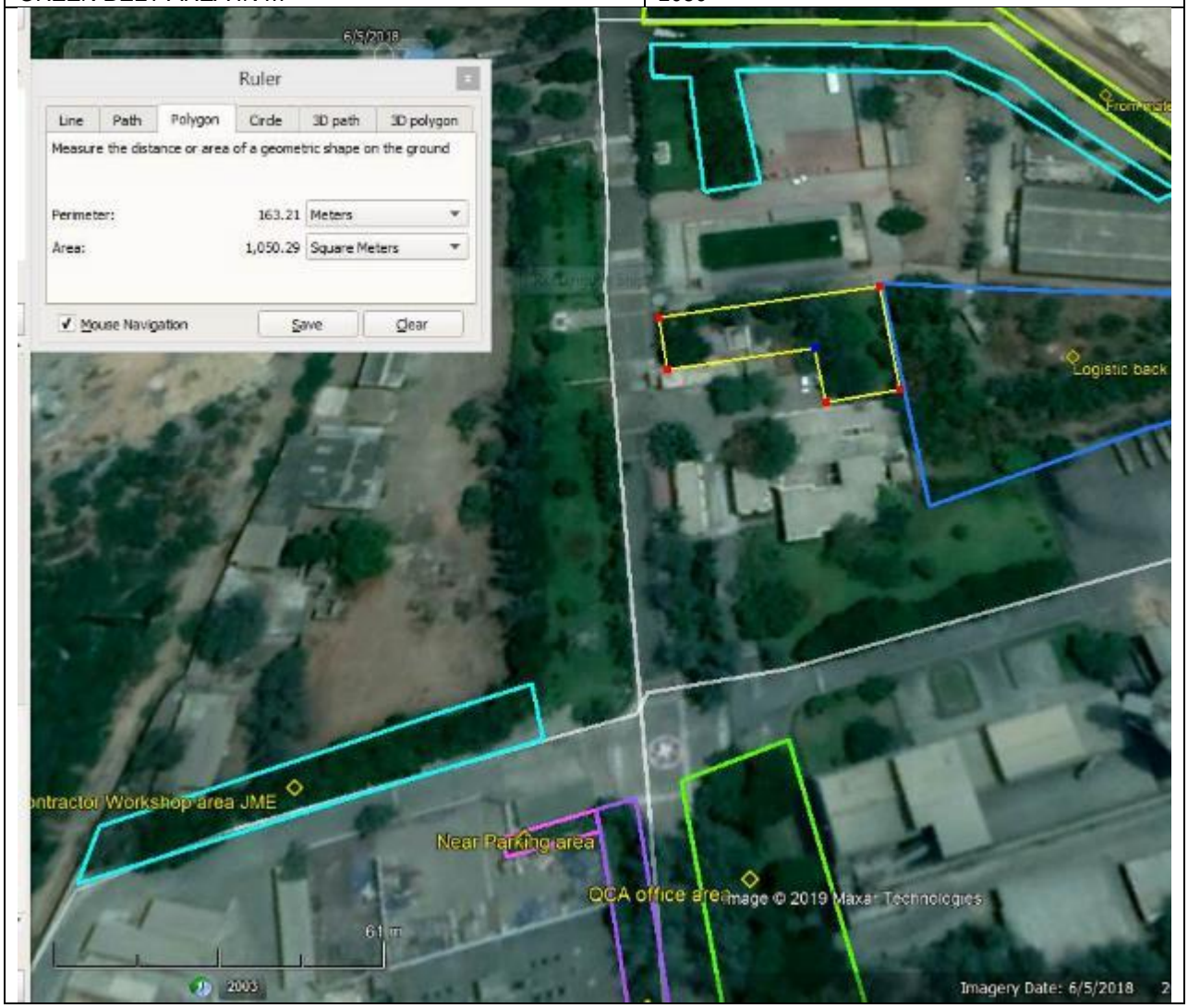
LOCATION-XXXII	From Material Gate Outside Right side
COORDINATES	
GREEN BELT AREA IN m^2	1801



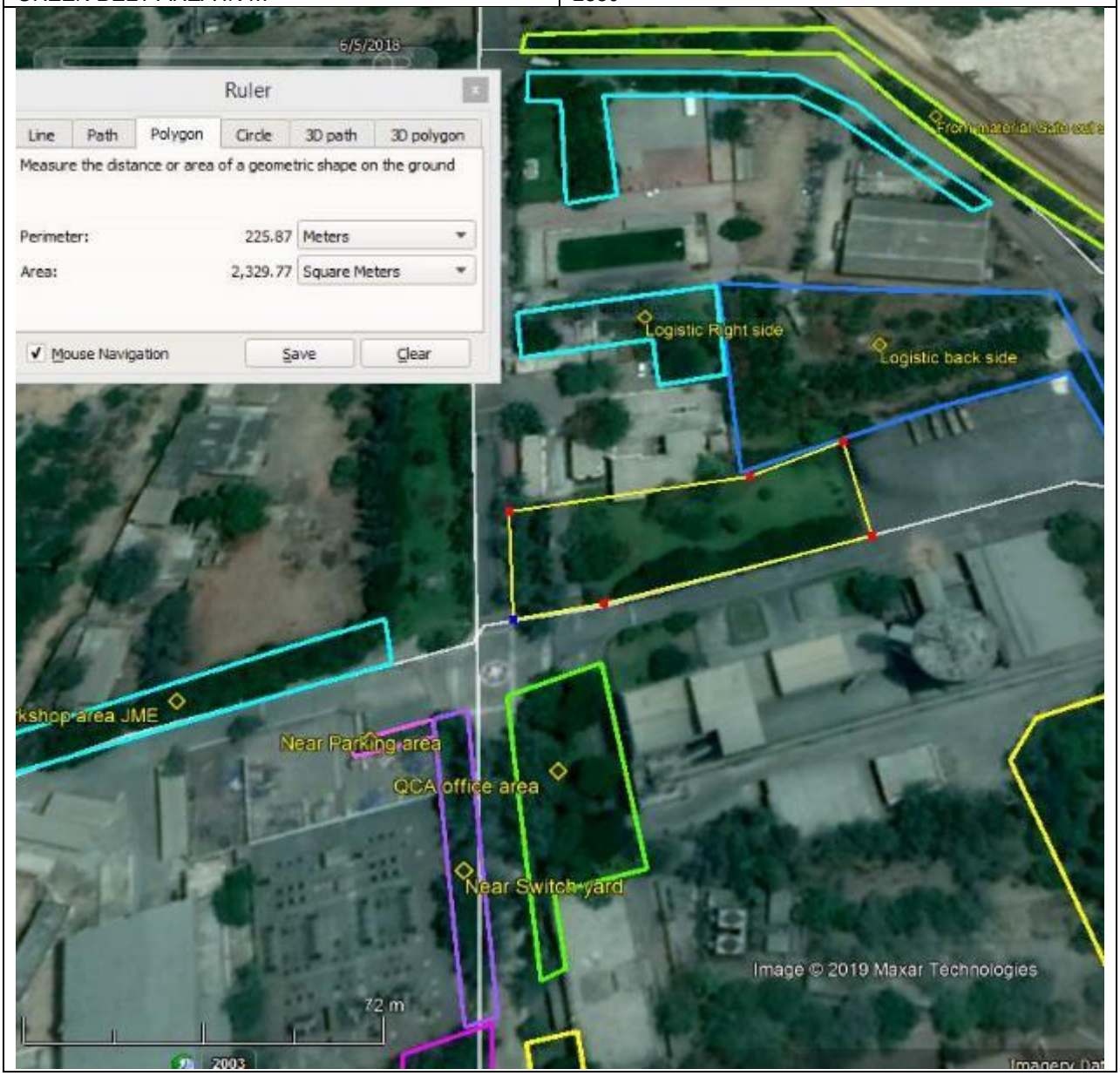
SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Senna siamea Lam.	Kasida	Tree	>80
Total (Trees and Shrubs)			>50

LOCATION-XXXV	Logistic Back side	
COORDINATES	$20^0$52'14.4"	$71^0$23'52.6"
	$20^0$52'14.8"	$71^0$23'54.8"
GREEN BELT AREA IN m^2	3973	

LOCATION-XXXVI	Logistic right side
GREEN BELT AREA IN m^2	1050



LOCATION-XXXVI	Logistic Left side
GREEN BELT AREA IN m^2	2330

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21.09.2019 13:35


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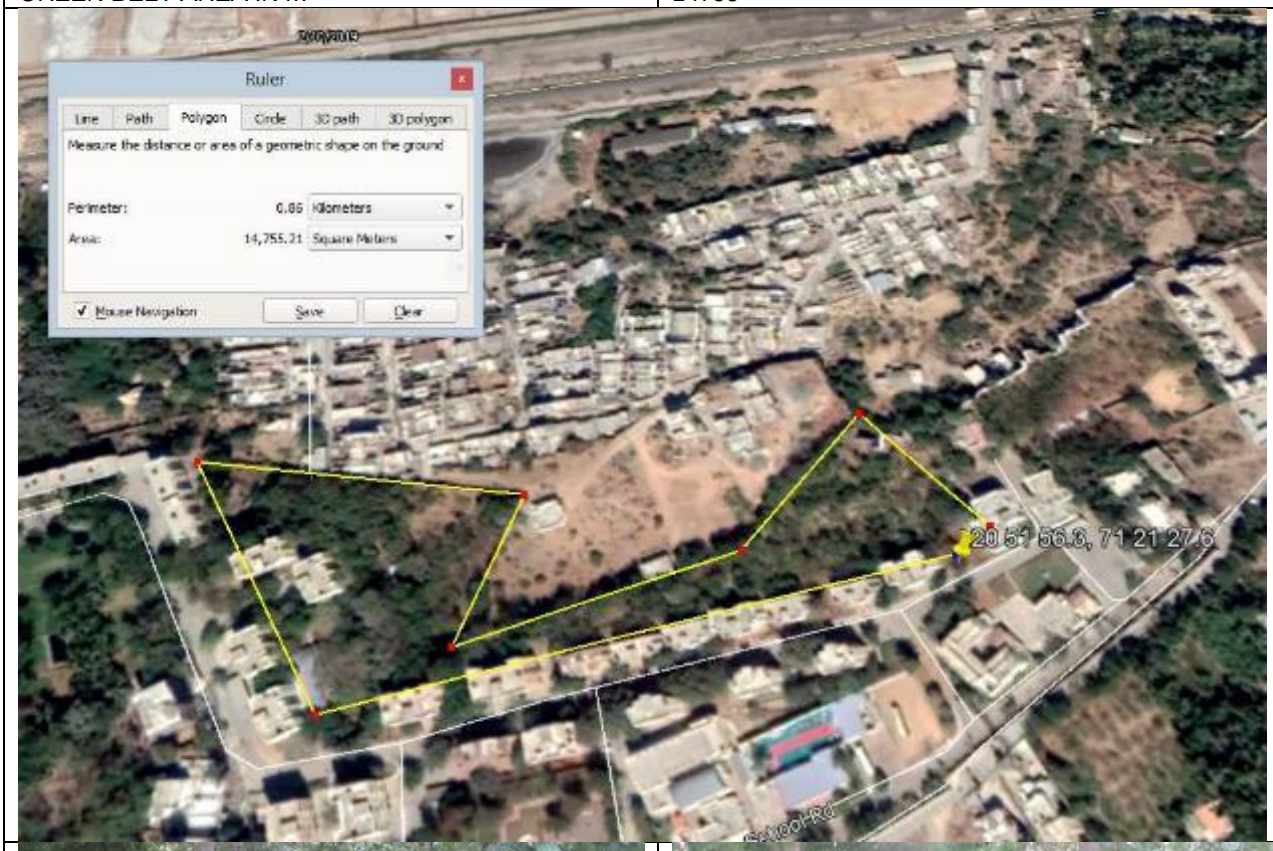
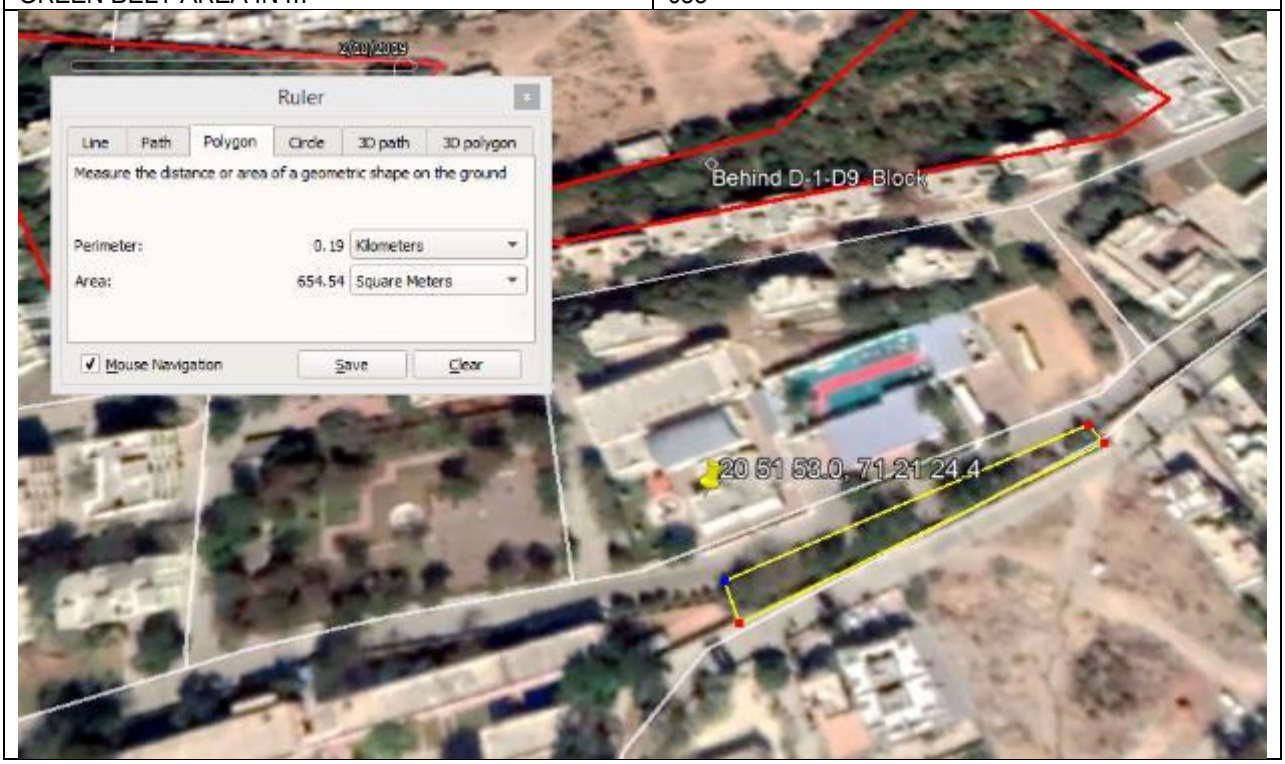
SCIENTIFIC NAME	LOCAL NAME	Habit	Abundance in the sampling plot
Eucalyptus citriodora	Nilgari	Tree	24
Senna siamea Lam.	Kasida	Tree	4
Casuarina equisetifolia	Sharu	Tree	20
Azadirachta indica	Limbado	Tree	12
Cordia sebastiana	Scarlet Cordia	Tree	3
Delonix regia (Boj.)	Gaulmor	Tree	9
Polyalthia longifolia	Asopalav	Tree	41
Acacia auriculiformis L	Austrialanbaval	Tree	6
Peltophorum pterocarpum	Sonmukhi	Tree	28
Cassia fistula L.	Garmalo	Tree	3
Total (Trees and Shrubs)			31

4 EXISTING GREEN BELT COVERAGE IN THE COLONY AREA

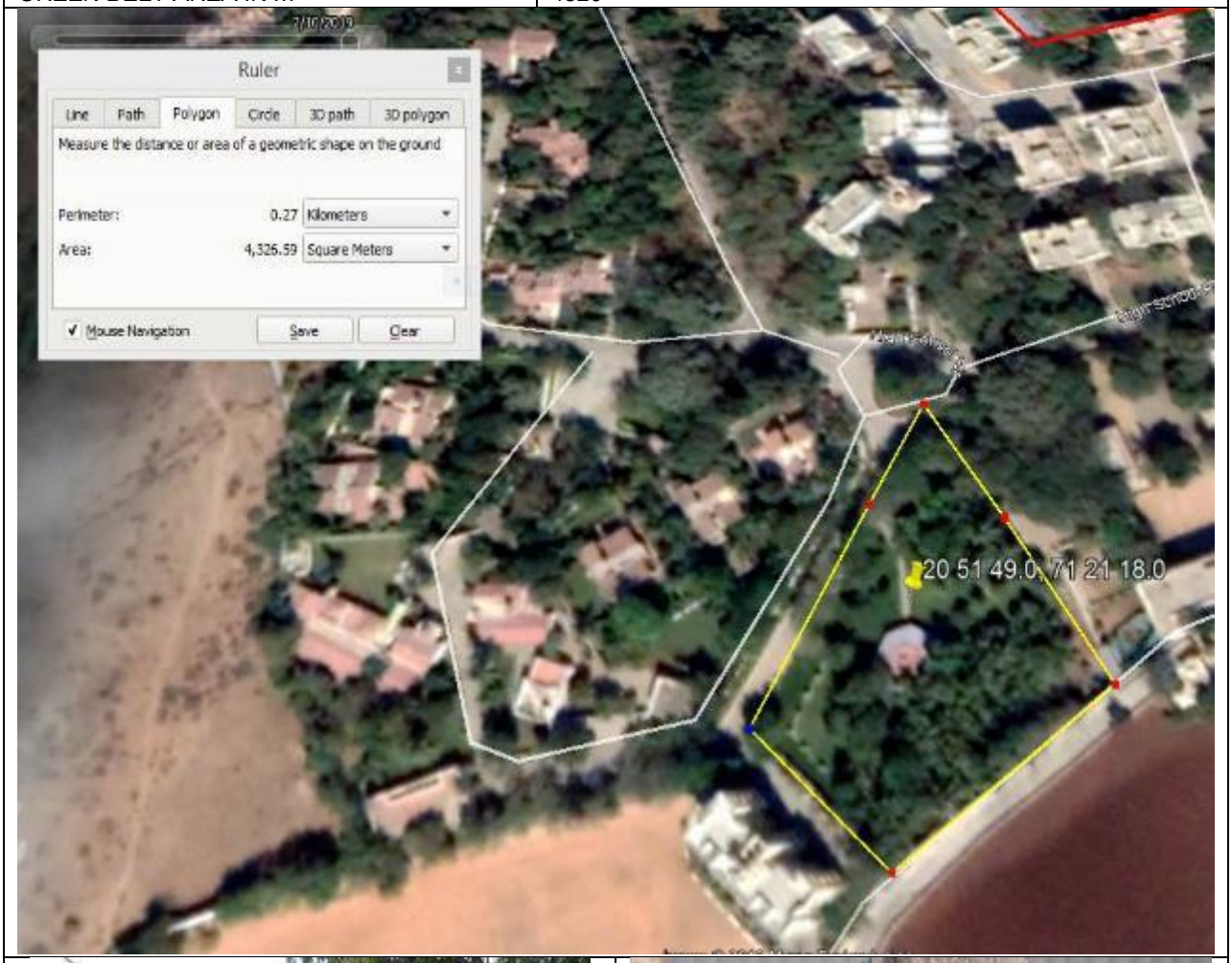
LOCATION-I	Behind D1 -D9 blocks	
COORDINATES	$20^0$51'55.9"	$71^0$21'14.2
GREEN BELT AREA IN m^2	14755	



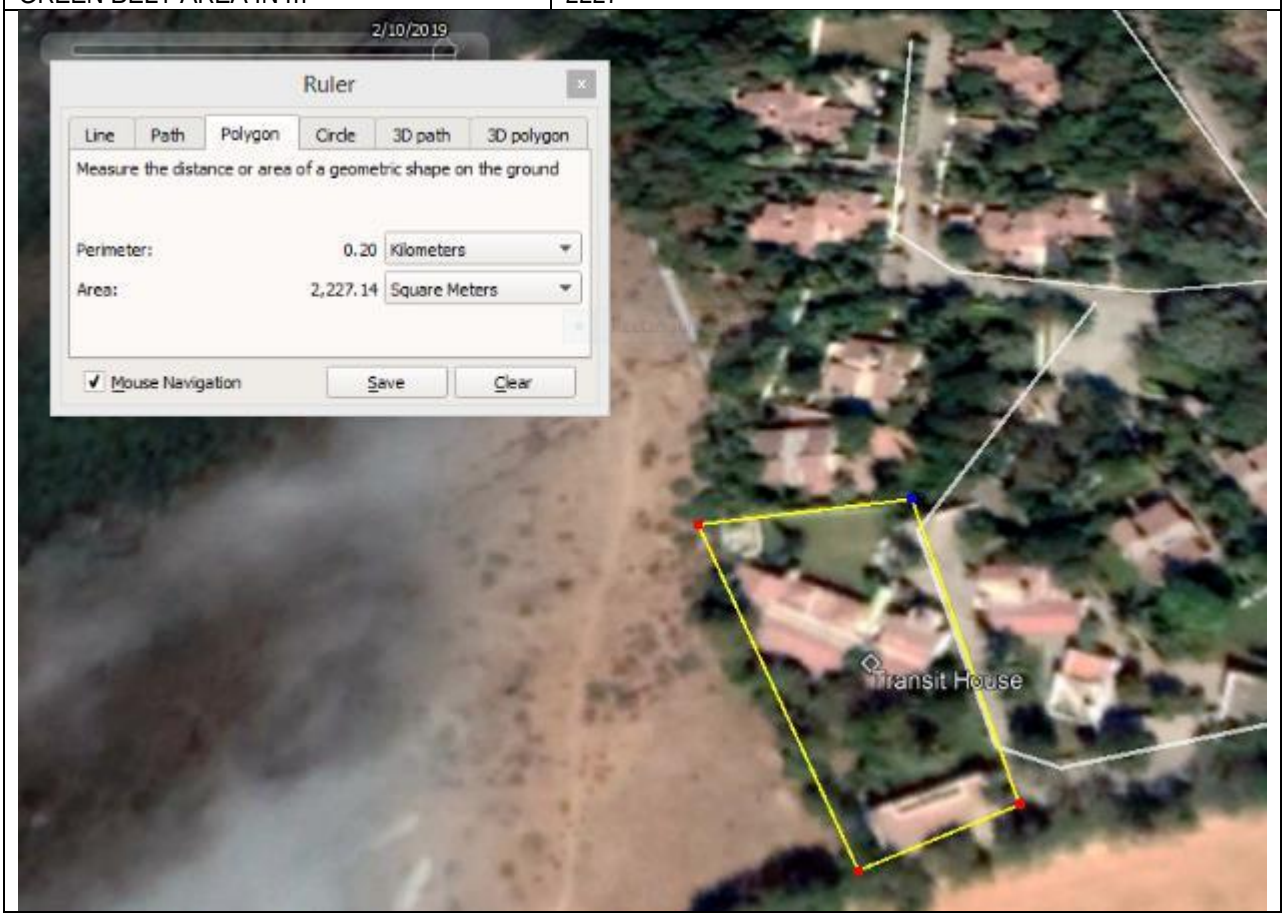
LOCATION-II	Near School	
COORDINATES	20°51'53.0"	71°21'24.4"
GREEN BELT AREA IN m^2	655	



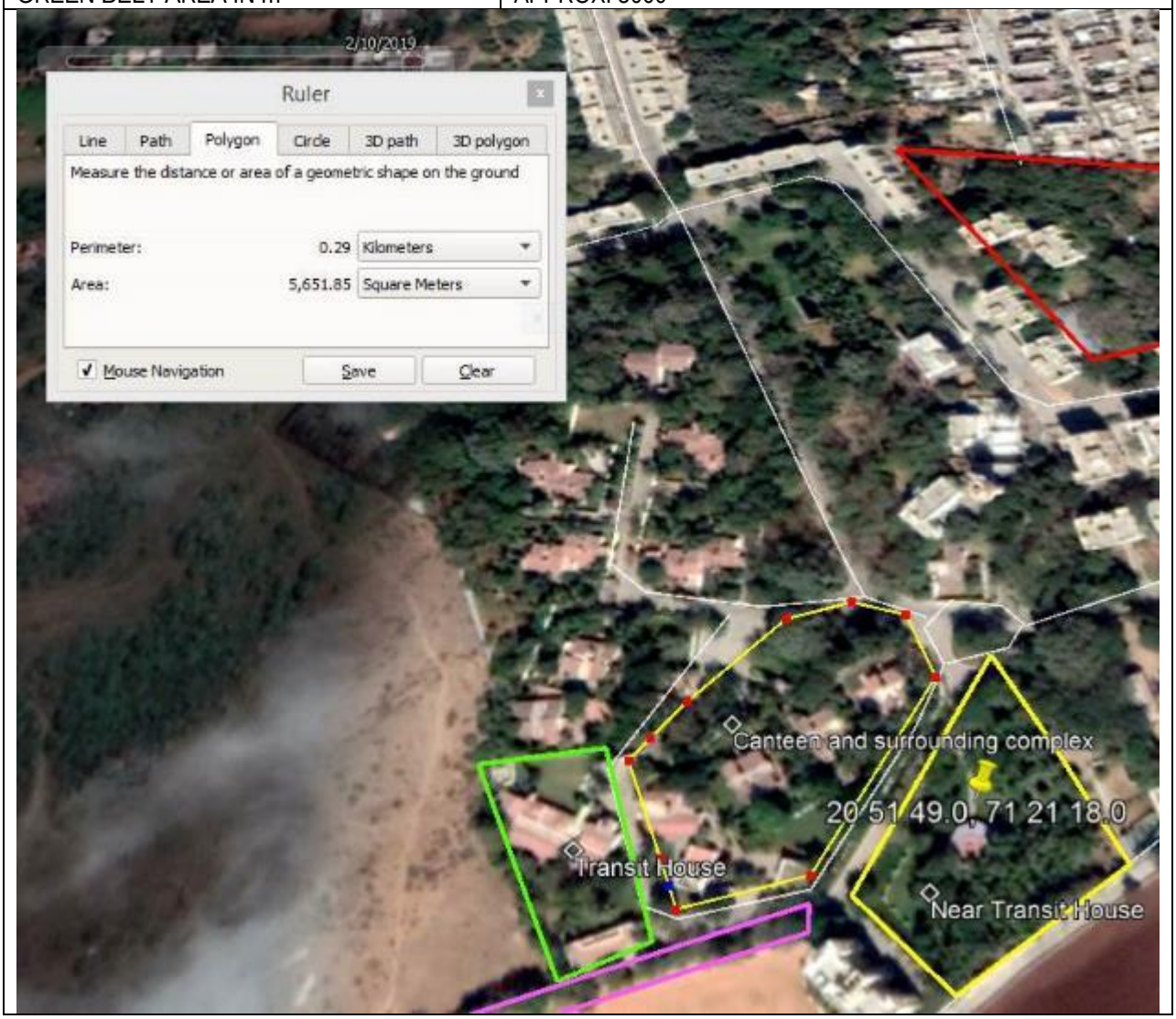
LOCATION-III	Near Transit House	
COORDINATES	20°51'49.0"	71°21'18.0"
GREEN BELT AREA IN m^2	4326	



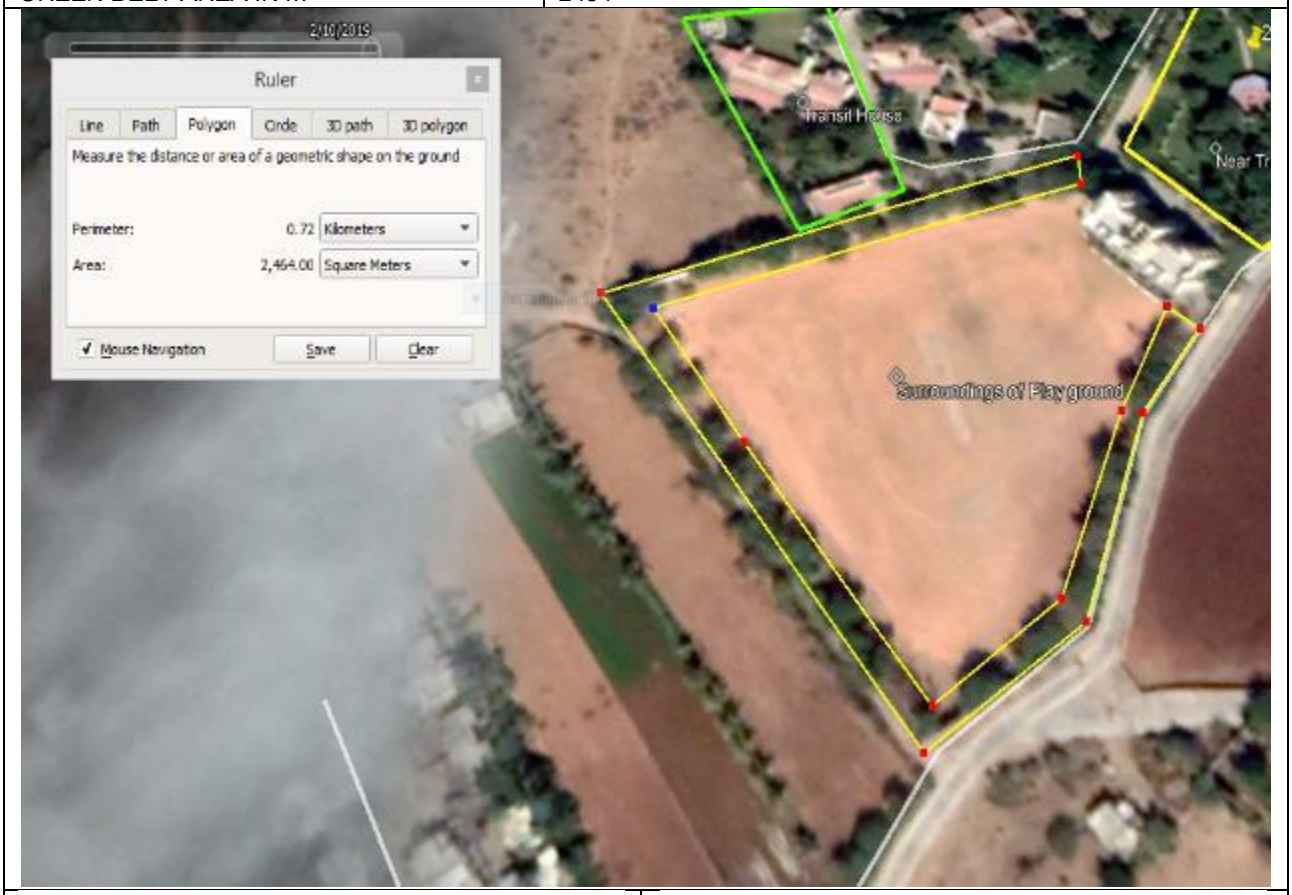
LOCATION-IV	Transit House and surroundings	
COORDINATES	$20^0$51'48.4"	$71^0$21'13.9"
GREEN BELT AREA IN m^2	2227	



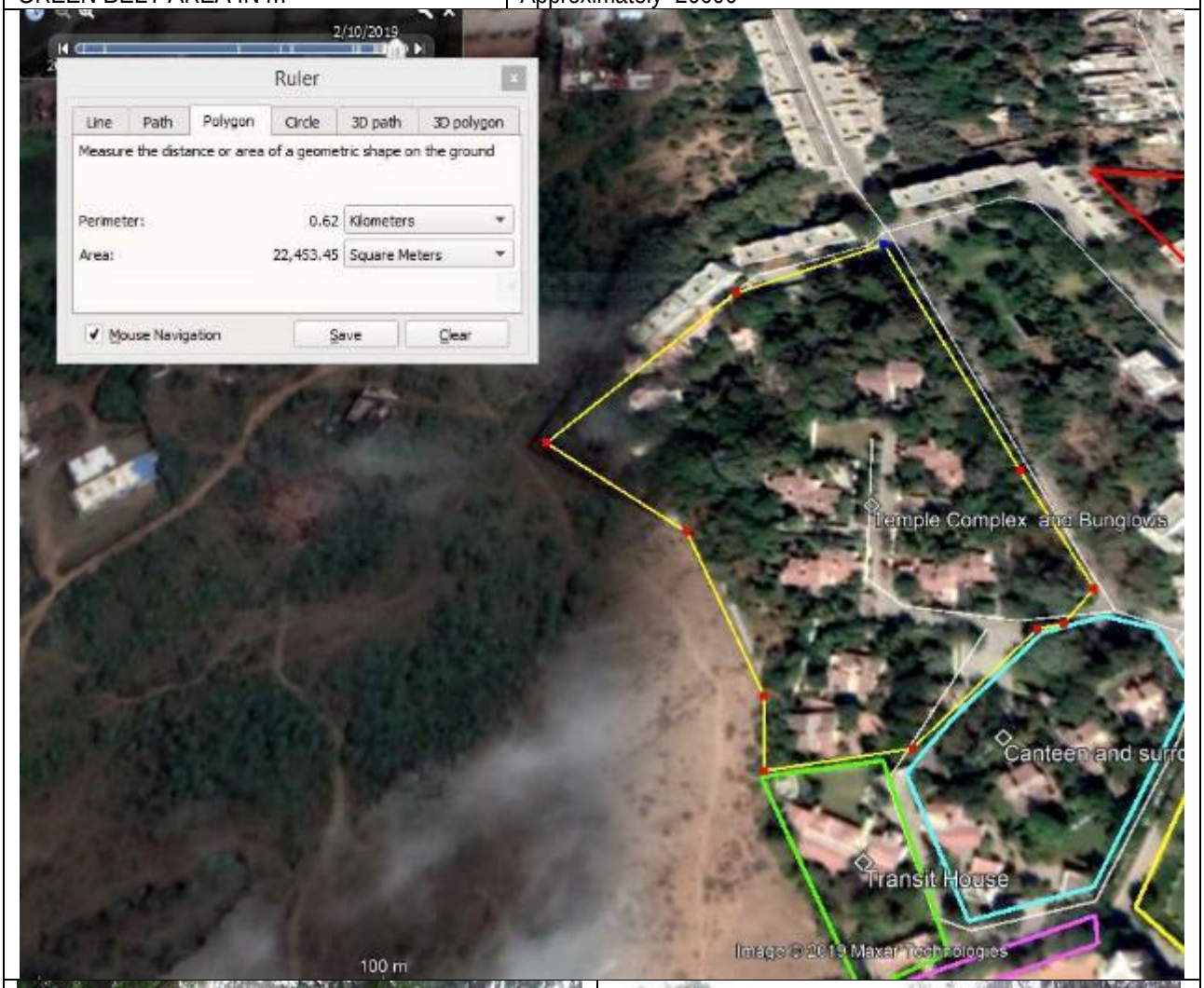
LOCATION-V	Canteen and surrounding Complex	
COORDINATES	20°51'49.0"	71°21'14.8"
GREEN BELT AREA IN m^2	APPROX. 5000	



LOCATION- VI	Surroundings of play ground	
COORDINATES	20°51'47.3"	71°21'16.7"
GREEN BELT AREA IN m^2	2454	



LOCATION-VII	Temple complex and surrounding Bungalows	
COORDINATES	20°51'55.9"	71°21'14.2"
GREEN BELT AREA IN m^2	Approximately 20000	



LOCATION-VIII	Opposite to Temple Complex	
COORDINATES	20°51'53.8"	71°21'15.7"
GREEN BELT AREA IN m^2	Approx. 12,000	

LOCATION-IX	Near Circle	
COORDINATES	20°51'47.3"	71°21'16.7"
GREEN BELT AREA IN m^2	1337	

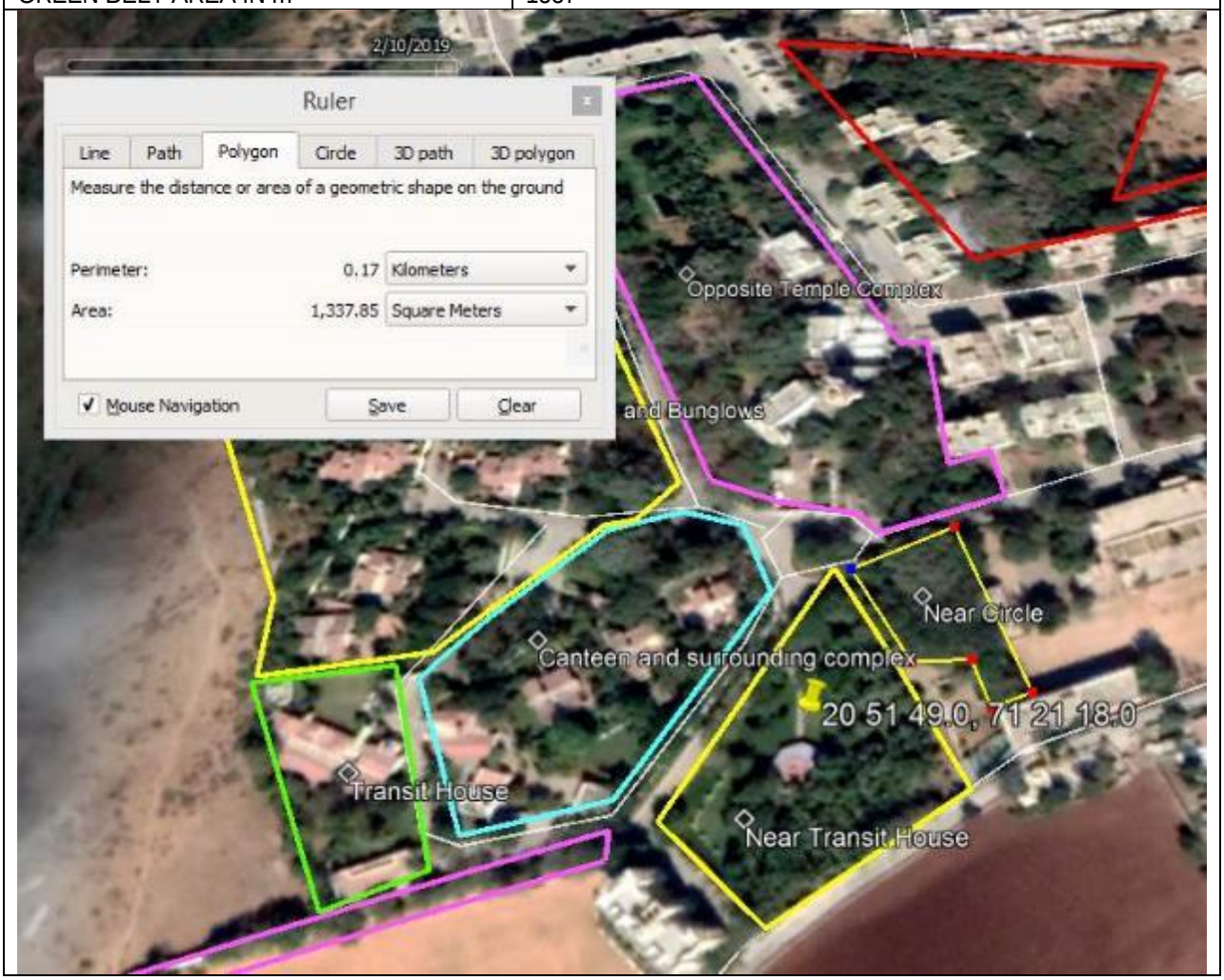


Table 4-1 Total green belt area with in mining lease area & colony

#	LOCATION	COORDINATES	TOTAL AREA IN SQ.METR
MINE AREA			
1.	Mine Eastern Boundary (New Plantation)	20°52'37.6", 71°26' 00.3."	4457
2	Between the mine approach road and village Road opposite to Eastern block plantation	20°52'36.9", 71°26' 01.7."	3782
3	Near the Boundary wall	20°52'58.1", 71°26' 03.1."	1938
4	Mine office Left side	22°52'31.6, 71°23 55.2"	1896
5	Mine office back side	20°52'31.7", 71°23' 57.1"	2640
6	Mine office Front side and surroundings	20°52'32.6", 71°23' 56.5"	580
7	Near Mine Security Cabin	20°5233.3", 71°23' 54.7"	593
8	Surrounding the Fuel pump station	20°52'34.3", 71°23' 54.9"	1401
9	Mine office along the approach Road	20°52'32.9", 71°23' 55.9"	329
10	Along the Mine approach road towards Mines Garden lake side	22°52'34.2, 71°23'55.8"	8277
11	Mines Garden and Lake view point	20°52'41.5", 71°23'55.9"	53852
12	Between two mine approach roads in front of Mines Garden	20°52'59.7", 71°23' 34.8"	3571
13	Along the mines approach road	20°52'57.8", 71°24' 04.4"	6386
14	View point and surroundings	20°53'04.9", 71°24' 11.1"	10472
15	New plantation area	20°53'30.8", 71°23' 56.5"	3618
CEMENT PLANT PREMISES			
16	Near QC Lab	20°52'10.9",71°23'50.6"	1219
17	Near Quality Assurance office	20°52'09.2", 71°23'50.4"	329
18	Contractor Work shop area JME	20°52'11.4", 71°23'46.4"	966
19	Parking Area	20°52'11.6", 71°23'48.8"	73
20	Near Switch Yard	20°5210.1", 71°23'50.4"	490
21	Near CCR Building	20° 52 '08.3", 71°23'49.6"	1842
22	Front Side of material storage	20°52'07.7", 71°23'48.7"	361
23	Near CCR Building-II	20°52'07.7", 71°23'48.7"	305.49
24	Jetty gate Area	20°52'01.3.", 71°23'46.7."	2040
25	Neem Plot area	20°51'58.1", 71°23'52.0"	6581
26	Near Steel stock yard Two patches	20°52'08.0", 71°23'57.6"	432
27	Near Rest Shelter	20°52'08.5", 71°23'54.4"	660
28	Main Water Basin Tank	20°52'09.2",71°23'53.9"	4630

29	Near Crusher area	20⁰52'09.3.", 71⁰23'58.7"	1118
30	Opposite Crusher Towards main gate –Left	20⁰52'10.1", 71⁰23'58.4"	3333
31	Opposite Crusher Towards main gate –Right	20⁰52'10.1", 71⁰23'58.0"	4747
32	From Material Gate Out side Right side		1801
33	From Material Gate Out side Left t side		1766
34	Logistic Back side		3973
35	Logistic right side		1050
36	Logistic Left side		2330
COLONY AREA			
37	Behind D1 -D9 blocks	20⁰51'55.9", 71⁰21'14.2	14755
38	Near School	20⁰51'53.0", 71⁰21'24.4"	655
39	Near Transit House	20⁰51'49.0", 71⁰21'18.0"	4326
40	Transit House and surroundings	20⁰51'48.4", 71⁰21'13.9"	2227
41	Canteen and surrounding Complex	20⁰51'48.7", 71⁰21'15.3"	5000
42	Surroundings of play ground	20⁰51'47.3", 71⁰21'16.7"	2454
43	Temple complex and surrounding Bungalows	20⁰51'55.9", 71⁰21'14.2"	20000
44	Opposite to Temple Complex	20⁰51'53.8", 71⁰21'15.7"	12,000
45	Near Circle	20⁰51'50.4", 71⁰21'185"	1337
Total area under Green Belt Development in Mine lease area			**206593 (20.6 Ha)**

Figure 4-1 SURFACE PLAN OF MINE AND PLANT PREMISE

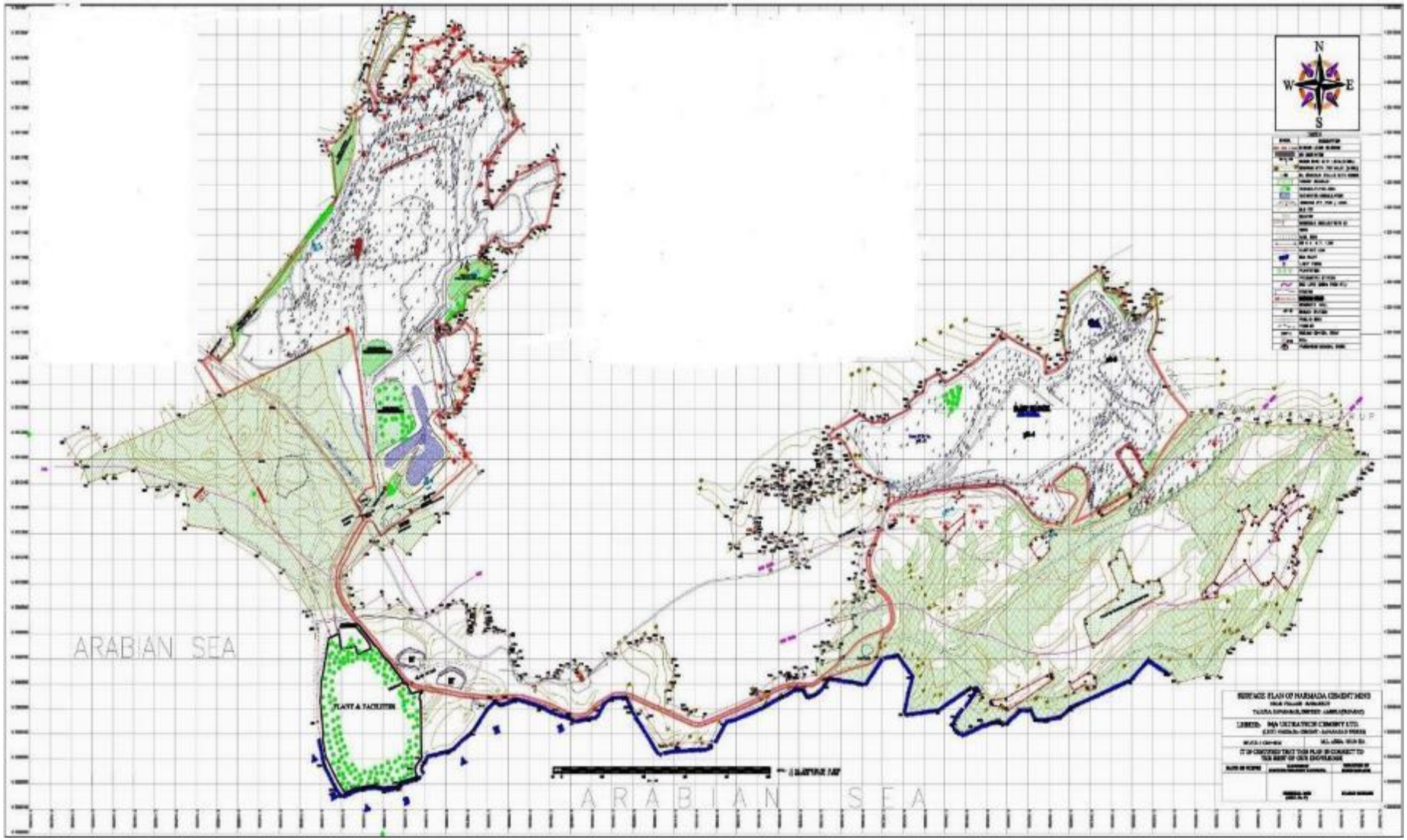
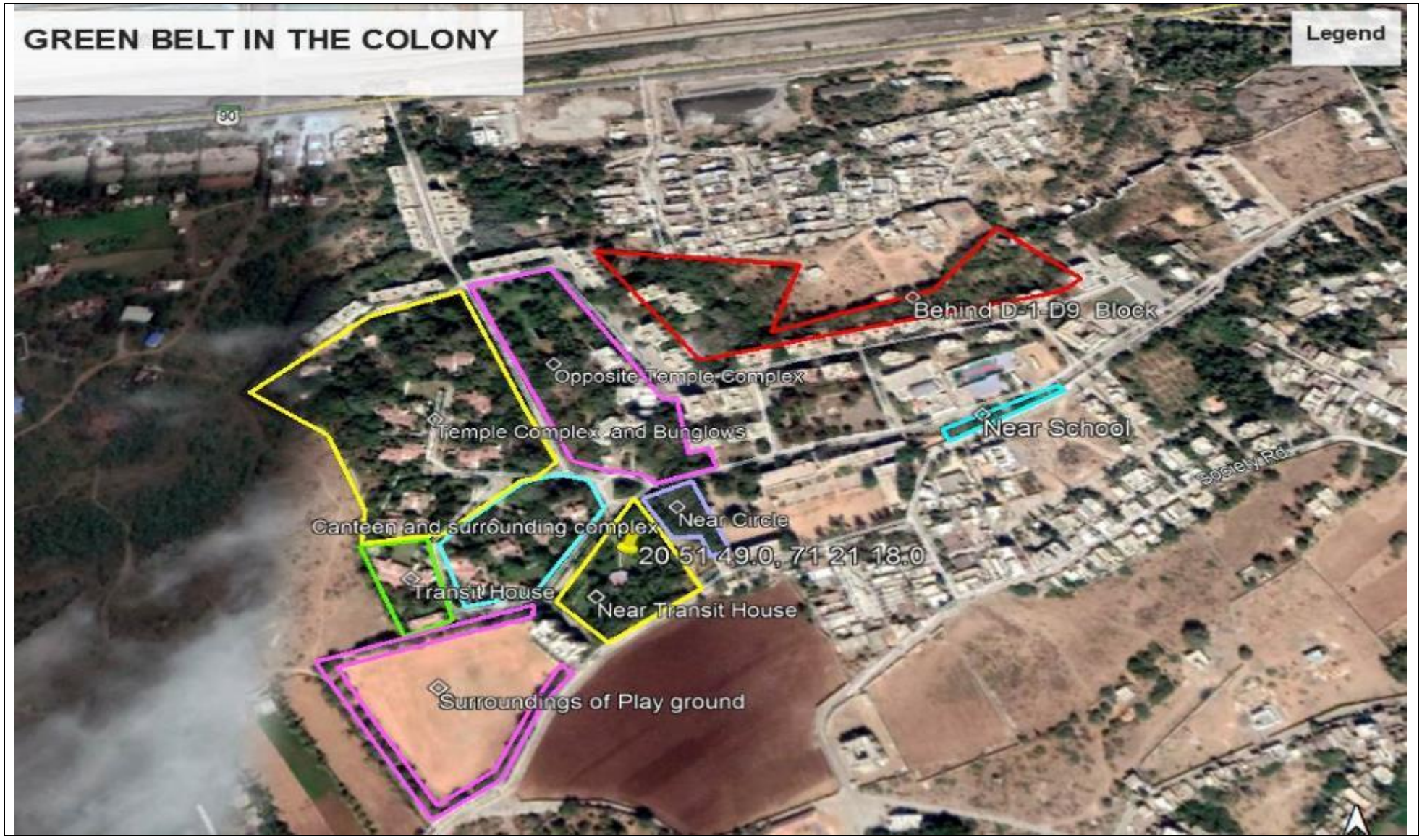


Figure 4-2GREEN BELT AREA IN PLANT PREMISES

Figure 4-3GREEN BELT AREA IN MINE AREA

Figure 4-4GREEN BELT AREA IN MINE AREA



5. ADEQUACY OF THE EXISTING GREEN BELT

5.1 Plant species for pollution control

Greenbelt is defined as the mass plantation of pollution tolerant trees and shrubs in an area for the purpose of minimizing air pollution by filtering, intercepting and absorbing pollutants in an effective manner for improvement of the environment.The importance of greenbelt can be ascertained from the estimate of cleansing capacity of 3.7 tonnes of CO_2 from atmosphere and supply of 2.5 tonnes of oxygen from one hectare of woodland. *(Sharma & Roy, 1999)*

Following trees and shrubs are recommended for planting in the greenbelt which have aesthetic effect as well as pollution tolerant capacity: Acacia *auriculiformis (*Austrialanbaval*), Albizzia lebbek(*Sirid) , *Azadirachta indica (*Limbado*), Bougainvillea, Bauhinia purpurea (*kancher, Champakathi*), Senna siamea* (Kasida), *Diospyros embryopteris, Lagerstroemia duperreana, Melia azedarach (*Bakanlimdo*), Millingtonia hortensis, Nerium oleander(*Lalkaren) *, Polyalthia longifolia (Asopalav), Thevetia peruviana* (Pilikaren) etc.. *(Sharma &Roy, 1999)*

While selecting the species for pollution control the following are the important characteristics could be considered. Plants should be evergreen, large leaved, rough bark, indigenous, ecologically compatible, low water requirement, minimum care, high absorption of pollutants, resistant pollutants, agro-climatic suitability, height and spread, Canopy architecture, Growth rate and habit (straight undivided trunk), Aesthetic effect (foliage, conspicuous and attractive flower colour), Pollution tolerance and dust scavenging capacity.

M/s Ultratech Cement Limited (Unit: Narmada Cement Jafrabad Works) has a total mining lease area of 56,59,500 m2 (565.95 ha.) Out of the above stated 56,59,500 m2 of mining lease area, (565.95 ha.) - 8,09,300 m2 (80.93 ha) in Survey # 69p and 963200 m2 (96.32 ha) in survey # 366/P. is classified as Reserve Forest. Thus, available mining area is only 388.7 hectors, it is Observed that approximately 20.65 hectors (2,06,593 m2) is developed as green belt area of total available lease area & colony as on now. The green belt area in the mining lease will be subsequently increased as per the progress in the mining.

5.2 Aadequacy plantation within the plant premises and mining area to mitigate airborne particulate pollution

During the present study, 206593 m^2 area was observed with green belt within mining lease area including Plant premises & colony. During the present study, it was observed that M/s

Ultratech cement (Unit Narmada Cement) had undertaken an appreciable effort in past for developing the green belt within the cement plant premises as well as garden area developed in mining area. But recent effort towards development of in the mining area was severely affected by the ingression of *Prosopis juliflora*.

It was observed that during plantation effort very little attention has been paid for green belt as a barrier on filtering the particulate matter along the approach roads of mines.

In this study suitable area has been suggested for further intensified planation as purpose of minimizing air pollution by filtering, intercepting and absorbing pollutants in an effective manner for improvement of the environment. Type of trees and shrubs suitable for this area has also been suggested.

5.2.1 Internal Road side plantation:

Internal roads in plant premises were often found neglected and devoid of any plantation. It is recommended that this area should be well utilized by planting dwarf trees and shrubs. This will not only serve aesthetic purpose but also functional being physical barrier for the glare of head lights of the vehicles which is essential for effective and safe operation of the roads during dark hours.

5.2.2 Very Close plantation adopted at the recent planation area:

It was observed that during the recent planation effort, company had been adopted very close plantation techniques without considering the canopy requirement of the individual species. Close spacing resulted in upright canopy by compromising the intended purpose of minimizing air pollution by filtering, intercepting and absorbing pollutants in an effective manner for improvement of the environment.

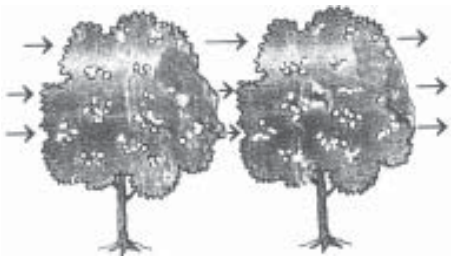
5.3 Recommended Plant species for pollution control:

While selecting the species for pollution control the following are the important characteristics could be considered. Plants should be evergreen, large leaved, rough bark, indigenous, ecologically compatible, low water requirement, minimum care, high absorption of pollutants, resistant pollutants, agro-climatic suitability, height and spread, Canopy architecture, Growth rate and habit (straight undivided trunk), Aesthetic effect (foliage, conspicuous and attractive flower colour), Pollution tolerance and dust scavenging capacity (Kumar *etal*. 2013).

During green belt plantation, the first choice should be, therefore, to select easily propagated and readily available, medium growing, ecologically much suitable, pest and disease resistant tree species and also require less maintenance should be given top priority. Columnar and medium-sized trees are preferred.

Selection of trees is another important task. Before selecting any plant species, it is necessary to consider following characters: agro-climatic suitability; height and spread; canopy architecture; growth rate and habit (straight undivided trunk); aesthetic effect (foliage, conspicuous and attractive flower colour); pollution tolerance and dust scavenging capacity. Some of the ornamental trees which have aesthetic effect and tolerant to pollution have been screened and recommended for planting especially along the roads by *(Sharma & Roy 1999)*. They are *Acacia auriculiformi (*Austrialanbaval*) Ailanthus excels (*Moto Aurdso), *Alstonia macrophylla (* saptaparni), *A. scholaris (*Saptaparni*), Albizzia lebbek(*Sirid), *Bauhinia acuminate (*Kancher), *B. purpurea(* Kancher, Champakathi), *Butea monosperma (*Kesudo, Palas), Cassia *fistula (*Garmalo), *C.* marginata, Senna. Siamea (Kasida), *Casuarina equisetifolia (siru),* Crataeva *religiosa, Drypetes roxburghii, Ficus benjamina (*Krishnae Vad) , *Lagerstroemia duperreana (*Bhondara*) , L. flosreginae (*Bhondara*, L. rosea (*Bhondara), *Mimusops elengi (*Bakul, Bakuli*), Polyalthia longifolia,(Asopalav) ,P. longifolia 'Angustifolia', P. longifolia 'Pendula', Peltophorum pterocarpum (*Sonmukhi)), *Tectona grandis (sag), Terminalia arjuna (Arjunsadad), T. muelleri, Thespesia populnea (*Pilikaren) etc. Emphasis should be given to the native plant species which are comparatively well acclimatised, stress and pollution tolerant. *(Sharma & Roy 1999)*

Thick plantations – small filtering effects


Loose plantations – good filtering effects


Source Kumar *et al* (2013)

Table 5-2Plant species (deciduous) arranged in the decreasing order of their air pollution

Plant species	**APTI**
Albizzia lebbeck	32
Cassia fistula	28
Azadirachta indica	22
Ficus religiosa	20
Psidium guajava	18
Phyllanthus emblica	14
Tamaridus indica	14
Moringa olifera	12
Delaonix regia	7
Tectona grandis	6

Source Kumar *et al* (2013)

Table 5-3 Plant species (evergreen) arranged in decreasing order of their air pollution tolerant

Plant species	**APTI**
Pithecolobium dulce	24
Ficus benghalensis	19
Polyalthia longifolia	18
Terminalia arjuna	16
Leucana leucocephala	19
Eucalyptus citriodora	12
Acacia Arabica	15
Mangifera indica	12
Casuarina equisetifolia	5

Source Kumar *etal* (2013)

Table 5-4 Plant species (shrubs) arranged in decreasing order of their air pollution tolerant index

Plant species	**APTI**
Bougainvillea spectabilis	30
Calotropis gigantes	27
Lantana indica	14

Source Kumar *etal* (2013)

Table 5-5 Recommended Plant Species for Green Belt Development along the Boundary of as a wind barrier as well as to prevent dust pollution:

PLANT SPECIES SCIENTIFIC NAME/ VERNACULAR NAME	**HABIT**	**TOLERANCE LIMIT**	**STOMATAL INDEX**	**MODE OF REGENERATION**
Acacia auriculiformis (Austrialan baval)	Tree	Tolerant	10.9	Seeds
Acacia leucophloea (Hermo bhaval)	Shrub	T	12.01	Seeds
Ailanthus excelsa (Moto Aurdso)	Tree	T	13.01	Seeds, shoot, root cuttings
Alstona scholaris (Saptaparni)	Tree	T	15.23	seeds
Azadirachta indica (Limado)	Tree	T ,S Cement dust	29.2	Seeds
Bauhinia recemosa (Kasotri,Apto, Asondara)	Tree	T	25.68	Seeds
Bauhinia acuminata (Kancher)	Tree	T	22.31	Seeds
Bauhinia purpurea (kancher, Champakathi)	Tree	T	23.58	Seeds
Bambusa vulgaris Kancher	Tree/ Shrub	T		Cutting
Bougainvillea spectabilis Bougainvilla	Shrub	T	32.53	Cutting
Caesalpinia pulcherrima (Shankhasur, Galtora)	Tree	T	29.09	Seeds and Cuttings
Callistemon citrinus (Bottle brush)	Small tree	T	127.49	Seeds
Cassia javanica (pink mohour)	Tree	T		seeds
Senna siamea (Kasida)	Tree	T	21.2	Seeds
Cassia fistula.(Garmalo)	Tree	S Cement dust	20.4	Seeds and sukers
Calotropis gigantea (Akado)	Shrub	S cement dust	9.93	Seeds and Cuttings
Calotropis procera (Ait.) (Akado)	Shrub	S cement Dust	10.32	Seeds and Cuttings
Clerodendrum inerme	Shrub	T	18.02	Seeds/cuttings
Delonix regia (Gulmohur)	Tree	Sensitive	14.38	Seeds /stem cutting
Dendrocalamus strictus (Nar vans)	Shrub/ tall grass	T	-	Seeds/stem cuttings
Ficus bengalensis (Vad)	Tree	T **Dust collector**	21.72	Seeds/stem cuttings
Ficus benjamina (Krishnae Vad)	Tree	**T Dust collector**	18.62	Seeds/stem cuttings
Ficus hispida (Dhedh (Umardo)	Tree	**T Dust collector**	17.21	Seeds/stem cuttings
Ficus virens (Pipli)	Tree	**T Dust collector**	15.91	Seeds/stem cuttings
Ficus religiosa (Piplo)	Tree	**T Dust collector**	18.70	Seeds/stem cuttings
Ficus elastica Rubber tree	Tree	T **Dust collector**	19.43	Seeds/stem cuttings

PLANT SPECIES SCIENTIFIC NAME/ VERNACULAR NAME	**HABIT**	**TOLERANCE LIMIT**	**STOMATAL INDEX**	**MODE OF REGENERATION**
*Hibiscus rosa-sinensis (*Jasund)	Small tree	T	23.32	stem cutting
*Ixora arborea (*Nevari)	Small tree	T	17.3	stem cutting
Ixora rosea -	Small tree	T	20.30	Stem cutting
Kegelia Africana Sausage tree	Small tree	T	12.90	Seeds
*Lantana camara (*Gandhai)	shrub	T	12.13	Seeds/cuttings
*Lowsonia intermis (*Mendhi)	Shrub	T	17.0	Seeds/cuttings
*Leucaena leucocepha (*Pardesi Bavaal)	Tree	**Best dust collector**		
Mangifera indica (Keri)	Tree	T **Dust collector**	30.77	Seeds/ budding/grafting
Melia azadirachta (Bakanlimdo)	Tree	T		Seeds /stem cutting
*Nerium indicum (*Lalkaren*)*	Shrub	T	15.7	Cutting
***Pithecellobium* dulce (**Gorasmli)	Tree	**Best dust collector**	11.78	Seeds /stem cutting
Pongamia pinnata (Karanj)	Tree	T	-	Seeds/ budding/grafting
Peltophorum pterocarpum (Sonmukhi)	Tree	T	16.78	Seeds
*Polyathia longifolia (*Asopalav*)*	Tree	Sensitive	22.27	seeds
*Prosopis cineraria (*Khijado)	Tree	T	18.1	Seeds/root suckers
Spathodea campanulata (African Tulip tree)	Tree	*T*	*24.84*	Seeds/ budding/grafting
Syzygium cumini (Jamun)	tree	T	20.60	Seeds
Tamarindus indica (emli)	Tree	T	18.4	Seeds
Tecoma satans	Shrub	T	23.08	Seeds/ cuttings
Terminalia catapppa (Desi badam)	Tree	T **Best dust collector**	20.9	seeds
Thespesia populnea Paras Piplo, Pardeshi Bhindi)	Tree	T	29.81	Seeds/ cuttings
Thevetia peruviana (Pilikaren)	Shrub	T	27.8	Seeds

T: Tolerant S- sensitive, (--) =Not available Sources: CPCB (March, 2000) Guidelines for developing green belts PROBES/75/1999-2000

5.4 Roadside Plantation:

Roadside plantation plays a very important role for greening the area, increasing the shady area, increasing aesthetic value and for eco-development of the area. The approach roads to project site, colony, etc. can be planted with flowering trees. Trees can be planted to increase aesthetic value as well as shady area along the roads. The selected plant species list is given for Roadside plantation.

Species for Plantation along the roadside

Sr. No.	Based on Color	Sr. No.	Based on Color
Yellow Flowered Trees			
1.	*Acacia auriculaeformis*	10.	*Erythrina parcelli*
2.	*Acacia baileyana*	11.	*Laburnum anagyroides*
3.	*Acacia dealbata*	12.	*Michelia champaca*
4.	*Acacia decurrens*	13.	*Parkinsonia aculeata*
5.	*Acacia implexa*	14.	*Peltophorum pterocarpum*
6.	*Anthocephalus chinensis*	15.	*Pterocarpus dalbergioides*
7.	*Bauhinia tomentosa*	16.	*Schizolobium excelsum*
8.	*Cassia calliantha*	17.	*Tabebuia spectabillis*
9.	*Cassia fistula*	18.	*Thespesia populnea*
Red Flowered Trees			
1.	*Brownea grandiceps*	5.	*Saraca asoca*
2.	*Erythrina blakei*	6.	*Spathodea campanulata*
3.	*Erythrina laurifolia*	7.	*Wrightia coccinea*
4.	*Erythrina variegate*	8.	
Scarlet Flowered Trees			
1.	*Barringtonia acutangula*	5.	*Callistemon lanceolatus*
2.	*Brassia actinophylla*	6.	*Delonix regia*
3.	*Brownea coccinea*	7.	*Stenocarpus sinuatus*
4.	*Butea monosperma*		
Pink Flowered Trees			
1.	*Bauhinia purpurea*	5.	*Hibiscus collinus*
2.	*Cassia javanica*	6.	*Kleinhovia hospital*
3.	*Cassia nodosa (Red)*	7.	*Lagerstroemia speciosa*
4.	*Cassia renigera*		
Blue Flowered Trees			
1.	*Bolusanthus speciosus*		
2.	*Jacaranda acutifolia*		
White Flowered Trees			
1.	*Albizia lebbeck*	*8.*	*Millingtonia hortensis*
2.	*Bauhinia acuminate*	*9.*	*Mimusops elengi*
3.	*Calophyllum inophyllum*	*10.*	*Plumeria alba*
4.	*Kydia calycina*		
5.	*Magnolia grandiflora*		
6.	*Magnolia pterocarpa*		
7.	*Mesua ferrea*		

Table 5-6 List of Suitable Ornamental Climbers/ shrubs as plantation inside the garden and open spaces between different units of Cement plant :

Family	Scientific name	Common English name	Flowering season
Bignoniaceae	*Bignonia ventusa*	Golden shower	Jan-Feb
	Bignonia capreolata	Trumpet Flower	March-April
	Bignonia unguis –cati	Cat's claw	April
	Bignonia speciosa	Handsome flower	March April
	Tecoma satans	Yellow bell	Throughout the year
	Tecoma radicans	Trumpet vine	Throughout the year
Caesalpiniaceae	*Caesalpinia pulcherrima*	Peacock flower	April-June
Rubiaceae	*Ixora coccinea*	Scarlet Ixora	Throughout the year
	Ixora rosea	Pink Ixora	Aug-Sept
	Ixora parviflora	Small Flowered Ixora	March-April
	Ixora barbata	Brarded Ixora	April-May
	Ixora lutea	Yellow Ixora	Throughout the year
Euphorbiaceae	*Euphorbia pulcherrima*	Christmas Flower	Dec-Jan
Apocynaceae	*Thevetia peruviana*	Trumpet Flower	Throughout the year
	Alemanda nerifolia	-	April-June
	Nerium Indicum	Oleander	Throughout the year
	Catharanthus roseus	Periwinkle	
Malvaceae	*Hibiscus mutabilis*	Changeable rose	September-October
	Hibiscus schizopetalus	Coral Hibiscus	April-September
	Hibiscus rosa –sinensis	Chinese Rose	Throughout the year
Nyctaginaceae	*Bougainvillea spectabilis and different varieties*		Throughout the year With seasonal bloom

5.5 Guidelines for plantation:

The plant species identified for greenbelt development can be planted using pitting technique. The choice of plats for green belt should include shrubs and trees. The intermixing of trees and shrubs should be such that the foliage area density in vertical is almost uniform.

The pit size has to be either 45 cm x 45 cm x 45 cm or 60 cm x 60 cm x 60 cm. Bigger pit size can be considered at marginal and poor-quality soil. Soil used for filling the pit should be mixed with well decomposed farm yard manure or sewage sludge at the rate of 2.5 kg (on dry weight basis) and 3.6 kg (on dry weight basis) for 45cm x 45 cm x 45 cm and 60 cm x 60 cm x 60 cm size pits respectively. The filling of soil has to be completed at least 5-10 days before actual plantation. Healthy sapling of identified species should be planted in each pit with the commencement of monsoon. Provision for regular and liberal watering during the summer

period during the commissioning stage of the plant will be arranged from the local available resources. The authorities responsible for plantation will also make adequate measures for the protection of the saplings

The trees and shrubs selected from the above mention list based on its availability shall be, planted as greenbelt of 10-20 m width around the plant boundary. The plantation will be in this recommended pattern:

IIIrd Tire plantation management

Tire	**Habit**	**Height in meter**	**Rows**
Ist Tire (Towards boundary)	Trees	10-20	3
IInd Tire (Middle layer)	Small tress	5-10 meter	2
IIIrd Tire (Towards Plant)	Shrubs	1-5 meter	Thick pattern

Guidelines for plantation in the mining area:

The plant species identified for greenbelt development in mining area can be planted using pitting technique. Bigger pit size can be considered at this poor-quality soil. **Before making pits, the entire area has to be cleared by *Prosopis* shrubs growing in that area. These invasive shrubs have to be uprooted entirely and disposed through burning. Merely cutting and clearing of these shrubs are not advisable in this area as this area is susceptible to Invasion.** This fast-growing invasive species will slowly cover the entire area and outperform the planted sapling through canopy closure and reduce the growth and survival of the saplings planted.

6 RECOMMENDED AREA FOR GREEN COVER IN MINING LEASE AREA INCLUDING CEMENT PLANT PREMISES

	
In the area where the neem plantation adopted along the boundary adjacent to the sea, it is advisable to develop thick belt of *Casuarina equisetifolia (*Sharu) as wind barrier along the boundary . The survival rate of Neem planted in this area will improve after the arresting the salt born wind from sea side.	it is advisable to develop thick belt of *Casuarina equisetifolia (*Sharu) as wind barrier along the boundary in this region
	
Tress can be planted along both side of the road, , either on pots or empty containers by filling suitable soil with manures. It is recommended to plant *Conocarpus erectus in this area*	The area along the Mine approach road, where *Jatropha* planation has been undertaken, now ingressed by *Prosopis juliflora* (Gadobaval)

	
The area where the plantation has been undertaken in the Ming area, severe ingression of *Prosopis juliflora* (Gadobaval) was observed. If this ingression is not controlled the effort towards the development of green belt may not be as fruitful as expected	
	
The area where the uncontrolled ingression of *Prosopis juliflora* (Gadobaval) was observed, the participation of local villagers can be considered by encouraging them to cut the Gadobaval and marinating the green belt with a suitable rewards	More over at Cetains patched severe feelling of fully grown trees were observed in the minig area . If this threat by the villagers continued, it will dilute all the effort undertaken by the manegement.

7 CONCLUSION:

- It is evident that management has taken lot of effort recently to enhance the greenbelt area in the mine out area.
- Particulate matter deposition constituted major atmospheric pollution problem in the Cement plant premises.
- Other sources of contamination within the plant premises include dust re-mobilization from vehicular traffic on unpaved and un-swept paved road.
- The frequency of sprinkling has to be increased especially during dry seasons
- Fugitive emission from wind erosion is also identified source of atmospheric pollution within the plant premises.
- Wind direction also plays a major role in particulate deposition. Locations of down-wind had higher amount of deposition than locations up-wind. Differential deposition rate occurred due to differing lifetime of aerosols with different particle size in the air.
- Number of characteristics of dust is important in considering its impacts on vegetation. Dust can have both a physical and a chemical impact.
- As the available area in the plant premises is very restricted, green belt programme should be oriented towards the boundary of the factory premises, mine reclaimed area and also along the internal roads.
- The following tree species was observed to be attaining its potential growth in the area where the plant is located, Buttonwood (*Conocarpus erectus* L.), *Mimusops elengi Borsali* Bakul, Bakuli), *Acacia auriculiformis* (Austrialanbaval), *Alstonia scholaris*. (Saptaparni), *Azadirachta indica (*Limbado), *Cordia sebastiana* (Scarlet Cordia), *Delonix regia*(Gaulmor), *Peltophorum pterocarpum* (Sonmukhi), *Polyalthia longifolia* (Asopalav), *Prosopis cineraria (*Khyigdo), *Spathodea campanulata* (Scarlet-bell tree), *Senna siamea* (Kasida),and *Terminalia catappa* (Desi Badam). Hence these tree species should give more preference in the future planation effort.
- More emphasis should be given to the hedges with , *Thevetia peruviana(*Pili karan), *Thespesia populnea(*Paras pipalo), *Tecomella undulata (*Roydo) and *Nerium indicum (*Lalkaren)

- Number of characteristics of dust is important in considering its impacts on vegetation. Dust can have both a physical and a chemical impact. Dust falling onto plants may physically smother the leaves.

- The absolute level of deposition is important for the maintaining the green belt. This is affected by dust emission rates, meteorology and conditions on the leaf surface. Dust can also physically block stomata. Thus, particle size is important if dust is to act in this way on stomatal functions. Dusts of diverse origin have very different chemistry. The chemical effect of dust, either on soil or directly on the plant surface, may be more important than any physical effects.

- New planatation efforts has to be intiated with local peoplw paticipation at ceratin mineout area . This will increase the total green cover in the mine area.
- More over at Cetains patched severe feelling trees were observed . If this threat by the villagers continued, it will dilute all the effort undertaken by the manegement.

- Green belt Plantation area in mine is prone to grazing by group of Nigai . This will create a threat to any new plantation efforts. Certain species of tree sapling were reported to be untouched by Nigai especially, ***Azadirachta indica* A.Juss *(***Limbado***) Cassia fistula* **L.(** Garmalo), ***Senna siamea* Lam.(** Kasida). It is advisable to consider these species during new planation efforts in minines.

- The mine are was mainly barren initially, **The Prosopis juliflora (Gandobaval) was planted in the area to develop thick forest during the period of 90s with the help of local forest department.**

- The Prosopis juliflora (Gandobaval) is also included in list from Forest department.
- *The Green belt was initially developed by planting mainly Prosopis juliflora* (Gandobaval) in the area, The green belt in the area with & without *Prosopis juliflora* (Gandobaval) is as under:
- The Green belt status as observed during the current survey held in November 2019 at Ultratech Cement Limited, Unit: Narmada Cement Jafrabad Works is as given below.

Area	**Green belt in Hectors *(without Prosopis juliflora)***	**Green belt in Hectors *(with Prosopis juliflora)***
Total Green belt in mine area	10.379	**76.970**
Total Green Belt in Cement Plant Premises	4.004	4.960
Total area under Green Belt Development in Mine lease area	**14.338**	**81.930**
Total area under Green Belt in Plant Colony approximately	6.275	6.460
Total Green Belt in Mining Lease area and Plant Colony	**20.613**	**88.390**

- To attain the required green belt coverage of 41 hectors as per the mining plan till date November 2019, Ultratech Cement Narmada Unit has to develop an additional 21 hectors of green belt.
- The plant species identified for greenbelt development in mining area can be planted using pitting technique. Bigger pit size can be considered at this poor-quality soil. **Before making pits, the entire area has to be cleared by *Prosopis* shrubs growing in that area. These invasive shrubs have to be uprooted entirely and disposed through burning.**
- Suggested area for Proposed planation is as given below:

Proposed Area	**Proposed Plantation in hectors**
Along the boundary of mining lease area besides village road where severe ingression of Prosopis sp. observed	6
Reclaimed area in the mines	2
Both sides of mine approach road	2
Tress can be planted along both side of the internal roads of plant premises either on pots or empty containers by filling suitable soil with manures.	0.5
Mining lease area in the CRZ , where no mining is possible	10
Colony premises	0.5
Proposed area for green belt development	**21**

Latter of Local forest department for green belt species development:

ક્રમાંક – ક/જમન/ટે–૮/ ૬૫૦ /૧૩–૧૪
નાયબ વન સંરક્ષકશ્રીની કચેરી
સામાજીક વનીકરણ વિભાગ
બહુમાળી ભવન બી બ્લોક
અમરેલી તા. ૨૪ /૦૯/૨૦૧૩

પ્રતિ,
શ્રી કે. સી. જૈન,
આસીસ્ટન્ટ વાઈસ પ્રેસીડેન્ટ એન્ડ એજન્ટ (માઈન્સ)
અલ્ટ્રાટેક સીમન્ટ લિ.
નર્મદા સીમેન્ટ જાફરાબાદ વર્કસ
મુ. બાબરકોટ તા.જાફરાબાદ

વિષય :– ફલોરા અને ફૌનાની માહિતી આપવા બાબત.
સંદર્ભ :– આપશ્રીના તા.૨૯/૦૮/૧૩ ના પત્ર અન્વયે.

જયભારત સાથ જણાવવાનુ કે, આપશ્રીના સંદર્ભમાં દર્શાવેલ પત્રમાં જણાવ્યા મુજબની ફલોરા અને ફૌનાની માહિતી આ સાથે સામેલ રાખી મોકલવામાં આવે છે.

નાયબ વન સંરક્ષક
સામાજિક વનીકરણ વિભાગ, અમરેલી

સામેલ : ઉપર મુજબ

The List of Flora in Jafrabad Taluka

Flora

Sr.No.	Commen Name	Scientific Name
1.	Ganda Baval	Prosopis juliflora
2.	Neem	Azadiracta indica
3.	Vad	Ficus benghalensis
4.	Pipar	Ficus amplissima
5.	Subaval	Leucaena Leucolephaca
6.	Desi Baval	Acacia nilotica
7.	Amba	Mangifera indica
8.	Saru	Casuarina equisetifolia
9.	Ganda	Cordia myxa
10.	Goras Amli	Plthocolobium dulci
11.	Nariyali	Cocus nucifera
12.	Umro	Ficus glomerata
13.	Amarvel	Cuscuta reflexa
14.	Channothi	Abrus precatorrius
15.	Galo	Tinospora cordifolia
16.	Khirvel	Acacia ninuata
17.	Gandi Vel	Ipomia biloba

By. Conservator of Forest
Social Forestry Division Amreli

The List of Fauna in Jafrabad Taluka

Fauna

Sr.No	Commen Name	Scientific Name
1.	Hyena	Hyena hyena
2.	Common hares	Lepus spp
3.	Fox	Valpes bengalensis
4.	Will boar	Sus Scrofa
5.	Mongoose	Herpestes Sp.
6.	Squirell	Funambulus Penantii
7.	Rat	Rattus rattua
8.	Field Mouse	Mus booduga
9.	Peacock	Pavo cristatus
10.	Dove	Streptopelia senegalensis
11.	Koel	Eadgnamis scolopacus
12.	Pigeon	Columba Lilia
13.	Owl	Bubo Bubo
14.	Cotton teal	Net:apus coromandaleus
15.	Common garden Lizard	Calotes versicolor
16.	Russel viper	Vipera russelli
17.	Starredtortoise	Geochelous eleganres
18	Panther	Panthera Pardus
19	Lion	Panthera lio Persica
20	Blue Bull	Bose Laphus Tragocamelus

Dy. Conservator of Forest
Social Forestry Division Amreli

Reference:

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ANNEXURE R12/4

152

1171

S. M. SAIYAD, IFS
MEMBER SECRETARY
SEIAA (GUJARAT)

Government of Gujarat

STATE LEVEL ENVIRONMENT
IMPACT ASSESSMENT
AUTHORITY
GUJARAT

No. SEIAA/GUJ/EC/1(a)/1400 /2020 **Date: 12 NOV 2020** By R.P.A.D
Time Limit

Sub: Environment Clearance to M/s. Babarkot Limestone Area with Production capacity of 2,50,000 MTPA(ROM) of Limestone by unit: Narmada Cement-Jafrabad Works of M/S UltraTech Cement Limited located at S.No: 217, 218, 219, 220, 221 Village- Babarkot, Tal- Jafarbad, Dist- Amreli, Gujarat. (14.2045 Ha.). Mining project in Category 1 (a) of the Schedule of the EIA Notification dated 14/9/2006.

Ref : Your proposal No. SIA/GJ/MIN/17237/2016

Dear Sir,

This has reference to your application along with Form-I, EIA report dated 24/10/2017, seeking Environmental Clearance under Environment Impact Assessment Notification, 2006. The project was scheduled for hearing in the SEAC meeting held on 03/10/2018 & 14/09/2020. The project proponent submitted additional information / documents vide letter dated 28/08/2020 & 07/10/2020 to the SEAC.

Being a mining project, the above proposal falls under project / activity no. 1(a) of the Schedule of the EIA Notification, 2006. As the lease area of the proposal is less than 50 Hectare, it falls under Category B. Public Hearing was conducted on 05/09/2017.

The SEAC, Gujarat has recommended the above proposal to SEIAA, Gujarat vide their letter dated 03/11/2020 for grant of environmental clearance based on the discussion held in the meeting of the SEAC held on 12/10/2020

The above proposal was considered by the SEIAA, Gujarat in its meeting held on 05/11/2020 at Gandhinagar. After detailed deliberation and careful consideration, the SEIAA, Gujarat hereby accord individual Environmental Clearance to above project under the provisions of the EIA Notification dated 14th September, 2006; subject to compliance of the following conditions.

SPECIFIC CONDITIONS :

1. **Mining shall be strictly in accordance to the approved mine plan.**
2. **Action plan for the public hearing issues shall be complied with in letter and spirit.**
3. **PP shall submit NOC obtained from the forest department and comply all the conditions mentioned in NOC as well as undertaking submitted in this regard..**
4. **Project proponent shall comply all the measures, conditions suggested in the approved mining plan with post closure mine plan, Environmental Management Plan (EMP) in a letter and spirit.**
5. **Project proponent shall comply all the rules/ Conditions mentioned in OM of MOEF&CC dated 01/05/2018 regarding "Corporate Environment Responsibility (CER) and "The Companies (Corporate Social Responsibility Policy) Rules, 2014 and its amendments from time to time vide notification of Ministry of Corporate affairs dated 27th February, 2014 and) in a letter and spirit**
6. **The project proponent shall obtain registration of the establishment under the Building and other Construction Workers' (regulation of Employment & Conditions of Service) Act, 1996 and shall comply with the provisions of the Act for the Safety, Health and Welfare of Mining Workers**
7. **The project proponent shall obtain registration of the Mining Workers as Beneficiaries with the Gujarat Building and other Construction Workers Welfare Boards.**
8. **To conduct study for health check-up of the mine workers through accredited agency including the respiratory/lungs related ailments and prepare a report for the impact of mining on the health of workers.**
9. **PP shall implement all safety measures including protection of lighting in mine as per the guidance manual of DGMS vide circular No: DGMS(Tech) Circular No: 10 of 2020 dtd. 23 June 2020**
10. **PP shall carry out plantation in first year and maintain the same in subsequent years of lease period.**
11. **No ground water extraction shall be done from within the lease/permit area.**
12. **PP shall construct a pacca approach road connecting lease area to the main road with periodic regular maintenance to prevent fugitive dust emission.**

State Level Environment Impact Assessment Authority SEIAA Gujarat

13. Unit shall comply with all the precaution/recommendation of the approved wildlife conservation plan of flora and fauna of the latter No. WLP/32/B/3739-40/2020-21 dated: 07/10/2020.
14. Pillars mentioning boundary of the lease area shall be provided as per the provision of mining rules/Acts to identify the lease area.
15. A brick/stone parapet wall of 4 feet surrounding to the excavated mine pit shall be constructed to prevent casualty.
16. Transportation route for vehicles carrying mineral shall have lease minimum pass near human habitation.
17. Validity of EC shall be coterminous with the lease/Permit grant period or thirty years whichever is early.
18. Dust mitigation measures due to mining, handling of mineral, loading, unloading, transportation and other allied activities shall be implemented in letter and spirit similar to the applicable measures guided in Notification issued by MOEF&CC dated 25/01/2018 vide GSR 94(E)..
19. Vide OM of MOEF&CC dated 16/01/2020, PP shall after ceasing mining operations, undertake re-grassing the mining area and any other area which have been disturbed due to their mining activities and restore the land to a condition which is for the growth of fodder, flora and fauna.
20. Project proponent shall comply with all the guidelines and notifications issued by MOEFCC, New Delhi regarding cluster policy as part of compliance of orders of Hon'ble National Green Tribunal from time to time.
21. If lease area of project proponent falls in the cluster and total borrowed area of the cluster falls under category B1 or A, as per the prevailing guidelines of MoEFCC, New Delhi, all the concerned procedures shall be followed up accordingly for compliance of Environmental Laws/Notifications/Rules and under such circumstances project proponent shall extend all support including financial contribution or otherwise also for compliance of environmental Laws/Notifications/Rules for such cluster.
22. If lease area of applicant falls in the cluster and total borrowed area of the cluster fall under category B1 or A, EIA study shall be carried out for the said cluster as decided by the competent authority and EMP for the cluster shall be prepared based on outcome of the EIA study. In such a case, all the suggestions/recommendations of EIA/EMP prepared for the cluster shall be complied with in a letter and spirit by the project proponent(s) including lease holders who have already been accorded Environmental Clearance.
23. PP shall spend amount of CER after identifying activities in consultation with village gram panchayat.
24. All measures proposed in sustainable sand mining guide line MOEF&CC and EMP shall be complied with in letter and spiri
25. PP shall address all the concerns of the public residing in vicinity and propose need based activities preferably covering environmental aspects which shall be part EMP as per OM dated 30/09/2020.
26. All the measures mentioned in approved mining plan shall be complied with in a letter and spirit
27. No mining shall be undertaken outside the area specified in this Environmental Clearance.
28. There shall be no Blasting for mining activity.
29. Any change in lease area (Individual/cluster), survey number, entailing capacity addition with change in mining technology, modernization and scope of working shall again require prior Environmental Clearance as per the provisions of EIA Notification, 2006 as amended from time to time.

CONDITIONS :

A.1 WATER:

30. The project proponent shall obtain necessary prior permission of the competent authorities for withdrawal of requisite quantity of water (surface water and/or ground water) required for the project.
31. Mining operation shall not intersect ground table and hence there shall not be any water / wastewater discharge from mining operations.
32. Garland Drains, settling tank and Catch drains of appropriate size, gradient and length shall be constructed around the excavated mine, mineral dumps, reject dumps to prevent silt and sediments flowing into any water body.
33. Domestic wastewater shall be disposed off through septic tank - soak pit.

A.2 AIR:

34. Effective safeguards, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as loading and unloading point and all transfer points.
35. Drills shall either be operated with dust extractors or equipped with water injection system (wet drilling) to suppress air borne dust during drilling.

36. Internal roads shall be either paved properly or sprinkled with water at regular intervals for controlling fugitive emission during vehicular movement. Trees of native species shall be developed along both sides of internal road/s in order to contain dust.
37. Vehicles shall not be overloaded and mineral transportation shall be done only through covered trucks so that no spillage of mineral / dust take place.
38. Vehicles used in mining operations shall be maintained well so as to keep vehicular emissions in control.
39. Fugitive emission in work place and ambient air shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities.
40. Ambient air quality shall be monitored at site and the nearest human habitation and it shall conform to the norms prescribed by the MoEF, Govt. of India.

A.3 OVER BURDEN / REJECTS / HAZARDOUS WASTE:

41. The project proponent shall strive to adopt zero waste mining concepts by reducing the quantum of reject through technological innovation or finding the use of fines through perspective buyers.
42. Top soil from the mining area shall be scrapped, stacked separately, preserved and utilized for the plantation work.
43. Overburden, waste rock and non-saleable mineral generated during prospecting or mining operations shall be stored separately in properly formed dumps on grounds earmarked. Slope and height of such dumps shall be restricted adequately to prevent any slippage of material. Such dumps should be properly terraced, stabilized and secured at toe to prevent the escape of material that may cause degradation of the surrounding land or silting of water courses.
44. Overburden or other rejects shall be backfilled into the worked out quarry so far as possible with a view to restore the land to its original use or desired alternate use.
45. Used oil / waste oil, if any, generated shall be sold only to the registered recyclers. In case of generation of hazardous waste, the project proponent shall strictly comply with the provisions of Hazardous Waste (Management, Handing and Transboundary Movement) Rules 2008, as may be amended from time to time.

A.4 SAFETY:

46. Anti-vibration devices shall be provided to vibrating tools / equipments to be used by workers during mining. Vibrations shall be maintained within safe limit.
47. All the precautions are to be observed as per Reg. 106 of MMR, 1961 for safety and security. Face masks, helmets, safety shoes etc. shall be provided to all the workers working in the mining areas and its usage shall be ensured and supervised.
48. First Aid Box should be made readily available at the site.
49. Occupational health surveillance of workers shall be undertaken periodically by a doctor who is expert in occupational health and hygiene and its records shall be maintained.
50. Information regarding occupational mine diseases caused due to air pollution and its preventive measures shall be displayed at site in vernacular language for workers.

A.5 NOISE:

51. Noise level in and around the lease area shall be kept well within the standards by providing noise control measures including engineering control like acoustic insulation, hoods, silencers, enclosures etc. on all sources of noise generation. Ambient noise level shall conform to the standards prescribed under the Environment (Protection) Act & Rules, 1986.

A.6 GREEN BELT DEVELOPMENT:

52. Green belt shall be developed in periphery of the lease area as per the CPCB guidelines and strictly as per the time schedule. The green belt should comprise of rows of varying height native trees with thick foliage.
53. Drip irrigation system shall be used for the green belt development within the premises.

B.OTHER CONDITIONS:

54. The project proponent shall allocate the separate fund for Corporate Environment Responsibility (CER) in accordance to the MoEFCC's Office Memorandum No. F.No.22-65/2017-IA.III dated 01/05/2018 to carry out the activities under CER in affected area around the project. The entire activities proposed under CER shall be monitored and the monitoring report shall be submitted to the regional office of MoEFCC as a part of half-yearly compliance report and to district collector. The monitoring report shall be posted on the website of the project proponent.

55. This Environmental Clearance does not confer any right to the project proponent on the land proposed for lease and all necessary statutory clearances / permissions shall be obtained from respective department before start of mining operations.
56. Mining operation shall be restricted to above ground water table and it shall be ensured that it does not intersect ground water table.
57. The project proponent shall ensure that no natural water course gets obstructed due to mining operations.
58. The pits left unfilled in lease area shall be converted to water body. Higher benches of excavated void/mining pit shall be terraced and its slope shall be made gentler for easy accessibility to the water body.
59. No mining shall be carried out in the safety zone of any bridge / embankment and in the vicinity of natural / manmade archeological sites.
60. No wildlife habitat shall be infringed and in addition to that before issuing the mining lease, it has to be ensured that no wildlife movement shall be existing in the lease area proposed for mining.
61. A booklet containing the Dos and Don'ts shall be prepared in vernacular languages for the use of site in-charge and workers to ensure that all necessary environmental, safety and health measures are undertaken.
62. Funds earmarked for environmental protection measures shall be kept in a separate account and shall not be diverted for other purpose. Records of year wise expenditure shall be maintained.
63. The project proponent shall also comply with any additional condition that may be imposed by the SEAC or the SEIAA or any other competent authority for the purpose of environmental protection and management.
64. Half yearly compliance reports on the conditions stipulated hereinabove shall be submitted to the SEIAA, State Pollution Control Board and the Regional Office of the Ministry of Environment and Forests, Bhopal, on 1st June and 1st December of each calendar year by individual project proponent.
65. The project proponent shall have to comply with the provisions of Gujarat Minor Mineral Concession Rules (GMMCR) as and when amended by the State Govt. with respect to the provisions for approval of mining plan, EMP for cluster, creation of separate corpus, etc. in view of the recommendations made by the MoEF in its report of March 2010 and the model guidelines framed by the Ministry of Mines.
66. Decisions/Directions of Hon'ble Court and Hon'ble National Green Tribunal given in the matter of minor minerals shall be binding on the project proponent.
67. The Individual project proponent shall inform the public that the project has been accorded environmental clearance by the SEIAA and that the copies of the clearance letter are available with the GPCB and may also be seen at the Website of SEIAA/ SEAC/ GPCB. This shall be advertised within seven days from the date of the clearance letter, in at least two local newspapers that are widely circulated in the region, one of which shall be in the Gujarati language and the other in English. A copy each of the same shall be forwarded to the concerned Regional Office of the Ministry.
68. The project authorities shall inform the GPCB, Regional Office of MoEF and SEIAA about the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
69. The SEIAA may revoke or suspend the clearance, if implementation of any of the above conditions is not found satisfactory.
70. The project proponent in a time bound manner shall implement these conditions. The SEIAA reserves the right to stipulate additional conditions, if the same is found necessary. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act 1986 and Hazardous Wastes (Management Handling and Transboundary) Rules, 2008 along with their amendments and rules.
71. The environmental clearance is being issued without prejudice to the action, if any, initiated under the E.P. Act or any court case, if any, pending in the court of law and it does not mean that the project proponent has not violated any environmental laws in the past. This clearance does not give immunity to the project proponent for the case, if any, filed against him in any court of law or action initiated under the E.P. Act.
72. Precise mining area shall be jointly demarcated at the site by officials of Mining / Revenue Department prior to mining operations. Records of such site plan, duly verified by competent authority shall be maintained.
73. The project proponent shall carry out activities under CSR in consultation with the District Development Officer / District Collector.
74. Geology and Mining Department will take all measures to comply with all the conditions stipulated in this Environmental Clearance and all the conditions stipulated in this clearance shall be incorporated while granting lease to individual lease holder.
75. This clearance is issued with respect to only environmental considerations and it does not imply that SEIAA approved the way by which lease is granted to the project. While granting lease, the concerned authority shall ensure compliance of relevant Rules, Regulations, Notifications, Government Resolutions, Circulars, Judgments

/ Orders of Hon'ble Courts and NGT, etc.

76. 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.

77. Submission of any false or misleading information or data which is material to screening or scoping or appraisal or decision on the application makes this environment clearance cancelled.

With regards,
Yours sincerely,

(S. M. SAIYAD)
Member Secretary

Issued to:

ULTRATECH CEMENT LIMITED
Unit-Narmada Cement Jafrabad Works,
Jafrabad-365540, Dist-Amreli.

ADITYA BIRLA
UltraTech

UTCL/MN/BKT-II/2020-21/502 Date- 02.12.2020

The Director General of Mines Safety
Government of India,
Ministry of Labour,
Directorate General of Mines Safety,
Dhanbad - 826 001 (Jharkhand)

Sub: Submission of Form-I under MMR-1961-Reg No - 6, Notice of Opening

Dear Sir,

Please find enclosed herewith duly filled Form-I regarding the actual date of opening of **Babarkot Limestone Mine-II (Mining Lease Area -14.2045 Ha.)** of M/s. Ultra Tech Cement Limited, Unit: Narmada Cement – Jafarabad Works, in village – Babarkot, Tal- Jafarabad, District Amreli, Gujarat.

We have also communicated to your good office regarding intended date of opening vide our office letter no. : UTCL/MN/BKT-II/DGMS/2020-21/485 of dated 19th November, 2020.

Thanking you Sir,

Yours faithfully
For UltraTech Cement Limited,
Unit: Narmada Cement – Jafarabad Works,

Rajendra Kumar Goyal
Agent (Mines)
Babarkot Limestone Mine – II

Cc: 1. The Dy. Director General of Mine Safety, Udaipur.

2. The Director of Mine Safety, Ahmadabad Region, Ahmadabad.

FORM-I

The Metalliferous Mines Regulation 1961

(See regulation 3,6,7(2) & 8)

NOTICE OF OPENING

To,

1. The Director General of Mines Safety, Dhanbad.
2. The Dy. Director General of Mines Safety, Udaipur Region.
3. The Director of Mines Safety, Ahmadabad Region.

Sir,

I have to furnish the following particulars in respect of **Actual date of opening Babarkot Limestone Mine –II (14.2045 Ha.) of UltraTech Cement Limited, Unit: Narmada Cement-Jafarabad Works, in Village- Babarkot, Tal- Jafarabad, District Amreli, Gujarat.**

1. Name of mine: **Babarkot Limestone Mine –II (14.2045 Ha.)**

2. Old name of mine: **NA** Date of change **NA**

   a. Situation of Mine:
   Police Station : Jafarabad
   District : Amreli
   Village: Babarkot
   Taluka: Jafarabad
   State: Gujarat

   b. In case of New Mine:
   Post office Jafarabad
   Railway Station Rajula –Junction
   (Give distance thereof) 26 KM
   Particulars of situation
   Telegraph office
   Rest House **NA**
   (Means of traveling)

3. **Name & Postal Address of Owner**

   Present:
   Mr. K C Jhanwar
   Ist Floor B-wing, Ahura Center
   Mahakali Caves Road, Andheri (E)
   Pin Code: - 400093
   Phone: - 022-66928032

   Previous
   NA

   Contact Details of Agent Mines: -
   Mr. Rajendra Kumar Goyal (Functional Head & Agent (Mines))
   Babarkot Limestone Mine – II, UltraTech Cement Ltd,
   Unit- Narmada Cement – Jafarabad Works,
   Village- Babarkot Tal- Jafarabad, Dist- Amreli.
   E-Mail Id:- rajendra.goyal@adityabirla.com, Mob:- 8003895390

In case of change, date of change : **NA**

4a. Name & Qualification of a Manager: who is terminated Not applicable

5. Date on which it is intended to **open** / ~~Re-Open~~ / ~~abandon~~ / ~~discontinue~~ / the mine: - **01.12.2020**

6. Actual date of **opening** / ~~Re-Opening~~ / ~~abandonment~~ / ~~discontinuance~~ / of the mine: - **02.12.2020**

Yours faithfully
For UltraTech Cement Limited

Sign: .....
Designation: ~~**Owner /**~~ **Agent /** ~~**Manager.**~~
Date: **02.12.2020**

ANNEXURE R12/6

14th Lion Population Estimation Report– 2015

The 14th Asiatic Lion Population Estimate, conducted in 2015, in the sprawling expanse of "Asiatic Lion Landscape," including areas outside the Gir National Park and Sanctuary. The lion numbers have almost doubled since 1979. The 2010 census had pegged the population at 411, but with an increase of 112 animals in the next five years and the lion population now stands at 523 from four districts of Saurashtra. The increase in lion population between 2005 and 2010 was 14.48 per cent, while in 2010 and 2015 the lion population has increased by over 27.25 per cent, which is the highest ever raise. Gender imbalance did not affect the population, of the total, 109 were adult male and 201 were adult female, 140 were cubs less than a year old, and 73 in the 1-3 age group (Table 2). A significant proportion of the lion population comprises young ones, which bode well for the future. Out of total, 268 lions were recorded from Junagadh district, 174 lions from Amreli district, 44 Lions from Gir Somnath District and 37 lions were recorded from Bhavnagar district (Table 3).

Today lions are present in Gir National Park and Sanctuary and its surrounds viz. Girnar Sanctuary, Mitiyala Sanctuary, Pania Sanctuary, South Eastern and Western coastal areas, Savarkundla, Liliya and adjoining areas of Amreli and Bhavnagar Districts. Table 2 presents the details of distribution and sex composition of Asiatic lions recorded in 2015 population estimation. With reference to the present distribution and growth rate of lion population, the Asiatic Lion Landscape has been divided into five management units for better protection, management and conservation.

Table 2 Detail of distribution and sex composition of Asiatic lions recorded in population estimate 2015

S. No.	Areas	Cubs	Sub-adult			Adult		Total
			Male	Female	Unidentified	Male	Female	
1	Gir National Park & Sanctuary & adjoining areas	84	18	14	0	69	119	**304**
2	Girnar Sanctuary	11	1	2	0	5	14	**33**
3	Mitiyala Sanctuary	0	0	0	0	5	3	**8**
4	Paniya Sanctuary	0	1	1	0	2	7	**11**
5	South Western Coast (Sutrapada-Kodinar-Una-Veraval)	14	1	1	0	4	12	**32**

6	South Eastern Coast (Rajula-Jafrabad-Nageshree)	3	2	2	2	2	7	**18**
7	Savarkundla, Liliya and its adjoining areas of Amreli	24	7	7	7	11	24	**80**
8	Bhavnagar District	4	2	1	4	11	15	**37**
TOTAL		**140**	**32**	**28**	**13**	**109**	**201**	**523**

Table 3 District wise distribution of Asiatic lion population as estimated in 2015

S. No.	Districts	Cubs	Sub-adult			Adult		Total
			Male	Female	Unidentified	Male	Female	
1	Junagadh	76	14	12	0	62	104	**268**
2	Amreli	42	15	14	9	30	64	**174**
3	Bhavnagar	4	2	1	4	11	15	**37**
4	Gir Somnath	18	1	1	0	6	18	**44**
TOTAL		**140**	**32**	**28**	**13**	**109**	**201**	**523**

Table 4: Comparison of Population Estimates in 2010 & 2015

Year	Male	Female	Subadult and Cubs	Total
2010	97	162	152	411
2015	109	201	213	523
Difference	**12**	**39**	**61**	**112**
Percentage Growth	**12%**	**24%**	**40%**	**27%**

ADITYA BIRLA

UltraTech

O/C

MCDR-RETURN

BKT-II/MN/45/20-21/ 526.

January 10th, 2021
MINE CODE: 38GUJ02017

The Regional Controller of Mines
Indian Bureau of Mines
4th Floor, Block-2, Sector 10-A
Karmayogi Bhawan Gandhinagar,
Gujarat- 382010

Kind attn. - The Suptg. Mineral Economist (Statistics)

Sub: Submission of Monthly Return in **Form-F 8** for the month of **December -2020.**

Respected Sir,

Please find enclosed herewith the Monthly Return in **"Form F 8"** for limestone in respect of our Babarkot Limestone Mine-II (ML area 14.2045 Ha.) situated at Village: Babarkot, Taluka: Jafarabad, Dist.: Amreli, for the month of **December - 2020**.

Kindly acknowledge the receipt.

Yours faithfully

For UltraTech Cement Limited
Unit: Narmada Cement-Jafarabad Works

Authorized Signatory

Encl. A/a.
cc:

(i) The Commissioner of Geology & Mining,
Block-1/2, 7th Floor
Udyog Bhavan, Sector -11
Gandhinagar (Gujarat)

(ii) The Geologist
Geology & Mining Branch
Multi-Storey Building, C/213, II-Floor,
Amreli (Gujarat).

FORM F-8
For the Month of December 2020
MONTHLY RETURN
[See rule 45(5) (a) (viii)]
(Read the instructions carefully before filling the particulars)

To
(i) The Regional Controller of Mines
Indian Bureau of Mines
Udaipur Region,
PIN:

(Please address to Regional Controller of Mines in whose territorial jurisdiction the mines falls as notified from time to time by the Controller General, Indian Bureau of Mines under Rule 62 of the Mineral Conservation and Development Rules, 1988)

(ii) The State Government of Gujarat

Part - I
(General and Labour)

1. Details of the Mine	
(a) Registration Number	IBM/441/2011
(b) Mine Code	38GUJ02017
(c) Name of the Mineral	LIMESTONE
(d) Name of Mine	JAFARABAD ML 738
(e) Name(s) of other Mineral(s), if any produced from the same mine	
(f) Location of the Mine:	
Village	JAFARABAD
Post Office	JAFARABAD
Tahsil/Taluk	JAFARABAD
District	AMRELI
State	GUJARAT
PIN Code	365540
Fax No.	02794245110
Phone No.	02794245121
Mobile No.	8003895390
E-mail	rajendra.goyal@adityabirla.com
2. Name and Address of Lessee/Owner (along with fax no. and e-mail)	
Name of Owner	M/s. ULTRATECH CEMENT LIMITED
Street/Village	B Wing, Ahura Centre, 2nd FloorMahakali Caves Road, Andheri (East),
Post Office	--
Tahsil/Taluk	--
District	MUMBAI (SUBURBAN)
State	MAHARASHTRA
PIN Code	400093
Fax No	02266928109
Phone No	02266917800
Mobile No	0
E-mail	ajit.ostwal@adityabirla.com

3. Details of Rent/ Royalty/ Dead Rent paid in the month	
(i) Rent paid for the period (in ₹)	0
(ii) Royalty paid for the period (in ₹)	0
(iii) Dead Rent paid for the period (in ₹)	0
4. Details on working of mine	
(i) Number of days the mine worked	0

(ii) Reasons for work stoppage in the mine during the month

Reasons	No of days
Others	31

5. (i) Average Daily Employment and Total Wages paid

Work place	Direct		Contract		Total wages for the month (in ₹)	
	Male	Female	Male	Female	Direct	Contract
Opencast	0.0	0.0	0.0	0.0	0.0	0.0
Below Ground	0.0	0.0	0.0	0.0	0.0	0.0
Above Ground	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0

(ii) Total number of technical and supervisory staff employed in the mine during the month	0.00
(iii) Total salaries paid to technical and supervisory staff employed in the mine during the month (in ₹)	0.00

Part - II (PRODUCTION,DISPATCHES AND STOCK)

1. Production and Stocks of ROM ore at Mine-head (LIMESTONE)

Category	Opening stock (in tonne)	Production (in tonne)	Closing stock (in tonne)
(a) Open Cast Workings	0.000	0.000	0.000
(b) Underground Workings	0.000	0.000	0.000
(c) Dump Workings	0.000	0.000	0.000

2. Grade-wise production, Despatches, Stocks and Ex-mine prices of Processed ore(LIMESTONE)

Grades	Opening stock at mine head (in tonne)	Production (in tonne)	Dispatches from mine head (in tonne)	Closing stock at mine head (in tonne)	Ex-mine price (in ₹ Per Tonne)
(a) LD	0.000	0.000	0.000	0.000	0.00
(b) SMS	0.000	0.000	0.000	0.000	0.00
(c) Chemical	0.000	0.000	0.000	0.000	0.00
(d) BF	0.000	0.000	0.000	0.000	0.00
(e) Cement	0.000	0.000	0.000	0.000	0.00

3. (i) In case the mineral is being pulverised in own factory, please give the following particulars (LIMESTONE)

Grade	Total Quantity of mineral pulverized (in tonne)	Total quantity of Pulverized mineral produced (for each mesh size)		Total quantity of pulverized mineral sold during the month		
		Mesh size	Quantity (tonne)	Mesh size	Quantity (tonne)	Ex-factory Sale value (in ₹)

3.(ii) Average cost of Pulverization: (in ₹) per tonne

4. Details of Deductions used for computation of Ex-mine price(in ₹ /Tonne) (LIMESTONE)

Deduction claimed	Amount(in ₹)/Tonne)	Remarks
(a) Cost of transportation (indicate Loading station and Distance from mine in remarks)	0.00	N/a.
(b) Loading and Unloading charges	0.00	N/a.
(c) Railway freight ,if applicable (indicate destination and distance in remarks)	0.00	N/a.
(d) Port Handling charges/export duty (indicate name of port in remarks)	0.00	N/a.
(e) Charges for Sampling and Analysis	0.00	N/a.
(f) Rent for the plot at Stocking yard	0.00	N/a.
(g) Other charges (specify clearly in remarks):	0.00	N/a.
Total (a) to (g)	0.00	

5. Sales/Dispatches effected for Domestic Consumption and for exports(LIMESTONE)

		For Domestic Consumption			
Grade	Nature of Dispatch (indicate whether Domestic Sale or Domestic Transfer or Captive consumption or Export)	Registration number as allotted by the Indian Bureau of Mines to the buyer	Consignee name	Quantity (in tonne)	Sale value (in ₹)
Cement	CAPTIVE CONSUMPTION	441	M/s. UltraTech Cement Limited	0.000	0.00
NOTE:- Mine owners are required to substantiate domestic sale value/ FOB value for each grade of ore quoted above with copy of invoices.					

5. Sales/Dispatches effected for Domestic Consumption and for exports (LIMESTONE)

		For export		
Grade	Nature of Dispatch (indicate whether Domestic Sale or Domestic Transfer or Captive consumption or Export)	Country	Quantity (in tonne)	F.O.B Value (in ₹)
Cement	CAPTIVE CONSUMPTION	--	--	--

6. Give Reason for increase/decrease in production

Give reasons for increase/decrease in production compared to the previous month or nil production, if any, during the month.
Mines was not in working due to statutory clearances awaited.

7. Give Reason for increase/decrease in grade wise ex-mine price

Give reasons for increase/decrease in grade wise ex-mine price ,if any, during the month compared to the previous month.
Mines was not in working due to statutory clearances awaited.

Mineral Name	Production proposal for current financial year	Cumulative production as reported upto the current month	Difference
LIMESTONE	0	0	0

I Certify that the information furnished above is correct and complete in all respects.

Place :
Dist: AMRELI, GUJARAT
Pin:365540
Date : 09-01-2021

Signature

Name : 14.2045 BKT LS Mines - II
Designation: Agent
~~Owner~~ / Agent / ~~Mining Engineer~~ / ~~Manager~~

From: 103.68.199.95 at 2021-01-09 12:36:06

ADITYA BIRLA

UltraTech

O/c

MCDR-RETURN

BKT-II/MN/45/20-21/537

February 9th, 2021
MINE CODE: 38GUJ02017

The Regional Controller of Mines
Indian Bureau of Mines
4th Floor, Block-2, Sector 10-A
Karmayogi Bhawan Gandhinagar,
Gujarat- 382010

Kind attn. - The Suptg. Mineral Economist (Statistics)

Sub: Submission of Monthly Return in **Form-F 8** for the month of **January -2021.**

Respected Sir,

Please find enclosed herewith the Monthly Return in "**Form F 8**" for limestone in respect of our Babarkot Limestone Mine-II (ML area 14.2045 Ha.) situated at Village: Babarkot, Taluka: Jafarabad, Dist.: Amreli, for the month of **January - 2021.**

Kindly acknowledge the receipt.

Yours faithfully

For UltraTech Cement Limited
Unit: Narmada Cement-Jafarabad Works

Authorized Signatory

Encl. A/a.
cc:

(i) The Commissioner of Geology & Mining,
Block-1/2, 7th Floor
Udyog Bhavan, Sector -11
Gandhinagar (Gujarat)

(ii) The Geologist
Geology & Mining Branch
Multi-Storey Building, C/213, II-Floor,
Amreli (Gujarat).

FORM F-8
For the Month of January 2021
MONTHLY RETURN
[See rule 45(5) (a) (viii)]
(Read the instructions carefully before filling the particulars)

To
(i) The Regional Controller of Mines
Indian Bureau of Mines
Udaipur Region,
PIN:

(Please address to Regional Controller of Mines in whose territorial jurisdiction the mines falls as notified from time to time by the Controller General, Indian Bureau of Mines under Rule 62 of the Mineral Conservation and Development Rules, 1988)

(ii) The State Government of Gujarat

Part - I
(General and Labour)

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(c) Name of the Mineral	LIMESTONE
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(f) Location of the Mine:	
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Tahsil/Taluk	JAFARABAD
District	AMRELI
State	GUJARAT
PIN Code	365540
Fax No.	02794245110
Phone No.	02794245121
Mobile No.	8003895390
E-mail	rajendra.goyal@adityabirla.com
2. Name and Address of Lessee/Owner (along with fax no. and e-mail)	
Name of Owner	M/s. ULTRATECH CEMENT LIMITED
Street/Village	B Wing, Ahura Centre, 2nd FloorMahakali Caves Road, Andheri (East),
Post Office	--
Tahsil/Taluk	--
District	MUMBAI (SUBURBAN)
State	MAHARASHTRA
PIN Code	400093
Fax No	02266928109
Phone No	02266917800
Mobile No	0
E-mail	ajit.ostwal@adityabirla.com

3. Details of Rent/ Royalty/ Dead Rent paid in the month	
(i) Rent paid for the period (in ₹)	0
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(iii) Dead Rent paid for the period (in ₹)	0
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Above Ground	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0

(ii) Total number of technical and supervisory staff employed in the mine during the month	0.00
(iii) Total salaries paid to technical and supervisory staff employed in the mine during the month (in ₹)	0.00

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(d) BF	0.000	0.000	0.000	0.000	0.00
(e) Cement	0.000	0.000	0.000	0.000	0.00

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(f) Rent for the plot at Stocking yard	0.00	N/a.
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		For Domestic Consumption			
Grade	Nature of Dispatch (indicate whether Domestic Sale or Domestic Transfer or Captive consumption or Export)	Registration number as allotted by the Indian Bureau of Mines to the buyer	Consignee name	Quantity (in tonne)	Sale value (in ₹)
Cement	CAPTIVE CONSUMPTION	441	ULTRATECH CEMENT LIMITED	0.000	0.00
NOTE:- Mine owners are required to substantiate domestic sale value/ FOB value for each grade of ore quoted above with copy of invoices.					

5. Sales/Dispatches effected for Domestic Consumption and for exports (LIMESTONE)

		For export		
Grade	Nature of Dispatch (indicate whether Domestic Sale or Domestic Transfer or Captive consumption or Export)	Country	Quantity (in tonne)	F.O.B Value (in ₹)
Cement	CAPTIVE CONSUMPTION	--	--	--

6. Give Reason for increase/decrease in production

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Mineral Name	Production proposal for current financial year	Cumulative production as reported upto the current month	Difference
LIMESTONE	0	0	0

I Certify that the information furnished above is correct and complete in all respects.

Place :
Dist: AMRELI, GUJARAT
Pin:365540
Date : 08-02-2021

Signature

Name : 14.2045 BKT LS Mines - II
Designation: Agent
~~Owner~~ / Agent / ~~Mining Engineer~~ / ~~Manager~~

From: 103.68.199.95 at 2021-02-08 17:48:26

Prerna Singh

From: Prerna Singh
Sent: 02 August 2021 16:52
To: nitinlonkar@gmail.com
Cc: Shweta Kabra; Court Clerks, Delhi Office; ngt-pune@gov.in
Subject: Service of Application for filing of additional documents in Appeal No. 58/2020 (Bhagwanbhai Bhanabhai Solanki versus Union of India & Ors.) filed before the Hon'ble National Green Tribunal, Western Zone Bench at Pune)
Attachments: Appl for additional documents-58.pdf

Dear Sir

This Email is being sent to you on behalf of Narmada Cement- Jafrabad Works, unit of Ultratech Cement Ltd., i.e. Respondent No. 12 in the Appeal No.58/2020 (Bhagwanbhai Bhanabhai Solanki versus Union of India & It's.) filed before the Hon'ble National Green Tribunal, Western Zone Bench at Pune. We hereby serve you with a copy of the Application for filing of additional documents in the Application for recall of order dated 30.06.2021, filed by us. Please find attached a copy of the application with this email.

Regards
Prerna