BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA, WEST BENGAL

ORIGINAL APPLICATION NO. 5 OF 2026

IN THE MATTER OF:

GAURAV SINGH …APPLICANT

VERSUS

HINDALCO INDUSTRIES LTD
AND ORS. …RESPONDENTS

INDEX

Through

ACARA LAW LLP ADVOCATE
B-41 SOAMI NAGAR SOUTH
NEW DELHI – 110017
Mob No.: 9810455042

Dated: 02.05.2026

1

COURT FEE TEN RUPEES Rs.10 INDIA

अधिवक्ता पंद्रह रुपये ₹15 FIFTEEN RUPEES ADVOCATE

ADVOCATES CLERK WELFARE FUND ₹5 FIVE RUPEES

BHIM MAHTO NOTARY PUBLIC R.No.-26

BEFORE THE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA, WEST BENGAL

ORIGINAL APPLICATION NO. 5 OF 2026

IN THE MATTER OF:

GAURAV SINGH …APPLICANT

VERSUS

HINDALCO INDUSTRIES LTD AND ORS. …RESPONDENTS

REPLY ON BEHALF OF RESPONDENT NO. 1, HINDALCO INDUSTRIES LIMITED

MOST RESPECTFULLY SHOWETH:

I, Samta Sinha, aged about 40 years, working as Assistant General Manager, Hindalco Industries Limited, having residence at Pundag, Ranchi, do hereby solemnly affirm and declare as under:-

1. That I am the Authorized Representative of Respondent No. 1, I am fully conversant with the facts and circumstances of the present case based on the records maintained by Respondent No. 1 in the usual course of business. I am competent to affirm this affidavit on behalf of Respondent No. 1.

2. At the outset, it is stated that all averments made by the Applicant in the present Application, save and except those being matter of record and/or are specifically admitted herein, are denied. Nothing contained in the present Application shall be deemed to be admitted by Respondent No. 1 for want of specific traverse. It is submitted that the Applicant has wilfully suppressed material facts

02 MAY 2026

S. No. 8 Date

BHIM MAHTO NOTARY PUBLIC R.No.-26

For Hindalco Industries Ltd.

Authorised Signatory

and information and have presented a false narrative qua the environmental compliances undertaken by Respondent No. 1 at the Kathautia coal mine situated in Palamau District, Jharkhand (**"Kathautia coal mine"**). The Applicant has levelled misconceived and untenable allegations regarding purported non-compliance of conditions of Environmental Clearance (**"EC"**), specifically, condition no. (iv), against the Answering Respondent without disclosing the complete facts prior to filing of the present Application.

PRELIMINARY OBJECTIONS:

3. The Applicant has approached this Hon'ble Tribunal with unclean hands and has deliberately suppressed material information from this Hon'ble Tribunal.

4. It is submitted that Kathautia Coal Mine was originally allotted by Ministry of Coal to M/s Usha Martin Limited (**"Prior Allottee/UML"**). UML operated the Kathautia coal mine during 2008 till 31.03.2015. The Mining Plan of the Prior Allottee was approved by Ministry of Coal on 20.05.2005 for an area of 938.27 Ha. The EC granted to the Prior Allottee on 19.06.2006 was also for an area of 938.27 Ha. After execution of mining lease in its favour, the Prior Allottee conducted mining operations at the Kathautia coal mine since 2008 till 31.03.2015, i.e., until deallocation directed by the Hon'ble Supreme Court as described below.

5. The Hon'ble Supreme Court *vide* its judgment dated 25.08.2014 and order dated 24.09.2014 in *Manohar Lal Sharma v. Principal Secretary & Ors., (2014) 9 SCC 516 and (2014) 9 SCC 614* declared allocations of the coal blocks made through Screening

For Hindalco Industries Ltd.

Authorised Signatory

Committee and through Government Dispensation route since 1993 till 2011 as illegal & arbitrary and cancelled the allocation of 204 coal blocks, including Kathautia Coal Mine.

6. In or around December 2014, Nominated Authority, Ministry of Coal, Government of India (**"Nominated Authority"**) issued notice inviting tender for auction of Kathautia Coal Mine under the Coal Mines (Special Provisions) Act, 2015 and Coal Mines (Special Provisions) Rules, 2014. The Respondent No. 1 participated in the said auction and was declared the successful bidder in respect of Kathautia Coal Mine. The Mine Summary issued by Ministry of Coal at the time of auction during 2014-15 is annexed herewith as **Annexure R1/1**.

7. Thereafter, the Coal Mine Development & Production Agreement dated 02.03.2015 (**"CMDPA"**) was executed between the President of India (through Nominated Authority) and Respondent No. 1 in respect of the Kathautia Coal Mine. The Nominated Authority also issued Vesting Order in favour of Respondent No. 1 *vide* Order No. 104/3/2015/NA dated 23.03.2015. Copy of the Vesting Order dated 23.03.2015 is annexed hereto and marked as **Annexure R1/2**.

8. On 16.04.2015, Respondent No. 2 transferred EC of Kathautia Coal Mine from Prior Allottee to Respondent No. 1. The EC granted in favour of the Prior Allottee as transferred in favour of Respondent No. 1 is on record at **Annexure E** and **Annexure E/1** respectively to the present Application.

9. In terms of the CMDPA, Respondent No. 1 was required to report the deviations in the operations of Prior Allottee from the approved

mining plan to the Nominated Authority within prescribed timelines. Accordingly, Respondent No. 1 *vide* letter dated 20.07.2015 submitted 'Report identifying deviations during implementation of approved mining plan for Kathautia Coal Project' ("**Deviation Report**") to the Nominated Authority. Copy of Deviation Report is annexed hereto and marked as **Annexure R1/3.**

10. It is respectfully submitted that the following observations emerge from the Deviation Report:

a) The Prior Allottee had dumped 11.212 Mcum of Over Burden (**"OB"**) externally over an area admeasuring 41.907 Ha.

b) The area backfilled/ reclaimed/ planted by the Prior Allottee being 5.5333 Ha was significantly lower than the area envisaged in the approved mining plan which was 50.45 Ha. Further, as on 31.03.2015, no area had been specifically designated for the storage or placement of topsoil. Consequently, the entire quantity of topsoil generated up to 31.03.2015 was considered as utilized for plantation purposes.

c) Out of the total excavated area of 103.067 Ha. as on 31.03.2015, an extent of 9.2 Ha had been backfilled up to the Original Ground Level (**"OGL"**) by the Prior Allottee and plantation had been undertaken over and extent of 0.44 Ha. of the backfilled area by the Prior Allottee.

11. It is respectfully submitted that the aforesaid deviations are legacy issues solely attributable to the acts and omissions of the Prior Allottee and the Respondent No. 1 inherited the said deviations after reallocation and vesting of the Kathautia coal mine w.e.f. 01.04.2015.

For Hindalco Industries Ltd.
Authorised Signatory

12. It is submitted that Section 14(3) of the Coal Mines (Special Provisions) Act, 2015 clearly mandates that liabilities of Prior Allottees in respect of any period prior to the vesting order/allotment order shall remain the liabilities of such Prior Allottees and shall be enforceable against the said Prior Allottee and not against the successful bidder.

13. The Respondent No. 1 had neither any role in the creation of such deviations nor any liability arising therefrom in light of Section 14(3) of the Coal Mines (Special Provisions) Act, 2015. It is a matter of record that the Prior Allottee committed deviations from the approved mining plan while undertaking operations at Kathautia coal mine during 2008-2015. Post allocation of Kathautia coal mine in favour of Respondent No. 1 w.e.f. 01.04.2015, the Respondent No. 1 has undertaken coal mining operations in accordance with applicable laws and has neither stacked OB outside the mining lease area nor acted in violation of any of the conditions stipulated in the EC.

14. Upon vesting of the Kathautia coal mine in favour of Respondent No. 1 w.e.f. 01.04.2015, Respondent No. 1 has complied with the conditions specified under the EC, including specific condition no. (iv):

a) OB has been stacked only at earmarked OB dumpsites within ML area.

b) The external dump height is maintained within the permissible limit of 60 meters from Original Ground Level (OGL) in accordance with the approved mining plan.

NOTARY PUBLIC
Ranchi (Jharkhand)

For Hindalco Industries Ltd.
Authorised Signatory

c) Benches of 10 meters have been formed and the overall dump slope has been maintained below 28 degrees.

d) Progressive backfilling of de-coaled areas is carried out on a regular basis, maintaining requisite safety distance from the active working face.

e) Continuous monitoring of both existing and reclaimed dumps is undertaken to ensure safety, stability and environmental compliance.

f) Reclamation activities, including plantation, are carried out continuously and vegetation on dumps older than three years have become self-sustaining.

g) Compliance status is periodically reported through half-yearly compliance reports submitted to the Jharkhand State Pollution Control Board (JSPCB) and the MoEF&CC, as applicable.

Copies of the EC Compliance Reports filed by the Respondent No. 1 since April 2024 till date are annexed hereto and marked as **Annexure R1/4 (Colly).**

A copy of the surface plan depicting the dumpsites, pits, mining benches, fencing, plantation area etc. is annexed hereto and marked as **Annexure R1/5.**

15. It is submitted that Respondent No. 1 has excavated only 2.37 MT of coal between 2017 to 2023 as compared to 2.84 MT of coal excavated by the Prior Allottee between 2008 to 2015. The quantity of OB removed by the Respondent No. 1 is also 21.76 Mcum as compared to the Prior Allottee's OB quantity, which is 26.29 Mcum.

For Hindalco Industries Ltd.

Authorised Signatory

16. It is submitted that, around November 2020, Respondent No. 1 with the help of Indian Institute of Engineering Science and Technology (**"IIEST/Scientific Agency"**) prepared 'Stability analysis of pit and OB dump slopes at Kathautia Coal Mine (**"Report"**). The Report depicts that bench height of external dump is 10m and maximum height of 60m from original ground level is maintained. A copy of the Report is annexed hereto and marked as **Annexure R1/6.**

17. It is submitted that backfilling of de-coaled areas is a regular and ongoing activity and plantation has been successfully carried out wherever backfilling has reached the OGL. In the areas where backfilling is still in progress, plantation activities would be carried out after backfilling. It is submitted that continuous monitoring is being undertaken in both the current as well as the old dumping areas to ensure safety and stability. Photographs depicting backfilling, fencing and plantation are annexed hereto and marked as **Annexure R1/7 (Colly).**

18. Respondent No. 1 has already completed backfilling on 283.26 acres of land. It is also submitted that 112.30 Acres of land has been used for vegetation and has become self-sustaining.

19. It is pertinent to mention that upon issuance of the Vesting Order, Respondent No. 1 discovered that a substantial portion of the land is not accessible to mining due to issues like alleged existence of deemed forest [Jungle Jhari] land (JJ land) over an extent of approx. 344 acres within ML area, and non-availability of a significant extent of Government and Raiyat land, rendering the same inaccessible for the purpose of carrying out mining

For Hindalco Industries Ltd.
Authorised Signatory

operations. Therefore, mining activities/excavation could not be undertaken in large parts of the mining area due to factors beyond the control of Respondent No. 1. The details of such disputed and inaccessible land are set out hereunder:

Alleged Jungle Jhari Land	344.16 Acres
Private (Raiyat) Land	859.07 Acres
Government Land	165.85 Acres
Total	**1369.08 Acres**

20. Only after vesting of the Kathautia Coal Mine in the Respondent No. 1's favour with effect from 01.04.2015, the State Government alleged existence of 344.16 acres of jungle jhari land within the ML area and vide letters/order dated 12.07.2017, 03.08.2017 and 09.10.2017 directed the Respondent No. 1 to stop mining operations until Forest Clearance is obtained, despite the fact that revisional survey records published on 04.07.2016 under the Chota Nagpur Tenancy Act, 1908 confirming that no forest / deemed forest land existed in the ML area.

21. The Respondent No 1 challenged the aforesaid letters/ order of the State Government before the Hon'ble Jharkhand High Court by filing WP(C) No. 6046/2017, wherein the Hon'ble High Court stayed the letters/order dated 03.08.2017 and 09.10.2017 on 13.10.2017, subject to the Respondent No. 1 not undertaking mining over 344.16 acres of land. The said matter is still sub-judice before the Hon'ble Jharkhand High Court.

For Hindalco Industries Ltd.

Authorised Signatory

22. In view of the above circumstances especially with respect to non-availability of suitable land for mining, Respondent No. 1 could not continue the mining activity/excavation and stopped the mining operations since November 2023. Therefore, Respondent No. 1 submitted notice of discontinuance dated 03.10.2024 and Notice of Closer in Form 1-C on 18.08.2025 under Regulation 5 of the Coal Mines Regulations, 2017 before Regional Inspector of Mines. Subsequently, Respondent No. 1 submitted notice for termination of CMDPA and Vesting Order dated 06.06.2025 to the Nominated Authority.

23. Since the Respondent No. 1 has sought surrender of the Kathautia coal mine and termination of the CMDPA and Vesting Order after partial extraction of coal reserves, Respondent No. 1 is required to prepare a Temporary Mine Closure Plan as per the extant regulatory framework. Respondent No. 1 has engaged the Central Mine Planning and Design Institute Limited (**"CMDPI"**) for the purposes of preparation of the Temporary Mine Closure Plan for which a purchase order has been issued on 11.02.2026. Copy of purchase order dated 11.02.2026 is annexed hereto and marked as **Annexure R1/8.**

PARA-WISE REPLY TO THE ORIGINAL APPLICATION:

24. The contents of Paragraph 1 of the Application are denied for want of knowledge. It is submitted that anything which is contrary to what is stated hereinabove is denied. The Applicant has attempted to mislead this Hon'ble Tribunal by way of the present Application under reply.

BHIM MAHTO

For Hindalco Industries Ltd.
Authorised Signatory

25. The contents of Paragraph 2 to 4 of the Application save and except which are matter of record are wrong and denied. It is denied that Respondent No. 1 failed to implement the EC conditions. It is denied that Respondent No. 1 has left the pits unfilled. It is denied that OB was dumped outside the permitted area by Respondent No. 1. It is denied that plantations were carried out by Respondent No. 1 only on OB dumps. It is submitted that the allegations raised by the Applicant are wholly unfounded. It is further submitted that the OB outside the ML area had been stacked by the Prior Allottee, whereas Respondent No. 1 has stacked the OB at earmarked sites within the ML area. The Applicant has once again sought to mislead this Hon'ble Tribunal by alleging that the issue of illegal mining has been raised before the Hon'ble Jharkhand High Court in W.P.C. No. 6046 of 2017, whereas the said petition was filed by the Respondent No. 1 herein, seeking quashing/ setting aside of letters/ orders issued by the State Government directing the Respondent No. 1 to stop mining on 344.16 acres of land in the Karthautia Coal Mine alleging that the same is jungle jhari land. The said letters/ orders were issued subsequent to assurance given, Vesting order and the Coal Mine Development and Production Agreement that no part of the mining lease area of the Kathautia Coal Mine has any forest land/ jungle jhari land. Therefore, the statement of the Applicant that the issue of illegal mining has been raised in the said petition is completely false and misleading.

26. The contents of Paragraph 5 to 6 of the Application so far as they are matter of record need no response. It is submitted that anything which is contrary to what is stated hereinabove is denied.

For Hindalco Industries Ltd.

Authorised Signatory

27. The contents of Paragraphs 7 to 8 of the Application except which are matter of record are wrong and denied. It is denied that Respondent No. 1 has violated any of the EC conditions including EC condition no. (iv). Respondent No. 1 has stacked the OB only within the permitted area, without exceeding the maximum height of 60 m. The Respondent No. 1 is continuing to backfill pits with only 75 acres of land remaining to be backfilled as on date. The Respondent No. 1 is also continuously monitoring the dumping areas for safety and stability. Reclamation activities are also ongoing and vegetation on 112.30 acres of land has already become self-sustaining. It is submitted that Respondent No. 1 has not violated any of the conditions of the EC and has been regularly submitting the half-yearly EC compliance reports to the concerned authorities in accordance with the applicable regulatory requirements. The photographs annexed to the Application do not depict any violation as alleged or otherwise.

28. The contents of Paragraph 9 to 12 of the Application are wrong and denied. It is denied that the Respondent No. 1 has entered the land of the villagers and no restoration of land is being done. It is also denied that Respondent No. 1 has failed to fill the pits and has stacked OB outside the mining lease area. It is submitted that the Respondent No. 1 is compliant with the EC conditions, specifically condition no. (iv) and backfilling over an area of 283.26 acres has already been completed.

29. The contents of Ground (i) of the Application are wrong and denied. It is submitted that ever since vesting of Kathautia coal mine in favour of Respondent No. 1 w.e.f. 01.04.2015, Respondent No. 1 has complied with the EC conditions and the approved

For Hindalco Industries Ltd.
Authorised Signatory

mining plan. It is submitted that Respondent No. 1 has undertaken backfilling to the extent permissible under the regulatory framework and is continuing to backfill and work towards making the backfilled areas self-sustaining. It is further submitted that Respondent No. 1 has also undertaken and completed plantation activities in the said areas in accordance with the applicable requirements and environmental obligations as stated above.

30. The contents of Ground (ii) of the Application are wrong and denied. It is submitted that the allegations made by the Applicant are wholly unfounded. Respondent No. 1 has duly erected and maintained barbed wire fencing around the areas which were being worked / excavated till November 2023. Respondent No. 1 from 2017 to 2023 has incurred 59.08 Lakhs of expenditure towards barbed wire fencing with masonry pillars around the pit. Accordingly, the allegations to the contrary are baseless and devoid of merit.

31. The contents of Ground (iii) of the Application are wrong and denied. It is denied that the MoEF&CC and other State Respondents have failed to enforce compliance of EC conditions, when the Respondent No. 1 has regularly submitted compliance reports and the Government authorities have regularly verified compliance.

32. The contents of Ground (iv) of the Application are wrong and denied. It is submitted that Polluters Pay Principle does not apply to the present case as Respondent No. 1 is not responsible for any pollution and has adhered to applicable laws, including environmental laws while undertaking operations at Kathautia

coal mine since 01.04.2015. The Applicant has failed to place any material on record to substantiate the allegation that the Respondent No. 1 has caused any pollution.

33. It is submitted the Applicants are not entitled to the reliefs claimed from this Hon'ble Tribunal and the present Original Application deserves to be dismissed with exemplary costs.

34. The Respondent No. 1 reserves the right to file an additional affidavit as and when required or as directed by this Hon'ble Tribunal for proper adjudication of the present matter.

35. That the facts stated, and the submissions made above are true to the best of my knowledge and belief and are based on the information available from official records and that nothing material has been concealed therefrom.

For Hindalco Industries Ltd.

Authorised Signatory

DEPONENT

Signature Attested and Identification

2/5/26

VERIFICATION

I, the above-named deponent, do hereby verify that the contents of the above affidavit are true to the best of my knowledge and belief and are based on the information available from official records and that nothing material has been concealed therefrom. Verified at on this the 02nd May, of 2026.

For Hindalco Industries Ltd.

Authorised Signatory

DEPONENT

Id 64

NOTARY PUBLIC, RANCHI

2-5-26

Signature Attested and Identification of Lawyer

2/5/26

Enrol No. JH245/24

Sourav Kumar

Corrigendum to Mine Summary **ANNEXURE R-1/1**

(*This supersedes earlier uploaded mine summary*)

KATHAUTIA MINE

PART A

<table>
<tr><th>Sr. No.</th><th>Features</th><th>Details</th></tr>
<tr><td>**1.**</td><td>**Location**</td><td></td></tr>
<tr><td></td><td>Coal Field</td><td>Daltonganj Coalfield</td></tr>
<tr><td></td><td>Latitude</td><td>24°07′02″ N & 24°08′52″ N</td></tr>
<tr><td></td><td>Longitude</td><td>84°03′42″ E & 84°06′52″ E</td></tr>
<tr><td></td><td>Villages</td><td>Kathautia, Kajri, Gari, Palhe Khurd, Sakhui, Sika and Balsara</td></tr>
<tr><td></td><td>Tehsil/ Taluka</td><td></td></tr>
<tr><td></td><td>District</td><td>Palamau</td></tr>
<tr><td></td><td>State</td><td>Jharkhand</td></tr>
<tr><td>**2.**</td><td>**Area**</td><td></td></tr>
<tr><td></td><td>Geological Block Area</td><td>9.38 sq. km.</td></tr>
<tr><td></td><td>Project Area</td><td>687.93 ha (Quarry Area)</td></tr>
<tr><td></td><td>Mining Lease Area</td><td>938.27 hectares (as per EC dated 19.06.2006)</td></tr>
<tr><td></td><td>Forest Area</td><td>Nil</td></tr>
<tr><td></td><td>Non Forest Area</td><td>938 hectares (out of total Lease Area)</td></tr>
<tr><td>**3.**</td><td>**Exploration**</td><td></td></tr>
<tr><td></td><td>Status of Exploration</td><td>Explored</td></tr>
<tr><td></td><td>Exploration Agency</td><td>MECL (As per Mining Plan 2004)</td></tr>
<tr><td></td><td>Total Number of Boreholes</td><td>102 (As per Mining Plan 2004)</td></tr>
<tr><td></td><td>Boreholes Meterage</td><td>6794.35 (As per Mining Plan 2004)</td></tr>
<tr><td></td><td>Borehole Density</td><td>11.30/ sq km</td></tr>
<tr><td>**4.**</td><td>**Amount of Coal**</td><td></td></tr>
<tr><td></td><td>Geological Reserves</td><td>29.293 MT</td></tr>
<tr><td></td><td>Mineable Reserves</td><td>27.38 MT</td></tr>
<tr><td></td><td>Extractable Reserves</td><td>26.011 MT</td></tr>
<tr><td></td><td>Seam Wise Reserve</td><td>
<table>
<tr><th>Coal Seam</th><th>Geological Reserve (MT)</th><th>Mineable (MT)</th></tr>
<tr><td>Rajhara A</td><td>0.999</td><td rowspan="3">27.38</td></tr>
<tr><td>Rajhara B</td><td>11.004</td></tr>
<tr><td>Pandwa Top</td><td>17.290</td></tr>
</table>
</td></tr>
<tr><td></td><td>Average Stripping Ratio</td><td>9.66</td></tr>
<tr><td>**5.**</td><td>**Coal Seams**</td><td></td></tr>
<tr><td></td><td>Dip of Seam</td><td>Sub-horizontal to max 10^0</td></tr>
<tr><td></td><td>Direction of Strike</td><td>NNW-SSE</td></tr>
<tr><td></td><td>Thickness of Coal Seams</td><td>
<table>
<tr><th>Coal Seam</th><th>Range (Mtrs)</th></tr>
<tr><td>Rajhara A</td><td>0.6-1.40</td></tr>
<tr><td>Rajhara B</td><td>0.9-2.60</td></tr>
</table>
</td></tr>
</table>

		Pandwa Top	0.9-3.11
		Pandwa Bottom	0.10-1.27
	Partings	Between Seams	Usual (in metres)
		Parting between Rajhara A and Rajhara B	10.25-19.12
		Parting between Rajhara B and Pandwa Top	4.20-13.85
		Parting between Pandwa Top and Pandwa Bottom	4.70-13.87
	Faults	Name of Fault	Throw (m)
		F4 Lohari	32-40
		F6 Lohari	2-8
		F8 Lohari	5
		F13 Lohari	>100
		F14	4-30
		F15	10-16
		F16	12-40
		F17	>40
		F18	30
		F19	15-35
		F20	7-10
		F21	6
		F22	6
6.	**Grade**		
	Grade	B-C	
7.	**Accessibility**		
	Nearest Rail Head Distance	Gomoh-Dehri-on-sone loop of East-Central Railway	
	Road	Daltonganj Aurangabad Road (NH 75)	
	Airport Distance	Ranchi (nearest)	
8.	**Hydrography**		
	Local Surface Drainage Channels	North Koel Dendritic system meeting the Durgawati near Mukhtar toli.	
	Rivers/ Nala	River Koel, River Durgawati, Jinjoi Nadi	
9.	**Climate**		
	Average Annual Rainfall	1146.4 mm	
	Temperatures (Winter)	Min 0 degree C	
	Temperatures (Summer)	Up to 47.8 degree C	
10.	**Topography**		
	Topo Sheet Number	72 D/4	
	Nature of Surface Land	Undulating; max 219 m above MSL	
11.	**Other Infrastructure**		
	Coal Handling Plant Capacity		
	Coal Washery Capacity		
	Transport from Mine	Rail/ Road (As per Annexure-I)	
	Power Supply	Available from nearby village located at a distance of 500 m through HT line 11 KVA/3.3 KVA by JSEB	

PART B (for Schedule II Mines only)

Sr. No.	Features	Details
1.	**Previous Allocation**	
	Name of Allocatee	Usha Martin Ltd
	Address	Mangal Kalash, 2A, Shakespeare Sarani, Kolkata 700071
	Nature of End Use	Non-regulated Sector
2.	**Status of Mineral Exploitation**	
	Method of Mining	Opencast mining
	Coal Extracted	2.048 MT (till 31.03.2014)
	Mine Plan Extraction Rate	0.80 MTPA
	Mining Agency	Ambey Mining Pvt. Ltd. (As per Annexure-I)
3.	**Status of Clearances/Approvals**	
	Mining Plan(Reference to Grant)	47011/1(6)/2002-CPAM/CA dated 27/09/2003
	Forest Clearance(Reference to Grant)	NA
	Environmental Clearance(Reference to Grant)	No.J-11015/61/2006-IA.II(M) dated June 19, 2006
	Land Required	2327.365 acres (As per Annexure-I)
	Land Acquired	1953.705 acres (As per Annexure-I)

Note: The above data is compiled from Geological Report, Mining Plan, Mine Closure Plan, Environmental Clearance and Forest Clearance and the data furnished by the prior allottee in Annexure-I. For clarifications with regard to above data, please refer aforesaid source documents.

ANNEXURE R-1/2

Government of India
Ministry of Coal
O/o the Nominated Authority

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Second Ordinance, 2014

Vesting order under clause (b) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Kathautia Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: 104/3/2015/NA

Date: March 23, 2015

In favour of: **Hindalco Industries Limited** incorporated in India under the Companies Act, 1956 with corporate identity number L27020MH1958PLC011238, whose registered office is at Century Bhavan, 3rd Floor, Dr. Annie Besant Road, Worli, Mumbai-400030, India and principal place of business is at Aditya Birla Centre, 3rd Floor, B Wing, S.K. Ahire Marg, Worli, Mumbai-400030 (the "successful bidder")

For utilisation in: End Use Plant situated at Bargawan, Dist. Singrauli, Madhya Pradesh, India, as more particularly described below (the "End Use Plant"):

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity	Coal Entitlement
1.	Captive Power Plant of Mahan Aluminium Project	Bargawan, Dist. Singrauli, Madhya Pradesh	6 X 150 MW	900 MW	129.28 MT

MW: Mega Watt; MT: Million Tonne

WHEREAS, the nominated authority has, in accordance with provisions of the Coal Mines (Special Provisions) Second Ordinance, 2014 (the "Ordinance") and the Coal Mines (Special Provisions) Rules 2014 (the "Rules") conducted the auction of the mine;

AND WHEREAS the successful bidder is eligible to receive this vesting order with respect to the mine including, inter-alia, -

(a) the coal bearing land acquired by the prior allottee and the lands, in or adjacent to the coal mines used for coal mining operations acquired by the prior allottee; and

(b) any existing mine infrastructure as defined in clause (j) of sub-section (1) of section 3 of the Ordinance;

AND WHEREAS the successful bidder has furnished a performance bank guarantee dated March 18, 2015 for an amount equal to INR 2,67,88,80,000 (Indian Rupees Two Hundred Sixty Seven Crore Eighty Eight Lakh and Eighty Thousand) issued by Kotak Mahindra Bank in accordance with the tender document and in accordance with the provisions of sub-section (6) of section 8 of the Ordinance and sub-rule (4) of rule 13 of the rules.

AND WHEREAS the successful bidder has entered into a Coal Mine Development and Production Agreement dated March 2, 2015 ("CMDPA") (as amended) with the nominated authority in accordance with the provisions of sub-rule (5) of rule 13.

NOW, THE NOMINATED AUTHORITY DOES ORDER:

1. On and from April 1, 2015 ("vesting date") and in accordance with the provisions of sub-section (4) of section 8 of the Ordinance, with respect to the mine, the following shall stand fully and absolutely transferred and vested in the successful bidder, namely: -
   (a) all the rights, title and interest of the prior allottee in and over the land and mine infrastructure free from all encumbrances;
   (b) entitlement to a mining lease to be granted by the State Government with the terms and conditions of CMDPA forming a part of it on making an application;
   (c) all statutory licences, permits, permissions, approvals or consents as per rules, required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 2**;
   (d) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the Central Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 3**;
   (e) entitlement to any statutory licence, permit, permission, approval or consent required to undertake coal mining operations in the mine, if already issued by the State Government, to the prior allottee on making an application on the same terms and conditions as were applicable to the prior allottee, as listed in the **Annexure 4**;
   (f) rights appurtenant to the approved mining plan of the prior allottee;
   (g) any subsisting contract in relation to coal mining operations, to which the prior allottee was a party and which is assumed, adopted and continued by the successful bidder and listed in the **Annexure 5** shall stand novated (by virtue of a deemed consent from the relevant party(ies)), in accordance with the provisions of sub-section (1) of section 11 of the Ordinance in favour of the

successful bidder for the residual term or residual performance of such contract;

2. The successful bidder may seek any change in the terms and conditions attached to such licence, permit, permission, approval or consent by making an application in accordance with applicable laws;
3. Hereinafter, the successful bidder shall be entitled to take possession of the mine as specified in **Annexure 1** without let or hindrance;
4. This vesting order is liable to be cancelled in accordance with the provisions of sub-rule (6) of rule 13.

Vivek Bharadwaj

(By the nominated authority)

Govt. of India M/o Coal

Annexures

Annexure 1: Particulars of the mine

Part A – Description of the mine

Name of Coal Mine	**Kathautia**
Coal Field	Daltonganj Coalfield
Latitude	$24^0$07'02" N & $24^0$08'52" N
Longitude	$84^0$03'42" E & $84^0$06'52" E
Villages	Kathautia, Kajri, Gari, Palhe Khurd, Sakhui, Sika and Balsara
District	Palamau
State	Jharkhand

Part B – Description of Land in relation to the mine

Type of Land: Freehold Land for Mining as per Mining Lease

S.No.	Village	Date of Registration	Deed Number	Area (Hectare)
1	Kajri	17-Apr-08	3641/3617	0.4527
2	Kajri	02-Nov-07	10157	0.2429
3	Kajri	13-Jun-08	5998/5959	1.8204
4	Kajri	03-Sep-09	8636/8549	0.3599
5	Kajri	06-Feb-08	1212/1200	1.9268
6	Kajri	05-Feb-08	1162/1152	0.4048
7	Kajri	13-Aug-09	7965/7895	0.3724
8	Kajri	12-Mar-10	2667/2620	0.3052
9	Kajri	12-Mar-10	2666/2619	0.0684
10	Kajri	11-Apr-08	3479/3456	0.8703
11	Kajri	24-May-08	5025/4990	4.3192
12	Kajri	17-Feb-09	1245/1234	1.2184
13	Kajri	27-Dec-07	11888/11751	2.0240
14	Kajri	30-Apr-09	3462/3440	1.8204
15	Kajri	13-May-09	3767/3740	2.1859
16	Kajri	13-May-09	3769/3742	0.2874
17	Kajri	22-Feb-10	1860/1828	0.4186
18	Kajri	26-Aug-09	8354/8274	0.3805
19	Kajri	02-Sep-09	8586/8499	2.1758
20	Kajri	02-Sep-09	8583/8496	2.4968
21	Kajri	03-Sep-09	8644/8556	0.3744
22	Kajri	03-Sep-09	8645/8557	0.7792
23	Kajri	07-Sep-09	8733/8645	3.3315
24	Kajri	15-Sep-09	8987/8895	1.5028
25	Kajri	15-Sep-09	8985/8893	1.6819

S.No.	Village	Date of Registration	Deed Number	Area (Hectare)
26	Kajri	24-Sep-09	9248/9151	10.5879
27	Kajri	24-Feb-10	1934/1900	0.3497
28	Kajri	25-Feb-10	2063/2027	1.2104
29	Kajri	20-May-10	5500/5410	2.1167
30	Kajri	09-Jun-10	6200/6099	0.5542
31	Kajri	23-Jun-10	6871/6764	0.5748
32	Kajri	23-Jun-10	6878/6768	0.1913
33	Kajri	23-Jun-10	6884/6774	0.1913
34	Kajri	23-Jul-10	8153/8025	2.8599
35	Kajri	23-Jul-10	8154/8026	1.8210
36	Kajri	23-Aug-10	9190/9038	1.1711
37	Kajri	26-Nov-10	12411/12159	4.3281
38	Kajri	26-Mar-12	2095/2027	0.9637
39	Kajri & Batsara	30-Mar-12	2240/2169	1.7134
40	Kajri & Batsara	02-Apr-12	2278/2206	1.1807
41	Kajri & Batsara	02-Apr-12	2279/2207	4.7133
42	Kajri & Batsara	02-Apr-12	2280/2208	1.1294
43	Kajri & Batsara	11-Apr-12	2529/2452	1.5990
44	Kajri & Batsara	07-May-12	3287/3198	1.2848
45	Kajri	26-Mar-08	2777	0.4048
46	Kajri	26-Mar-08	2781	0.4048
47	Kajri	26-Mar-08	2779	0.4048
48	Kajri	26-Mar-08	2793	0.4048
49	Kajri	09-Apr-08	3394	0.4048
50	Kajri	09-Apr-08	3392	0.4453
51	Kajri	09-Apr-08	3396	0.5870
52	Kajri	09-Apr-08	3390	0.4453
53	Kajri	09-Apr-08	3384	0.4048
54	Kajri	09-Apr-08	3405	0.4048
55	Kajri	09-Apr-08	3399	0.4048
56	Kajri	09-Apr-08	3401	0.4048
57	Kajri	09-Apr-08	3386	0.4048
58	Kajri	09-Apr-08	3398	0.4048
59	Kajri	09-Apr-08	3403	0.4048
60	Kajri	09-Apr-08	3388	0.4655
61	Kajri	15-May-08	4534	0.4048
62	Kajri	15-May-08	4576/4541	0.4048
63	Kajri	15-May-08	4575/4540	0.4048
64	Kajri	15-May-08	4578/4543	0.4048
65	Kajri	20-May-08	4777/4742	0.4048
66	Kajri	20-May-08	4775/4740	0.4048
67	Kajri	22-May-08	4946/4911	0.4048
68	Kajri	22-May-08	4942/4907	0.6072
69	Kajri	22-May-08	4944/4909	0.4048
70	Kajri	18-Jul-08	7582/7533	0.4048
71	Kajri	17-Jan-11	731/719	0.6983

नामनिर्दिष्ट प्राधिकारी
Nominated Authority

S.No.	Village	Date of Registration	Deed Number	Area (Hectare)
72	Kajri	26-Mar-08	2771	0.4210
73	Kajri	26-Mar-08	2775	0.9574
74	Kajri	26-Mar-08	2790	0.6991
75	Kajri	26-Mar-08	2795	0.6202
76	Kajri	26-Mar-08	2783	0.7124
77	Kajri	26-Mar-08	2773	0.2888
78	Kajri	26-Mar-08	2767	0.6991
79	Kajri	26-Mar-08	2765	0.6991
80	Kajri	26-Mar-08	2769	0.0688
81	Kajri	28-May-09	4515/4475	1.1772
82	Kajri	28-May-09	4514/4474	0.7578
83	Kajri	28-May-09	4513/4473	0.9675
84	Kajri	08-Jun-09	4946/4903	0.6606
85	Kajri	08-Jun-09	4945/4902	0.7256
86	Kajri	08-Jun-09	4953/4910	0.4137
87	Kajri	08-Jun-09	4950/4907	0.2310
88	Kajri	08-Jun-09	4956/4913	0.3672
89	Kajri	08-Jun-09	4957/4914	0.4137
90	Kajri	15-Jun-09	5300/5251	0.4615
91	Kajri	15-Jun-09	5298/5249	0.6363
92	Kajri	07-Jun-11	6359/6233	0.0445
93	Kajri	12-Apr-12	2556/2478	0.3036
94	Batsara	15-Mar-08	2482	0.1506
95	Batsara	03-Apr-08	3104	0.5125
96	Batsara	30-Apr-08	3889/3858	8.7437
97	Batsara	28-Jul-08	7965/7914	0.8005
98	Batsara	04-Aug-08	8234/8182	0.8096
99	Batsara	07-Jul-09	6375/6317	0.0769
100	Batsara	07-Jan-10	184/182	1.0727
101	Batsara	07-Jan-10	185/183	0.2915
102	Batsara	22-Feb-10	1873/1841	3.1510
103	Batsara	26-Nov-10	12410/12158	0.3643
104	Batsara	21-Mar-12	1924/1860	2.0726
105	Batsara	17-Apr-08	3658/3634	0.8096
106	Batsara	17-Apr-08	3653/3629	0.8096
107	Batsara	17-Apr-08	3647/3623	0.8096
108	Batsara	26-Apr-08	3815/3791	0.8096
109	Batsara	26-Apr-08	3812/3788	0.8096
110	Batsara	26-Apr-08	3814/3790	0.8096
111	Batsara	17-Apr-08	3649/3625	0.8096
112	Batsara	17-Apr-08	3638/3614	0.8096
113	Batsara	26-Apr-08	3813/3789	0.8096
114	Batsara	24-Apr-08	3251/3232	0.8096
115	Batsara	26-Apr-08	3811/3787	0.8096
116	Batsara	17-Apr-08	3648-3624	0.8096

S.No.	Village	Date of Registration	Deed Number	Area (Hectare)
117	Batsara	26-Apr-11	5771/5661	0.8096
118	Batsara	26-Apr-08	3816/3792	0.8096
119	Batsara	25-Aug-08	8726/8669	0.8096
120	Batsara	25-Aug-08	8728/8671	0.8096
121	Batsara	08-Sep-08	9239/9175	0.8096
122	Batsara	12-Sep-08	9326/9262	0.8096
123	Batsara	24-Sep-08	9674/9606	0.8096
124	Batsara	23-Oct-08	10359/10279	0.8096
125	Batsara	24-Apr-09	3253/3234	0.8096
126	Batsara	12-May-10	5068/4982	0.8096
127	Batsara	14-May-10	5231/5142	0.1336
128	Batsara	04-Jul-11	7375/7230	1.0565
129	Kathautia	17-Feb-09	1246/1235	0.5171
130	Kathautia	20-Jan-11	892/878	0.2426
131	Kathautia	13-Jun-11	6538/6409	0.7691
132	Kathautia	24-Aug-11	8926/8733	2.0240
133	Kathautia	25-Aug-11	8995/8800	1.0120
134	Kathautia	25-Aug-11	8996/8801	0.1619
135	Kathautia	25-Aug-11	8997/8802	1.0120
136	Kathautia	15-Mar-12	1662/1601	0.5303
137	Kathautia	18-Nov-11	11554/11289	0.3238
138	Kathautia	18-Nov-11	11555/11290	0.1619
139	Kathautia	18-Nov-11	11556/11291	0.3238
140	Kathautia	18-Nov-11	11557/11292	0.1457
141	Kathautia	22-Nov-11	11724/11455	0.4655
142	Kathautia	07-Jan-12	255/247	0.4655
143	Kathautia	28-Feb-12	1348/1305	0.8096
144	Kathautia	28-Feb-12	1349/1306	0.8096
145	Kathautia	28-Feb-12	1353/1310	0.8096
146	Kathautia	19-Mar-12	1774/1711	1.3763
147	Kathautia	19-Mar-12	1775/1712	1.4168
148	Kathautia	26-Mar-12	2101/2033	0.6072
149	Kathautia	16-Jul-13	6414/6236	0.6072
150	Kathautia	26-Jul-13	6918/6730	0.8096
151	Kathautia	26-Jul-13	6962/6774	0.6477
152	Kathautia	02-Sep-13	8112/7897	0.4048
153	Kathautia	02-Sep-13	8113/7898	0.8663
154	Kathautia	02-Sep-13	8115/7900	0.6072
155	Kathautia	02-Sep-13	8105/7890	0.6072
156	Kathautia	02-Sep-13	8106/7891	0.6072
157	Kathautia	02-Sep-13	8114/7899	0.6072
158	Kathautia	03-Sep-13	8141/7926	0.4250
159	Kathautia	03-Sep-13	8140/7925	0.4250
160	Kathautiya Tola Rajwadihkhar	03-Sep-13	8142/7927	0.1619
161	Kathautiya	03-Sep-13	8164/7949	0.4291

S.No.	Village	Date of Registration	Deed Number	Area (Hectare)
	Rajhikhad			
162	Kathautiya Tola Baghmanwa	20-Sep-13	8697/8468	0.4048
163	Kathautiya Tola Baghmanwa	20-Sep-13	8728/8499	0.4412
164	Kathautiya Tola Baghmanwa	26-Sep-13	8933/8702	0.4048
165	Kathautiya Tola Baghmanwa	26-Sep-13	8937/8706	0.4048
166	Kathautiya Tola Baghmanwa	04-Oct-13	9157/8922	0.4048
167	Kathautiya	10-Oct-13	9345/9105	0.7975
168	Kathautiya	10-Oct-13	9344/9104	0.8096
169	Kathautiya Tola Baghmanwa	21-Oct-13	9462/9219	0.4048
170	Kathautiya	02-Dec-13	10670/10401	0.1822
171	Kathautiya	02-Dec-13	10666/10397	0.2429
172	Kathautiya	02-Dec-13	285/278	0.2429
173	Kathautiya Tola Murkatwa	19-May-14	3146/3101	0.3036
174	Kathautiya Tola Baghmanwa	21-May-14	3312/3263	0.4048
175	Kathautiya Baghmanwa	22-May-14	3416/3365	0.4048
176	Kathautiya	23-May-14	3510/3455	0.1012
177	Kathautiya	13-Jun-14	4620/4554	1.3642
178	Kathautiya Rajhikhad	17-Jul-14	6066/5972	1.0646
179	Garikhas	07-Oct-13	9209/8972	0.4048
180	Garikhas	08-Oct-13	9256/9018	0.4048
181	Garikhas	21-Nov-13	10264/10003	0.4048
182	Garikhas	26-Nov-13	10428/10164	0.4048
183	Sikka	10-Oct-13	9346/9106	0.5262

Type of Land: Leasehold Land for Mining as per Mining Lease

Nature	Area (Hectares)
Government Land	67.12
Private Land	492.72
Forest Land	-

Govt. of India M/o Coal Nominated Authority

Part C – Description of Mine Infrastructure in relation to the mine

C1- Mine Infrastructure: Immovable Assets

S. No.	Head of Assets	Description (Nature of Assets)
1	Mines Office	Office & Interior Work Mines
2	Mines Office	Fab.Container 40*8*8.5 For Of
3	Mines Office	Fab.Container 20*8*8.5 For St
4	Mines Office	Fab.Container 8*6*7.5 For
5	Mines Office	Fab.Container 4*4*7.5 For
6	Weigh Bridge	1 No. Weigh Bridge -Essae Digitronics
7	Civil Work And Scientific Study	Boundary Wall & Fencing Work
8	Plant & Machinery	Tower Light 19/21
9	Plant & Machinery	Tower Light 19/21
10	Plant & Machinery	Tower Light 16/18
11	Plant & Machinery	Tower Light 16/18
12	Plant & Machinery	Tower Light 19/21
13	Plant & Machinery	Tower Light 19/21
14	Plant & Machinery	Tower Light 18 Mt
15	Plant & Machinery	Tower Light 18 Mt
16	Plant & Machinery	Tower Light 18 Mt
17	Plant & Machinery	Tower Light 18 Mt
18	Plant & Machinery	Tower Light 18 Mt
19	Other Civil Work	Security Rest & Toilet Room
20	Other Civil Work	Borewell-3 Nos
21	Other Civil Work	Toilet At Coal Mines
22	Other Civil Work	Construction Of Magazine Building
23	Other Civil Work	Construction Of Watch Tower
24	Other Civil Work	Const Of Toilet Block & Wtr Tanker
25	Other Civil Work	Construction Of Toilet Block
26	Other Civil Work	Construction Of Toilet Block
27	Other Civil Work	Construction Of Toilet Block
28	Other Civil Work	Construction Of Toilet Block
29	Other Civil Work	Construction Of Toilet Block
30	Other Civil Work	Construction Of Toilet Block
31	Other Civil Work	Construction Of Toilet Block
32	Other Civil Work	Construction Of Toilet Block
33	Other Civil Work	Construction Of Toilet Block
34	Other Civil Work	Construction Of Toilet Block

नामनिर्दिष्ट प्राधिकारी
भारत सरकार
कोयला मंत्रालय
Govt. of India
M/o Coal

S. No.	Head of Assets	Description (Nature of Assets)
35	Other Civil Work	Construction Of Toilet Block
36	Other Civil Work	Construction Of Room
37	Other Civil Work	Const Of D.G.Shed Room,Vikash
38	Other Civil Work	Other Civil Work
39	Railway Siding	Earth Work
40	Railway Siding	Earth Work
41	Railway Siding	Construction Of Road
42	Railway Siding	East Coast Rly
43	Railway Siding	Rly Siding-Earth Work
44	Railway Siding	Mtrl For Rajhara Rly Siding
45	Railway Siding	Earth Work In Rly Siding
46	Railway Siding	Renovation Of Rly Siding
47	Railway Siding	Construction Of Road
48	Railway Siding	Construction Of Road
49	Railway Siding	Warf Wall
50	Railway Siding	Civil Work At Rajhara Siding

C2- Mine Infrastructure: Land for Compensatory Afforestation

Type of Land: Freehold Land for Compensatory Afforestation

Nil

Type of Land: Leasehold Land for Compensatory Afforestation

Nature	Area (Hectares)
Government Land	-
Private Land	-
Forest Land	-

C3- Mine Infrastructure: Resettlement and Rehabilitation Land

Type of Land: Resettlement and Rehabilitation Freehold Land

S.No.	Village	Deed Number	Date of Registration	Area (Hectare)
1	Kajri	8193	9-Jun-06	2.5689
2	Kajri	7380	26-Jul-06	0.3684
3	Kajri	439	16-Jan-08	0.6639

नामनिर्दिष्ट प्राधिकारी
भारत सरकार
कोयला मंत्रालय
Govt. of India
M/o Coal
Nominated Authority

Type of Land: Resettlement and Rehabilitation Leasehold Land

Nature	**Area (Hectares)**
Government Land	-
Private Land	-
Forest Land	-

नामनिर्दिष्ट प्राधिकारी
भारत सरकार
कोयला मंत्रालय
Govt. of India
M/o Coal
Nominated Authority

Annexure 2: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government which are being transferred alongwith this vesting order.

S. No	Statutory Clearance	Ministry	Letter No.	Date
1.	**Approval of Mining Plan and Mine Closure Plan –** a) (i) Grant of Mining Plan	Ministry of Coal	47011/1(6)/2002-CPAM/CA	27/09/2003
	a) (ii) Grant of Revised Mining Plan		13016/63/2004-CA	20.05.2005
2.	Mining Lease – Administrative Approval of the Central Government under Section 5 (1) and/ or Section 6 (1) of MMDR Act, 1957	Ministry of Coal	47011/1(6)/2002-CPAM/CA	13.01.2006

Nominated Authority

Annexure 3: Particulars of statutory licences, permits, permissions, approvals or consents issued by the Central Government to be obtained on application by the successful bidder.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	**Environment Clearance –** Kathautia Opencast Coal Mine Project (0.80 MTPA) of M/s Usha Martin Ltd., located in village Kathautia, Kajri, Garikhas, Palhekhurd, Sika, Sakhur and Batsara, Tehsil Daltonganj District Palamau, Jharkhand Environmental Clearance Reg.	Ministry of Environment and Forests	J-11015/ 61.2006-JA.II(M)	10.06.2006
2.	**Forest Clearance – Stage 1 and Stage 2**	Ministry of Environment and Forests		
3.	**Mine opening permission –** Permission to open Rajhara A, Rajhara B and Pandwa Top seam at Kathautia OCP	Ministry of Coal – CCO	CC/Tech/Open Perm./Kathautia OC (UML)/07-08	28.02.2008
4.	Permission from DGMS for Mine Opening	Ministry of Labour – DGMS		
5.	Permission of installation/ Trial Operation of Equipments	Ministry of Labour – DGMS		
6.	Ground water clearance	Ministry of Environment and Forests – Central Ground Water Board		
7.	Railway Siding Approvals	Ministry of Railway		
8.	Explosive Licenses	Ministry of Commerce, DIPP		
9.	Diesel Storage Tank	Ministry of		

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
		Commerce, DIPP		
10.	*(Any Other clearance)*			

नामनिर्दिष्ट प्राधिकारी
भारत सरकार
कोयला मंत्रालय
Govt. of India
M/o Coal
Nominated Authority

Annexure 4: Particulars of statutory licences, permits, permissions, approvals or consents issued by the State Government to be obtained on application by the successful bidder.

S. No	Statutory Clearance	Ministry/ Agency	Letter No.	Date
1.	Consent to establish	State Pollution Control Board		
2.	Project Import Benefit	State Mineral Resource Department		
3.	Grant of Mining Lease	State Government		
4.	Land Mutation	State Government		
5.	Power Line from State Electricity Board	State Electricity Board		
6.	*(Any Other clearance)*			

Annexure 5: Particulars of the contracts adopted by the successful bidder.

Description of contract	Name and address of the contractor	Type of agreement	Valid From	Valid upto	Value of the contract
Mining Contract	Ambey Mining Pvt. Ltd Address: Circular Court, 9th Floor, Block No 92, 8, A.J.C. Bose Road, Kolkata - 700017 Contract: 033-2289-2508	Contract	1/10/2013	31/03/2019	380 Crs
Security Contract for 79 security personnel	Shiva Protection Force (P) Ltd Address: H.O. B-117, Indra Place, Main Road, Ranchi, Jharkhand - 834 002 Contact: 0651-3248881	Purchase Order cum contract	1/10/2014	30/09/2015	14,258,796
Security Contract for 67 security personnel	Security & Intelligence Services (India) Limited Address: House No 579, Near Indra Chowk, Ranchi, Jharkhand. Contact: 93084 69761	Purchase Order cum contract	1/10/2014	30/09/2015	10,280,524
Supply of manpower at railway siding - Related to Special Action Group and house keeping	Sanjeev Enterprises Address : Adarsh Nagar , Ranchi - 835103	Purchase Order cum contract	1/10/2014	30/09/2015	14,003,556
Deed of lease for Guest house / office structure	Shri Ashok Prasad at : Plot no. 756 , Khata no. 4749 , Medininagar, District of Palamau	Lease Contract	1/11/2009	31/10/2015	2,448,000

नामनिर्दिष्ट प्राधिकारी
भारत सरकार
कोयला मंत्रालय
Govt. of India
M/o Coal
Nominated Authority

Description of contract	Name and address of the contractor	Type of agreement	Valid From	Valid upto	Value of the contract
	Jharkhand				
Deed of lease for Guesthouse	Sri Kuldeep Singh Address: Near Durga Petrol Pump , Ranchi Road, Redma Mouza , District of Palamau . Both floors having an area of 2360 sq. ft	Lease Contract	1/9/2014	1/08/2015	300,000

नामनिर्दिष्ट प्राधिकारी
भारत सरकार
कोयला मंत्रालय
Govt. of India
M/o Coal
Nominated Authority

ANNEXURE R 1/3

ADITYA BIRLA
HINDALCO

HIL/JH/KAT/29 **Date:20.07.2015**

To,
The Nominated Authority,
Ministry of Coal,
World Trade Tower,
Ground Floor, Barakhamba Lane,
New Delhi-110001

Sub: Reporting of deviations of Approved Mining Plan of Prior Allottee (M/s Usha Martin Ltd) for Kathautia Coal Mine, Daltonganj, Jharkhand as per Sl. No-3 of Schedule – E, Efficiency Parameters of Coal Mine Development and Production Agreement (CMDPA).

Dear Sir,

This is to inform you that, vide Vesting Order no. 104/3/2015/NA dated 23rd March 2015 by O/o the Nominated Authority, Ministry of Coal, GOI, the Kathautia Coal block (Prior allocatee –M/s Usha Martin Limited) has been fully and absolutely transferred and vested in favour of M/s Hindalco Industries Ltd. The said Vesting Order has been issued under clause (b) of sub- rule (2) of rule 7 and sub-rule (1) of rule 13 of The Coal Mines (Special Provisions) Rules, 2014 r/w Section 6 of The Coal Mines (Special Provisions) Second Ordinance, 2014.

As per Sl. No 3 of Schedule –E, Efficiency Parameters of CMDPA (page 48 of 56), Hindalco Industries Ltd (the Successful Bidder) is supposed to report the deviations of Approved Mining Plan of Prior Allottee within 4 months from the date of issue of Vesting Order i.e. within 22nd July, 2015. Hindalco has prepared a Deviation Report through an RQP and the same is being submitted to your good office against compliance of the above mentioned Clause of CMDPA.

For your information and necessary action please.

Thanking you,

कार्यालय
नामित प्राधिकारी
O/o Nominated Authority
Receipt No. ....
Dated 21/7/15

Received
Vaibhav
21/7/15
011-23414135

Yours Sincerely,

Rakesh Mohan,
Sr. Vice President & Head Jharkhand Mines,
Hindalco Industries Limited

Enclosure: Deviation Report of Approved Mining Plan of Kathautia Coal Mine, Jharkhand

M/s HINDALCO INDUSTRIES LTD

REPORT IDENTIFYING DEVIATIONS DURING IMPLEMENTATION OF APPROVED MINING PLAN

FOR

KATHAUTIA COAL PROJECT

DISTRICT DALTONGANJ, JHARKHAND

(AS PER APPROVED MINING PLAN EXTENT :938.27 Ha, COAL PRODUCTION 0.80 MTPA)

(IN LINE WITH COAL MINE DEVELOPMENT AND PRODUCTION AGREEMENT.)

JULY, 2015

B.D.

B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

Prepared by:

B.D.SHARMA
(Recognised Qualified Person)
(No. 34012(03)/2014-CPAM Dt 29th May 2015, valid upto May 2025)

Estb. 1983

MIN MEC CONSULTANCY PVT. LTD.
A-121, Paryavaran Complex, IGNOU Road, New Delhi – 110 030
Ph : 29534777, 29532236, 29535891 ; Fax: +91-11-29532568
Email :min_mec@vsnl.com; Web site : http://www.minmec.co.in

An ISO 9001:2008

CONTENTS

LIST OF ANNEXURES

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

LIST OF PLATES

Plate No.	Description
I	Location map
II	Key Plan 10 km Radius
III	Geological map
IV	Present Working Plan
V	Deviation plan for excavation
VI	Deviation plan for Dumping
VII	Deviation plan for Rehandling OB Dump

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

KATHAUTIA OPEN CAST COAL MINE
M/s HINDALCO INDUSTRIES LTD.

REPORT IDENTIFYING DEVIATIONS DURING IMPLEMENTATION OF APPROVED MINING PLAN OF PRIOR ALLOTTEE APPROVED VIDE LETTER NO. 13016/63/2004-CA, DATED 20.05.2005 BY MoC

1.0 BACKGROUND

The previous allottee of Kathautia coal block was M/s Usha Martin Ltd who were operating this mine since 2008. Honourable Supreme Court of India vide judgement dated 25th August, 2014 and subsequent order dated 24th Sept, 2014 cancelled the allocation of coal blocks.

The Nominated Authority has, in accordance with provisions of the Coal Mines (Special Provision) Second Ordinance, 2014 (the “Ordinance”) and the Coal Mines (Special Provision) Rules 2014 (the “Rules”) conducted the auction of the mine.

M/s Hindalco Industries Ltd (HIL) became the successful bidder in respect of Kathautia Coal Mine and the Nominated Authority, MoC, Govt. of India issued Vesting Order in favour of HIL vide Order no.104/3/2015/NA dated 23-03-2015.

In line with Sl no. 3 of Schedule –E “Efficiency Parameters”, HIL has to report to MoC the deviations from Approved Mining Plan within 4 months from the date of Vesting Order.

Accordingly, deviations which occurred during the implementation w.r.t. the approved Mining Plan have been summarised below chapter-wise.

CHAPTER-3: LOCATION AND ACCESSIBILITY

Deviations: The deviations are given below

<table>
<tr><th colspan="2">Details as per Mining Plan (Dec 2004) Approved on 20.05.2005</th><th>Details as per Actual Operation</th></tr>
<tr><td>Para 3.1</td><td>Block area of 938.27 ha was considered as ML area</td><td>As per lease executed by Govt of Jharkhand with the Prior Allocattee (Usha Martin Ltd), the area for Mining Lease is 687.93 Ha vide letter dated 15th October, 2007</td></tr>
<tr><td>Table 3.1 at page 3-3</td><td>Land use in Approved Mining Plan (which was equal to block area) was given as follows:
<table>
<tr><th>Land use</th><th>Area (ha)</th></tr>
<tr><td>Agriculture land including Tand & Dhan</td><td>55.98</td></tr>
<tr><td>Pvt. waste land(Parti)</td><td>580.41</td></tr>
</table></td><td>The details of bifurcation of Present land use (as on 31-03-2015) are given below:
<table>
<tr><th>Land use</th><th>Area (ha)</th></tr>
<tr><td>Area excavated</td><td>103.067 (Ref. Plate –V for deviation and Annexure-I)</td></tr>
</table></td></tr>
</table>

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

	Pvt. Inhabited area (Makan)	2.78	Dump area	41.907 (Ref. Plate –VI for deviation and Annexure-I)
	Govt. waste land(Parti)	265.02	Embankment	1.3
	Govt. Building(Makan)	1.22	Water reservoir	5.35
	Govt. road	7.50	Facilities including contractor camp Workshop, Weigh Bridge, Security Barac, Store, Canteen etc	2.509
	Govt. khalihan	0.03	Road	1.0906
	Pvt. Mota-aar	0.25	Green Belt	0.3412 and (Ref. Annexure-I for deviation)
	Pvt. khalihan	0.14		
	Others	16.47		
	Govt. Tilha	8.47		
	Total	**938.27**		

CHAPTER-4: GEOLOGY AND EXPLORATION

Deviations : The deviations are given below

Details as per Approved Mining plan		**Details as per Actual Operation**
Para 4.7 ROM quality	Mostly grade B to C (which is equivalent to new grade of G3 to G6)	Actual reported production by previous allottee is of grade G6 combined for Pandwa Top and Rajhara-B seam.

CHAPTER-5: MINING

Deviations : The deviations are given below

Details as per Approved Mining plan			**Details as per Actual Operation**			
Para 5.2 and para 5.7 Recoverable Reserves & overburden	**Particulars**	**Coal at conception stage as per approved MP**	**Particulars**	**At conception stage as per approved MP**	**Extracted between 2008 and 2015**	**Balance as on 01-04-2015**
	Recoverable reserves after considering 5% mining losses (MT)	26.011	Coal reserves after considering 5% mining losses(MT	26.011	2.8383	23.1727
	Vol. of OB (M cum)	251.345	Vol. of OB (M cum)	251.345	26.2870	225.058
	Av. S.R. (cum/T)	9.66	Av. S.R. (cum/T)	9.66	9.26	9.71
			It shows that balance recoverable reserves are only 23.1727 MT.			
Para 5.3, Mining technology						
Para 5.3.c at page 5.2	Last paragraph of para 5.3.c reads as “However, the surface miners have more advantages		In actual practice the production of coal and OB has been carried out with the help of drilling blasting with shovel-dumper combination since			

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

	over the conventional shovel dumper combination and have been selected for this mine.”	inception till date.
Para 5.3.d: Technology	Opencast working with Continuous Surface Miners (CSM)	The mining operations were carried out by drilling blasting with shovel dumper combination since inception till date
Para 5.4: Year wise development		
Year 1	The initial mine entry will be made in Rajhara-B seam from southern boundary of pit near Mukhtar tola village near about BH no. DK-49 and aligned from west to east. Coal production was envisaged as 0.50 MT and OB as 3.505 Mcum.	The initial mine entry was made in Pandwa Top seam from centre of the property near boundary of Kajri and Batsara villages near Bore hole no. DK-31 and aligned from east to west. The deviation in mine entry location can be seen in “Deviation Plan (plate-V)”. This is not rectifiable. Actual coal production was 0.0129MT while the OB removal was 0.4453 Mcum
2nd to 7th year	Coal and OB produced during these 6 years (2nd to 7th) was proposed to be 4.80MT and 34.80 Mcum respectively	Actual coal production from 2008 to 2015 (2nd to 7th year) was 2.8254 MT while the OB removal was 25.8417 Mcum (The configuration of the pit at the end of 2015 (on 31-03-2015) is shown in Plate-IV.
Para 5.5	Calendar programme of production	

The calendar programme of production as envisaged in the Approved Mining Plan is reproduced below from Table 5.2 of Approved MP.

CALENDAR PROGRAMME OF EXCAVATION AS PER APPROVED MINING PLAN

Year	Production of coal (mil. te.)		OB removal (mil. cum)		OB : Coal (Cum : Te.)	
	Progressive	Cumulative	Progressive	Cumulative	Progressive	Cumulative
1	0.500	0.500	3.505	3.505	7.010	7.010
2	0.800	1.300	4.640	8.145	5.800	6.265
3	0.800	2.100	5.520	13.665	6.900	6.507
4	0.800	2.900	5.520	19.185	6.900	6.616
5	0.800	3.700	5.520	24.705	6.900	6.677
6	0.800	4.500	6.800	31.505	8.500	7.001
7	0.800	5.300	6.800	38.305	8.500	7.227
8	0.800	6.100	6.800	45.105	8.500	7.394
9	0.800	6.900	6.800	51.905	8.500	7.522
10	0.800	7.700	6.800	58.705	8.500	7.624
11	0.800	8.500	8.500	67.205	10.625	7.906
12	0.800	9.300	8.500	75.705	10.625	8.140
13	0.800	10.100	8.500	84.205	10.625	8.337
14	0.800	10.900	8.500	92.705	10.625	8.505

B.D.

B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

15	0.800	11.700	8.500	101.205	10.625	8.650
16	0.800	12.500	8.500	109.705	10.625	8.776
17	0.800	13.300	8.500	118.205	10.625	8.888
18	0.800	14.100	8.500	126.705	10.625	8.986
19	0.800	14.900	8.500	135.205	10.625	9.074
20	0.800	15.700	8.500	143.705	10.625	9.153
21	0.800	16.500	8.500	152.205	10.625	9.225
22	0.800	17.300	8.500	160.705	10.625	9.289
23	0.800	18.100	8.500	169.205	10.625	9.348
24	0.800	18.900	8.500	177.705	10.625	9.402
25	0.800	19.700	8.500	186.205	10.625	9.452
26	0.800	20.500	8.500	194.705	10.625	9.498
27	0.800	21.300	8.500	203.205	10.625	9.540
28	0.800	22.100	8.500	211.705	10.625	9.579
29	0.800	22.900	8.500	220.205	10.625	9.616
30	0.800	23.700	8.500	228.705	10.625	9.650
31	0.800	24.500	8.500	237.205	10.625	9.682
32	0.800	25.300	8.500	245.705	10.625	9.712
33	0.711	26.011	5.640	251.345	7.932	9.663

DEVIATION IN PRODUCTION OF COAL AND OB DURING THE 1ST 7 YEARS OF OPERATION FROM 2008 TO 2015

Year	As per approved MP		As actually produced			Lag in production	
	Coal (mil. te.)	OB (mil. cum)	Calendar year	Coal (mil. te.)	OB (mil. cum)	Coal (mil. te.)	OB (mil. cum)
1	0.5	3.505	2008-09	0.0129	0.4453	0.4871	3.0597
2	0.8	4.64	2009-10	0.0621	0.4013	0.7379	4.2387
3	0.8	5.52	2010-11	0.2997	3.0002	0.5003	2.5198
4	0.8	5.52	2011-12	0.3515	3.9957	0.4485	1.5243
5	0.8	5.52	2012-13	0.5602	5.0609	0.2398	0.4591
6	0.8	6.8	2013-14	0.7619	8.2564	0.0381	-1.4564
7	0.8	6.8	2014-15	0.7899	5.1273	0.0101	1.6727
Total	**5.3**	**38.305**		**2.8383**	**26.2870**	**2.4617**	**12.0180**

A Perusal of above table shows that

i. The coal production lagged by 2.4617 MT and the OB removal lagged by 12.0180 Mcum.

ii. As per Mine Plan approval letter dated 20.05.2005, the production should have started by 2007 but it was started in 2008.

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

CALENDAR PROGRAMME OF EXCAVATION APPLICABLE FROM YEAR 2015-16 ONWARDS

Period	Sl. Year	Calendar year	Production of coal (mil. te.)		OB removal (mil. cum) (bank)		OB : Coal (Cum : Te.)	
			Progressive	**Cumulative**	**Progressive**	**Cumulative**	**Progressive**	**Cumulative**
Past	1	2008-09	0.01	0.01	0.45	0.45	34.50	34.50
	2	2009-10	0.06	0.08	0.40	0.85	6.46	11.28
	3	2010-11	0.30	0.37	3.00	3.85	10.01	10.26
	4	2011-12	0.35	0.73	4.00	7.85	11.38	10.80
	5	2012-13	0.56	1.29	5.06	12.91	9.03	10.03
	6	2013-14	0.76	2.05	8.26	21.16	10.84	10.33
	7	2014-15	0.79	2.84	5.13	26.29	6.49	9.26
Future	8	2015-16	0.80	3.64	6.80	33.09	8.50	9.09
	9	2016-17	0.80	4.44	6.80	39.89	8.50	8.99
	10	2017-18	0.80	5.24	6.80	46.69	8.50	8.91
	11	2018-19	0.80	6.04	6.80	53.49	8.50	8.86
	12	2019-20	0.80	6.84	6.80	60.29	8.50	8.82
	13	2020-21	0.80	7.64	6.80	67.09	8.50	8.78
	14	2021-22	0.80	8.44	6.80	73.89	8.50	8.76
	15	2022-23	0.80	9.24	6.80	80.69	8.50	8.73
	16	2023-24	0.80	10.04	6.80	87.49	8.50	8.72
	17	2024-25	0.80	10.84	6.80	94.29	8.50	8.70
	18	2025-26	0.80	11.64	6.80	101.09	8.50	8.69
	19	2026-27	0.80	12.44	8.50	109.59	10.63	8.81
	20	2027-28	0.80	13.24	8.50	118.09	10.63	8.92
	21	2028-29	0.80	14.04	8.50	126.59	10.63	9.02
	22	2029-30	0.80	14.84	8.50	135.09	10.63	9.10
	23	2030-31	0.80	15.64	8.50	143.59	10.63	9.18
	24	2031-32	0.80	16.44	8.50	152.09	10.63	9.25
	25	2032-33	0.80	17.24	8.50	160.59	10.63	9.32
	26	2033-34	0.80	18.04	8.50	169.09	10.63	9.37
	27	2034-35	0.80	18.84	8.50	177.59	10.63	9.43
	28	2035-36	0.80	19.64	8.50	186.09	10.63	9.48
	29	2036-37	0.80	20.44	8.50	194.59	10.63	9.52
	30	2037-38	0.80	21.24	8.50	203.09	10.63	9.56
	31	2038-39	0.80	22.04	8.50	211.59	10.63	9.60
	32	2039-40	0.80	22.84	8.50	220.09	10.63	9.64
	33	2040-41	0.80	23.64	8.50	228.59	10.63	9.67
	34	2041-42	0.80	24.44	8.50	237.09	10.63	9.70
	35	2042-43	0.80	25.24	7.50	244.59	9.38	9.69
	36	2043-44	0.77	26.01	6.76	251.35	8.74	9.66
Total			**26.011**		**251.345**		**9.66**	

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

It shows that balance life will be 29 years		
CHAPTER-6: BLASTING Deviations : The deviations are given below		
PARA 6.1:	Magazine capacity was envisaged as 100 kg	Magazine has been constructed for 10000 kg. Explosive License for the Magazine has also been obtained for 10000 Kg quantity at any point of time.
CHAPTER-7: MINE DRAINAGE Deviations : The deviations are given below		
PARA 7 and 8	5m high bund (above HFL) is proposed to protect the mining activity during monsoon period	The average height of embankment constructed is 3.2m which is a major deviation/violation.
CHAPTER-8: STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE Deviations : The deviations are given below		
TABLE 8.1	(i) Total surface dumps area is 73.97 ha comprising Dumps D1, D2, D3 and D4.	Total surface dumps area is 41.907 ha comprising dumps D1, D2 and D3 as on 31-03-2015
	(ii) In Table 8.3 of the approved Mining Plan, it was envisaged to dump 3.6 Mcum externally by the end of 4th year over 31.64 ha (refer 4th year stage plan for area). Proportion of internal dumping proposed was quiet higher than external dumping.	The corresponding working plan as on 31.03-2015 shows that 11.212 Mcum OB has been dumped externally over 41.907 ha which means that more OB has been dumped externally than approved in the original Mining Plan. Also, the location of the dump has been deviated as shown in Deviation Plan (plate-VI). The proportion of internal dumping completed is much smaller in comparison to external dumping.
	(iii) The location of external surface dumps (D1, D2, D3 and D4 was envisaged to be located over the non-coal bearing area	As per working plan of 31-03-2015, Part of external dump D2 (4.97 ha) lies over coal bearing area thereby blocking about 0.135MT coal, for the liberation of which about 0.93Mcum OB will have to be rehandaled. It is a serious deviation (refer Plate-VII of Deviation Report).
-- do --	The height of dumps will be less than 50m	The height of dumps is around 25-35m in most of the area. Due to less height of the dumps the footprint of dump increased significantly.
CHAPTER-9: USE OF MINERAL (COAL) Deviations : The deviations are given below		
Transportation, Page 9-1	Provision of separate spur along the railway line at Kajri Railway station was proposed. Transportation was proposed	The Prior Allottee evacuated coal from pit head by road to Rajhara siding. Rajhara Railway siding was available nearby and was declared as public siding by railways/ CCL as Rajhara Colliery of

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

	from pit head to the existing Kajri Railway station (located across the Aurangabad-Daltonganj road) by underground conveyor belt. The coal was proposed to be directly loaded into wagons by overhead loading system.	CCL became non-operational since around 2010. A wharf wall has been constructed partially and the wagons are loaded by front end loaders.
CHAPTER-10: MINERAL PROCESSING Deviations : There is no deviations		
CHAPTER-11: SURFACE TRANSPORT Deviations : The deviations are given below		
	The coal will be transported from pit to pit head within the ML area by 50T dumpers. Transportation was proposed from pit head to the existing Kajri Railway station (located across the Aurangabad-Daltonganj road) by underground conveyor belt. Ultimately, the coal was proposed to be transported by railway from Kajri railway station to the sponge Iron plant.	The coal was transported from pit to pit head by 25T dumpers. The latest operational evacuation system is to transport the coal from pit head by road to Rajhara siding
CHAPTER-12: OTHER FACILITIES Deviations : The deviations are given below		
Para 12.1	**Facilities envisaged**	**Facilities already existing**
	The facilities like Mine office, VT centre, First Aid centre, Weigh bridge, Work shop, Washing Platform, Toilets, Road, DG set shed room, were envisaged to be provided on non-coal bearing zone between BH no DK-67 and DK-102 on western portion of the block. Railway siding was proposed to be located at existing Kajri railway station	Mine office, VT centre, First Aid centre, Weigh bridge, Work shop, Washing Plateform, Toilets, Road, DG set shed room have already been provided but there is a deviation in location as these have been provided near BH DK-5 in the central portion of the block on mostly coal bearing zone. All these constructions are temporary in nature. There is a deviation as the Railway siding (renovation) and construction of Wharf wall has been done at Rajhara siding.
PARA 12.2	Employment proposed in Approved Mining Plan	Existing employment vide letter no UML/KOCCM/2014/114 dated 24.11.2014
	i. Departmental	
	Management and supervision = 20	91

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

	Skilled and unskilled staff= 195	103
	Others = 34	
	Sick & leave = 23	
	Total =272	**194**
	ii. Outsourced	
	Executive = 0	17
	Skilled & Semi skilled = 0	387
	Unskilled = 0	369
	Total	**773**
	Grand Total = 272	**967**

A perusal of the above tabulated data shows that provision of 272 person had been made to run the mine departmentally excluding the manpower at railway siding. However, the present operation involves both, departmental as well outsourced persons totalling to 967 which also includes the manpower at railway siding. This deviation is related to mode of operation. Earlier it was planned for departmental mining. However, mine was being operated by mining contractor

CHAPTER-13: ENVIRONMENT MANAGEMENT PLAN

Deviations : The deviations are given below

Para 13.1.1: village wise house holds	Village wise household in core zone as per Table 13.3 of Approved Mining Plan (2004)	Details and status of Rehabilitation and Resettled persons as per item D.0 of Annexure-I provided by previous allottee through MOC vide letter no UML/KOCCM/2014/114 dated 24.11.2014. Resettlement and rehabilitation has been arranged for the following:

Sl. No.	Name of village	No. of houses in the village
1	Garikhas	12
2	Kathautia	18
3	Kajri	59
4	Batsara	0
5	Sika	2
6	Sakhui	17
7	Palhekurd	0
	Total	**108 (1318 households)**

As per Table 3.23 of EIA (2006), the no. of households as counted in 2004 were as follows

Sl. No.	Name of village	No. of houses in the village as counted in 2004
1	Garikhas	176
2	Kathautia	160

Village	Total no. of PAF/ PAPs to be Rehabilitated and resettled
Village1(Kajri)	69
Village1(Kathautia)	43
Total	**112**

B.D.

B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

<table>
<tr><td></td><td><table><tr><td>3</td><td>Kajri</td><td>172</td></tr><tr><td>4</td><td>Batsara</td><td>105</td></tr><tr><td>5</td><td>Sika</td><td>164</td></tr><tr><td>6</td><td>Sakhui</td><td>17</td></tr><tr><td>7</td><td>Palhekurd</td><td>0</td></tr><tr><td></td><td>Total</td><td>794 (1368 households)</td></tr></table></td><td></td></tr>
<tr><td>13.2.i: Land environment</td><td>Covered in the following paragraphs</td><td></td></tr>
<tr><td></td><td>As per Table 13.16 of approved Mining Plan, the area to be excavated for extraction of 2.9MT of coal (by 4th year) should have been 88.85 ha</td><td>As per status as on 31-03-2015, the area excavated for extraction of 2.84.MT of coal is 103.067 ha by the end of 7th year since inception.
The actual excavation location is different than planned location as per approved Mining Plan. (refer Plate-V).</td></tr>
<tr><td>Para 13.3.A.i</td><td>As per Table 13.18 of the approved Mining Plan, 47.47 ha of the backfill area and 2.98 ha of the surface dump area (totalling to 50.45 ha) should have been reclaimed/planted by the end of 4th year.</td><td>However, as per status as on 31/03/2015 the back filled/reclaimed area is very less than the planned area and the reclaimed /planted area is only 5.5333 ha</td></tr>
<tr><td>Para 13.3.A.ii</td><td>Under top soil management, the approved mining Plan envisaged a provision of 4 ha area for top soil stack</td><td>As per the status as on dated 31-03-2015, there is no area designated for placing the top soil and as such it is assumed that all the top soil produced so far has been utilised for plantation. Therefore, there is a deviation in respect of not designating the area for top soil and stacking the same for future use.</td></tr>
</table>

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

ANNEXURE - I

MASTER CHART SHOWING DEVIATIONS (W.R.T. APPROVED MINING PLAN) IN VARIOUS ACTIVITIES EXECUTED BEFORE 31-03-2015 IN RESPECT OF KATHAUTIA COAL MINE, DISTT. DALTONGANJ, JHARKHAND

Particulars	As per approved Mining Plan (end of 4th year), Ha	within area approved in MP, ha	Outside of the area approved in MP, ha	Total area as on 31-3-2015 inside and outside the area permitted by approved MP	Status of violation, w.r.t. approved mining plan	Nature of violation	Reference Plate No.
Area under excavation*	88.85	97.787	5.28	103.067	5.28 ha area excavated out side the permitted area	Serious	V (Excation deviation Plan)
OB Dump**	31.64	24.807	17.1	41.907	(i) 17.1 ha area dumped out side the permitted area. (ii) 3.6 Mcum was to be accommodated over 31.64 ha as per Approved Mining Plan (ref. Table 8.3 and Plate-XIV)	Serious	VI(Dump deviation Plan)
Top soil	4.00	0	0	0	Top soil stack area should have been designated.	Serious	Vi
Embankment	6.64 (total in life)	1.3	0	1.3	The average height of embankment is 3.1 m from the river bed against the approved height of 5m above HFL.	Serious	IV (Present Plan)
Water reservoir	3.5	5.35	0	5.35	Area increased from 3.5 ha approved and location changed wrt	Not serious	IV (Present Plan)

B.D.

B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

Particulars	**As per approved Mining Plan (end of 4th year), Ha**	**within area approved in MP, ha**	**Outside of the area approved in MP, ha**	**Total area as on 31-3-2015 inside and outside the area permitted by approved MP**	**Status of violation, w.r.t. approved mining plan**	**Nature of violation**	**Reference Plate No.**
					approved boundary		
Facilities including contractor camp	2	2.509	0	2.509	Area increased from 2.0 ha approved and location changed wrt approved boundary	Not serious	IV (Present Plan)
Road	1	1.0906	0	1.0906	Area increased from 1.0 ha approved and location changed wrt approved boundary	Not serious	IV (Present Plan)
Green Belt on vergin area		0.3412	0	0.3412	Total area to be covered with GB during life of mine (33 years approved) is 40 ha which pro-rata for 4 years comes to 4.85 ha	Serious as very less area planted	

Out of 103.067 ha excavated area as on 31-03-2015, 9.2 ha has been backfilled upto General Ground Level (GGL), adopted as(200m RL or above GGL while the rest is void, however, only 0.44 ha is planted over the backfilled area.

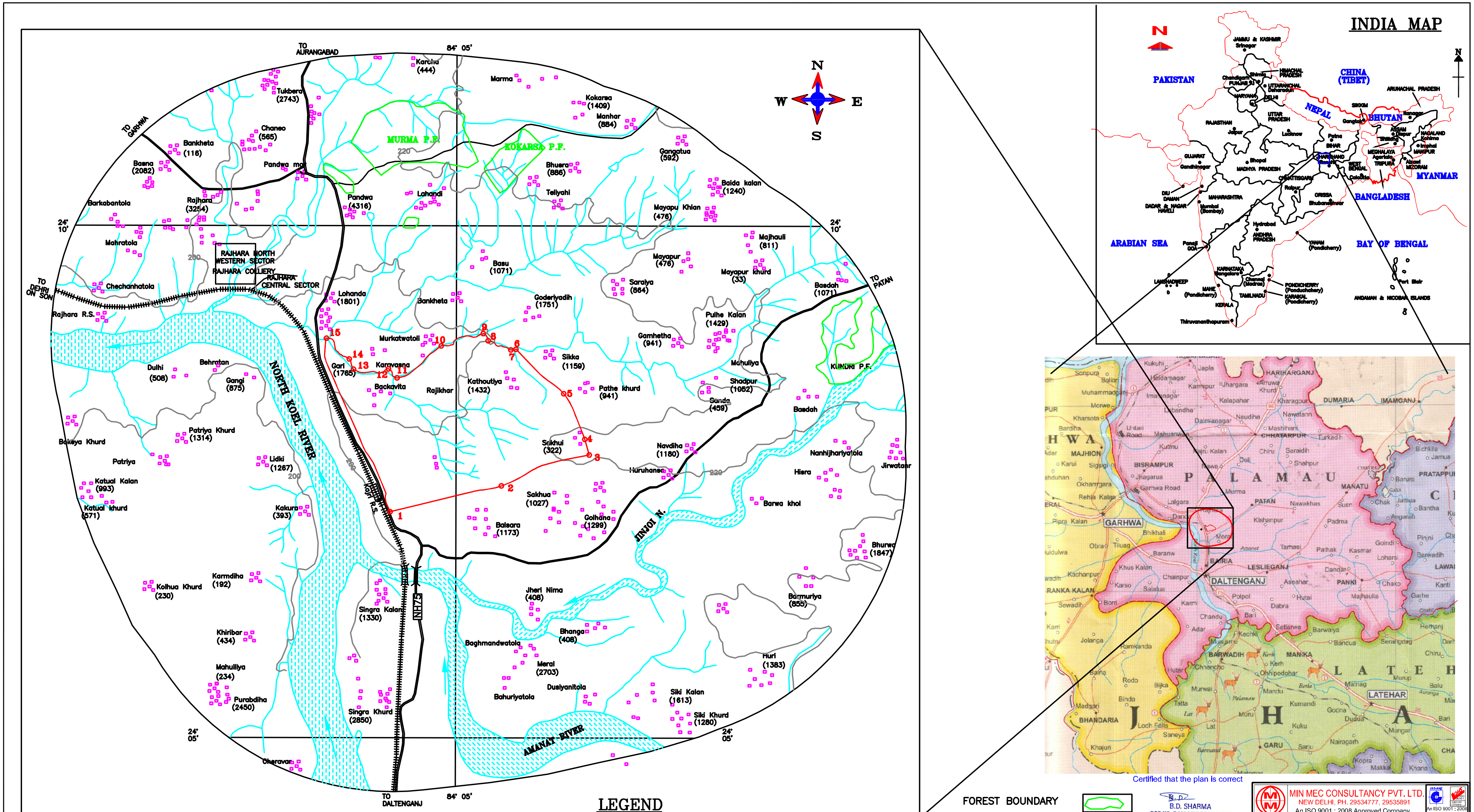
Out of 41.407 ha external surface dump, 5.0933 ha has been planted in the past

Note: *The total plantation over backfill dump and external surface dump upto 31-03-2015 is 0.44h+5.0933 ha =5.5333 ha*

B.D.

B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

PLATES



Certified that the plan is correct

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

LEGEND

MINE LEASE BOUNDARY
RIVER / DRAINAGE
CORNER OF ML BOUNDARY
NATIONAL HIGHWAY 75
OTHER ROAD
RAILWAY LINE
FOREST BOUNDARY
HABITATION
SURFACE CONTOUR (M) 220
VILLAGE (POPULATION) Bijra (198)

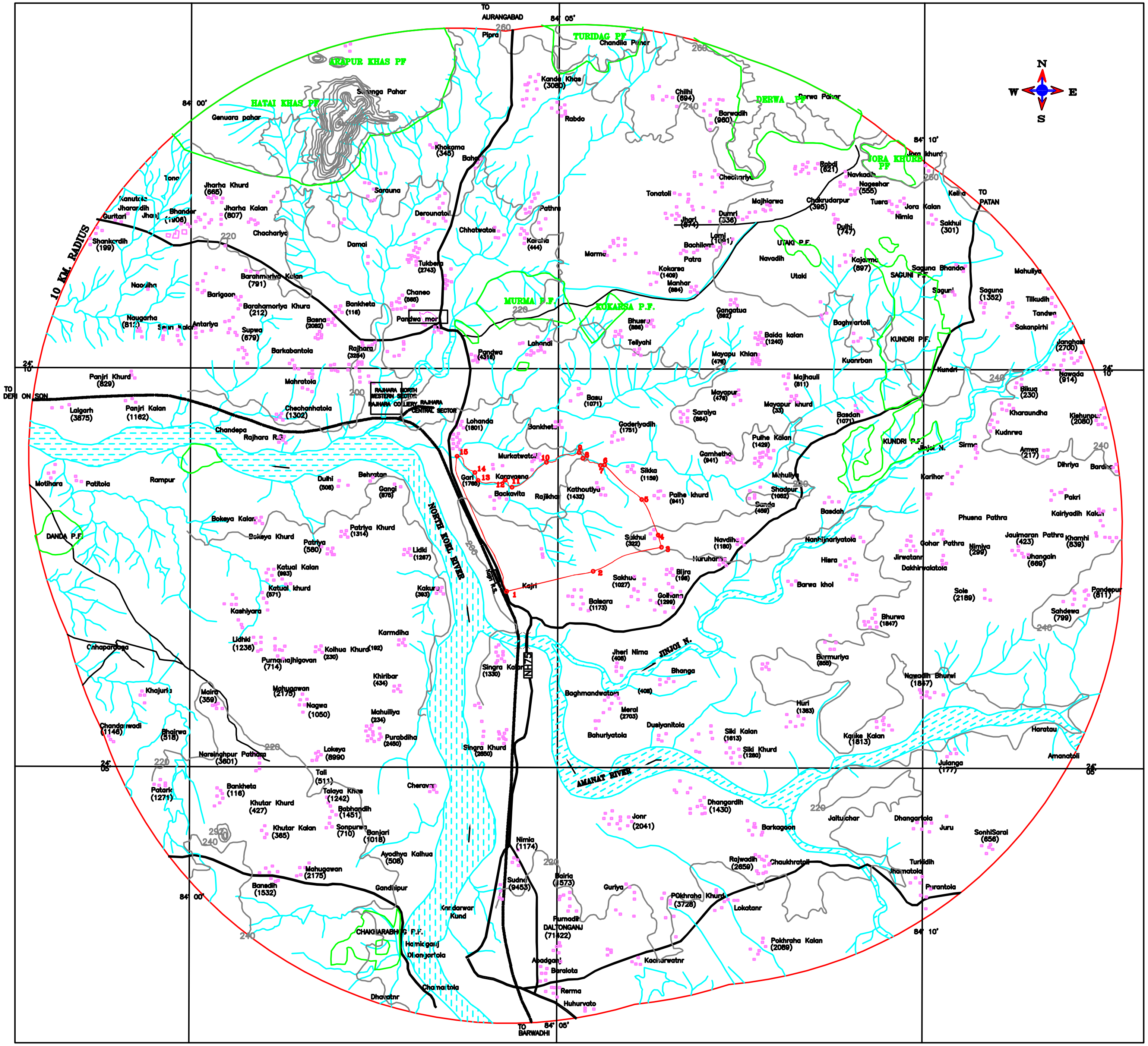
0 1 2 3 km.
SCALE

MIN MEC CONSULTANCY PVT. LTD.
NEW DELHI, PH. 29534777, 29535891
An ISO 9001 : 2008 Approved Company
JAS-ANZ
An ISO 9001 : 2008 approved company

CLIENT: M/S HINDALCO INDUSTRIES LIMITED
PROJECT: KATHAUTIA OPEN CAST COAL MINES
TITLE: DEVIATION REPORT

LOCATION PLAN

PREPARED BY: B.R. MATLOTIA
CHECKED BY: B.D.SHARMA
SCALE: AS SHOWN
DATE: 10-07-2015
PLATE NO. I



LEGEND

MINE LEASE BOUNDARY	🟥
CORNER OF ML BOUNDARY	●
FOREST BOUNDARY	🟩
ROAD	▬
RIVER / DRAINAGE	🟦
HABITATIONS	🟥
SURFACE CONTOUR (M)	220
VILLAGE (POPULATION)	Bijra (198)

VILLAGES WITHOUT POPULATION ARE HAMLETS

0 2 4 6 8 km

SCALE

Certified that the plan is correct

B.D.

B.D. SHARMA

RQP NO. 34012/03/2014-CPAM

MIN MEC CONSULTANCY PVT. LTD.

NEW DELHI, PH. 29534777, 29535891

An ISO 9001 : 2008 Approved Company

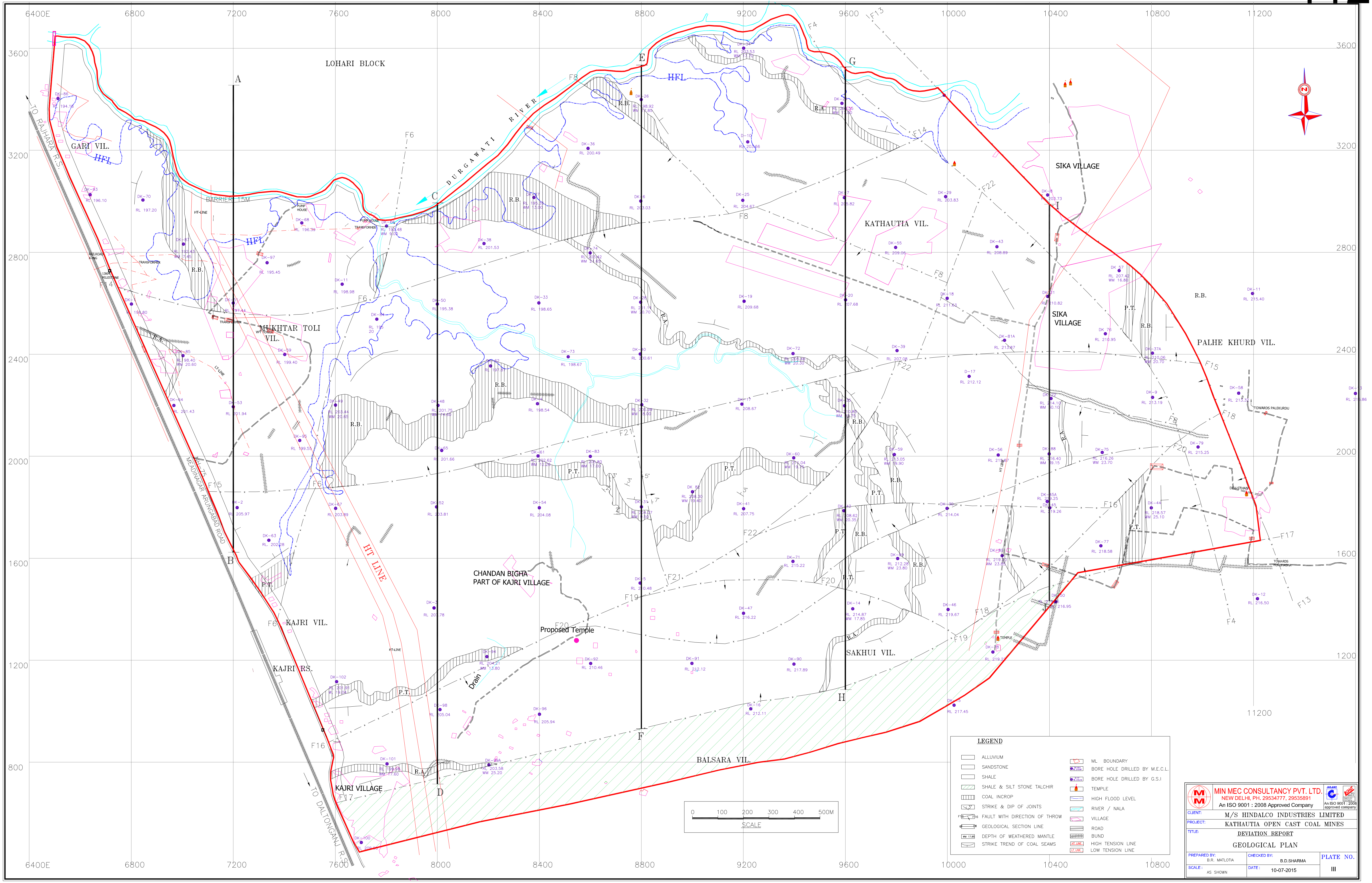
JAS-ANZ

QMS ISO 9001 Approved Company

An ISO 9001 : 2008 approved company

CLIENT:	**M/S HINDALCO INDUSTRIES LIMITED**
PROJECT:	**KATHAUTIA OPEN CAST COAL MINES**
TITLE:	**DEVIATION REPORT** **KEY PLAN**

PREPARED BY: B.R. MATLOTIA	CHECKED BY: B.D.SHARMA	**PLATE NO.**
SCALE : AS SHOWN	DATE : 10-07-2015	II



LEGEND

- ▭ ALLUVIUM
- ▭ SANDSTONE
- ▭ SHALE
- ▨ SHALE & SILT STONE TALCHIR
- ▥ COAL INCROP
- STRIKE & DIP OF JOINTS
- FAULT WITH DIRECTION OF THROW
- GEOLOGICAL SECTION LINE
- WM 17.85 DEPTH OF WEATHERED MANTLE
- STRIKE TREND OF COAL SEAMS
- ML BOUNDARY
- ● DK-81A RL 213.87 BORE HOLE DRILLED BY M.E.C.L.
- ● D-17 RL 212.12 BORE HOLE DRILLED BY G.S.I
- TEMPLE
- HIGH FLOOD LEVEL
- RIVER / NALA
- VILLAGE
- ROAD
- BUND
- HT LINE HIGH TENSION LINE
- LT LINE LOW TENSION LINE

MIN MEC CONSULTANCY PVT. LTD.
NEW DELHI, PH. 29534777, 29535891
An ISO 9001 : 2008 Approved Company
An ISO 9001 : 2008 approved company

CLIENT: M/S HINDALCO INDUSTRIES LIMITED

PROJECT: KATHAUTIA OPEN CAST COAL MINES

TITLE: DEVIATION REPORT

GEOLOGICAL PLAN

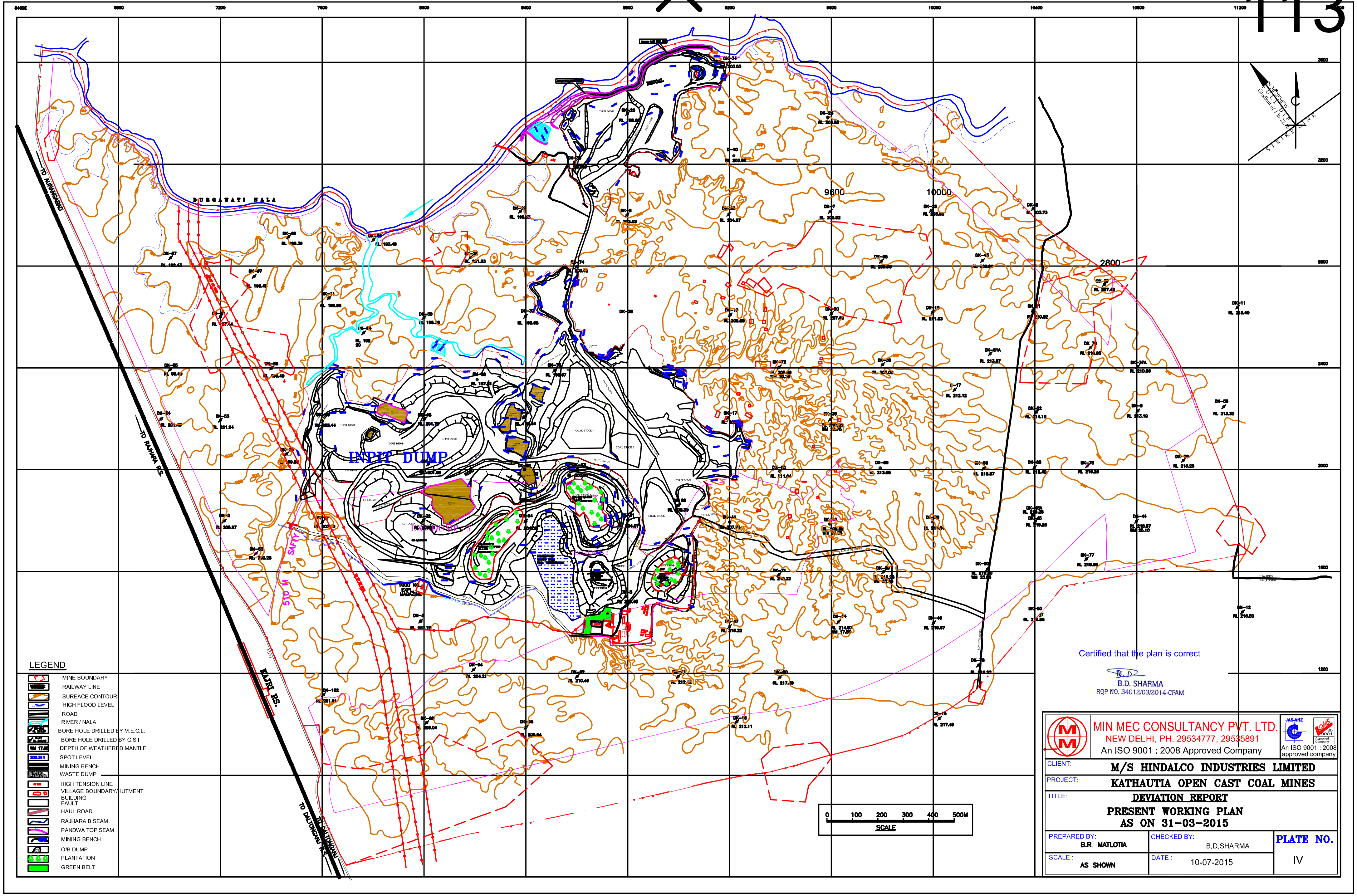
PREPARED BY: B.R. MATLOTIA

CHECKED BY: B.D.SHARMA

SCALE : AS SHOWN

DATE : 10-07-2015

PLATE NO. III



LEGEND

	MINE BOUNDARY
	RAILWAY LINE
	SUREACE CONTOUR
	HIGH FLOOD LEVEL
	ROAD
	RIVER / NALA
	BORE HOLE DRILLED BY M.E.C.L.
	BORE HOLE DRILLED BY G.S.I
WM 17.65	DEPTH OF WEATHERED MANTLE
206.311	SPOT LEVEL
	MINING BENCH
	WASTE DUMP
	HIGH TENSION LINE
	VILLAGE BOUNDARY/HUTMENT BUILDING
	FAULT
	HAUL ROAD
	RAJHARA B SEAM
	PANDWA TOP SEAM
	MINING BENCH
	O/B DUMP
	PLANTATION
🟩	GREEN BELT

Certified that the plan is correct

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

MIN MEC CONSULTANCY PVT. LTD.
NEW DELHI, PH. 29534777, 29535891
An ISO 9001 : 2008 Approved Company

JAS-ANZ
ISO 9001 Approved Company
An ISO 9001 : 2008 approved company

CLIENT: **M/S HINDALCO INDUSTRIES LIMITED**

PROJECT: **KATHAUTIA OPEN CAST COAL MINES**

TITLE: **DEVIATION REPORT**
PRESENT WORKING PLAN
AS ON 31-03-2015

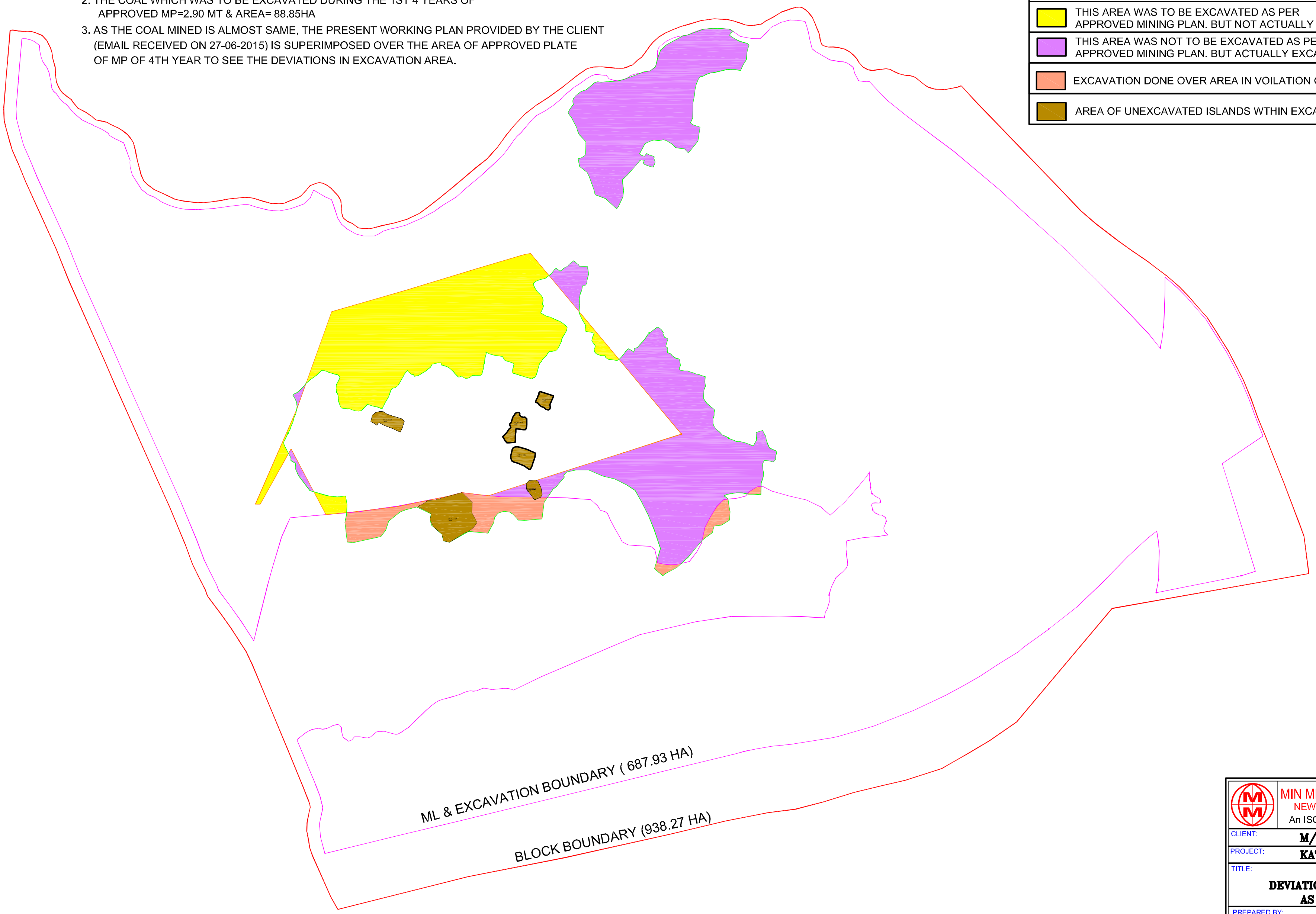
PREPARED BY: B.R. MATLOTIA	CHECKED BY: B.D.SHARMA	**PLATE NO.**
SCALE : AS SHOWN	DATE : 10-07-2015	IV

BASIS OF DEVIATIONS

1. THE COAL EXCAVATED TILL DATE AS PER PRESENT WORKING PLAN (31-03-2015) DURING THE LAST 7 YEARS = 2.84MT & AREA= 107.406HA (INCLUDING UN-EXCAVTED ISLANDS)
2. THE COAL WHICH WAS TO BE EXCAVATED DURING THE 1ST 4 YEARS OF APPROVED MP=2.90 MT & AREA= 88.85HA
3. AS THE COAL MINED IS ALMOST SAME, THE PRESENT WORKING PLAN PROVIDED BY THE CLIENT (EMAIL RECEIVED ON 27-06-2015) IS SUPERIMPOSED OVER THE AREA OF APPROVED PLATE OF MP OF 4TH YEAR TO SEE THE DEVIATIONS IN EXCAVATION AREA.

EXCAVATION DEVIATIONS LEGEND

	PARTICULARS	AREA IN HA
🟨	THIS AREA WAS TO BE EXCAVATED AS PER APPROVED MINING PLAN. BUT NOT ACTUALLY EXCAVATED	31.18
🟪	THIS AREA WAS NOT TO BE EXCAVATED AS PER APPROVED MINING PLAN. BUT ACTUALLY EXCAVATED	49.76
🟧	EXCAVATION DONE OVER AREA IN VOILATION OF APPROVED MP	5.28
🟫	AREA OF UNEXCAVATED ISLANDS WTHIN EXCAVTED AREA	4.24



Certified that the plan is correct

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

MIN MEC CONSULTANCY PVT. LTD.
NEW DELHI, PH. 29534777, 29535891
An ISO 9001 : 2008 Approved Company
JAS-ANZ
ISO 9001 Approved Company
An ISO 9001 : 2008 approved company

CLIENT: **M/S HINDALCO INDUSTRIES LIMITED**
PROJECT: **KATHAUTIA OPEN CAST COAL MINES**
TITLE: **DEVIATION REPORT**
DEVIATION PLAN FOR EXCAVATION
AS ON 31-03-2015
PREPARED BY: **B.R. MATLOTIA**
CHECKED BY: B.D.SHARMA
PLATE NO. V
SCALE : **AS SHOWN**
DATE : 10-07-2015

BASIS OF DEVIATIONS

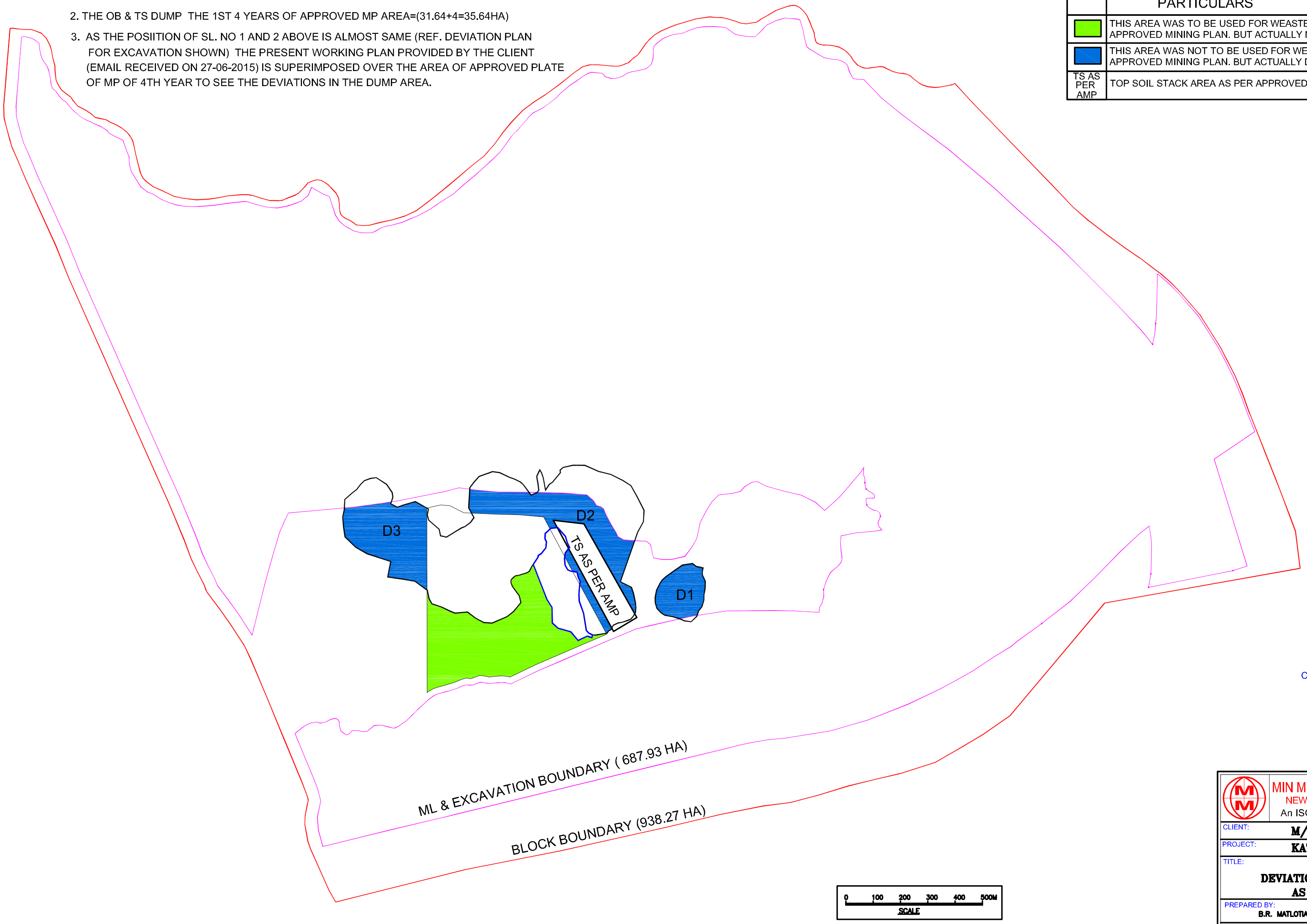
1. THE OB DUMP (D1+D2+D3) AREA TILL DATE AS PER PRESENT WORKING PLAN (31-03-2015)
DURING THE LAST 7 YEARS AREA= (2.83+10.36+21.26=34.45HA) (TOP SOIL DUMP NOT SEPARATELY SHOWN)

2. THE OB & TS DUMP THE 1ST 4 YEARS OF APPROVED MP AREA=(31.64+4=35.64HA)

3. AS THE POSIITION OF SL. NO 1 AND 2 ABOVE IS ALMOST SAME (REF. DEVIATION PLAN FOR EXCAVATION SHOWN) THE PRESENT WORKING PLAN PROVIDED BY THE CLIENT (EMAIL RECEIVED ON 27-06-2015) IS SUPERIMPOSED OVER THE AREA OF APPROVED PLATE OF MP OF 4TH YEAR TO SEE THE DEVIATIONS IN THE DUMP AREA.

DUMP DEVIATIONS LEGEND

	PARTICULARS	AREA IN HA
🟩	THIS AREA WAS TO BE USED FOR WEASTE DUMP AS PER APPROVED MINING PLAN. BUT ACTUALLY NOT DUMPED	12.95
🟦	THIS AREA WAS NOT TO BE USED FOR WEASTE DUMP AS PER APPROVED MINING PLAN. BUT ACTUALLY DUMPED	17.10
TS AS PER AMP	TOP SOIL STACK AREA AS PER APPROVED MINING PLAN	4.00



Certified that the plan is correct
B. D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

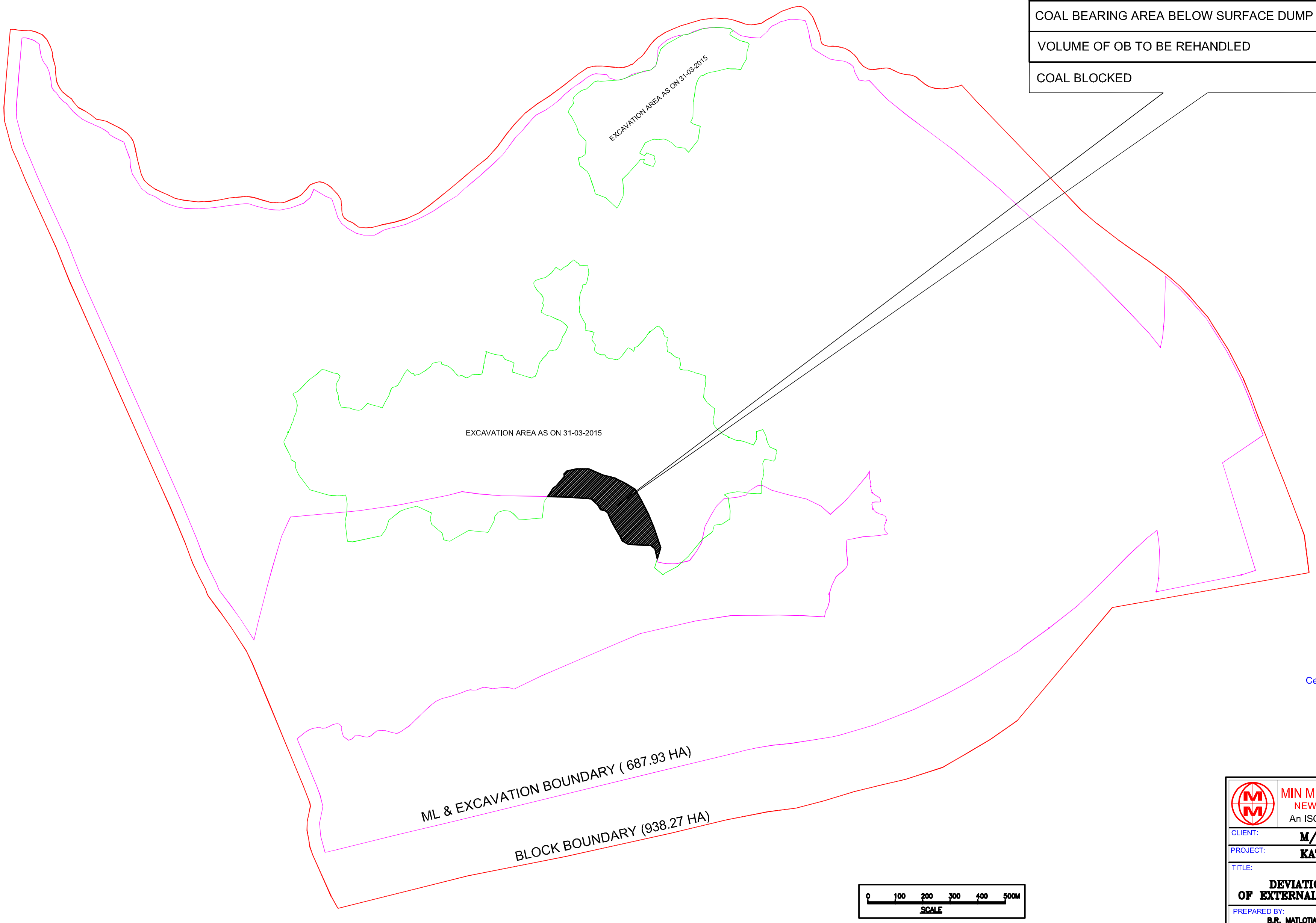
MIN MEC CONSULTANCY PVT. LTD.
NEW DELHI, PH. 29534777, 29535891
An ISO 9001 : 2008 Approved Company

An ISO 9001 : 2008 approved company

CLIENT: **M/S HINDALCO INDUSTRIES LIMITED**
PROJECT: **KATHAUTIA OPEN CAST COAL MINES**
TITLE: **DEVIATION REPORT**
DEVIATION PLAN FOR OB AND TS DUMP AS ON 31-03-2015
PREPARED BY: **B.R. MATLOTIA**
CHECKED BY: B.D.SHARMA
SCALE : **AS SHOWN**
DATE : 07-07-2015
PLATE NO. VI

REHANDLING SURFACE DUMP

PARTICULARS	
COAL BEARING AREA BELOW SURFACE DUMP	4.97 HA
VOLUME OF OB TO BE REHANDLED	0.93 M³
COAL BLOCKED	0.135 MT



Certified that the plan is correct

B.D.
B.D. SHARMA
RQP NO. 34012/03/2014-CPAM

MIN MEC CONSULTANCY PVT. LTD.
NEW DELHI, PH. 29534777, 29535891
An ISO 9001 : 2008 Approved Company

JAS-ANZ
QMS ISO 9001 Approved Company
An ISO 9001 : 2008 approved company

CLIENT: **M/S HINDALCO INDUSTRIES LIMITED**

PROJECT: **KATHAUTIA OPEN CAST COAL MINES**

TITLE: **DEVIATION REPORT**

DEVIATION PLAN FOR REHANDLING OF PART OF EXTERNAL DUMP-2 OVER COAL BEARING AREA

PREPARED BY: **B.R. MATLOTIA**	CHECKED BY: B.D.SHARMA	**PLATE NO.**
SCALE : **AS SHOWN**	DATE : 15-07-2015	VII

ANNEXURE R-1/4(Colly)

CONDITIONS TO BE COMPLIED AS PER ENVIRONMENTAL CLEARANCE APPROVAL KATHAUTIA OPEN CAST COAL MINE, DALTONGANJ

Half Yearly Compliance report of "Environment Clearance" No. J-11015 /61//2006-IA. II (M) dated 19th June, 2006: Period- ((April 2024 - Sept 2024)) granted to Kathautia Open Cast Coal Mine of M/s Hindalco Industries Limited.

A. SPECIFIC CONDITIONS

Sl. No.	Conditions	Compliance
01	All the conditions stipulated by SPCB shall be effectively implemented	The existing consent to operate was valid till 30.09.2024 which was granted by SPCB post overseeing satisfactory implementation of condition mentioned in earlier consents. The stipulated condition mentioned in existing consent to operate is being implemented. New Application to JSPCB for consent to Operate is applied vide application number 19242653 dated 29/05/2024 and awaited for approval.
02	The bund/embankment shall be designed taking into account the highest flood level, based on past data, of the drainage of the water bodies in the buffer zone which impact the mining operations so as to guard against mine inundation	Embankment against Durgawati River is of 5m above the HFL of Durgawati River and is of robust construction. Embankment has been further widened at some places & strengthened, based on the instructions of the IRO. Plantation and grassing using vetiver and lemongrass has been done, to further stabilize it. Moreover, IIEST, Shibpur has completed embankment stability study, and the final report has been submitted earlier.
03	Topsoil should be stacked properly with proper slope at earmarked site(s) and should not be kept active and shall be used for reclamation and development of green belt.	Topsoil is being used to cover the dump, once it reaches the final height as a top layer. In FY23-24, we have covered approximately 2.56 Ha dump area with topsoil. Topsoil from initial cutting (by PA) is stacked properly with proper slope at earmarked site (dump yard-1) only. In future topsoil from Dump-1 will be used on the top layer for reclamation and development of green belt.
04	OB should be stacked at earmarked external OB	OB is being stacked separately within Mining Lease area. Dump Height is within

KATHAUTIA COAL MINES DALTONGANJ

	dumpsite (s) within ML area and shall be a maximum height of 60 m only and consist of benches of 10 m each. The ultimate slope of the dump shall not exceed 28^0. Backfilling shall begin at the end of 3rd year in the de-coaled area. Monitoring and management of existing reclaimed dumpsites should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on yearly basis.	the permissible limit of 60m from OGL (as per approved Mine Plan) Dump benches were made with 10m benches (height) and overall dump slope is maintained less than 28°. Backfilling of de-coaled area is a regular activity and always in progress keeping the safe distance from the working face. Continuous monitoring is going on in the current as well as on old dumping area, for safety and stability factor. Reclamation of dump is going on continuously and part of the plantation on OB dump have become self-sustaining (Photo attached-existing plantation and settled dump). Continuous monitoring is being done by field supervisors on day-to-day basis through effective supervision. This is being updated in this half yearly compliance report and will be submitted to JSPCB & MoEFCC, as applicable.
05	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilized for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.	Garland drains have been made around all dumps, haul road, important installation like office, stockyard etc. For each pit of mining operation, we have made a sump. Mega Siltation Pond has been created at Pit D to arrest the run- off of silt and finer particles from each area. The water collected from siltation ponds is used for water spraying, watering of plants, gardening and other purposes in the mine. The drains are de-silted and maintained regularly (photo attached- Pit D). Garland drains are designed, constructed and maintained keeping safety in view with regard to sudden inrush of water due to heavy rainfall. Sump capacity is of adequate size and regular de- silting is going on. The mined-out Pit D is used as storage of water which is being used for dust suppression, watering of plants etc. and the storage capacity is more than adequate for settling of silts from mines, dumps etc. The storage capacity is almost 3 times of the makeup of water from the ML area and can handle peak sudden rainfall and surface runoff of the area. We are not discharging mined out water outside and holding the water throughout the year to use for the mine as well as for supplying to nearby village in dry period.

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

06	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.	Retaining structures at desired places around the toe of the dump have been made (thick toe wall made up of stones) and repairing of existing structure is going on, (photo attached- Toe Wall). Moreover, we have awarded PO to M/s. Gupteshwar Construction, for construction of 1800m of toe wall, along the Pit D, out of which 1403m has been completed as of date. Siltation ponds of adequate size have been built to check surface runoff and capture the silts.
07	No ancillary operations such as crushing, screening and washing of coal shall be done within the lease	No such ancillary operation is done within ML area.
08	Crushers at the CHP should be operated with high efficiency bag filters, water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points	No CHP is installed at present. Dust suppression through sprinklers (both fixed type and truck mounted (Photo attached- Fixed Type Water Sprinkler) on haul road, office premises and stock yard are going on regularly to minimize fugitive emission generated from mining operations. Moreover, we have purchased 3 numbers of Fog Cannons, to take care of any dust being generated, in high dust areas like stockyards and mining faces.
09	Drills should be wet operated only.	Drilling is done with wet operated drill machine only
10	Surface Miners shall be used for coal and OB extraction. Controlled Blasting should be limited to hard strata only and practiced only during daytime with use of delay detonators. The mitigation measures for control of ground vibration and to arrest the fly rocks and boulders should be implemented.	The techno-economic study was done by HIL and found that its use is not feasible/possible due to techno-economic constraint. Rather, a more flexible extraction method using shovel and dumper combination after applying the controlled blasting techniques (minimizing the blast induced ground vibration levels) was encouraged. Blasting is limited to hard strata only. For soft strata/topsoil we are using excavator to excavate the material without blasting. HIL engaged IIT Kharagpur to study the control blasting parameters and recommendations. Based on the implementation of these recommendations, we have got the permission for Controlled Blasting. According to the recommendation of the study, proper use of explosive and delay detonator is being used, over charging is avoided, proper stemming with sand, muffling with wire net is used to restrict flying of rock/boulders to mitigate and

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

		monitor the vibration during blasting activity. Vibro-meter is used to monitor the vibration caused during blasting. Deep trenches are made to minimize the spread of vibration to nearby areas. Security personnel are deployed before blasting to safeguard people and property near to the mine.
11	Area brought under afforestation shall cover a total area of 802.03 ha and includes reclaimed external OB dump (73.97 ha), reclaimed topsoil dump (4 Ha), backfilled area (683.97 ha), 18.65 ha along excavated area, along ML boundary, along roads (14.80 ha) 6.64 ha along the river and in undisturbed area 1.14 ha) within the lease by planting native species in consultation with the local DFO/Agriculture department. The density of the trees should be around 2500 plants per ha.	Afforestation program is a continuous process in this mine. As of date, in H1 of FY 24-25, 2.00 Ha of land has been covered with 5000 plants and in another area of 7.25 Ha, gap plantation of 11500 nos has been completed. Most of these are native tree & fruit bearing plants. Altogether 93.286 Ha (around 42.62 Ha in external dump and around 50.666 Ha in in-pit dumping) has been reclaimed with topsoil. Rehabilitation with plantation has been done for around 78.2 Ha, all-together, after attaining final shape. Plantation has been done on various places in and around the mine lease area including dumps and reclaimed area. We have also planted around 1 km length in embankment of Durgawati river. Green belt has been developed along magazine road, in dump slope area and wherever open area is available. The present density of plants per hectare is more than 2500. The plants are mostly native species and have been consulted with local DFO before plantation.
12	A progressive closure Plan shall be implemented by reclamation of quarry area of 683.97 ha shall be backfilled and afforested by planting native plant species in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2500 plants per ha. The balance 3.96 ha of de-coaled area shall be converted into a water reservoir, the upper benches of which shall be gently sloped and stabilized and reclaimed with plantation.	A progressive mine closure plan is under implementation and reclamation of quarry area is under progress. The density of the trees in the afforestation area is more than 2500 plants per Ha. Altogether 91.286 Ha (around 42.62 Ha in external dump and around 50.666 Ha in in-pit dumping) has been reclaimed with topsoil. Rehabilitation with plantation has been done for around 78.2 Ha, all-together, after attaining final shape. Plantation has been done on various places in and around the mine lease area including dumps and reclaimed area. Also, 04 nos. of water reservoirs have been created (mined out pits, some of them are temporary in nature) measuring 12.5 ha (approx.) to maintain the ground water level of the adjoining villages, also it being act like groundwater recharge point.

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

		The slopes are properly maintained with benches as per statutes
13	Conservation Plan for endangered species, found in and around the project area shall be formulated, if required, in consultation with the State Forest and Wildlife Departments.	In the EIA and EMP no such endangered species are mentioned. No endanger species is informed to be found in and around the project area also. However, we have discussed the matter with the DFO, and we are in the process of finalizing a Wildlife Conservation Plan for this mine. HIL has appointed M/s. Neo Human Foundation, to prepare the WLCP. (Annexure 04- Communication to DFO) Local DFO, Agriculture Department and other concerned persons were contacted to discuss the plantation program. With the mutual consent the afforestation plan was made. As per discussion with them we have planted local species such Sisham, Siris, Arjun, Palas, Jarul, Mahua, Neem, Teak and Fruiting species: - Mango, Guava, Lichi, Cashew etc.
14	The company shall obtain prior approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.	HIL has obtained the requisite permission from the CGWA, in form of the NOC, which was valid upto 07/04/2024, via NOC number CGWA/NOC/MIN/REN/1/2022/6862. We have already applied for renewal (App No-21-4/201/JH/MIN/2015 dated 13-April-2024, 2nd renewal) and it is under consideration.
15	Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity should be done four times a year in pre-monsoon (May), monsoon (August), post monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.	Piezometer has been installed in bore holes for measuring ground water level on regular basis. Quality of ground water is monitored by M/s ELESPL (appointed for the purpose) – in pre monsoon, monsoon, post monsoon and winter seasons. The report along with the data collected is sent to MOEF and to the JSPCB on a six-monthly basis.

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

16	The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.	Hindalco has set up ground water recharge pits for augmentation of ground water resources in the adjoining villages. Also, 4 nos. of big water reservoirs are perennially maintained along with Ground Water Recharge Structures. The combined water recharge capacity as per Water Audit Report is more than 20,00,000 cubic meters for the last year. Rainwater Harvesting structures have been installed in KOCCM as per guidelines given in CGWB website. The water table of the local villages is not lowered. As precautionary measures, water tankers are available to supply the water to the nearby villages in case of any emergency. We supply water to nearby villages for drinking and domestic uses. Photo of Pit D
17	ETP should also be provided for workshop and CHP wastewater	5 KLD ETP, with automatic oil skimmer, is in working condition, with most advanced technology, just beside the workshop. The mine is not having any CHP. New ETP photo has been attached.
18	R & R shall not be less than the norms laid down by the State Government and National R & R Policy and shall be completed within a specified timeframe.	R & R compensation is paid as per Jharkhand R & R policy and one R & R colony has been constructed about 2 km from the mines premises. The R&R activities are completed well before the stipulated time for specified area of mining.
19	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval.	Tri-partite Escrow Agreement has been made between Hindalco, Govt. of India and Designated Bank (IDBI) for the opening of Escrow Account and deposit of Escrow money. The deposit amount was as per the Revised Progressive Mine Closure Plan (payment of Rs. 7,13,00,000.00 (Seven crores, thirteen lakhs only) was made to the Mine Closure Escrow Account of KOCCM on 28-03-2024 for FY 2023-24 & 2024-25) and the same was informed to CCO Kolkata.
20	Consent to operate shall be obtained before starting mining operations	CTO has been applied vide application no 19241653 dated 29/05/2024 and awaiting for its approval.

B. GENERAL CONDITIONS

Sl. No.	Conditions	Compliance
01	No change in mining technology and scope of working should be made	Noted.

KATHAUTIA COAL MINES DALTONGANJ

	without prior approval of the Ministry of Environment and Forests.	
02	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.	The calendar plan is being followed as per approved mining plan and production of coal and waste is aligned with the mining plan. However, the mining operation is discontinued since November 2023 due to paucity of land and JJ land matter, which is sub-judice in Honorable High Court, Jharkhand (Copy of discontinue notice is in Annexure-03)
03	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone, for SPM, RPM, SO2 and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	Adequate nos. of monitoring stations have been set up in core zone and buffer zone area based on the discussion with State Pollution Control Board to monitor all the specified parameters of pollutants. Monitoring is being done on regular basis by M/s ELESPL (appointed for the purpose) and report is being submitted to State Pollution Control Board. (Annexure 07- Environmental Monitoring Report)
04	Fugitive dust emissions (SPM and RPM) from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points should be provided and properly maintained.	Fugitive dust emissions (SPM and RPM) from all the sources are controlled through dust suppression via sprinklers and other arrangements and water spraying is done on haul road, wagon loading & unloading points etc. The monitoring is being done on regular interval by M/s ELESPL and records are being maintained properly.
05	Data on ambient air quality (SPM, RPM, SO2 and NOx) should be regularly submitted to the Ministry including its Regional Office at Bhubaneshwar and to the State Pollution Control Board and to the Central Pollution Control Board once in six months.	Ambient air quality data of SPM, RPM, SO_2 and NO_x is being monitored by M/s ELESPL and the report thereof is being submitted to JSPCB and to the regional office of MOEF and SPCB in every 6 months by email (Attached- Annexure 07)
06	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc. should be	Adequate measures have been taken to control the noise levels below 85 dBA in the work environment. All workers engaged in blasting and drilling operations, as well as operations of HEMM, have been provided with ear

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	provided with ear plugs/muffs.	plugs/muffs. The use of earmuffs/plugs are being ensured by supervisors
07	Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap should be installed before discharge of workshop effluents.	Industrial wastewater (workshop and wastewater from the mine) is collected and treated properly to conform to the prescribed standards. Mine water is collected in Sump and pumped to the nearby reservoir (Pit-D) after initial settlement of clay & particulate matter. After the settlement of floating particulate matter in settling pit, the water is used for dust suppression, watering of plants, and is also being used in irrigation purpose in the nearby villages. Oil and grease trap, along with oil skimmer has been installed in the ETP for the workshop effluent. Trapped oil/grease is collected in drums and are being disposed along with hazardous waste to the authorized recycler. The treated water is recycled for the washing again in the workshop. The sediments are periodically collected from different pits and cleaned and disposed in the designated place. The treated water is recycled for further use.
08	Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.	Vehicles used for transporting the coal from the mine to railway siding is optimally loaded and covered with tarpaulins to prevent dust dispersion. Vehicular emissions are under control and is being regularly monitored.
09	Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	HIL has already established the Environmental laboratory, at site and has appointed a chemist for the same. We are undergoing training, to upskill ourselves, to run the Environmental Laboratory. For the intermediate period, HIL has appointed M/s Environmental Laboratories and Engineering Services Pvt Ltd, for regular monitoring of air, water, noise, and soil pollution.
10	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to	People working in mining area are given training and information on safety and health aspects. They are provided with nose mask, goggles, hand gloves, safety shoes, helmet etc. (PPEs and Protective respiratory devices). Occupational health surveillance program of the workers is undertaken under IME & PME (Initial Medical Examination & Periodical Medical

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	observe any contractions due to exposure to dust and to take corrective measures, if needed.	Examination) during entry and once in every 3 years for below age of 45 year and every year for above age of 45 years, to observe any contractions due to exposure to dust, so as to take corrective measures, if required.
11	A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the company.	A separate environmental management cell has been set up and (Annexure – 09)
12	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to this Ministry and its Regional Office at Bhubaneswar.	The funds earmarked for environmental protection measures as mentioned under the Progressive Mine Closure Plan is kept separately in Escrow A/C which was opened with IDBI bank, Ranchi with CCO Kolkata as the custodian of the fund.
13	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	All the stipulated conditions are being monitored by Regional Office of the Ministry. Full cooperation is being extended to the officials and all data/ information / reporting are being furnished to them.
14	A copy of the clearance letter be marked to concerned Panchayat/Local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.	Copy of the clearance letter has been shared with local Panchayat and was discussed along with good suggestions
15	State Pollution Control board should display a copy of the clearance letter at the regional Office, District Industry Centre and Collector's Office / Tehsildar's Office for 30 days.	Duty of the concerned authority of JSPCB
16	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of	Local declaration/publicity has been done in widely circulated newspaper during the execution of the project.

	the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests.	

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

Fig 01 i- Temporary water storage at mined out Pit D

Fig 01 ii -Temporary water storage for Groundwater recharge and biodiversity conservation at Narayan Ahara

Fig 2– Garland Drain and Siltation Pond

Fig 03- Self Sustaining Plantation on OB Dump

Fig 02- Plantation and grassing along the slopes and river embankment

Fig 03- Fixed Type Water Sprinkler along Haul Road and Fog canon in Coal stock

Fig 04- State of the art ETP in working condition with Oil Skimmer

Fig 05 -Designated washing point, next to ETP

Fig 06- Water Tanker

Fig 07 –Roof Top Direct Rainwater Harvesting Structure

Fig 8 – Toe Wall along the Dump

Fig 9 – Environmental Laboratory at KOCCM

Fig 10 continuation- New toe wall constructed for 1200m along the tow of the dump

CONDITIONS TO BE COMPLIED AS PER ENVIRONMENTAL CLEARANCE APPROVAL KATHAUTIA OPEN CAST COAL MINE, DALTONGANJ

Half Yearly Compliance report of "Environment Clearance" No. J-11015 /61//2006-IA. II (M) dated 19th June 2006: Period- (Oct 2024 - March 2025)) granted to Kathautia Open Cast Coal Mine of M/s Hindalco Industries Limited.

A. SPECIFIC CONDITIONS

Sl. No.	Conditions	Compliance
01	All the conditions stipulated by SPCB shall be effectively implemented	The existing consent to operate was valid till 30.09.2025 which was granted by SPCB post overseeing satisfactory implementation of conditions mentioned in earlier consents. The stipulated condition mentioned in existing consent to operate is being implemented.
02	The bund/embankment shall be designed taking into account the highest flood level, based on past data, of the drainage of the water bodies in the buffer zone which impact the mining operations so as to guard against mine inundation	Embankment against Durgawati River is above 5m of the HFL of Durgawati River and is of robust construction. Embankment has been further widened at some places & strengthened, based on the instructions of the IRO. Plantation and grassing using vetiver and lemongrass has been done, to further stabilize it. Moreover, IIEST, Shibpur has completed embankment stability study, and the final report has been submitted earlier.
03	Topsoil should be stacked properly with proper slope at earmarked site(s) and should not be kept active and shall be used for reclamation and development of green belt.	Topsoil is being used to cover the dump, once it reaches the final height as a top layer. In FY23-24, we covered approximately 2.56 Ha dump area with topsoil. Further, in the FY 24-25 due to operational suspension, did not have Topsoil stacked left. Topsoil from initial cutting (by PA) is stacked properly with proper slope at earmarked site (dump yard-1) only. In future the topsoil from Dump-1 will be used on the top layer for reclamation and development of green belt.
04	OB should be stacked at earmarked external OB dumpsite (s) within ML area and shall be a maximum height of 60 m only and consist of benches of 10 m each. The ultimate slope of the	OB is being stacked separately within Mining Lease area. Dump Height is within the permissible limit of 60m from OGL (as per approved Mine Plan) Dump benches were made with 10m benches (height) and overall dump slope is maintained less than 28°.

	dump shall not exceed 28⁰. Backfilling shall begin at the end of 3rd year in the de-coaled area. Monitoring and management of existing reclaimed dumpsites should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on a yearly basis.	Backfilling of de-coaled areas is a regular activity and always in progress keeping the safe distance from the working face. Continuous monitoring is going on in the current as well as in the old dumping area, for safety and stability factors. Reclamation of dump is going on continuously and the plantation on OB dump aging more than 3 years have become self-sustaining (Photo attached-existing plantation and settled dump). Continuous monitoring is being done by field supervisors on a day-to-day basis through effective supervision. This is being updated in this half yearly compliance report and will be submitted to JSPCB & MoEFCC, as applicable.
05	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water collected should be utilized for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.	Garland drains have been made around all dumps, haul road, important installations like office, stockyard etc. For each pit of mining operation, we have made a sump. Mega Siltation Pond has been created at Pit D to arrest the runoff of the silt and finer particles from surrounding area. The water collected from siltation ponds is used for water spraying, watering of plants, gardening and other purposes in the mine. The drains are de-silted and maintained regularly (photo attached- Pit D). Garland drains are designed, constructed and maintained, keeping safety in view with regard to sudden inrush of water due to heavy rainfall. Sump capacity is of adequate size and regular de- silting is going on. The mined-out Pit D is used as storage of water which is being used for dust suppression, watering of plants etc. and the storage capacity is more than adequate for settling of the silts from mines, dumps etc. The storage capacity is almost 3 times the makeup of water from the ML area and can handle peak sudden rainfall and surface runoff of the area. We are not discharging mined out water outside and holding the water throughout the year to use for the mine as well as for supplying to nearby village in dry period.
06	The dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and	Retaining structures at desired places around the toe of the dump have been made (thick toe wall made up of stones) and existing structure was repaired, (photo attached- Toe Wall). Moreover, we have

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	siltation should be based on the rainfall data.	awarded PO to M/s. Gupteshwar Construction, for construction of 1800m of toe wall, along the Pit D, out of which 1403m has been completed as of date. Siltation ponds of adequate size have been built to check surface runoff and capture the silts.
07	No ancillary operations such as crushing, screening and washing of coal shall be done within the lease	No such ancillary operation is done within ML area.
08	Crushers at the CHP should be operated with high efficiency bag filters, water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points	No CHP is installed at present. Dust suppression through sprinklers (both fixed type and truck mounted (Photo attached-Fixed Type Water Sprinkler) on haul road, office premises and stock yard are going on regularly to minimize fugitive emission generated from mining operations. Moreover, we have purchased 3 numbers of Fog Cannons, to take care of any dust being generated, in high dust areas like stockyards and mining faces.
09	Drills should be wet operated only.	Drilling is done with wet operated drill machine only
10	Surface Miners shall be used for coal and OB extraction. Controlled Blasting should be limited to hard strata only and practiced only during daytime with the use of delay detonators. The mitigation measures for control of ground vibration and to arrest the fly rocks and boulders should be implemented.	The techno-economic study was done by HIL and found that its use is not feasible/possible due to techno-economic constraint. Rather, a more flexible extraction method using shovel and dumper combination after applying the controlled blasting techniques (minimizing the blast induced ground vibration levels) was encouraged. Blasting is limited to hard strata only. For soft strata/topsoil we are using an excavator to excavate the material without blasting. HIL engaged IIT Kharagpur to study the control blasting parameters and recommendations. Based on the implementation of these recommendations, we have got permission for Controlled Blasting. According to the recommendation of the study, proper use of explosive and delay detonator is being used, over charging is avoided, proper stemming with sand, muffling with wire net is used to restrict flying of rock/boulders to mitigate and monitor the vibration during blasting activity. Vibro-meter is used to monitor the vibration caused during blasting. Deep trenches are made to minimize the spread of vibration to nearby areas. Security personnel are deployed before blasting to

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

		safeguard people and property near to the mine.
11	Area brought under afforestation shall cover a total area of 802.03 ha and includes reclaimed external OB dump (73.97 ha), reclaimed topsoil dump (4 Ha), backfilled area (683.97 ha), 18.65 ha along excavated area, along ML boundary, along roads (14.80 ha) 6.64 ha along the river and in undisturbed area 1.14 ha) within the lease by planting native species in consultation with the local DFO/Agriculture department. The density of the trees should be around 2500 plants per ha.	Afforestation program is a continuous process in this mine. As of date, in H2 of FY 24-25, 3.00 Ha of land has been covered with 7500 plants and in another area of 7.25 Ha, gap plantation of 11500 nos has been completed. Most of these are native tree & fruit bearing plants. Altogether 93.286 Ha (around 42.62 Ha in external dump and around 50.666 Ha in in-pit dumping) has been reclaimed with topsoil. Rehabilitation with plantation has been done for around 81.2 Ha, all-together, after attaining final shape. Plantation has been done on various places in and around the mine lease area including dumps and reclaimed area. We have also planted around 1 km length in embankment of Durgawati river. The greenbelt has been developed along magazine road, in dump slope area and wherever open area is available. The present density of plants per hectare is more than 2500. The plants are mostly native species and have been consulted with local DFO before plantation.
12	A progressive closure Plan shall be implemented by reclamation of quarry area of 683.97 ha shall be backfilled and afforested by planting native plant species in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2500 plants per ha. The balance 3.96 ha of de-coaled area shall be converted into a water reservoir, the upper benches of which shall be gently sloped and stabilized and reclaimed with plantation.	A progressive mine closure plan is under implementation and reclamation of quarry area is under progress. The density of the trees in the afforestation area is more than 2500 plants per Ha. Altogether 91.286 Ha (around 42.62 Ha in external dump and around 50.666 Ha in in-pit dumping) has been reclaimed with topsoil. Rehabilitation with plantation has been done for around 81.2 Ha, all-together, after attaining final shape. Plantation has been done on various places in and around the mine lease area including dumps and reclaimed area. Also, 04 nos. of water reservoirs have been created (mined out pits, some of them are temporary in nature) measuring 12.5 ha (approx.) to maintain the ground water level of the adjoining villages, also it's being act like groundwater recharge point. The slopes are properly maintained with benches as per statutes
13	The Conservation Plan for endangered species found in and around the	In the EIA and EMP have not been documented any such endangered species in the area. No endangered species is informed to be found in and around the

	project area shall be formulated, if required, in consultation with the State Forest and Wildlife Departments.	project area also. However, we have discussed the matter with the DFO, and we are in the process of finalizing a Wildlife Conservation Plan for this mine. HIL has appointed M/s. Neo Human Foundation, to prepare for the WLCP. (Annexure 04- Communication to DFO) Local DFO, Agriculture Department and other concerned persons were contacted to discuss the plantation program. With the mutual consent the afforestation plan was made. As per discussion with them we have planted local species such Sisham, Siris, Arjun, Palas, Jarul, Mahua, Neem, Teak and Fruiting species: - Mango, Guava, Lichi, Cashew etc.
14	The company shall obtain prior approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.	HIL has obtained the requisite permission from the CGWA, in the form of the NOC, which is valid upto 07/04/2026, via NOC number CGWA/NOC/MIN/REN/2/2025/10917 dated 25/02/25.
15	Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity should be done four times a year in pre-monsoon (May), monsoon (August), post monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.	Piezometer has been installed in bore holes for measuring ground water level on a regular basis. Quality of ground water is monitored by M/s ELESPL (appointed for the purpose) – in pre monsoon, monsoon, post monsoon and winter seasons. The report along with the data collected is sent to MOEF and to the JSPCB on a six-monthly basis.
16	The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby	Hindalco has set up ground water recharge pits for augmentation of ground water resources in the adjoining villages. Also, 4 nos. of big water reservoirs are perennially maintained along with Ground Water Recharge Structures. The combined water recharge capacity as per Water Audit Report is more than 20,00,000 cubic

KATHAUTIA COAL MINES
DALTONGANJ

	village(s) in case the village wells go dry due to dewatering of mine.	meters for the last year. Rainwater Harvesting structures have been installed in KOCCM as per guidelines given in CGWB website. The water table of the local villages is not lowered. As precautionary measures, water tankers are available to supply the water to the nearby villages in case of any emergency. We supply water to nearby villages for drinking and domestic use. Photo of Pit D is annexure.
17	ETP should also be provided for workshop and CHP wastewater	5 KLD ETP, with automatic oil skimmer, is in working condition, with the most advanced technology, just beside the workshop. The mine is not having any CHP. New ETP photo has been attached.
18	R & R shall not be less than the norms laid down by the State Government and National R & R Policy and shall be completed within a specified timeframe.	R & R compensation is paid as per Jharkhand R & R policy and one R & R colony has been constructed about 2 km from the mines premises. The R&R activities are completed well before the stipulated time for specified area of mining.
19	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval.	Tri-partite Escrow Agreement has been made between Hindalco, Govt. of India and Designated Bank (IDBI) for the opening of Escrow Account and deposit of Escrow money. The deposit amount was as per the Revised Progressive Mine Closure Plan (payment of Rs. 7,13,00,000.00 (Seven crores, thirteen lakhs only) was made to the Mine Closure Escrow Account of KOCCM on 28-03-2024 for FY 2023-24 & 2024-25) and the same was informed to CCO Kolkata.
20	Consent to operate shall be obtained before starting mining operations	The CTO granted vide Ref. No. JSPCB/HO/RNC/CTO13722900/2022/1538, Dated: 2022-11-03 for production of Coal- 0.80 MTPA (As per EC) has been renewed via JSPCB letter no JSPCB/HO/RNC/CTO-19242653/2024/2060 Dated: 2024-12-31 for the period up to 30/09/2025.

B. GENERAL CONDITIONS

Sl. No.	Conditions	Compliance
01	No change in mining technology and scope of work should be made without prior approval of the Ministry of Environment and Forests.	Noted.
02	No change in the calendar plan including excavation, quantum of	The calendar plan is being followed as per the approved mining plan and production

KATHAUTIA COAL MINES DALTONGANJ

	mineral coal and waste should be made.	of coal and waste is aligned with the mining plan. However, the mining operation has been discontinued since November 2023 due to paucity of land and JJ land matter, which is sub-judice in Honorable High Court, Jharkhand (Copy of discontinue notice is in Annexure-03)
03	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone, for SPM, RPM, SO2 and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	Adequate nos. of monitoring stations have been set up in the core zone and buffer zone area based on the discussion with the State Pollution Control Board to monitor all the specified parameters of pollutants. Monitoring is being done on a regular basis by M/s ELESPL (appointed for the purpose), and the report is being submitted to the State Pollution Control Board. (Annexure 07- Environmental Monitoring Report)
04	Fugitive dust emissions (SPM and RPM) from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dump trucks (loading and unloading) points should be provided and properly maintained.	Fugitive dust emissions (SPM and RPM) from all the sources are controlled through dust suppression via sprinklers and other arrangements and water spraying is done on haul road, wagon loading & unloading points etc. The monitoring is being done on regular intervals by M/s ELESPL and records are being maintained properly.
05	Data on ambient air quality (SPM, RPM, SO2 and NOx) should be regularly submitted to the Ministry, including its Regional Office at Bhubaneshwar and to the State Pollution Control Board and to the Central Pollution Control Board once in six months.	Ambient air quality data of SPM, RPM, SO_2 and NO_x is being monitored by M/s ELESPL and the report thereof is being submitted to JSPCB and to the regional office of MOEF and SPCB in every 6 months by email (Attached- Annexure 07)
06	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc. should be provided with ear plugs/muffs.	Adequate measures have been taken to control the noise levels below 85 dBA in the work environment. All workers engaged in blasting and drilling operations, as well as operations of HEMM, have been provided with ear plugs/muffs. The use of earmuffs/plugs are being ensured by supervisors
07	Industrial wastewater (workshop and wastewater from mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st	Industrial wastewater (workshop and wastewater from mine) is collected and treated properly to conform to the prescribed standards. Mine water is collected in Sump and pumped to the nearby reservoir (Pit-D) after initial

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	December 1993 or as amended from time to time before discharge. Oil and grease traps should be installed before discharge of workshop effluents.	settlement of clay & particulate matter. After the settlement of floating particulate matter in settling pit, the water is used for dust suppression, watering of plants, and is also being used for irrigation purposes in the nearby villages. Oil and grease trap, along with oil skimmer has been installed in the ETP for the workshop effluent. Trapped oil/grease is collected in drums and are being disposed along with hazardous waste to the authorized recycler. The treated water is recycled for washing again in the workshop. The sediments are periodically collected from different pits and cleaned and disposed of in the designated place. The water treated is recycled for further use.
08	Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting minerals should be covered with tarpaulins and optimally loaded.	Vehicles used for transporting the coal from the mine to railway siding is optimally loaded and covered with tarpaulins to prevent dust dispersion. Vehicular emissions are under control and are being regularly monitored.
09	Environmental laboratories should be established with adequate numbers and a type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	HIL has already established the Environmental laboratory at site and has appointed a chemist for the same. We are undergoing training to be upskilled in ourselves, to run the Environmental Laboratory. For the intermediate period, HIL has appointed M/s Environmental Laboratories and Engineering Services Pvt Ltd, for regular monitoring of air, water, noise, and soil pollution.
10	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.	People working in mining areas are given training and information on safety and health aspects. They are provided with a nose mask, goggles, hand gloves, safety shoes, helmet etc. (PPEs and Protective respiratory devices). The occupational health surveillance program of the workers is undertaken under IME & PME (Initial Medical Examination & Periodical Medical Examination) during entry and once every 3 years for below age of 45 year and every year for above age of 45 years, to observe any contractions due to exposure to dust, so as to take corrective measures, if required.
11	A separate environmental management cell with suitable qualified personnel should be set up under the control of a Senior Executive, who will report directly to the Head of the company.	A separate environmental management cell has been set up and (Annexure – 09)

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

12	The funds earmarked for environmental protection measures should be kept in separate accounts and should not be diverted for other purposes. Year-wise expenditure should be reported to this Ministry and its Regional Office at Bhubaneswar.	The funds earmarked for environmental protection measures as mentioned under the Progressive Mine Closure Plan are kept separately in Escrow A/c which was opened with IDBI bank, Ranchi with CCO Kolkata as the custodian of the fund.
13	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance with the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	All the stipulated conditions are being monitored by the Regional Office of the Ministry. Full cooperation is being extended to the officials and all data/information / reporting are being furnished to them.
14	A copy of the clearance letter be marked to concerned Panchayat/Local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.	Copy of the clearance letter has been shared with local Panchayat and was discussed along with good suggestions
15	The State Pollution Control board should display a copy of the clearance letter at the regional Office, District Industry Centre and Collector's Office / Tehsildar's Office for 30 days..	Duty of the concerned authority of JSPCB
16	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests.	Local declaration/publicity has been done in widely circulated newspaper during the execution of the project.

HINDALCO INDUSTRIES
KATHAUTIA COAL MINES
DALTONGANJ

Fig 01 i- Temporary water storage at mined out Pit D

Fig 01 ii -Temporary water storage for Groundwater recharge and biodiversity conservation at Narayan Ahara

Fig 2– Garland Drain and Siltation Pond

~~Fig 03-~~ Self-Sustaining Plantation on OB Dump

<u>Fig 04-</u> Plantation and grassing along the slopes and river embankment

Fig 05- Fixed Type Water Sprinkler along Haul Road and Fog canon in Coal stock

Fig 06- State of the art ETP in working condition with Oil Skimmer

Fig 07 -Designated washing point, next to ETP

Fig 08- Water Tanker

Fig 09 –Roof Top Direct Rainwater Harvesting Structure

Fig 10.1 – Toe Wall along the Dump

Fig 10.2: Continuation**-** New toe wall constructed for 1200m along the toe of the main dump

Fig 11: – Environmental Laboratory at KOCCM

CONDITIONS TO BE COMPLIED AS PER ENVIRONMENTAL CLEARANCE APPROVAL KATHAUTIA OPEN CAST COAL MINE, DALTONGANJ

Half Yearly Compliance report of "Environment Clearance" No. J-11015 /61//2006-IA. II (M) dated 19th June 2006: Period- (April 2025 - Sept 2025)) granted to Kathautia Open Cast Coal Mine of M/s Hindalco Industries Limited.

A. SPECIFIC CONDITIONS

Sl. No.	Conditions	Compliance
01	All the conditions stipulated by SPCB shall be effectively implemented	The existing consent to operate was valid till 30.09.2026 which was granted by SPCB post overseeing satisfactory implementation of conditions mentioned in earlier consents. The stipulated condition mentioned in existing consent to operate is being implemented.
02	The bund/embankment shall be designed taking into account the highest flood level, based on past data, of the drainage of the water bodies in the buffer zone which impact the mining operations so as to guard against mine inundation	Embankment against Durgawati River is above 5m of the HFL of Durgawati River and is of robust construction. Embankment has been further widened at some places & strengthened, based on the instructions of the IRO. Plantation and grassing using vetiver and lemongrass has been done, to further stabilize it. Moreover, IIEST, Shibpur has completed embankment stability study, and the final report has been submitted earlier.
03	Topsoil should be stacked properly with proper slope at earmarked site(s) and should not be kept active and shall be used for reclamation and development of green belt.	Topsoil is being used to cover the dump, once it reaches the final height as a top layer. In the FY 25-26 due to operational suspension, did not have Topsoil stacked left. Topsoil from initial cutting (by PA) is stacked properly with proper slope at earmarked site (dump yard-1) only. In future the topsoil from Dump-1 will be used on the top layer for reclamation and development of green belt.
04	OB should be stacked at earmarked external OB dumpsite (s) within ML area and shall be a maximum height of 60 m only and consist of benches of 10 m each. The ultimate slope of the dump shall not exceed 28°. Backfilling shall	OB is being stacked separately within Mining Lease area. Dump Height is within the permissible limit of 60m from OGL (as per approved Mine Plan) Dump benches were made with 10m benches (height) and overall dump slope is maintained less than 28°.

KATHAUTIA COAL MINES DALTONGANJ

	begin at the end of 3rd year in the de-coaled area. Monitoring and management of existing reclaimed dumpsites should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on a yearly basis.	Backfilling of de-coaled areas is a regular activity and always in progress keeping the safe distance from the working face. Continuous monitoring is going on in the current as well as in the old dumping area, for safety and stability factors. Reclamation of dump is going on continuously and the plantation on OB dump aging more than 3 years have become self-sustaining (Photo attached-existing plantation and settled dump). Continuous monitoring is being done by field supervisors on a day-to-day basis through effective supervision. This is being updated in this half yearly compliance report and will be submitted to JSPCB & MoEFCC, as applicable.
05	Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water collected should be utilized for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity should be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material.	Garland drains have been made around all dumps, haul road, important installations like office, stockyard etc. For each pit of mining operation, we have made a sump. Mega Siltation Pond has been created at Pit D to arrest the runoff of the silt and finer particles from surrounding area. The water collected from siltation ponds is used for water spraying, watering of plants, gardening and other purposes in the mine. The drains are de-silted and maintained regularly (photo attached- Pit D). Garland drains are designed, constructed and maintained, keeping safety in view with regard to sudden inrush of water due to heavy rainfall. Sump capacity is of adequate size and regular de- silting is going on. The mined-out Pit D is used as storage of water which is being used for dust suppression, watering of plants etc. and the storage capacity is more than adequate for settling of the silts from mines, dumps etc. The storage capacity is almost 3 times the makeup of water from the ML area and can handle peak sudden rainfall and surface runoff of the area. We are not discharging mined out water outside and holding the water throughout the year to use for the mine as well as for supplying to nearby village in dry period.
06	The dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and	Retaining structures at desired places around the toe of the dump have been made (thick toe wall made up of stones) and existing structure was repaired, (photo attached- Toe Wall). Moreover, we have

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	siltation should be based on the rainfall data.	awarded PO to M/s. Gupteshwar Construction, for construction of 1800m of toe wall, along Pit D, and it has been completed. Siltation ponds of adequate size have been built to check surface runoff and capture the silts.
07	No ancillary operations such as crushing, screening and washing of coal shall be done within the lease	No such ancillary operation is done within ML area.
08	Crushers at the CHP should be operated with high efficiency bag filters, water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points	No CHP is installed at present. Dust suppression through sprinklers (both fixed type and truck mounted (Photo attached-Fixed Type Water Sprinkler) on haul road, office premises and stock yard are going on regularly to minimize fugitive emission generated from mining operations. Moreover, we have purchased 3 numbers of Fog Cannons, to take care of any dust being generated, in high dust areas like stockyards and mining faces.
09	Drills should be wet operated only.	Drilling is done with wet operated drill machine only
10	Surface Miners shall be used for coal and OB extraction. Controlled Blasting should be limited to hard strata only and practiced only during daytime with the use of delay detonators. The mitigation measures for control of ground vibration and to arrest the fly rocks and boulders should be implemented.	The techno-economic study was done by HIL and found that its use is not feasible/possible due to techno-economic constraint. Rather, a more flexible extraction method using shovel and dumper combination after applying the controlled blasting techniques (minimizing the blast induced ground vibration levels) was encouraged. Blasting is limited to hard strata only. For soft strata/topsoil we are using an excavator to excavate the material without blasting. HIL engaged IIT Kharagpur to study the control blasting parameters and recommendations. Based on the implementation of these recommendations, we have got permission for Controlled Blasting. According to the recommendation of the study, proper use of explosive and delay detonator is being used, over charging is avoided, proper stemming with sand, muffling with wire net is used to restrict flying of rock/boulders to mitigate and monitor the vibration during blasting activity. Vibro-meter is used to monitor the vibration caused during blasting. Deep trenches are made to minimize the spread of vibration to nearby areas. Security personnel are deployed before blasting to

		safeguard people and property near to the mine.
11	Area brought under afforestation shall cover a total area of 802.03 ha and includes reclaimed external OB dump (73.97 ha), reclaimed topsoil dump (4 Ha), backfilled area (683.97 ha), 18.65 ha along excavated area, along ML boundary, along roads (14.80 ha) 6.64 ha along the river and in undisturbed area 1.14 ha) within the lease by planting native species in consultation with the local DFO/Agriculture department. The density of the trees should be around 2500 plants per ha.	Afforestation program is a continuous process in this mine. As of date, in H1 of FY 25-26, 1.50 Ha of land has been covered with 3710 plants and in another gap plantation of 12470 nos has been completed. Most of these are native tree & fruit bearing plants. Altogether 94.786 Ha (around 43.12 Ha in external dump and around 51.666 Ha in in-pit dumping) has been reclaimed with topsoil. Rehabilitation with plantation has been done for around 82.7 Ha, all-together, after attaining final shape. Plantation has been done on various places in and around the mine lease area including dumps and reclaimed area. We have also planted around 1 km length in embankment of Durgawati river. The greenbelt has been developed along magazine road, in dump slope area and wherever open area is available. The present density of plants per hectare is more than 2500. The plants are mostly native species and have been consulted with local DFO before plantation.
12	A progressive closure Plan shall be implemented by reclamation of quarry area of 683.97 ha shall be backfilled and afforested by planting native plant species in consultation with the local DFO / Agriculture Department. The density of the trees should be around 2500 plants per ha. The balance 3.96 ha of de-coaled area shall be converted into a water reservoir, the upper benches of which shall be gently sloped and stabilized and reclaimed with plantation.	A progressive mine closure plan is under implementation and reclamation of quarry area is under progress. The density of the trees in the afforestation area is more than 2500 plants per Ha. Altogether 94.786 Ha (around 43.12 Ha in external dump and around 51.666 Ha in in-pit dumping) has been reclaimed with topsoil. Rehabilitation with plantation has been done for around 82.7 Ha, all-together, after attaining final shape. Plantation has been done on various places in and around the mine lease area including dumps and reclaimed area. Also, 04 nos. of water reservoirs have been created (mined out pits, some of them are temporary in nature) measuring 12.5 ha (approx.) to maintain the ground water level of the adjoining villages, also it's being act like groundwater recharge point. The slopes are properly maintained with benches as per statutes
13	The Conservation Plan for endangered species found in and around the project area shall be	In the EIA and EMP have not been documented any such endangered species in the area. No endangered species is informed to be found in and around the project area also. However, we have

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	formulated, if required, in consultation with the State Forest and Wildlife Departments.	discussed the matter with the DFO, and we are in the process of finalizing a Wildlife Conservation Plan for this mine. HIL has appointed M/s. Neo Human Foundation, to prepare for the WLCP. (Annexure 04- Communication to DFO) Local DFO, Agriculture Department and other concerned persons were contacted to discuss the plantation program. With the mutual consent the afforestation plan was made. As per discussion with them we have planted local species such Sisham, Siris, Arjun, Palas, Jarul, Mahua, Neem, Teak and Fruiting species: - Mango, Guava, Lichi, Cashew etc.
14	The company shall obtain prior approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.	HIL has obtained the requisite permission from the CGWA, in the form of the NOC, which is valid upto 07/04/2026, via NOC number CGWA/NOC/MIN/REN/2/2025/10917 dated 25/02/25.
15	Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity should be done four times a year in pre-monsoon (May), monsoon (August), post monsoon (November) and winter (January) seasons and for quality in May. Data thus collected should be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.	Piezometer has been installed in bore holes for measuring ground water level on a regular basis. Quality of ground water is monitored by M/s ELESPL (appointed for the purpose) – in pre monsoon, monsoon, post monsoon and winter seasons. The report along with the data collected is sent to MOEF and to the JSPCB on a six-monthly basis.
16	The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby village(s) in case the	Hindalco has set up ground water recharge pits for augmentation of ground water resources in the adjoining villages. Also, 4 nos. of big water reservoirs are perennially maintained along with Ground Water Recharge Structures. The combined water recharge capacity as per Water Audit Report is more than 20,00,000 cubic meters for the last year. Rainwater

KATHAUTIA COAL MINES DALTONGANJ

	village wells go dry due to dewatering of mine.	Harvesting structures have been installed in KOCCM as per guidelines given in CGWB website. The water table of the local villages is not lowered. As precautionary measures, water tankers are available to supply the water to the nearby villages in case of any emergency. We supply water to nearby villages for drinking and domestic use. Photo of Pit D is annexure.
17	ETP should also be provided for workshop and CHP wastewater	5 KLD ETP, with automatic oil skimmer, is in working condition, with the most advanced technology, just beside the workshop. The mine is not having any CHP. New ETP photo has been attached.
18	R & R shall not be less than the norms laid down by the State Government and National R & R Policy and shall be completed within a specified timeframe.	R & R compensation is paid as per Jharkhand R & R policy and one R & R colony has been constructed about 2 km from the mines premises. The R&R activities are completed well before the stipulated time for specified area of mining.
19	A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval.	Tri-partite Escrow Agreement has been made between Hindalco, Govt. of India and Designated Bank (IDBI) for the opening of Escrow Account and deposit of Escrow money. The deposit amount was as per the Revised Progressive Mine Closure Plan (payment of Rs. 3,45,10,000.00 (Three Crores, Forty-five Lakhs Ten Thousand only) was made to the Mine Closure Escrow Account of KOCCM on 26-09-2025 for FY 2025-26 and the same was informed to CCO Kolkata.
20	Consent to operate shall be obtained before starting mining operations	The CTO granted vide Ref. No. JSPCB/HO/RNC/CTO13722900/2022/1538, Dated: 2022-11-03 for production of Coal-0.80 MTPA (As per EC) has been renewed via JSPCB letter no JSPCB/HO/RNC/CTO-22558271/2025/2609 Dated: 2025-09-30 for the period up to 30/09/2026.

B. GENERAL CONDITIONS

Sl. No.	Conditions	Compliance
01	No change in mining technology and scope of work should be made without prior approval of the Ministry of Environment and Forests.	Noted.
02	No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.	The calendar plan is being followed as per the approved mining plan and production of coal and waste is aligned with the mining plan.

KATHAUTIA COAL MINES DALTONGANJ

		However, the mining operation has been discontinued since November 2023 due to paucity of land and JJ land matter, which is sub-judice in Honorable High Court, Jharkhand (Copy of discontinue notice is in Annexure-03)
03	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone, for SPM, RPM, SO2 and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.	Adequate nos. of monitoring stations have been set up in the core zone and buffer zone area based on the discussion with the State Pollution Control Board to monitor all the specified parameters of pollutants. Monitoring is being done on a regular basis by M/s ELESPL (appointed for the purpose), and the report is being submitted to the State Pollution Control Board. (Annexure 07- Environmental Monitoring Report)
04	Fugitive dust emissions (SPM and RPM) from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangements on haul roads, wagon loading, dump trucks (loading and unloading) points should be provided and properly maintained.	Fugitive dust emissions (SPM and RPM) from all the sources are controlled through dust suppression via sprinklers and other arrangements and water spraying is done on haul road, wagon loading & unloading points etc. The monitoring is being done on regular intervals by M/s ELESPL and records are being maintained properly.
05	Data on ambient air quality (SPM, RPM, SO2 and NOx) should be regularly submitted to the Ministry, including its Regional Office at Bhubaneshwar and to the State Pollution Control Board and to the Central Pollution Control Board once in six months.	Ambient air quality data of SPM, RPM, SO_2 and NO_x is being monitored by M/s ELESPL and the report thereof is being submitted to JSPCB and to the regional office of MOEF and SPCB in every 6 months by email (Attached- Annexure 07)
06	Adequate measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc. should be provided with ear plugs/muffs.	Adequate measures have been taken to control the noise levels below 85 dBA in the work environment. All workers engaged in blasting and drilling operations, as well as operations of HEMM, have been provided with ear plugs/muffs. The use of earmuffs/plugs are being ensured by supervisors
07	Industrial wastewater (workshop and wastewater from mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before	Industrial wastewater (workshop and wastewater from mine) is collected and treated properly to conform to the prescribed standards. Mine water is collected in Sump and pumped to the nearby reservoir (Pit-D) after initial settlement of clay & particulate matter. After the settlement of floating

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	discharge. Oil and grease traps should be installed before discharge of workshop effluents.	particulate matter in settling pit, the water is used for dust suppression, watering of plants, and is also being used for irrigation purposes in the nearby villages. Oil and grease trap, along with oil skimmer has been installed in the ETP for the workshop effluent. Trapped oil/grease is collected in drums and are being disposed along with hazardous waste to the authorized recycler. The treated water is recycled for washing again in the workshop. The sediments are periodically collected from different pits and cleaned and disposed of in the designated place. The water treated is recycled for further use.
08	Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting minerals should be covered with tarpaulins and optimally loaded.	The mining operation has been discontinued since November 2023 due to paucity of land and JJ land matter, Subsequently Vehicles used for transporting the coal from the mine to railway siding is Stopped. However, during the operation period Vehicles were optimally loaded and covered with tarpaulins to prevent dust dispersion. Vehicular emissions are under control and are being regularly monitored.
09	Environmental laboratories should be established with adequate numbers and a type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	HIL has already established the Environmental laboratory at site and has appointed a chemist for the same. We are undergoing training to be upskilled in ourselves, to run the Environmental Laboratory. For the intermediate period, HIL has appointed M/s Environmental Laboratories and Engineering Services Pvt Ltd, for regular monitoring of air, water, noise, and soil pollution.
10	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.	People working in mining areas are given training and information on safety and health aspects. They are provided with a nose mask, goggles, hand gloves, safety shoes, helmet etc. (PPEs and Protective respiratory devices). The occupational health surveillance program of the workers is undertaken under IME & PME (Initial Medical Examination & Periodical Medical Examination) during entry and once every 3 years for below age of 45 year and every year for above age of 45 years, to observe any contractions due to exposure to dust, so as to take corrective measures, if required.
11	A separate environmental management cell with suitable qualified personnel should be set	A separate environmental management cell has been set up and (Annexure – 09)

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

	up under the control of a Senior Executive, who will report directly to the Head of the company.	
12	The funds earmarked for environmental protection measures should be kept in separate accounts and should not be diverted for other purposes. Year-wise expenditure should be reported to this Ministry and its Regional Office at Bhubaneswar.	The funds earmarked for environmental protection measures as mentioned under the Progressive Mine Closure Plan are kept separately in Escrow A/c which was opened with IDBI bank, Ranchi with CCO Kolkata as the custodian of the fund.
13	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance with the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	All the stipulated conditions are being monitored by the Regional Office of the Ministry. Full cooperation is being extended to the officials and all data/information / reporting are being furnished to them.
14	A copy of the clearance letter be marked to concerned Panchayat/Local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.	Copy of the clearance letter has been shared with local Panchayat and was discussed along with good suggestions
15	The State Pollution Control board should display a copy of the clearance letter at the regional Office, District Industry Centre and Collector's Office / Tehsildar's Office for 30 days.	Duty of the concerned authority of JSPCB
16	The project authorities should advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests.	Local declaration/publicity has been done in widely circulated newspaper during the execution of the project.

HINDALCO INDUSTRIES LIMITED
KATHAUTIA COAL MINES
DALTONGANJ

DATE OF LEASE TRANSFER- 07.10.2016
DATE OF OWNER SHIP TRANSFER- 01.04.2015

KATHAUTIA OPEN CAST COAL MINES
M/S HINDALCO INDUSTRIES LIMITED

SURFACE PLAN

SCALE:-1CM=40M

P.O. NAWDIHA, DIST. PALAMU, (JHARKHAND)
Certified that the plan is correct and upto date

SURVEYOR MANAGER

DRG.NO. HIL/KATHAUTIA/OCP/SURFACE PLAN-1E

ANNEXURE R 1/5

ANNEXURE R-1/6

STABILITY ANALYSIS OF PIT AND OVERBURDEN DUMP SLOPES AT KATHAUTIA OPENCAST MINE

Prepared for

HINDALCO INDUSTRIES LIMITED

Consultants

Prof Pratik Dutta and Prof Prabir Kumar Paul

INDIAN INSTITUTE OF ENGINEERING SCIENCE AND TECHNOLOGY, SHIBPUR

Howrah-711103

November 2020

INDIAN INSTITUTE OF ENGINEERING SCIENCE AND TECHNOLOGY, SHIBPUR

Department of Mining Engineering

CERTIFICATE

27/11/2020

This is to certify that the Department of Mining Engineering at Indian Institute of Engineering Science and Technology carried out the scientific study for analyzing the stability of pits and overburden dumps at Kathautia Opencast Coal Mine of HINDALCO Industries Limited. This report is the outcome of the scientific study.

It is certified that best possible scientific judgements were exercised in carrying out the study based on information available from the mine, assessments made during site visit, laboratory analysis of rock samples, and subsequent slope stability modelling study.

It is further recommended that the mine should follow the design parameters of pits and overburden dumps along with the recommendations for slope monitoring as contained in this report for safe operation of the mine.

Dutta

(Pratik Dutta)

Professor

Prabir Kumar Paul

(Prabir Kumar Paul)

Professor

CONTENTS

Contents

1 INTRODUCTION

1.1 Scope of Work

HINDALCO Industries Limited (HINDALCO) issued Work Order No. 9102500201 dated 20/05/2019 in favour of Indian Institute of Engineering Science and Technology, Shibpur (IIEST) as the Scientific Agency entrusted with taking up slope stability study at Kathautia opencast mine (OCM). The scope of work, as indicated by IIEST in its final modified proposal sent on 16/05/2019 is as follows:

1. Assessment of long-term stability of existing/planned pit walls and in pit/external overburden dumps through collating geological, hydrogeological, and geotechnical information on coal and overburden.

2. Design of pit walls and dumps in terms of individual bench slope, overall pit slope, height of dumps, slope of dumps, and benching in dumps. This will include suggestions for modifications, if required, in the existing pit wall and dump geometries for all sections of the mine.

3. Suggest suitable remedial measures and monitoring for better safety, long-term stability of pit walls and overburden dumps of the mine

The Consultants from IIEST first visited the mine to see the mine working and collect relevant information for the study. Detailed discussions were held with the mine officials for requirement of relevant information. The consultants also guided mine officials about the process of or rock samples collection from pits and dumps. Subsequently, upon receipt of the required information and the samples from the mine, detailed scientific analysis was then carried out pertaining to the scope of the study. The report contains findings of the scientific study along with specific recommendations. In carrying out the study, specific references were made to the provisions contained in Coal Mine Regulations (CMR) 2017, Regulation No 106 (2), which mandates every opencast coal mine to ensure its “method of working, ultimate pit slope, dump slope and monitoring of slope stability has been planned, designed, and worked as determined by a scientific study”. Furthermore, provisions of Regulation 108 of CMR 2017, circulars 02 of 2020 and 03 of 2020 issued by Director General of Mines Safety (DGMS), which are relevant to the study and have been included within the scope of work.

1.2 Kathautia Opencast Mine in Brief

Kathautia Opencast Coal Mine (KOCCM)is situated near Daltonganj, in Palamu District of Jharkhand. M/S Usha Martin Ltd operated the mine from 20th May 2005 to 31st March, 2015. Subsequently, it was allotted to HINDALCO on 1st April, 2015. Coal production under HINDALCO started from April, 2017 with annual production capacity of 0.80 Million tonnes. The mine is spread over an area of 938.27 Hectares (9.38 Km^2). The location detail of the mine is given in Figure 1. The nearest major habitat on is at Kathautia Village. Geographical Limits of "Kathautia Coal Block" is described as:

Direction	Boundary
North	Durgawati River and Lohari Block
East	Sika, Naudiha and Golhna Villages
South	Daltonganj-Patan Road and Meral Block
West	Daltonganj-Aurangabad Road (SH 48)

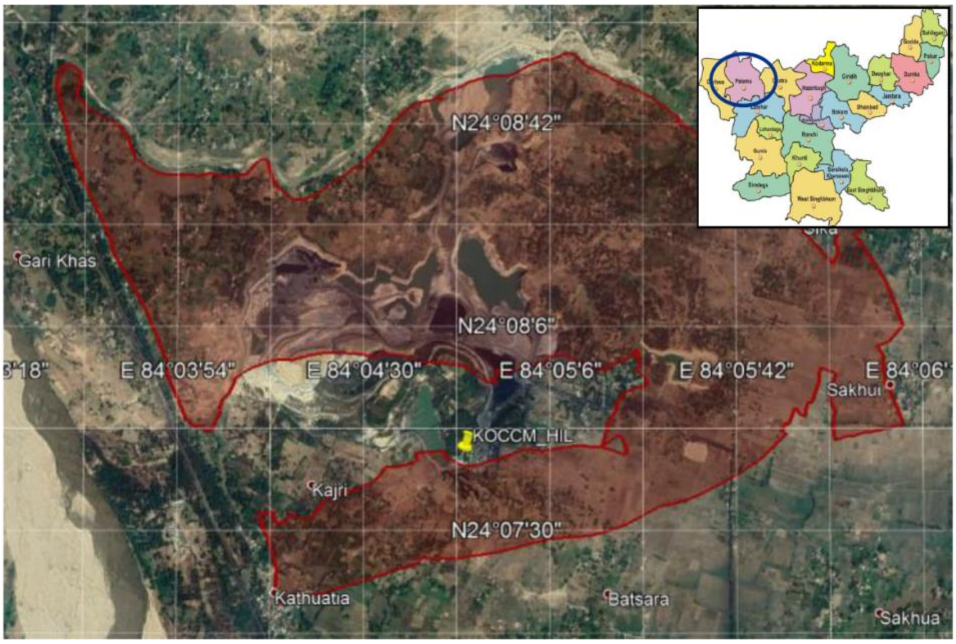


Figure 1: Location details of Kathautia Opencast Mine

There are 3 coal seams in the block- Rajhara-A, Rajhara-B, and Pandwa Top. Coal reserves in the seams are given as follows:

Coal Seam	Gross Geological Resource (MT)	Net Geological Resource (MT)	Blocked Resource in Barrier (MT)	Mineable Reserve (MT)	Extractable Reserve (MT)	Extracted by PA (Till 31-03-2015) (MT)	Balance Extractable Reserve (as on 01-04-2015) (MT)
Rajhara-A	1.11	1.00	1.11	28.18	26.01	2.83	23.17
Rajhara-B	12.23	11.00					
Pandwa Top	19.21	17.29					
Total	32.55	29.29	1.11	28.18	26.01	2.83	23.17

The mine has four pits- pit A, pit B, pit C, pit D and 4 OB dumps- dump 1, dump 2, dump 3, and dump 4. The location of pits and dumps are shown in Figure 2.

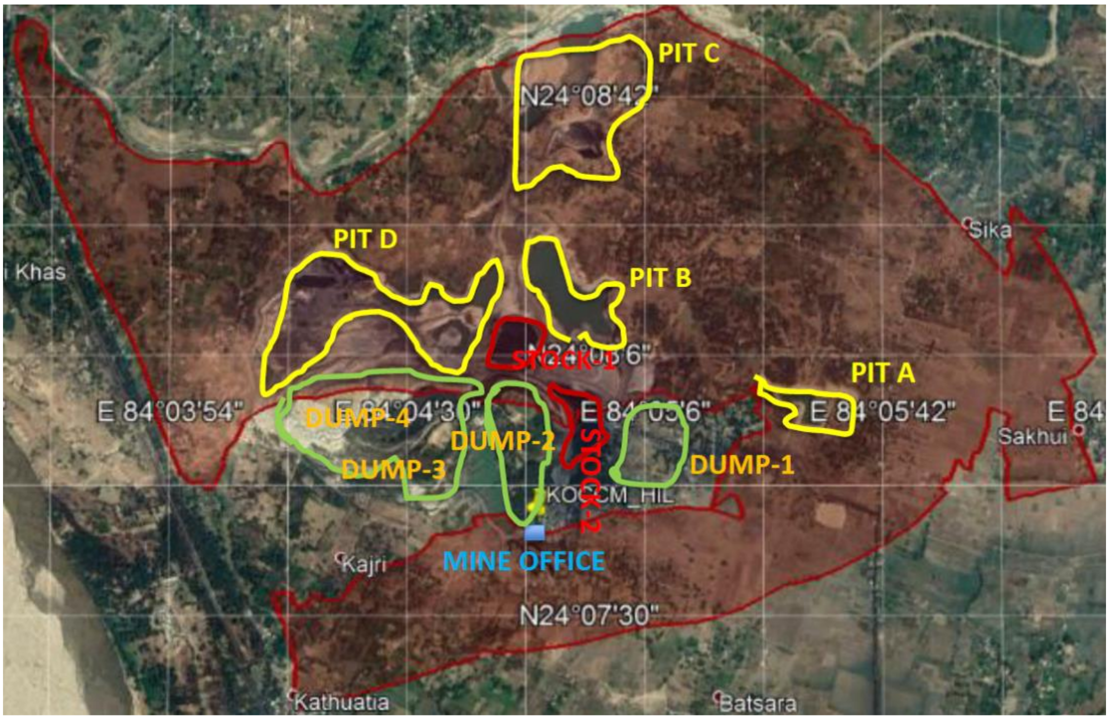


Figure 2: Pits and Dumps location

The area is dome-shaped, dipping at an angle of 6-7 ° in different directions from the centre.

2 STUDY APPROACH AND METHODOLOGY

For undertaking the study, the Consultants proposed a phased approach to fulfil the requirement of the scope of work. The work elements undertaken in each phase is described in the following sections.

2.1 Phase 1: Review Phase

The Consultants upon receiving the work order requested HINDALCO to provide details of the mine, its working methodology & geology, operational parameters, and other baseline data. The clients also requested a few survey sections of the OB benches, dumps, and a few borehole sections to be provided.

The data received during initial stage of work were compiled to get a brief understanding on the uniqueness of project area, its regional setting, size and type of mining operation, excavation and mechanization adopted, waste management practice., etc. Following the data received through several available sources, the Consultants undertook the first site visit to verify the information in reference to the mine waste rock management and operational activities.

2.2 Phase 2: Site Investigation and Sampling Phase

The prime objective of this phase was to make a comprehensive site investigation to verify the ground truth, operational practice adopted, and finally identify representative samples from different locations and material types for laboratory testing.

During the site visit, the Consultant went through a detailed inspection of the following parameters:

- Study area and its topography;
- Mining method and operations;
- Nature and type of overburden materials;
- Dumping methodology and types;
- Foundation conditions and preparation;
- Safety and operational practices during dumping;

The Consultants also identified a few locations from where soil and rock samples are to be collected and briefed Mine Management on the process of sample collection, preservation, and transport. Subsequently, HINDALCO collected spoil from dumps and blocks of rocks from different litho-units and delivered the samples to IIEST laboratory for subsequent geotechnical experiments.

3 FIELD OBSERVATIONS

The Consultant visited Kathautia opencast mine to see the mining operations and the condition of pits and OB dumps. The following photographs shown from Figure 3 to Figure 7 captured during the visit depict the current condition of the pits and dump. While it is difficult to assess the stability conditions of the benches only by visual inspection, a closer examination did not reveal any area of alarm where more attention might be required. No major structurally controlled instability was observed in any of the pits. Most of the OB benches appeared slightly wet while marginal water output was visible in some other. Some of the pits were also filled up with water indicating reasonably high presence of water in the strata, which was corroborated by the mine officials. Activity is closed in Pit D and is filled up with water. Also, current activities are limited in Pit A. This pit is about 34-36 m deep with 6 benches; each one is 6 meter high. Pit B is ~43 meter deep with 7 benches. In pit dumping is being practised in Pit B. Pit C is deeper with 8 benches. OB is more disturbed and faulted in this Pit.

Figure 3: Water-logged Pit

Figure 4: Pit A

Figure 5: Pit B

Figure 6: Closer view of the benches

Figure 7: Internal OB dump

4 EXISTING METHOD OF MINING, PIT AND OB DUMP CONFIGURATION

At present mining is going on in Kathautia Open Cast Coal Mine by opencast method using shovel and dumpers combination. 4 major pits are currently being operated here namely Pit-A, Pit-B, Pit-C and Pit-D. 6-meter bench heights are maintained in pit. There are two major coal seams in the mine namely Rajhara-B and Pandwa Top. Thickness of Rajhara-B seam varies from 0.90 m to 1.2 m in the working area of the current years. Pandwa Top seam varies in thickness from 1.2 m to 2.2 m. The depth of Pandwa Top Seam (bottom most workable seam) varies from 35 m to 52 m (in the northern side of the mine) and parting between Raijahara-B and Pandwa Top varies from 5 m to 8 m. Overall stripping ratio is around 1:9.5 and annual production capacity is 0.80 Million Tonnes of coal. Mining is done by MDO with their local setup here in the mining premises. Presently Volvo Excavator 460 with bucket capacity 3.1 CUM is engaged to mine. Volvo dumpers of FMX I Shift (Capacity 19.5 CUM) Depending upon target of production (OB and Coal) number of excavator and dumper varies time to time At present 6 m bench height is maintained in mining pit in OB benches.

Overburden dumping is going on in both external and also in mined out pit area of B and C pit. The bench height of external dump is 10 m and maximum height of 60m from OGL is maintained. The top part if covered with top soil and after final reclamation plantation is being done with at-least 2500 plants per hectare. The entire non-coal bearing area of lease in the west-central part is used for external dumping.

5 GEOMECHANICAL INVESTIGATIONS

HINDALCO collected rock blocks as per the advice of the consultants from the mine and transported those to the laboratory of IIEST. NX size cores were extracted from the blocks and samples were prepared for triaxial compression tests in a Hoek Cell with a maximum applied confining pressure up to 4 MPa. Physical examination of rock exposure on the site indicated that all the rock layers are fractured but the fracturing was less pronounced in the various sandstone layers. On the other hand, coal and shaly coal appeared to be highly fractured. The triaxial tests results were evaluated by Hoek-Brown strength equation and the two parameters of the equation, UCS and m_i, were calculated by non-linear regression analysis and the results are presented in Table 1. Accordingly, all the rock layers were considered as Hoek-Brown material and Generalized Hoek-Brown strength criterion was used to assess the rock mass strength. Estimated values of Geological Strength Index Values (GSI), indicating fracturing and block strength properties, were assigned, where the sandstone layers were assigned higher GSI values compared to the coal and shaly coal layers. The other empirical parameters; mb, s, and a; of the Generalized Hoek-Brown criterion for each of the rock mass were estimated using the relationships given by Hoek, Carranza-Torres, and Corkum, 2002 and as given below:

$$m_b = m_i \exp\left(\frac{GSI - 100}{28 - 14D}\right) \qquad s = \exp\left(\frac{GSI - 100}{9 - 3D}\right) \qquad a = \frac{1}{2} + \frac{1}{6}\left(e^{-GSI/15} - e^{-20/3}\right)$$

Since, the stability of rock slopes is primary evaluated by Mohr-Coulomb equation, the instantaneous values of cohesion and angle of friction were calculated for a rock slope of depth 50 meter from the calculated values of the Generalized Hoek-Brown equation. As can be seen from Table 1, there is a large difference between the Mohr-Coulomb parameters of intact rocks and those of the rock mass.

The overburden (OB) materials of the dump mainly compose of various sandstone fragments ranging from very fine particles to large boulders. No representative samples exist, which can correctly represent the shear strength parameters of the OB material. Accordingly, no direct shear tests were conducted on the overburden materials. Rather, on the whole, the OB material was analyzed for size fractions, clay content etc and were matched with literature to obtain representative values of cohesion and angle of friction. Top Soil samples were transported in pipe and shear test was carried out on undisturbed sample to obtain the required parameters.

Table 1: Geomechanical properties of different rock mass of Kathautia opencast mine

Rock type	Hoek-Brown Parameters from lab data		Geological Strength Index (GSI)	Density	Disturbance factor (D)	Calculated parameters for Generalized Hoek-Brown			Mohr-Coulomb fit from Hoek-Brown evaluation at 100 meter depth of slope	
	UCS (kPa)	m_i		MN/m^3		m_b	s	a	Instantaneous Cohesion (MPa)	Instantaneous Friction Angle (Degree)
Fine Grained Sandstone (FGS)	9290	13.00	45	0.025	0.8	0.492	0.00024	0.508	0.154	28.26
Medium Grained Sandstone (MGS)	16940	15.00	60	0.025	0.8	1.387	0.002	0.503	0.312	41.26
Coarse Grained Sandstone (CGS)	32720	32720	60	0.024	0.8	1.387	0.002	0.503	0.418	46.40
Coal	16180	10.00	40	0.016	0.8	0.281	0.000127	0.511	0.118	30.94
Shaly coal	32570	10.00	40	0.026	0.8	0.289	0.000127	0.511	0.210	32.52
Overburden Material (OB)	-	-	-	-	-	-	-	-	0.022	33.00
Top Soil	-	-	-	-	-	-	-	-	0.065	30.00

6 LIMIT EQUILIBRIUM STABILITY ANALYSES

6.1 Methodology

A 2-dimenstional Limit Equilibrium (LE) Analysis was undertaken with the aim of considering the stability of final overall slope configurations. An industry-standard software*, RocScience's SLIDE 2* was used for the analysis. An LEA considers vertical slices of ground bounded by ground level and failure slip surfaces and calculates the Factor of Safety (FoS) based on the resisting and driving forces acting upon that slice of ground. On physical inspection of the pits and briefly studying the geological features, no specific zone where planar or wedge sliding might take place could not be identified. Hence, the entire analysis was carried out for circular failure only. The slip surfaces can be both circular and non-circular and a number of algorithms are available to search for the critical slip surfaces. Only non-circular slip surfaces were considered for pit slopes while only circular slip surfaces were analysed for the OB dumps. For each type of slip surface a number of search algorithms, viz; grid search, auto refine search, block search, and cuckoo search, as may be applicable, were used to define the slip surface. After defining the slip surface, the LEA was carried out using two rigorous analysis methods- Spencer, and Morgenstern-Price (GLE).

Presence of groundwater may destabilize the benches substantially. Detailed hydrological information about the area was available from a hydrogeological study conducted for the Katahutia block. As per the report "*Dug wells and a few bore wells were observed in the area that is primary source of drinking water in the villages for domestic consumption in the core & buffer zone. The depth of dug wells ranged from 3.90 – 13.89 m whereas the bore wells (tube wells) were drilled down to 20-50 mbgl. Discharge of the wells varied from 0.6 to 6 LPS in general. The general depth of water level varied between 1.83 to 12.20 mbgl during pre-monsoon period & 0.79 to 7.40 mbgl during post-monsoon period*". However, as indicated in section 3, during field observation, not much of water inrush was observed. However, some of the lower benches were a little wet. Based on the information received from the hydrogeological report and field observations, *a high water table was introduced in the pits. For OB dumps, the water surface mainly develops from the seepage and run off water during heavy monsoon. Accordingly, as a conservative approach, a 5 meter high water level was introduced on the base of the OB dumps* for stability analysis of the dumps.

Pseudo-static analysis was carried out to factor in the dynamic loading induced by earthquake and blasting. Although earthquake is a rare phenomenon, the sudden loading induced by earthquake may have consequences on the stability of pit slopes and dumps. On the other hand, the effect of blasting is more pronounced on the pit slopes than dumps. Pseudo-static analysis is the preferred approach to analyze the seismic response of slopes. Generally, horizontal and vertical pseudo-static (seismic) coefficients, K_h and K_v respectively, are used to calculate the horizontal and vertical forces induced by the seismic events. However, for slope stability analysis, the horizontal coefficient is more important. The choice of K_h for slope design is very subjective and varies across different regions of the world from 0.05 to about half the peak horizontal acceleration (PHA). As the seismic potential areas are divided into various zones by Government of India (GoI), it becomes convenient to use those maps for a preliminary assessment of seismic potential. As the project area is located in Jharkhand, it can be considered from the seismic map of India, presented in Figure 8, to fall in Zone III. Following IS:1893, the equation for calculating the horizontal seismic co-efficient is:

$K_h = \beta.\ I.\ \alpha_o$

Where, β is a Co-efficient depending on the foundation system and can be considered as 1.0 here, I is a factor depending on importance of the structure and the value may be taken as 1.0 considering the importance of the structures, α_o is the basic horizontal seismic co-efficient and for Zone III the values is 0.03. Therefore, the computed value of K_h comes out to be 0.03 and the peak horizontal acceleration (PHA) is 0.294 (K_h.g). As per Haynes-Graffin and Franklin (1984), the design K_h should be 50 % of the PHA. Considering effect of blasting on top of the earthquake effects, the K_h value for the dump slopes has been considered to be 0.05 and that of the pit slopes as 0.147.

Although the geomechanical parameters required for the slope stability analysis were determined in the laboratory of IIEST from the blocks of rocks derived from the mine, there can always be some local variations in the rock conditions and, as a result, inherent uncertainties in the values of the parameters can always exist. To reduce the uncertainties of input parameters, probabilistic analysis was also carried out wherever required. A range of possible upper and lower bounds of the three main parameters, unit weight, cohesion, and angle of friction, were considered in the analysis. 1000 random combinations of these parameters within the upper and lower bounds were taken and the FoS determined for each these 1000 combinations. From the 1000 computed FoS values, the mean probabilistic FoS was found out along with the probability of failure.

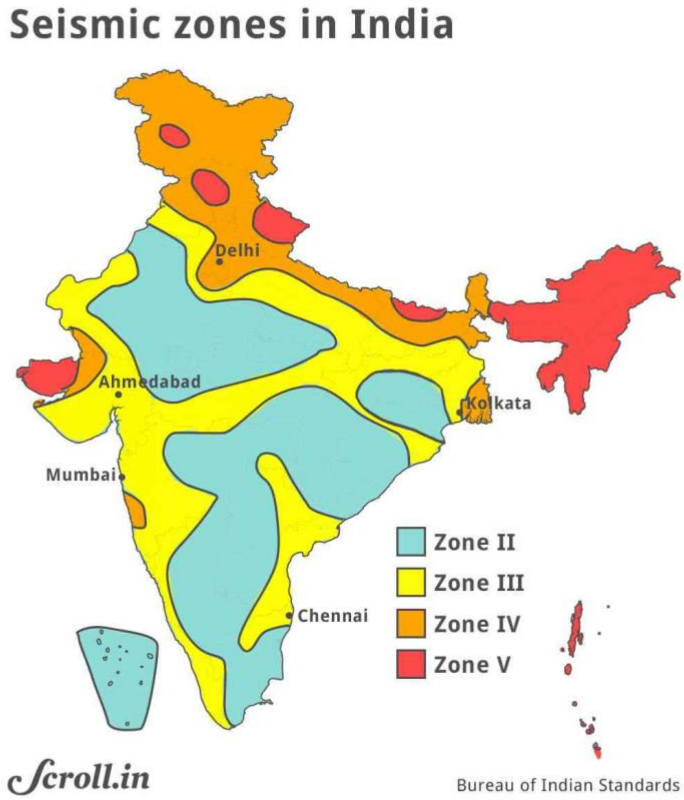


Figure 8: Seismic Zone Map

6.2 Acceptable Factor of Safety (FoS)

Following DGMS Tech Circular 03/2020 a FoS 1.3 for the pits and 1.5 for the OB dumps were considered adequate for the analysis.

6.3 Stability analysis of pits

First, vertical cross-sections of the existing pits were obtained from the mine management. The cross section lines of the existing pits are shown in Figure 9. Then two such cross sections were analyzed to derive the existing configuration of the pits and the same are presented in Figure 10 and Figure 11 for Pit B and Pit C, respectively.

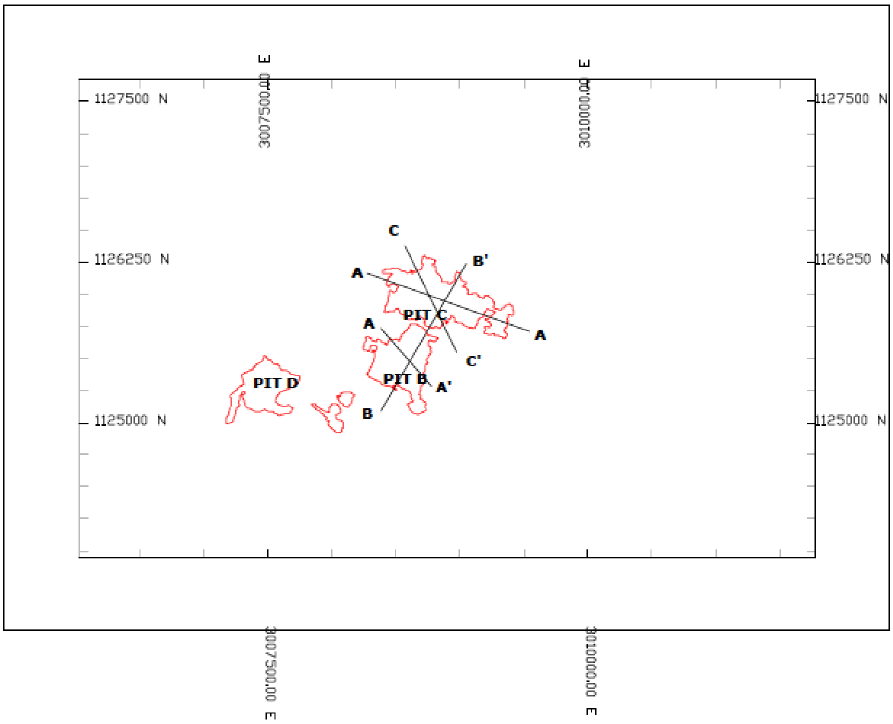


Figure 9: Cross section lines of the existing pits

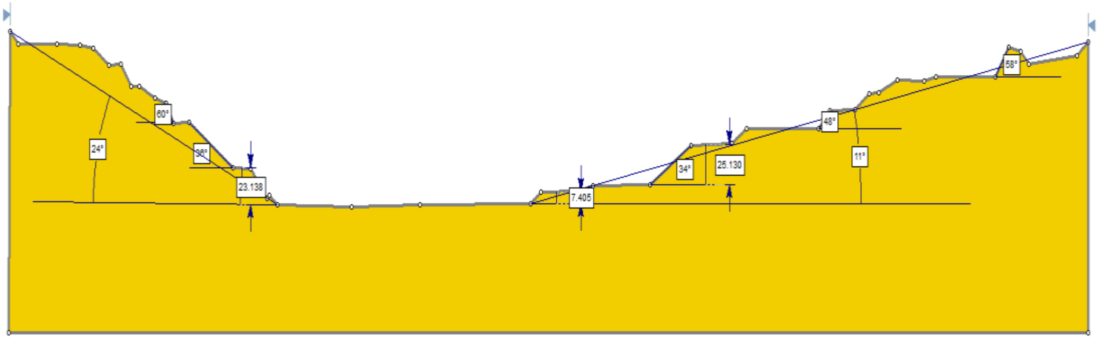


Figure 10: Pit B section AA

Figure 11: Pit C Section CC

As can be seen from these figures, the existing bench dimensions and pit angles vary widely within the pits. Overall pit angle varies from 11° to 24°. However, objective of the analysis is to suggest the maximum possible bench slope. Therefore, it was decided to consider various bench geometries, and come out with an acceptable solution. Therefore, no slope stability analysis was carried out on these existing pit configurations.

For both the pits, 6 meter high and wide benches were considered for slope stability analysis. The geometries of Pit B and Pit C used in the analysis are shown in Figure 12 and Figure 13, respectively. For both the pits, individual slope angle was considered to be 70 ° while the overall slope angle was considered as 38 °. Pit B is 48 meter deep while Pit C is 54 meter deep.

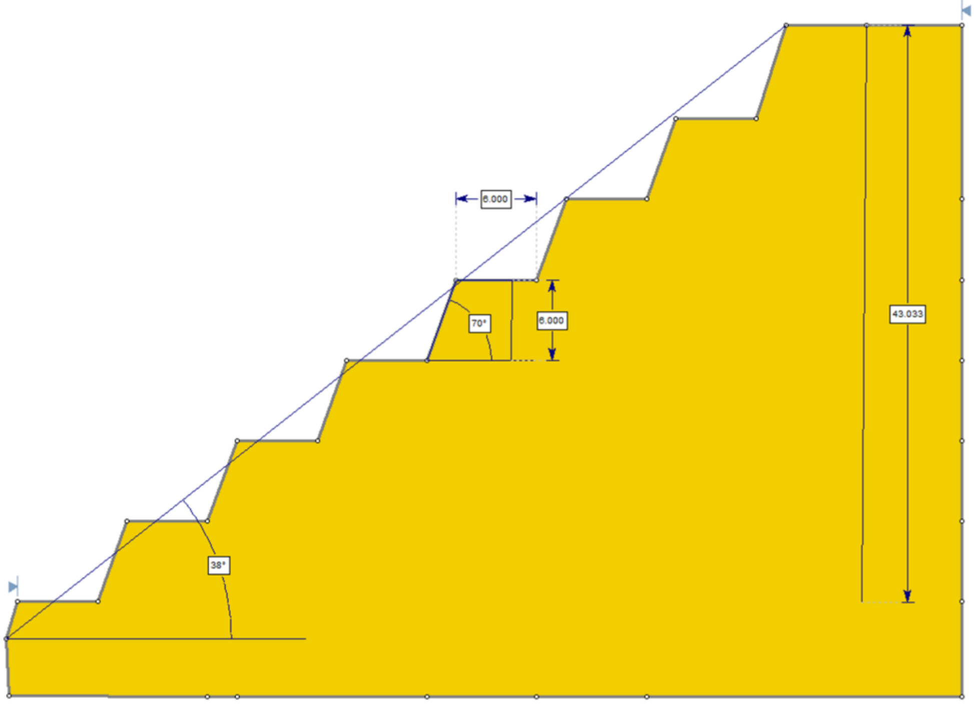


Figure 12: Geometry of Pit B considered for slope stability analysis

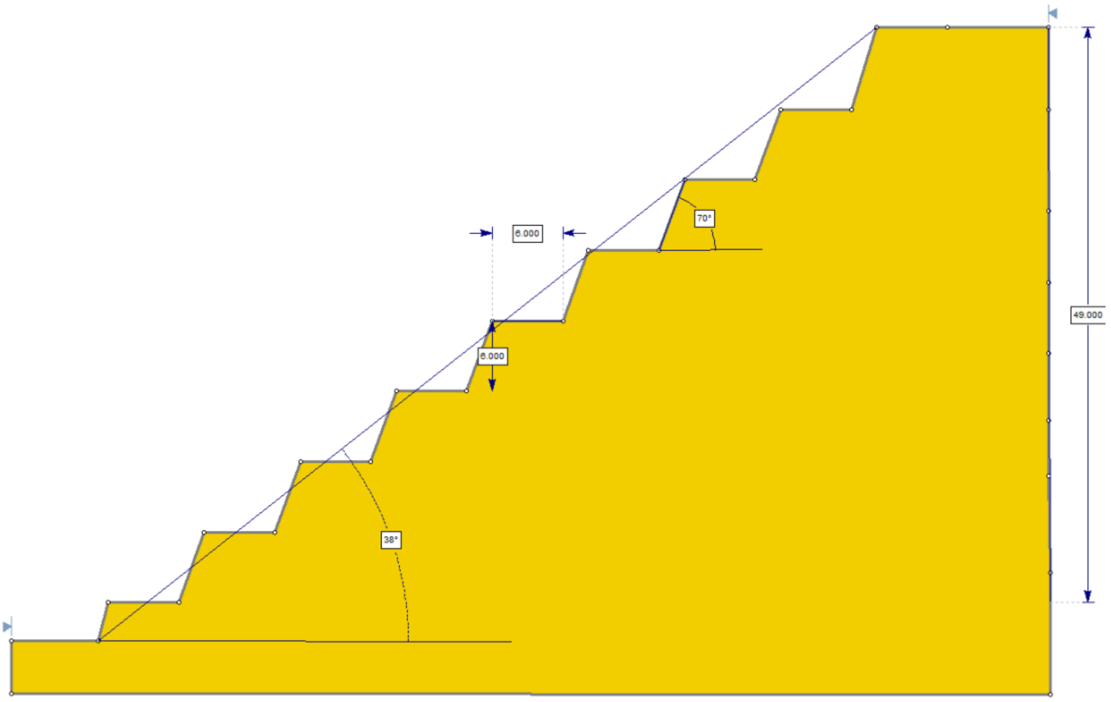
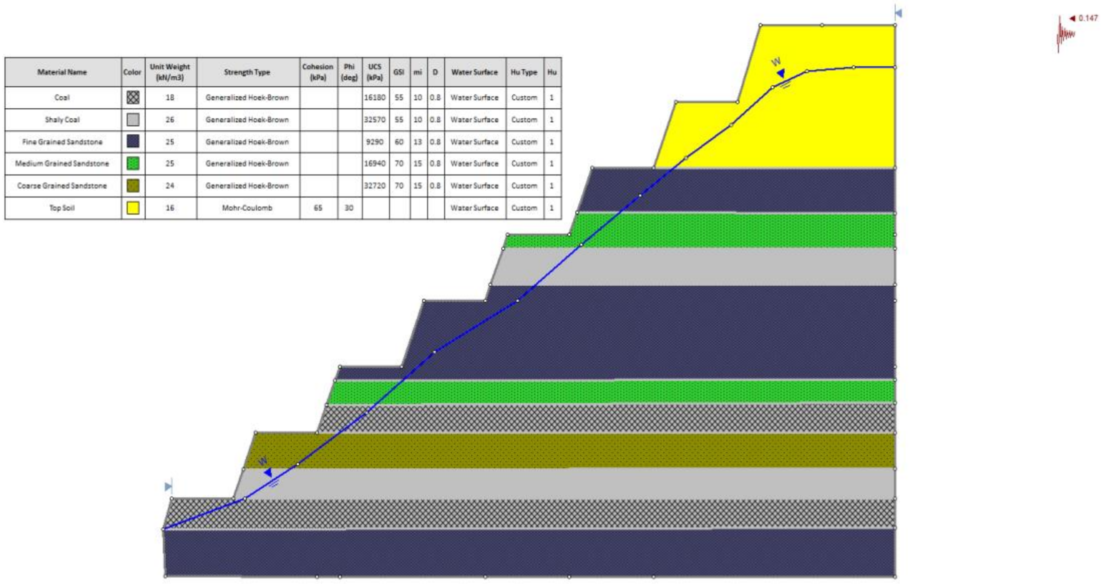


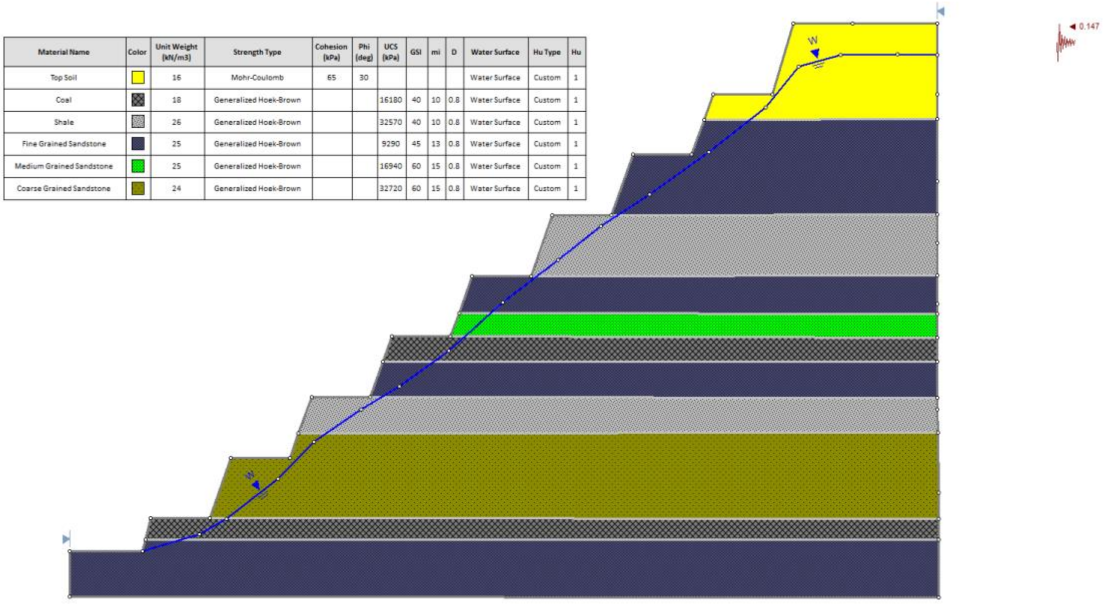
Figure 13: Geometry of Pit C considered for slope stability analysis

Vertically, the pits are composed of various rock types. To get the profile of rock materials, litho logs of BH-28 and BH-29, as available with the mine, were utilized for Pit B and Pit C, respectively. The fully constructed final pits with rock types, their geomechanical properties, and position of water table for Pit B and Pit C are given in Figure 14 and Figure 15, respectively.



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Coal	▨	18	Generalized Hoek-Brown			16180	55	10	0.8	Water Surface	Custom	1
Shaly Coal	⬜	26	Generalized Hoek-Brown			32570	55	10	0.8	Water Surface	Custom	1
Fine Grained Sandstone	■	25	Generalized Hoek-Brown			9290	60	13	0.8	Water Surface	Custom	1
Medium Grained Sandstone	🟩	25	Generalized Hoek-Brown			16940	70	15	0.8	Water Surface	Custom	1
Coarse Grained Sandstone	🟫	24	Generalized Hoek-Brown			32720	70	15	0.8	Water Surface	Custom	1
Top Soil	🟨	16	Mohr-Coulomb	65	30					Water Surface	Custom	1

Figure 14: Fully constructed Pit B used for stability analysis



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	UCS (kPa)	GSI	mi	D	Water Surface	Hu Type	Hu
Top Soil	🟨	16	Mohr-Coulomb	65	30					Water Surface	Custom	1
Coal	▩	18	Generalized Hoek-Brown			16180	40	10	0.8	Water Surface	Custom	1
Shale	▒	26	Generalized Hoek-Brown			32570	40	10	0.8	Water Surface	Custom	1
Fine Grained Sandstone	■	25	Generalized Hoek-Brown			9290	45	13	0.8	Water Surface	Custom	1
Medium Grained Sandstone	🟩	25	Generalized Hoek-Brown			16940	60	15	0.8	Water Surface	Custom	1
Coarse Grained Sandstone	🟫	24	Generalized Hoek-Brown			32720	60	15	0.8	Water Surface	Custom	1

Figure 15: Fully constructed Pit C used for stability analysis

These fully constructed pits were then analyzed in SLIDE 2 using the methods explained in Section 6.1 and the results of analysis in terms of the FoS are depicted in Figure 16 and Figure 17 for Pit B and Pit C, respectively. As can be seen from the figures, the FoS for both the pits are well over the minimum acceptable FoS of 1.3.

The analysis presented here indicates the maximum permissible individual bench slope and overall slope of the pits in the limiting condition of equal bench width and height of 6 meter. However, specific reference is made to Regulations 106 (4) and 106 (5). Accordingly, height of top soil bench should not exceed 3 meter. Also, considering maximum width of excavator to be 3.5 meter and width of dumpers to be 2.5 meter, width of bench can be set at a minimum of 7.5 meter, wherever dumpers are plying.

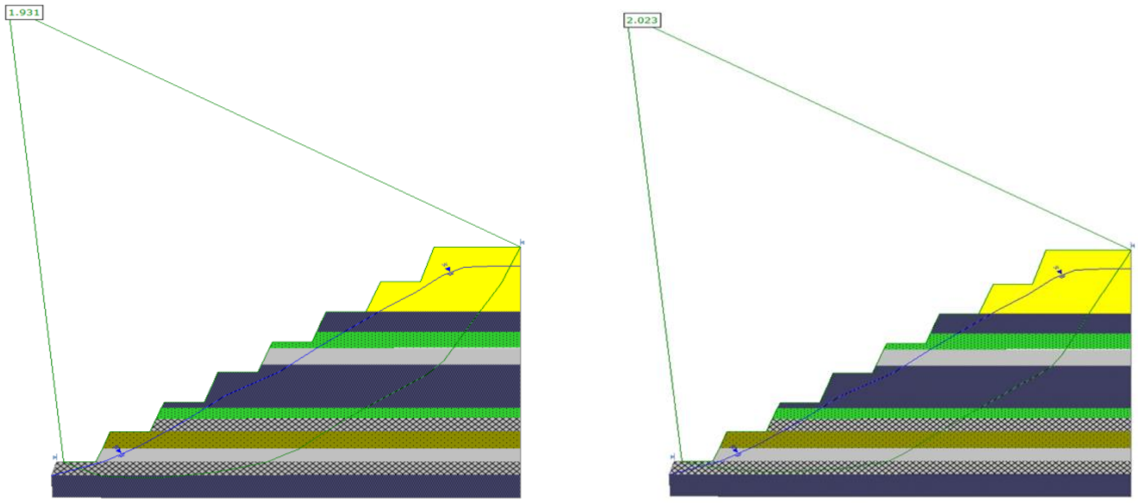


Figure 16: FoS of Pit B by Spencer method (1.931) and GLE method (2.023)

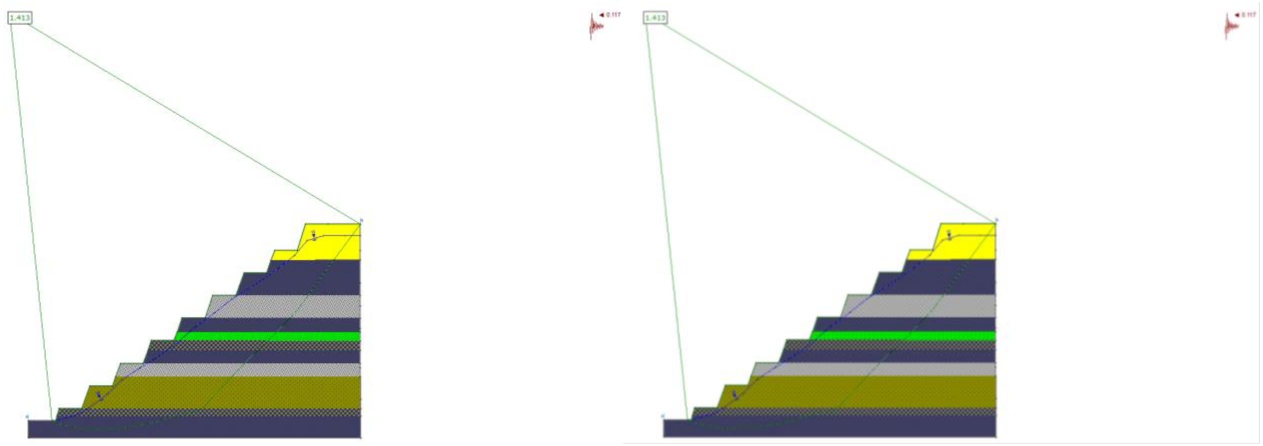


Figure 17: FoS of Pit C by Spencer method (1.448) and GLE method (1.413)

6.4 Stability analysis of OB dump

A profile of the existing dumps and dumping within the pits is presented in Figure 18. From this figure, the maximum dumping height is taken ~ 60 meter, with two lifts each of 30 meter. With this configuration an OB dump model was constructed in SLIDE 2 and shown in Figure 19. As per this model, two benches, each 30 meter high, 20 meter wide, individual slope angle of 37 ^{o}, and overall slope angle of 31 ^{o} were considered for analysis. Once the LE model was built, similar analysis was carried out in SLIDE as was done for the OB benches Anticipating that the overburden materials get dumped over any kind of foundation material are deposited at different time frame, it was considered that a frictional contact lies between the freshly dumped materials and the foundation. Therefore, a 1-meter high weak interface material on the base of the dump was assumed for estimation of stability of dumps. A water table of 5 meter high at the base of the dump was also included. Dynamic loading were also considered in a similar way as was done in case of pit slope stability assessment. Results of the analysis, presented in Figure 20, show FoS is ~ 1.1, which is below the acceptable FoS of 1.5. Therefore, a new OB dump model was constructed, shown in Figure 21, with 3 benches of 20 meter height, 20 meter width, 37 ^{o} individual slope angle, and 27 ^{o} overall slope angle. Other conditions were kept identical as in the previous analysis. Results of LE analysis for this model are presented in Figure 22, which indicate FoS of over the acceptable value of 1.5 by both Spencer and GLE methods. However, dump materials are highly heterogeneous in nature and a single input value of the geomechanical parameters used in the analysis may not be representative of all situations. To address the uncertainty in input parameters a rigorous probabilistic analysis was also carried out as explained in Section 6.1.

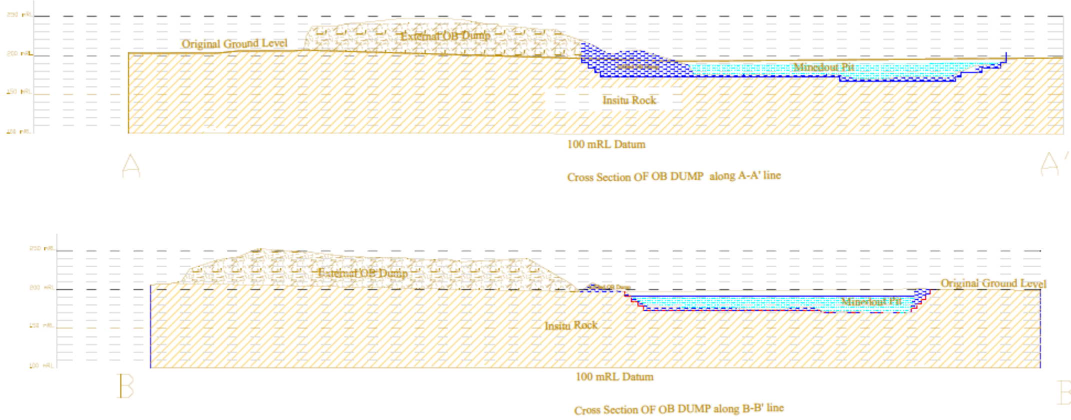
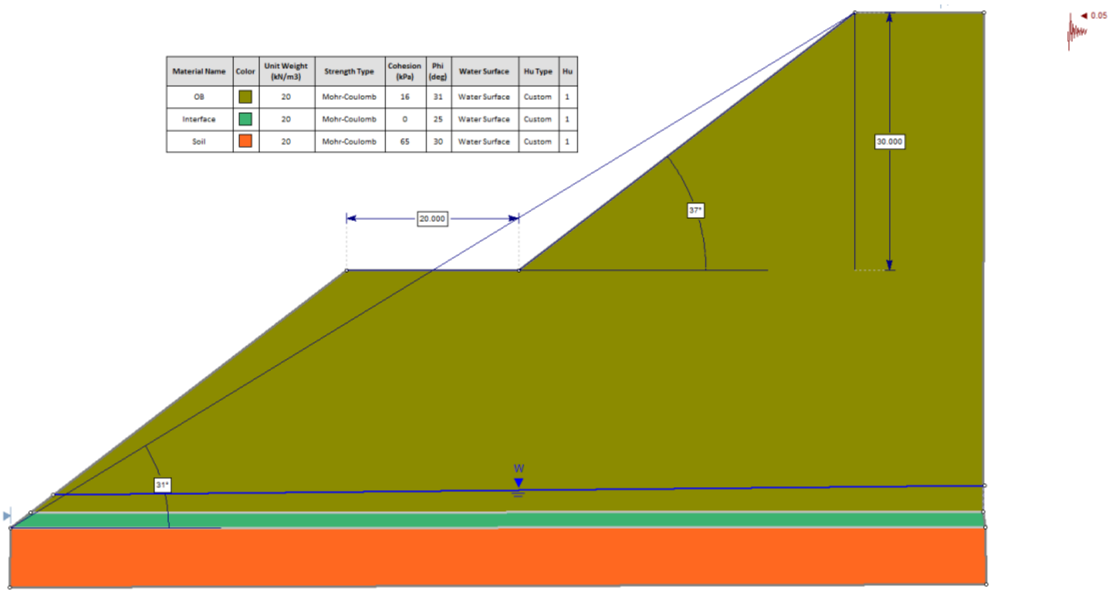


Figure 18: Profile of the OB dumps



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu
OB	🟫	20	Mohr-Coulomb	16	31	Water Surface	Custom	1
Interface	🟩	20	Mohr-Coulomb	0	25	Water Surface	Custom	1
Soil	🟧	20	Mohr-Coulomb	65	30	Water Surface	Custom	1

Figure 19: OB dump constructed model with two benches

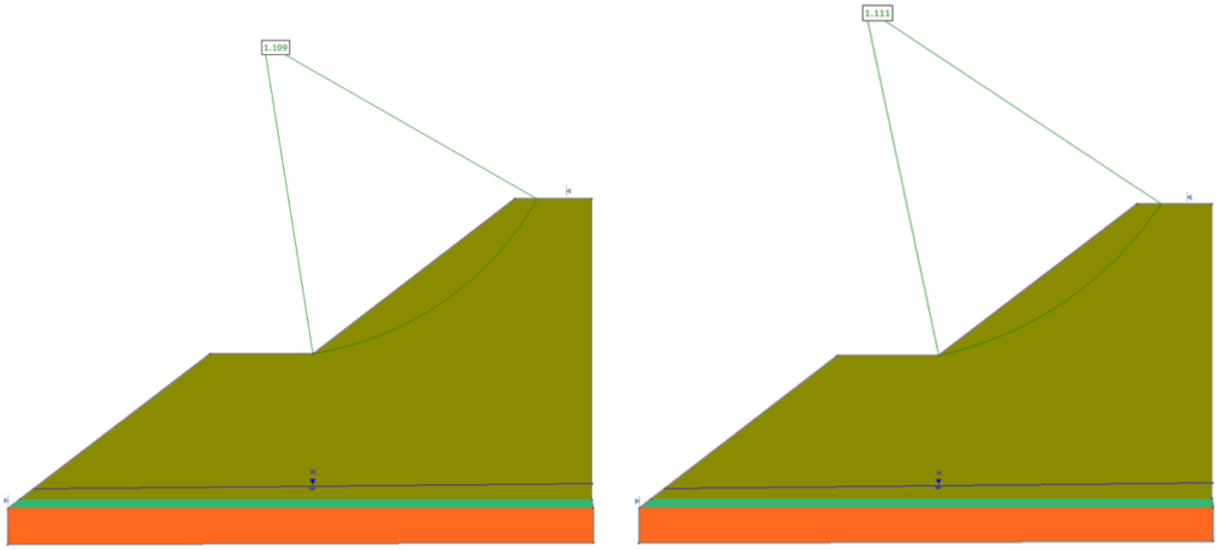
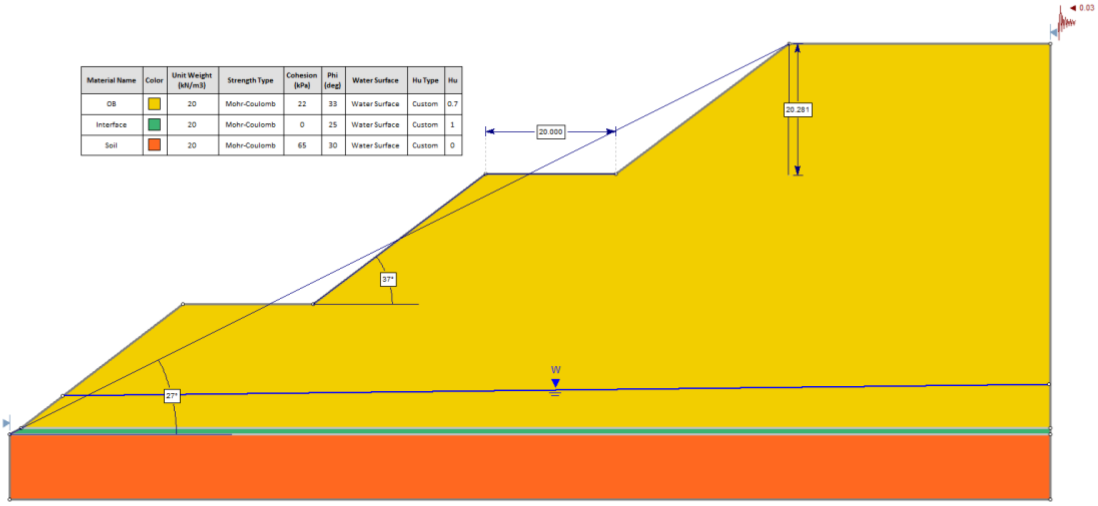


Figure 20: FoS of OB dump with two benches by Spencer (1.109) and GLE (1.111) methods



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu
OB	🟨	20	Mohr-Coulomb	22	33	Water Surface	Custom	0.7
Interface	🟩	20	Mohr-Coulomb	0	25	Water Surface	Custom	1
Soil	🟧	20	Mohr-Coulomb	65	30	Water Surface	Custom	0

Figure 21: OB dump constructed model with three benches

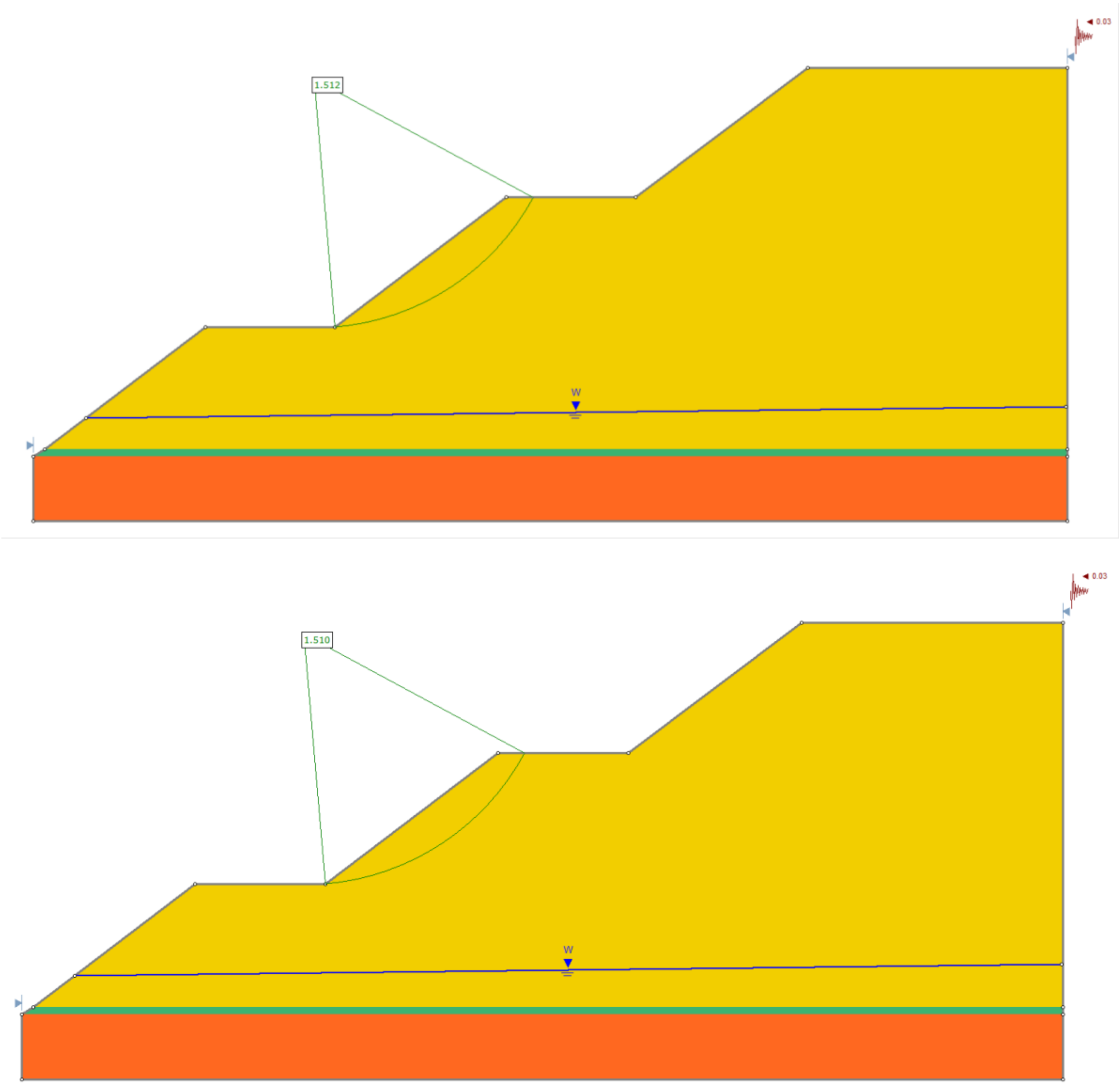


Figure 22: FoS of OB dump with three benches with Spencer (1.512) and GLE (1.510) methods

Result of probabilistic OB stability analysis is shown in Figure 23. It indicates almost identical FoS of 1.510 as obtained from the deterministic LE analysis. Furthermore, the Reliability of Estimate (RI) has a very high value (~23.00) indicating high reliability of the uncertainty analysis.

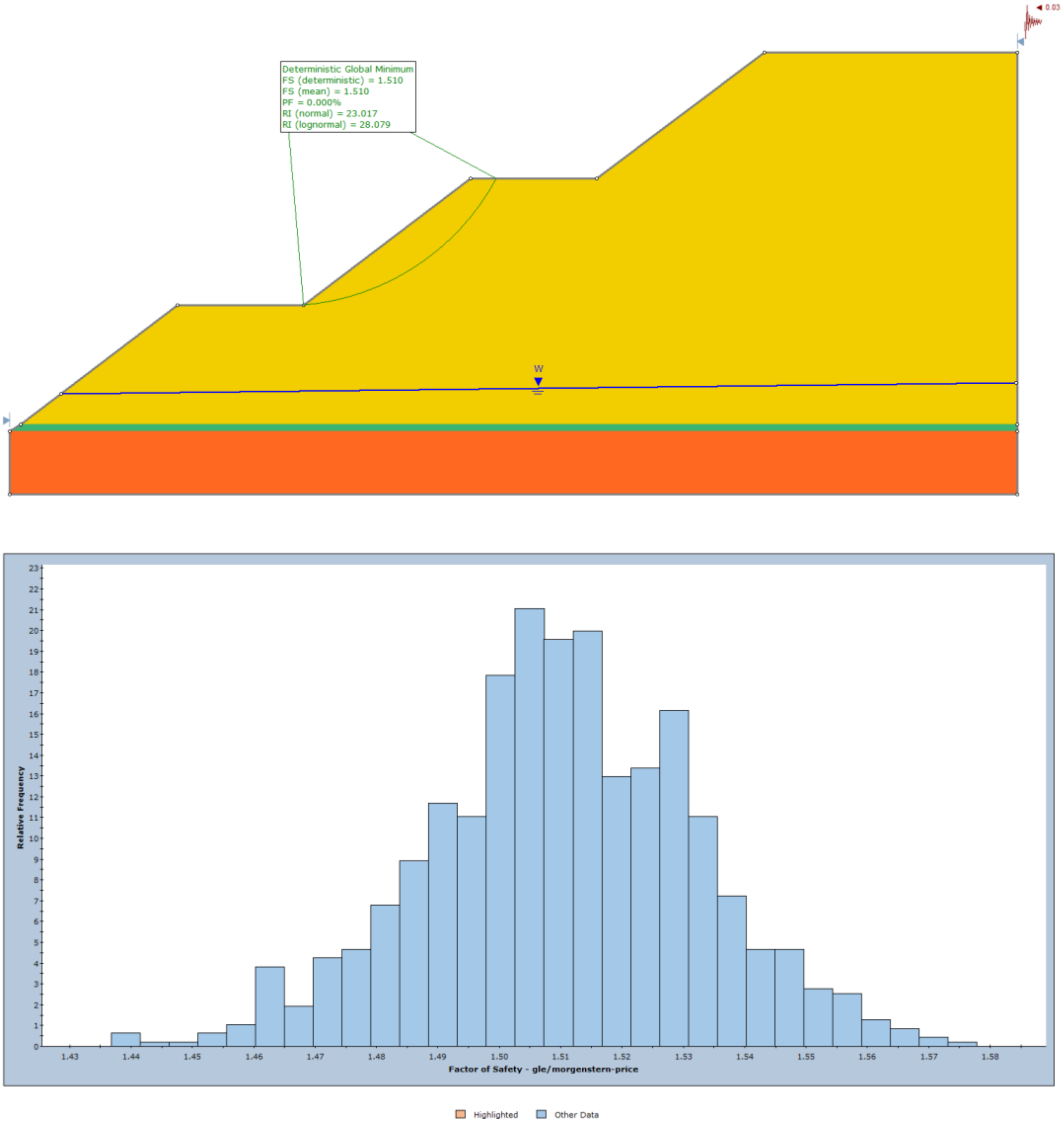


Figure 23: Probabilistic analysis of OB dump with histogram plot

7 CONCLUSION AND RECOMMENDATIONS

7.1 General conclusions from the scientific study

The slope stability study at the Kathautia opencast mine was carried out using appropriate scientific methods. Relevant information regarding the mine and its operating parameters as available with the mine management were utilised for the study. The consultants from IIEST made visits to the mine to inspect various areas of the pit and the OB dumps. Under advice of the consultants, mine management collected block of rock samples and transported those to IIEST for analysis. Standard protocols were observed while preparing samples for geomechanical studies in the Rock Mechanics laboratory of IIEST. 2-D Limit Equilibrium pseudo-static analysis was then carried out on the pits and dumps. Multiple methods of analysis and slip surfaces were used for the study. Effect of ground water and seismic loading from earthquake and blasting was also included in the analysis. The following specific conclusions and recommendations can be made from the study:

i) The studies were conducted maintaining limiting condition maintaining 6 meter height and 6 meter width of the pit slopes. The slope of individual benches was maintained at 70 ° while the overall slope angle was calculated as 38 °. The FoS obtained from the analysis with this configuration varied from over ~1.4 to ~2.0 for different pits of the mine. The values are well over the acceptable FoS value of 1.3. It is recommended to maintain this pit angle for safe operation of the benches within the pits. However, considering provisions of Reg 106 (4) and 106 (5) of CMR 2017, *height of top soil bench should not exceed 3 meter. Also, considering maximum width of excavator to be 3.5 meter and width of dumpers to be 2.5 meter, width of bench can be set at a minimum of 7.5 meter, wherever dumpers are plying.*

ii) The stability analysis of OB dumps carried out considering a total height of 60 meter with three lifts, each of which is 20 meter high. The overall slope angle from the crest to toe of the dump was maintained at a maximum of 27° with individual slope angle of the lifts at 37 °. With this configuration of the dumps the results of analysis indicate FoS of slightly over 1.5, which is more than the acceptable FoS of 1.5. This OB dump configuration can be maintained for safe placement of dump. Uncertainty analysis using probabilistic slope stability analysis also corroborates the same finding

iii) Proper terracing of each lift in the OB dump shall be done using dozer to improve the shear strength of the underlying lifts.

i) It is recommended to keep to OB dump layers/lift height to <1m during dumping. It shall be done with an intention to improve the compaction and bulk density of the overburden materials.

ii) No accumulation of water is advisable at the base of OB dumps. Proper garlanding must be maintained to drain out run off water.

7.2 Slope monitoring recommendations

Failure in any men-made slope often triggers with prior indications in the form increased rates of deformation, cracking and/or settlement of the base; bulging of the face; bulging of the toe or bulging or heaving of the foundation in front of the toe; seepage on the face; increased pore pressure in the foundation. Many of these warning signs can be observed visually. For visual inspection or supervision, special attention shall be taken in appointing an experienced person, as the perception of visual inspection is subjective in nature. This visual inspection should be carried out as frequently as possible and the results of such inspection should be recorded.

Best possible scientific analysis, under the given conditions, has been carried out in this study. But, it indeed is very difficult to eliminate inherent uncertainties in determining the geotechnical parameters especially for a dump composed of such heterogeneous materials. Therefore, regular monitoring of slopes is of paramount importance here. Other than the visual inspection, proper instrumentation should be installed for regular monitoring of the dump slopes. Specific recommendations on slope monitoring are given as hereunder.

i) High resolution slope monitoring by Terrestrial Laser Scanner (TLS) is preferable. It is recommended that HINDALCO procure TLS and start monitoring of both the pit and dump slopes.

ii) Visual inspection of the slope faces should be carried out every day by designated officials and any unusual movement should be recorded.

iii) Till the TLS is procured, monitoring of ground movement on pit slopes with survey total stations should be carried out at least once in a fortnight. However, if through visual inspection any sign of movement is observed, the frequency of monitoring should be increased to once a week.

iv) The external OB dump should be monitored with total station once in a every fortnight in addition to regular visual inspection. Frequency of monitoring should be twice a week if signs of movement on the dump are observed by visual inspection. This should even be carried out more closely if regular monitoring by total station indicates appreciable ground movement.

ANNEXURE R-1/7 (Colly)

Fig 01 i- Temporary water storage at mined out Pit D

Fig 01 ii -Temporary water storage for Groundwater recharge and biodiversity conservation at Narayan Ahara

Fig 2– Garland Drain and Siltation Pond

~~Fig 03-~~ Self-Sustaining Plantation on OB Dump

Fig 04- Plantation and grassing along the slopes and river embankment

Fig 05- Fixed Type Water Sprinkler along Haul Road and Fog canon in Coal stock

Fig 06- State of the art ETP in working condition with Oil Skimmer

Fig 07 -Designated washing point, next to ETP

Fig 08- Water Tanker

Fig 09 –Roof Top Direct Rainwater Harvesting Structure

Fig 10.1 – Toe Wall along the Dump

Fig 10.2: Continuation- New toe wall constructed for 1200m along the toe of the main dump

Fig 11: – Environmental Laboratory at KOCCM


150
210


ZEBRA CROSSING

~~180~~

240


Mahindra

Hindalco Industries Limited
Flat/Door:- Kathautia Open Cast Coal Mines, Post Office:- Naudiha, Taluk/Sub Division:- PS: Pandwa, City/District:- Daltonganj,
Palamu, State:- JHARKHAND, PIN Code:- 822123, Country:- India, Tel.Number:- 2247900 / 01, Fax Number:- 2247902, Email:-
hindalco@adityabirla.com

Registered Office: 21st Floor, One Unity Center, Senapati Bapat Marg, Prabhadevi,Mumbai 400013
T: +91 22 694 7 7000 / 6947 7150 IF: +91226947 7001/6947 7090 I W: www.hindalco.com Corporate ID No.: L27020MH1958PLC011238

ANNEXURE R-1/8

PURCHASE ORDER (Domestic)

Vendor Code	: 10004735		
Vendor	: CENTRAL MINE PLANNING AND DESIGN INSTITUTE LI	PO. Number	: 13572311606
Site	: S1-RANCHI	Creation Date	: 11-FEB-2026
Address	: GONDWANA PLACE KANKE ROAD RANCHI,, RANCHI-834031 RANCHI , JHARKHAND , India - 834031	Amendment No. Amendment Date Currency	: : : INR
GSTIN No.	: 20AAACC7475N1DR	Our Contact	: Rakesh Singh
Email	: gmbd.cmpdi@coalindia.in	Email	: rakeshkr.singh@adityabirla.com
Contact Person	: RAJESH AMAR	Phone No.	: +91 9111006017
Mobile	: 8987789190	Ship to Location	: Kathautia Coal Mines Stores

REFERENCE: Issue Work Order for the preparation of Temporary Mine Closure Plan (TMCP) of Kathautia coal mine.

Please Supply/Service the following items subject to the terms & conditions mentioned here under and overleaf

S.No	Item Code/Desc.	HSN/SAC Code	UOM	Ship Qty	Unit Rate
2	801015000212 PROVIDE: CONSULTANCY; TYPE: REVIEW OF PLAN; SCOPE: PEER/EXPERT REVIEW OF MINING PLAN AND MINE CLOSURE PLAN, RESOURCE TYPE: EXPERT	0	NUMBER	1.000	250000.00

Note to Supplier preparation of Temporary Mine Closure Plan (TMCP) OF Kathautia Coal Mine

Shipment Date 1 15-APR-2026

Description..	%/Amount	Rate	Amount
Basic Value			2,50,000.00
CGST_INV_COAL_JHD_9	%	9.00	22,500.00
SGST_INV_COAL_JHD_9	%	9.00	22,500.00
		Item Total Value :	2,95,000.00
		Total Purchase Order Value :	2,95,000.00

Value in Words (INR) : (Two Lakh Ninety Five Thousand Only)

Other Terms and Conditions :

Payment Terms : Immediate

Price Type Terms : Fixed

Freight Terms :
Transportation arrangement :

Our General Terms and Conditions are mentioned overleaf.

Subject to the specified & General Terms and Conditions,including Hindalco Supplier's Code of Conduct attached

Hindalco Industries Limited

Rakesh Kumar Singh
Assistan Manager

This is a digitally signed document.

DIVISION	: Jharkhand	Import/Export Code	: 0388147237
PAN	: AAACH1201R	TAN NO.	: RCHH00534C
CIN No.	: L27020MH1958PLC011238	GSTIN	: 20AAACH1201R2Z0

Annexure - 1 Specific T&C :

1. Scope of Work:

1.1. Preparation of Temporary Mine Closure Plan (TMCP) of Kathautia coal mines.

1.2. The scope of services for the subject shall be â€œTMCP of Kathautia Coal Mineâ€•, which includes:

[i] Site visit and data collection w.r.t approved Mine Closure Plan of Kathautia Coal Mine

[ii] Audit of Completed Activities

[iii] Mapping of completed activities with activities in already Approved MCP

[iv] Preparation of land use maps w.r.t repurposing

[v] Preparation of draft report and submission for comments

[vi] Incorporating comments and making necessary modifications, if any

[vii] Submission of Final Report

1.3. HIL Scope: - HIL shall provide the following inputs for the subject assignment: -

[i] Site location in kml format & drone imagery/ ortho photo-mosaic images

[ii] Final stage dump plan and post mining land use plan as per last approved Mining Plan & MCP in UTM coordinate

[iii] Copy of last approved Mining Plan & Mine Closure Plan

[iv] Copy of latest EIA/EMP report based on which EC was granted to the mine including NCRAP plan if any, latest IRO report

[v] Copy of FC granted & copy of latest available report from forest officials.

[vi] Reports w.r.t monitoring of environmental parameters like air, water

[vii] CTO/CTE and compliance report

[viii] MCP revision report as per MPG_25

[ix] SIA/Environment Audit Report

[x] Study on extraction and evaluation/estimation of balance reserves

[xi] Feasibility Study report
(additional inputs may be requested as per requirement)

Note: HIL shall provide necessary support w.r.t data collection during site visit

2. Timeline: - The total time schedule for the subject assignment shall be 3 months from the Zero Date
The Zero Date for this assignment would be the date of receipt of Work Order from client and/or the date of receipt of input from HIL and/or date of receipt of Initial Payment from client, whichever is later.

3. After completion of job, user will check and certify the job.

4. Deliverables: - HIL shall receive the soft copy of final report after completion of assignments.

5. Price Basis â€“ F.O.R. at our Kathautia Coal Mines, Daltonganj

6. Invoicing and Terms of Payment:-

[i] 50% fee along with GST shall be paid by HIL with Work Order as Initial Payment

[ii] Balance 50% fee along with GST shall be paid by HIL on submission of Final Report

6.1 Two copy of GST invoice 1. Original for Recipient, 2. Duplicate for Transporter Copy with Complete address must be submitted along with supply.

6.2. As per section 37 of the CGST Act, you shall furnish electronically, the details of outward supply of goods or services or both effected during a tax period i.e. month on or before the tenth day of the succeeding said tax period (month).

6.3. As per section 37 of the CGST Act, you shall pay to the Government the tax due on or before the twentieth day of the of the succeeding month.

7. Field Contract Administrator - FCA: - Mr. Raju Singh (70046-90757)

8. Other Terms & Condition as per HIL standard General Terms & Conditions for the Services.

9. Arbitration:-

If any dispute and/or differences shall at any time arise between HINDALCO and you in relation to any clause (s) or matters herein contained or their respective rights/claims or liabilities hereunder or otherwise in relation to or arising out of this contract, such disputes and/or differences shall be settled mutually through discussions between the Chief Executives of the parties in the first instance, failing which the same shall be finally settled by an Arbitral Tribunal composed of a panel of three Arbitrators, one to be appointed by Claimant(s) and one to be appointed by Respondent(s) and the two Arbitrators, so appointed, shall appoint the third Arbitrator who shall act as the residing Arbitrator. The Award of the Arbitral Tribunal shall be final and binding on the parties and the provisions of the Arbitration and Conciliation Act, 1996 and the Rules made there under and any statutory modification and re-enactment thereof shall be deemed to apply and to be incorporated in this Contract, Place of Arbitration shall be New Delhi and Arbitration proceedings shall be in English language.

10. Indemnification:-

Service Provider shall indemnify, defend, save and hold harmless HIL against any and all claims, actions, liabilities, costs, losses, or expenses, License, Permission and any statutory claim for damage or compensation or demands made by any statutory authority or regulation including the GST law. Thus, in cases, where the Service Provider has collected applicable GST from the Company and not deposited the same with the Revenue Government due to which the Company losses the GST credits then the Company shall reserve the right to recover such losses from the Service Provider along with applicable interest and penalty.

11. Suspension of Work:-

When situation so demands, Hindalco reserves the right to suspend the work partially/fully and subsequently reinstate the work partially or fully without invalidating the provisions of the contract. The period of completion of the work or contract will be suitably extended to cover the suspended / delayed period. In case the suspension/delay has caused extra financial implications, the same shall be substantiated by the supplier with documentary evidence for consideration and finalizing reasonable financial implications. In case period of suspension of work is more than one month, the supplier shall discuss with the company to take all steps to minimize extra financial implications during by Hindalco for reasons solely attributable to the supplier. Suspension beyond 6 months will lead to termination of the contract or as mutually decided between the parties. Financial implications due to termination shall be worked out in line with provisions of the termination clause.

12. Force majeure:-

Force majeure shall mean any cause, existing or future, which is beyond the reasonable control of any of the parties including acts of God, storm, fire, floods, explosion, epidemics, quarantine, earthquake, strike, riot, lock out, embargo, interference by civil or military authorities, acts, regulations or orders of any governmental authority in their sovereign capacity, acts of war (declared or undeclared). None of the parties shall be liable for the failure to perform any obligation in terms of this Contract if and to such extent such failure is caused by a Force Majeure.
The party prevented to fulfil its obligations (hereinafter referred to as "the Affected Party") by Force Majeure shall notify the other party by fax within one-week after occurrence and cessation of such Force Majeure and it shall be established by the Affected Party that the Force Majeure had delayed performance of the Affected Party's obligations and services and was beyond the reasonable control of the Affected Party and not due to the default or negligence of the Affected Party. The periods for performance of this Contract as agreed upon shall be extended by the periods of delay caused by such Force Majeure, as long as the period of Force Majeure does not last longer than three months. If a Force Majeure continues for more than three months and the parties are not able to reach an agreement on the continuation of the Contract within
a further term of one month, the fulfilment of the Contract shall automatically be deemed impossible and shall stand suspended / terminated. In case of such suspension/termination the Supplier or Assignee, as the case may be, shall be entitled to the payment of costs incurred up to that time for all work completed on submission of substantiated invoice on the one hand and shall be liable for prompt refund to the Company the unearned portion of all the corresponding advance payments received by the Supplier or Assignee, as the case may be, from the Company on the other hand.

13. Termination:-

The Company may at any time terminate this Contract in whole or in part by giving thirty (30) days' prior notice in writing to the Supplier. Upon receipt of such notice, the Supplier shall promptly discontinue any further performance of work or relevant part thereof and shall carry out only that part of work as may be necessary to protect the work to date or as may be reasonably requested by the Company. In the event of the failure of either party to fulfil its obligations under this Contract and if such default or inability is not remedied within thirty (30) days of receipt of written notice of the same, the other party may terminate this Contract forthwith by written notice to the defaulting party. In the event of termination of this Contract for reason whatsoever under this Clause, the Company will be liable to pay to the Supplier the part of the costs and expenses already incurred by the Supplier in connection with this Contract supported by invoice, bills and substantiated claims provided the Supplier fulfilled his obligations for which payments are sought to be obtained from the Company on the one hand or the Supplier shall be liable to refund to the Company any unearned portion of the advance paid by the Company on the other hand. Upon termination of this Contract for any reason whatsoever, the Supplier shall deliver to the Company all completed work specifications, documents, designs, drawings and data sheets or other related papers and plant, machinery and equipment that the Supplier is obliged to supply under this Contract and which have been paid for by the Company or the Company may have given, for the purposes of this Agreement. The termination of this Contract shall be without prejudice to the right(s) of either party in respect of any or any other breach of this Contract, due or accrued up to termination, unless waived in writing by agreement made by the parties hereto. Except as otherwise provided for in this Contract, neither party will be liable to the other party for any compensation, indemnification, and/or reimbursement of whatever nature direct or indirect as a result of or related to, or in connection with the termination of this Contract hereunder.

GENERAL TERMS & CONDITIONS :

1. Price:

The price mentioned in the Purchase Order is firm and fixed till the delivery of entire material and is not subject to any price escalation on any ground unless explicitly mentioned in the order.

2. GST and other taxes:

a) GST shall be paid by HINDALCO. You shall have to pay GST and file return immediately after dispatch

b) You/Vendor shall liable to fulfil all statutory compliance as may be required by Government of India from time to time,which without limitation to include issue E- invoice, filing GST Returns and paying GST amount on or before due dates.Any non-compliance shall entitle HINDALCO to withheld the sum dues to indemnify their exposures.

3. Completion Period:

Supply :

Delivery schedule must be strictly followed. If the materials are not delivered strictly within the stipulated time, we reserve the right not to accept the material and/or levy Liquidated Damages as specified in the Purchase Order. Partial dispatches are not allowed unless authorized explicitly in writing by us.

4. Transportation and Transit Insurance:

The entire material shall be dispatched by road through the authorized transporter of HINDALCO as mentioned in the PO. In case dispatches are made through any other means or any other transporter, the extra expenses incurred by HINDALCO, if any will be realized from the supplier

Transit Insurance from point of loading to point of discharge will be covered by HINDALCO unless otherwise agreed. The supplier has to inform HINDALCO about the dispatch particulars by Fax/e- mail addressed to the concerned Buyer.

5. Dispatch Documents:

Bill(s) / Document(s) (one in Original + one set in duplicate) should be sent along with challan and LR/WB/RR to Head (Accounts) and Head-Materials respectively. Bills / Challans should contain all relevant information like Vendor Code, Order No., Item Code, etc., as given in the PO besides supplier's GST & PAN No.

The dispatch documents should consist of the following:

a) Invoice giving details of taxes.
b) Packing list
c) Test/Inspection report
d) Material Test Certificate
e) Original consignee copy of LR
f) Warranty / Guarantee certificate

6. Guarantee & Warranty clause:

The entire materials/equipments supplied by you shall be in strict conformity with the specifications and data mentioned in the LOI / PO. It should be free from any defects arising out of poor design, workmanship, inferior material or all the items. The entire material/equipments shall be under guarantee for a period of 12 months from the date of commissioning or 18 months from the date of supply, whichever is earlier. In case of any defects attributable to design, material, manufacturing and workmanship arises after commissioning of the equipment and is not found to perform within the guarantee period, the seller shall replace such defective portion or part free inclusive of all costs such repair/replacement shall be carried out without loss of time. Any spares that may be required during the guarantee period (except consumable spares) shall be supplied free of charge. In case higher Guarantee Period has been agreed upon, the same will prevail.

In case the equipment /spares do not perform for the ratings specified, then the supplier will be allowed to rectify the defect. Even after making efforts to rectify the defect within reasonable time (mutually agreed), then HINDALCO will have the option to reject & return the equipment/spares against reimbursement of all payments made to supplier.

7. Inspection and Testing before dispatch:

HINDALCO has the right to witness the necessary inspection and testing of all equipment/materials mentioned in the PO during and after manufacture and before dispatch, to ensure seller's compliance with the specifications mentioned in the LOI / PO and the standards according to which seller has produced.

The authorized representative of HINDALCO shall have at all reasonable times right to visit manufacturer/his sub-vendor Works to witness inspection and testing of the equipment / materials. However, HINDALCO reserves the right to arrange third party inspection at HINDALCO's cost, unless otherwise agreed.

The supplier has to inform at least 02 weeks in advance before the dispatches are made about the readiness and to arrange inspection. Inspection / approval by HINDALCO does not absolve supplier's responsibility as per the terms of LOI / PO.

8. Final inspection will be done at our plant (unless otherwise Specified in the PO :

Payment will be made for actual weight or quantity accepted by us. Our measurements/inspection shall be final and binding. Rejected material will be returned by us at supplier's risk and cost (including to and fro transportation cost). Unless specifically advised by supplier regarding mode of return of rejection, HINDALCO will be free to choose any means for return of rejected goods. Supplier will intimate well in advance the methodology of documentation to be done specially for GST (ITC related activities).

9. Operation & Maintenance Manuals (wherever applicable):

The seller has to deliver four sets of Operation & Maintenance manuals comprising of the following along with the equipment.

a) Equipment information.
b) Instructions for equipment erection / commissioning.
c) Operation and maintenance instructions including start-up and shutdown procedures, adjustment, lubrication schedules, preventive maintenance, trouble shooting, repair instructions.
d) List of spare parts and lubricants used.
e) Complete list with specifications for all bought out components.

10. TAX DEDUCTION:

Necessary tax deduction shall be made by HINDALCO as per the Government rules.

11. OTHER TERMS & CONDITIONS:

a) The packing material and other accessories to be used for executing the above Purchase Order should be Biodegradable meeting our EHS norms.
b) Due care should be taken during handling and transportation for prevention of Pollution due to spillage etc. Transporter must have "Transport Emergency card" during transit of Hazardous chemicals.
c) Supplier should send order acknowledgement within 7 (Seven) days of receipt of PO. This order if not accepted should be returned within 48 hours stating reasons for non-acceptance. If we don't receive any acceptance within 7 (Seven) days, we will presume that all the terms and conditions given in order are acceptable to Supplier.
d) Any demurrage, wharf age, or similar charges to which Buyer becomes liable because of Sellers failure to book the goods in accordance to Order and or late delivery of LR/RR receipt shall be borne by Supplier.
e) Timely delivery of the material shall be the essence of PO and any failure on that score will entail the Buyer to purchase the material from other sources at the prevailing market rate at the cost and risk of the Supplier without any prejudice to the right of the Buyer to cancel the Order. (Buyer reserves the right to purchase goods from the market on Supplier's risk and cost).
f) Prices are fixed and firm till completion of order.
g) The Vendor hereby warranties that at the time of the delivery of shelf-life items at HINDALCO stores, the remaining life of the material must be at least 75% of the total life. However, HINDALCO will have undisputed rights to accept the materials, in emergency cases, if the material is likely to be consumed within the expiry of the shelf life. For any other scenario, the material will be rejected at HINDALCO's discretion.

12. ARBITRATION:

If any dispute and/or differences shall at any time arise between HINDALCO and Supplier in relation to any clause (s) or matters herein contained or their respective rights/claims or liabilities hereunder or otherwise in relation to or arising out of LOI / PO, such disputes and/or differences shall be settled mutually through discussions between the representatives of the parties in the first instance, failing which the same shall be finally settled by an Arbitral Tribunal composed of a panel of three Arbitrators, one to be appointed by Claimant(s) and one to be appointed by Respondent(s) and the two Arbitrators, so appointed, shall appoint the third Arbitrator who shall act as the presiding Arbitrator. The Award of the Arbitral Tribunal shall be final and binding on the parties and the provisions of the Arbitration and Conciliation Act, 1996 and the Rules made there under and any statutory modification and re-enactment thereof shall be deemed to apply and to be incorporated in this Contract, Place of Arbitration shall be at Unit Location District and Arbitration proceedings shall be in English language.

13. Governing Law & Jurisdiction:

The Purchase Order shall be subject to Indian laws and the Courts of competent Jurisdiction in Unit Location District alone shall have exclusive jurisdiction.

14. Information Security , Confidential Agreement:

All non-public, confidential or proprietary information of the Buyer, including, but not limited to, specifications, samples, patterns, designs, plans, drawings, documents, data, business operations, pricing, discounts or rebates, disclosed by Buyer to Supplier's Representative or Agent, whether disclosed orally or disclosed or accessed in written, electronic, or other form or media, and whether or not marked, designated or otherwise identified as "confidential," in connection with the Order is confidential, solely for the use of performing the Order and may not be disclosed or copied unless authorized by Buyer in writing. Buyer shall be entitled to injunctive relief for any violation of this Section. This Section shall not apply to information that is: (a) in the public domain; (b) rightfully and legally known to the Seller at the time of disclosure; or (c) rightfully and legally obtained by the Seller on a non-confidential basis from a third party.

15. Data Ownership and Governance:

a) All data, information, materials, and credentials (username, passwords, and any other authentication attributes) to any Company owned systems, servers, machines, and equipment, including but not limited to Confidential Information and Intellectual Property (collectively "Company Data"), belonging to HINDALCO Industries Limited ("Company") shall at all times remain the sole and exclusive property of the Company. No provision of this Agreement shall be construed to transfer, assign, or grant any ownership interest in such Data to any Service Provider or third party.

b) Derivative Works and Improvements

Any modifications, enhancements, derivative works, analyses, or insights generated from or based on Company Data, whether created solely by the service provider or in collaboration with the Company, shall be deemed part of the Company Data and shall be owned exclusively by the Company. The Service Provider agrees to assign all rights, title, and interest in such derivative works to the Company without additional consideration.

c) Access to Company Data

The Company shall have unrestricted access to its own Company Data at all times. No Service Provider shall impose any restriction, limitation, or condition on the Company's ability to access, retrieve, or use its own Data. Any such restriction shall be deemed null and void and shall have no force or effect. The Service Providers must have an open communication protocol to allow the Company to take or retrieve Company Data back into the Company environment.

Data frequency will not be modified or changed by the Company, and it shall be the responsibility of the Service Provider to ensure machine offered are compatible to give Data of same frequency of Data generated.

d) Return and Deletion of Company Data

Upon termination or expiration of this Agreement, or anytime upon the Company's request, the Service Provider shall promptly return all Company Data in a format reasonably requested by the Company and permanently delete any copies of such Data from its systems, except where retention is required by applicable law. The Service Provider shall certify in writing that it has complied with this requirement.

e) No Use Beyond Agreement

The Service Provider shall not use, analyze, process, sell, disclose, or otherwise exploit Company Data for any purpose other than as expressly permitted under this Agreement. Any unauthorized use shall be considered a material breach, entitling the Company to seek appropriate remedies at law or in tort or under the Contract, including but not limited to injunctive relief and damages.

Note - "Confidential Information" means all information and know-how held by a Party and/or its Affiliates, whether recorded in material form or not, which is disclosed to or otherwise learnt by that Party in the course of this Agreement and the matters set forth in this Agreement. This includes: (i) technical information of a Party and/or its Affiliates that is in use, such as, strategies, computer product, process and/or devices, and any other databases, methods, know-how, formulae, compositions, technological data, technological prototypes, discoveries, machines, inventions; (ii) business information of a Party and/or its Affiliates that is in use, planned, or under development, such as, information relating to a Party's employees or consultants (including information related to performance, skill sets, and compensation), actual and anticipated relationships between a Party and/or its Affiliates and other companies, financial information, other current and future products, promotions and offerings, developments, financial information, credit information; (iii) information relating to future plans of a Party and/or its Affiliates, that is in use, planned, or under development, such as, marketing strategies, new product research, pending projects and proposals proprietary production processes, research and development strategies, in each case whether or not such information carries a mark affirming its confidentiality.

"Intellectual Property" of a Party includes concepts, creations, discoveries, inventions, know how, trade or business secrets; trademarks, software, source codes, technology platforms, service marks, designs, domain(s), utility models, tools, devices, models, methods, procedures, processes, systems, principles, synthesis protocol, algorithms, client applications, web based platforms, works of authorship, flowcharts, drawings, books, papers, sketches, formulae, proprietary techniques, research projects, copyright, and other confidential and proprietary information, databases, data, documents, instruction manuals, records, memoranda, notes, user guides, in either printed or machine-readable form, whether or not copyrightable or patentable or protectable under any other applicable law, or any written or verbal instructions or comments.

OUR VALUES

INTEGRITY, COMMITMENT, PASSION, SEAMLESSNESS AND SPEED

EXTRACTS FROM OUR POLICIES:

To procure goods and services by honest use of sound business principles in an impartial/unbiased & transparent manner and dignity by way of fair competition, ethical and equitable dealings from right source, of desired quality, at right time, at optimal cost & in right quantity. Adopt the State of the Art purchase procedures to reduce internal and external lead times, deliver value for money, for all concerned, to create a strong network of competent and reliable suppliers. Preference will be given to manufacturers over dealers. Vendors not complying with environment norms will be discouraged. Vendors who are found to be resorting to unfair or unethical business practice will be deregistered. Vendors will be regarded as partners in our business. We will give preference to local vendors.

QUALITY, ENVIRONMENT, OCCUPATIONAL HEALTH & SAFETY POLICY:

We are committed to demonstrate excellence in quality, environment and occupational health & safety for sustainable development. To Achieve this, we shall:

1. Ensure customer satisfaction by providing value added products and services.
2. Continually establish systems, procedures and best practices with technological interventions.
3. Optimize resource consumption particularly- raw material, energy, water, oil and promote pollution prevention.
4. Nurture and sustain safe and healthy work environment.
5. Comply with applicable legislation in letter and spirit.
6. Strengthen competence of employees and business associates through continuous training.

We shall communicate and make this policy available to all stakeholders.

Condition related to EOH&S

Material Supplier :

1. Supplier should comply with all Environmental Rules and Regulations, applicable to their supplies.
2. Supplier should provide MSDS for all materials, as applicable.
3. For transport, Supplier should use authorized transporter; Supplier should provide TERM Card, as applicable.
4. All Vehicles, used for transportation should comply with Motor Vehicle Rules, 2014.

Service Provider :

1. Suppliers, working inside the factory should ensure that they do not contaminate Water and Air.
2. Any Waste, generated during work inside the factory to be disposed of as per instructions given by us.
3. Supplier to ensure good housekeeping in their area of work inside.

AUTHORITY LETTER

January 30th, 2025

Hindalco Industries Limited, a company incorporated and registered under the Companies Act, 1956 (herein after referred to as the "Company") and having its Registered Office at : 21st Floor, One Unit Centre, Tower 4, Near Prabhadevi Railway Station, Senapati Bapat Marg, Prabhadevi, Mumbai – 400013, has vide Power of Attorney dated 2nd September, 2017 nominated and appointed Mr. V. R Shankar, S/o Late Mr. V J Ranganathan, as the true and lawful attorney of the company and has further authorized him to commence, prosecute, enforce, defend, answer, oppose or appear or appeal in all actions and other legal proceedings and demands whether civil, criminal, political, administrative or revenue, or proceedings relating to the litigations, legal matters or otherwise and to retain, appoint, engage any advocates and to sign Vakalatnamas and other necessary authorities for defending/representing in relation to above actions, on behalf of the Company.

Whereas for better and more effectively doing, effectuating, executing and performing his responsibility vide the same power of Attorney Mr. V R Shankar has been authorized to delegate any of the powers and authorities as specified in the above paragraph to any other person.

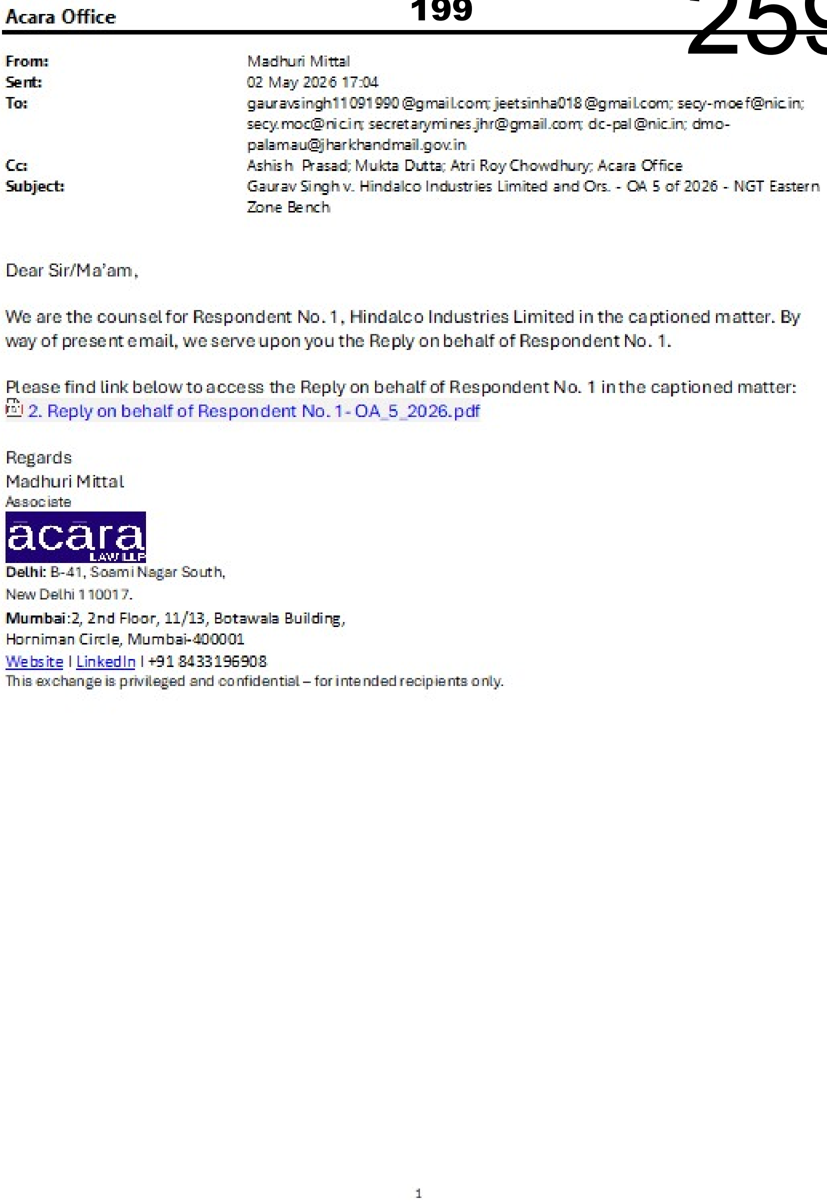
1. Accordingly, in exercise of the said power he hereby authorizes Ms. Samta Sinha, D/o Mr. Dinesh Prasad Sinha, Assistant General Manager- Legal, Hindalco and having office at Vasundhara Mega Mart, 2nd Floor, P.O.- Doranda, P.S.-Argora, Near Argora Chowk, Harmu Housing Colony, Ranchi-834002 to sign, execute, file and institute Writs, Vakalatnamas, applications, affidavits, petitions, suits, appeal, written statements, rejoinder and alt other necessary pleadings, as may be required, in the civil/criminal proceedings to be initiated by/on behalf of the Company before any Quasi-Judicial, Judicial, Statutory Authority, Revenue or any other public body, Tribunal, Civil Court, Criminal Court and Hon'ble High Court in the State of Jharkhand, State of Chhattisgarh, State of Odisha, State of Maharashtra and Delhi NCR.
2. Any action done or taken by Ms. Samta Sinha pursuant to this authority shall be deemed to have been ratified by the Company and authorized to do all necessary or incidental acts, deeds, things and matters while representing the Company.

For **Hindalco Industries Limited**

V R Shankar
Chief Legal Officer & Duly Constituted Authority

Hindalco Industries Limited
Corporate Office: 6th & 7th Floor, Birla Centurion, Pandurang Budhkar Marg, Worli, Mumbai – 400030, India
T: +91 22 66626666/62610555 | F: +91 22 62610400/62610500 | W: www.hindalco.com
Registered Office: 21st Floor, One Unit Center, Tower 4, Near Prabhadevi Railway Station, Senapati Bapat Marg, Prabhadevi, Mumbai – 400013
T: +91 22 69477000 / 69477150 I F: +91 22 69477001/69477090 | E: hilinvestors@adityabirla.com
Corporate ID No. : L27020MH1958PLC011238

Proof of Service



From: Madhuri Mittal
Sent: 02 May 2026 17:04
To: gauravsingh11091990@gmail.com; jeetsinha018@gmail.com; secy-moef@nic.in; secy.moc@nic.in; secretarymines.jhr@gmail.com; dc-pal@nic.in; dmo-palamau@jharkhandmail.gov.in
Cc: Ashish Prasad; Mukta Dutta; Atri Roy Chowdhury; Acara Office
Subject: Gaurav Singh v. Hindalco Industries Limited and Ors. - OA 5 of 2026 - NGT Eastern Zone Bench

Dear Sir/Ma'am,

We are the counsel for Respondent No. 1, Hindalco Industries Limited in the captioned matter. By way of present email, we serve upon you the Reply on behalf of Respondent No. 1.

Please find link below to access the Reply on behalf of Respondent No. 1 in the captioned matter:
2. Reply on behalf of Respondent No. 1 - OA_5_2026.pdf

Regards
Madhuri Mittal
Associate

acara
LAW LLP
Delhi: B-41, Soami Nagar South,
New Delhi 110017.
Mumbai: 2, 2nd Floor, 11/13, Botawala Building,
Horniman Circle, Mumbai-400001
Website | LinkedIn | +91 8433196908