

		<p>QRSSA CAMPA account No. 1902284142135 of Union Bank Ltd. Road New Delhi vide RTGS UTR No. SBIN2217901023 dtd 06.01.2017.</p> <p>Copy of bank order & pass book is enclosed at page no 0244.</p>
1	The KMI, Bar of diverted area, the CA area, the proposed SMC treatment area and the WMP area shall be replanted on these Green water parcel with all requisite details prior to Stage II approval.	In Compliance to this condition KMI, Bar of diverted area, the CA area, the proposed SMC treatment area and the WMP area enclosed in reference to A-03.
2	Compensatory trees to be cutted from the User Agency under the project shall be transferred, deposited, through a challan, in to the account of CAMPA, pertaining to the State concerned through a portal (where applicable).	In compliance to this condition undertaking enclosed as Annexure A-IV at page no 5.
3	The revised Mining plan having duly incorporated progressive mine closure Plan with backfilling details year wise and financial expenditure to be incurred annually, shall be submitted as part of the compliance report of the conditions of Stage II approval. The rehabilitated forest area after closure of mining operations shall be handed over to the State Forest Department for responsible forest management in the future.	In compliance to this condition this is to inform that Ministry of Coal visited Ural D&E (rehabilitated Coal Block to NALCO). NALCO plans to operational Ural-D Block in phase I. Ministry's procedure for commencement of mining of Ural-D&E (rehabilitated Coal Block) is being carried out which will include mining operations of Ural-D and continue as Ural-D&E (rehabilitated mine). <p>Revised Mining Plan of Ural D&E (rehabilitated) Block having duly incorporated progressive mine closure Plan with backfilling details year wise and financial expenditure to be incurred annually has already been to Ministry of Coal for approval. Copy of the submitted plan enclosed.</p> <p>In compliance to the condition undertaking enclosed as Annexure A-V page no 1015.</p>
4	Noting that the proposed area is contiguous to reserve forests and heavy mechanised tool using and transport will have significant impact both on the wildlife of the area and the overall socio-economic condition that in turn will affect the health of forest fauna flora and long-term, proper wildlife and soil resource conservation (SMC) measures in the adjoining area along with their long term monitoring, is necessary. The user agency shall contribute towards cost of the SMC Plan duly approved by State Forest Dept. The User Agency will also coordinate, records state approved State-specific Wildlife Conservation Plan and Regional Wildlife Management Plan of the adjoining area at the revised time. The Plan shall include specific conservative measures for BEI flora and fauna species. All compensatory trees to be cutted from the user agency in compliance of aforementioned approval plans shall be deposited into the account of CAMPA.	In Compliance to this condition NALCO has deposited an amount of Rs. 4,29,46,000/- towards cost of SMC&P to QRSSA CAMPA account No. 1902284142135 of Union Bank Ltd Road New Delhi vide RTGS UTR No. SBIN2217901023 dtd 06.01.2017. <p>NALCO has also deposited an amount of Rs. 5,41,02,000/- towards cost of approved SMC&P in QRSSA CAMPA account No. 1902284142135 of Union Bank Ltd Road New Delhi vide RTGS UTR No. SBIN2217901023 dtd 10.01.2017. Copy of bank order & pass book is enclosed at page no 0245.</p>

13.	User agency shall himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to file No.8/0-2020-PC, 2020 and regenerate the degraded open forest (during green jungle law from 0.40) of area, located in the area within 100 meter from outer perimeter of the existing zone. The plan for plantation and SMC activities will be prepared and submitted to MoEF & CC before Stage II Clearance.	In compliance to this condition an scheme has been approved by RSCF Arund for a total financial outlay of Rs. 22,58,400/- (Copy of the approved scheme enclosed at page no 187). An undertaking also enclosed as annexure A-XIII page no 187 A)
14.	The User Agency shall prepare a list of streams, village tanks and other water bodies with GPR co-ordinates located within five km from the site zone boundary. This list is to be duly verified by the concerned District Forest Officer. The User Agency shall regularly undertake cleaning of these village tanks and other water bodies so as to mitigate the impact of siltation of such tanks/water bodies. A detailed approved plan for desilting of identified ponds and water bodies to be prepared in consultation with forest department and shall be submitted to MoEF & CC before Stage II approval.	In compliance to this condition of scheme has been approved by RSCF Arund for a total financial outlay of Rs. 10,00,000/- (Copy of the approved scheme enclosed at page no 188). An undertaking also enclosed as annexure A-XIII page no 188 A)
14.	Aforestation on degraded forest land to be selected shall be 100% covering one and a half times the area under safety zone, shall also be done at the project cost under the supervision of the State Forest Department. The degraded forest land (DFL) so selected will be referred to the MoEF & CC with stage II file before Stage II approval and aforestation will be done within three years from the date of Stage-II clearance and maintenance transfer in accordance with the approved Plan in consultation with the State Forest Department.	In compliance to this condition an scheme has already been approved by RSCF Arund for a total financial outlay of Rs. 21,32,980/- (Copy of the approved scheme enclosed at page 189). MADCO has deposited an amount of Rs. 21,32,980/- towards cost of one and a half times the area under safety zone in CHSBSA, CAMPS, Forest No. 508788/1142/08 of Union Bank Local Branch New Delhi 502 RTGS UTR No. 58810100007468 and 27.10.2021 (Copy enclosed at page no 189A)
15.	Safety Zone Management: Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry: (i) User agency shall ensure demarcation of safety zone (7.5 meter wide) along the inner boundary of the mining lease area, and its fencing, penetration and regeneration by erecting adequate number of 5 feet high RCC boundary pillars (marked with DGPS coordinates) with barbed wire fencing and deploying adequate number of watchmen under the supervision of the State Forest Department; (ii) Boundary of the safety zone of the mining lease, adjacent to habitated roads, should be properly fenced by the user agency; (iii) Safety zone shall be maintained as green belt around mining lease and to ensure dense canopy. In the area regeneration shall be undertaken as directed by the user agency at project cost under the supervision of the State Forest Department; and (iv) The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms;	In compliance to this condition an scheme has already been approved by RSCF Arund for a total financial outlay of Rs. 13,05,380/- (Copy of the approved scheme enclosed at page no 190). MADCO do hereby undertake to implement the approved scheme for Safety Zone Management at the project cost. An undertaking also enclosed as annexure A-XVI page no 190 A)
16.	The sum of Rs.100.00 lacs shall be deposited by the User Agency with the State Forest Department.	In Compliance to this condition undertaking enclosed as annexure A-XVI at page no 191
17.	State Government shall guarantee collection of rights, if any	In Compliance to this condition

	of the Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, filing on the forest land to be diverted and submit the documentary evidence as prescribed by the Ministry's letter No. 11-2/1998-FC (7) dated 03.08.2009 read with OADT,2013, in support thereof and	complete verification of status in terms of the Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, on the forest land to be diverted along with the documentary evidence as prescribed by the Ministry enclosed in para no 192 to 195
B.	The compliance report shall be appended as a special chapter/part of the RFP.	The Compliance report has been included as special
B.	Conditions which need to be complied on field after handing over of forest land to the user agency by the State Forest Department but the compliance in form of undertaking shall be submitted prior to Stage-II approval	
1.	Legal status of the diverted forest land shall remain unchanged	It is compliance to this condition undertaking enclosed as Annexure B-1 (Page No 196)
2.	Comprehensively effective fire cover degraded forest lands, double in extent to the forest land being diverted, shall be raised by the State Forest Department at the project cost within three years from the date of grant of Stage - II approval.	It is compliance to this condition undertaking enclosed as Annexure B-II (Page No 197)
3.	At the time of payment of the Net Present Value (NPV) at the project rate, the user agency shall furnish an undertaking to pay the additional amount of NPV, if so demanded, as per the final decision of the Hon'ble Supreme Court of India.	It is compliance to this condition undertaking enclosed as Annexure B-III (Page No 198)
4.	Trees should be felled in phased manner as per the work program in the approved filing plan with prior permission of DDA, Anjal	It is compliance to this condition undertaking enclosed in Annexure B-IV (Page No 199)
5.	The user agency shall explore the possibility of introduction of maximum number of trees identified to be felled and shall ensure that any tree felling shall be done only when it is unavoidable and that the entire site, supervision of the State Forest Department.	It is compliance to this condition undertaking enclosed as Annexure B-V (Page No 200)
6.	The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined out area. The complete reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1986, in the concerned State Government and the regional Regional Office of the Ministry. If it is found from the annual report that the site has not been reclamation plan are not being executed by the User Agency, the Nodal Officer or the concerned Addl. Principal Chief Conservator of Forests (Control) may direct that the mining activities shall remain suspended till such time such reclamation activities are satisfactorily executed.	It is compliance to this condition undertaking enclosed as Annexure B-VI (Page No 201)
7.	The User Agency shall comply with the Hon'ble Supreme Court order on re-mining, and re-mining the mining area and any other areas which may have been identified due to mining to reduce forest area as order issued by Hon'ble for growth of fodder, forest, plant, medicinally material.	It is compliance to this condition undertaking enclosed as Annexure B-VI (Page No 202)
8.	Further wildlife area is one of the largest in the country. Already a large number of operational commercial blocks, and many other allocations approvals are underway in the east. The re-mining effect on the overall Green and wild life cover in the area could be significant. Further, overall increase in number of acquisition and forest the susceptibility to continuing areas has been generally observed around the world.	It is compliance to this condition undertaking enclosed as Annexure B-VIII (Page No 203)

	Such cumulative impact could be better reduced and mitigated if synergistic action is taken by different sea-based operations. Therefore, a multi-disciplinary committee may be formed by the Ministry to make a visit to the Tigris, Joffah and other major integrated water use infrastructure and mining development in forest and wildlife friendly manner. The committee may also suggest the specific mitigation measures. The visit of the committee shall be facilitated by the State Government. The committee shall submit its report in next few months. It is clarified that submission of the report by the committee shall not be a precondition for completion of the principle approval of the master proposal. However, the User Agency shall give an undertaking that any specific condition/requirement suggested by the committee for the master proposal, and approved by the Ministry, shall be accepted by them during the course of the execution.																			
9	Period of execution of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended, and the Rules framed there under.	In compliance to the condition/undertaking enclosed as Annexure B-X (Page No 204)																		
10	The User Agency shall obtain the Environment Clearance as per the provision of the Environmental Protection Act, 1986, if required.	In compliance to the condition/undertaking enclosed as Annexure B-X (Page No 205)																		
11	No labour camp shall be established on the forest land and the User Agency shall provide such portable alternate fuels to the laborers and the staff working at the site so as to avoid any damage and pressure on the nearby forest area.	In compliance to the condition/undertaking enclosed as Annexure B-XI (Page No 206)																		
12	By leaving contours, as per approved plan / schemes, shall be undertaken by the User Agency under the supervision of the State Forest Department: (i) All gullies/streams to stabilize soil erosion and checking of siltation shall be implemented within a period of three year with effect from the issue of Stage-II clearance in accordance with the approved Plan in consultation with the State Forest Department). (ii) Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion in accordance with the approved scheme. (iii) Construction of check dam, retention tank/wells to arrest sliding down of the accumulated material during the course in accordance with the approved scheme. (iv) Stabilize the post-mining dumps by appropriate grading/landfilling, in accordance with the approved scheme, so as to ensure that angle of repose at any given place is less than 28 degree. (v) No damage shall be caused to the top soil and the User Agency will follow the top soil management plan.	In compliance to this condition the scheme will specify financial outlay for the approved by RCOT Arpat (Copy of the approved scheme enclosed) (Page No 207) Financial Outlay of Scheme are as mentioned below: <table border="1"> <thead> <tr> <th>Scheme</th> <th>Total</th> <th>Financial Outlay in (Rs)</th> </tr> </thead> <tbody> <tr> <td>D-12(i)</td> <td></td> <td>1,12,31,511/-</td> </tr> <tr> <td>B-12(ii)</td> <td></td> <td>5,29,300/-</td> </tr> <tr> <td>B-12(iii)</td> <td></td> <td>2,03,54,847/-</td> </tr> <tr> <td>B-12(iv)</td> <td></td> <td>60,61,718/-</td> </tr> <tr> <td>B-12(v)</td> <td></td> <td>59,61,125/-</td> </tr> </tbody> </table> Underlings are used as Annexure B-XII (i), (Page No 205A) B-XII (ii), (Page No 206) B-XII (iii), (Page No 208) B-XII (iv), (Page No 210) B-XII (v), (Page No 211)	Scheme	Total	Financial Outlay in (Rs)	D-12(i)		1,12,31,511/-	B-12(ii)		5,29,300/-	B-12(iii)		2,03,54,847/-	B-12(iv)		60,61,718/-	B-12(v)		59,61,125/-
Scheme	Total	Financial Outlay in (Rs)																		
D-12(i)		1,12,31,511/-																		
B-12(ii)		5,29,300/-																		
B-12(iii)		2,03,54,847/-																		
B-12(iv)		60,61,718/-																		
B-12(v)		59,61,125/-																		
13	The boundary of the diverted forest land, mining lease and safety zone, as applicable, shall be demarcated, as per part of the project cost, by erecting four feet high reinforced concrete concrete pillars, each marked with its serial number, distance from all the public and GPS coordinates.	In compliance to the condition/undertaking enclosed as Annexure B-XIII (Page No 212)																		

14	The floor plan of the building plan proposed shall not be changed without the prior approval of the Central Government and the floor plan shall not be used for any purpose other than that specified in the proposal.	In compliance to the condition/undertaking enclosed as Annexure B-XIV (Page No 213)
15	The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government.	In compliance to the condition/undertaking enclosed as Annexure B-XV (Page No 214)
16	No damage to the flora and fauna of the adjoining area shall be caused.	In compliance to the condition/undertaking enclosed as Annexure B-XVI (Page No 215)
17	The User Agency shall submit the annual GPF-compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly.	In compliance to the condition/undertaking enclosed as Annexure B-XVII (Page No 216)
18	Any other condition for the concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of conservation, protection and development of fauna & wildlife and.	In compliance to this condition/undertaking enclosed as Annexure B-XVIII (Page No 217)
19	The user agency shall comply all the provisions of the All India Rules, Regulations, Guidelines, Para No Green Order (a) and NPT Order (a) pertaining to the project, if any, in the time being in force, directly / indirectly to the project.	In compliance to the condition/undertaking enclosed as Annexure B-XIX (Page No 217)
20	Violation of any of these conditions will amount to violation of Forest Conservation Act, 1980 and action would be taken as prescribed in para 121 of Chapter 10 of the Handbook of comprehensive guidelines of Forest Conservation Act, 1980 as issued by this Ministry's letter No. 1322013-FR dated 28.12.2013.	In compliance to this condition/undertaking enclosed as Annexure B-XX (Page No 218)

We are hereby informing you that site of plot was compliance of stage-I forest clearance of Udaipur District Min for necessary action at your end.

Thanking you,

Yours faithfully,


Authorized Signatory
 S. S. PATEL
 Executive Director (ST)-
 Project & Technical Department
 National Forests Company Ltd.
 Bhavnagar-381001



Annexure A

87

OFFICE OF THE PRINCIPAL CHIEF INSPECTOR OF FORESTS, OISHA
ARANYA BHAWAN, BHUBANESWAR-21.

Memo No. 15640 / 09.09.2021
Dated, BBSR, dt. 09.09.2021, September, 2021

To: The Divisional Forest Officer,
Angul Forest Division.

Sub: Proposal seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980 for non-forestry use of 169.1779 ha of forest land in favour of M/s NALCO for Ultra-E Open cast Coal Mining Project in Angul District (Odisha)-reg.

Ref: This office Memo No. 6441 dated 22.09.2021.

With reference to this office memo on the captioned subject, it is to say that the financial outlay for CA Scheme over an area 340.9 ha of degraded forest land identified in Dewaghati RI under Sainthly Range of Bolangir Forest Division pertaining to the above project amounting to Rs.4,35,63,000/- (Rupees four crore thirty five lakh sixty three thousand) only has been technically approved by PCCF (FD & NO, FC Act) at the wage rate of Rs.305.40/- Man day with 10 years maintenance. Due to revision of wage rate from Rs.109.40 per MD to Rs.311/- MD the above financial outlay of CA Scheme has been revised and technically approved by Asst. PCCF (FD & NO, FC Act) for amounting to Rs.4,45,02,000/- (Rupees four crore forty five lakh two thousand one hundred) only. The copy of approved financial entry of the above project is enclosed herewith for information and necessary action.

In view of the above, you are requested to raise the demand of differential amount of the compensatory levy on the user agency for payment through bank pass of MoEF & FC and submit the deposit particulars (in prescribed 12 point CAMPA form) of the amount paid alongwith full Stage-I compliances pertaining the above project.

This is urgent.

Encl: As above

Memo No. 15641 dt. 09.09.2021

Conservator of Forests (Nodal)

Copy forwarded to the Regional Chief Conservator of Forests, Angul Circle for information & necessary action with reference to this office Memo No. 6441 dt. 22.09.2021 to his address.

Memo No. 15642 dt. 09.09.2021

Conservator of Forests (Nodal)

Copy forwarded to the Executive Director (F&T)-I, Project Technical Department, National Aluminium Company Ltd, NALCO Bhawan, P.O. Nayagali, Bhubaneswar for information and necessary action with reference to this office Memo No. 6441 dt. 22.09.2021 to his address.

Conservator of Forests (Nodal)

OFFICE OF THE DIVISIONAL FOREST OFFICER, ANGOLO DIVISION

MEMORANDUM FOR THE DIVISIONAL FOREST OFFICER, ANGOLO DIVISION

The Divisional Forest Officer
Angolo Forest Division (Mabumbani Forest Division)

Reference is made to the report of the Forest Officer, Angolo Forest Division, dated 15/11/2023, in respect of the illegal logging activities in the forest area of the Angolo Forest Division.

It is noted that the report of the Forest Officer, Angolo Forest Division, dated 15/11/2023, indicates that the illegal logging activities in the forest area of the Angolo Forest Division are being carried out by the Angolo Forest Division staff. It is noted that the report of the Forest Officer, Angolo Forest Division, dated 15/11/2023, indicates that the illegal logging activities in the forest area of the Angolo Forest Division are being carried out by the Angolo Forest Division staff.

In view of the above, it is recommended that the Forest Officer, Angolo Forest Division, should be directed to take the necessary steps to ensure that the illegal logging activities in the forest area of the Angolo Forest Division are stopped. It is recommended that the Forest Officer, Angolo Forest Division, should be directed to take the necessary steps to ensure that the illegal logging activities in the forest area of the Angolo Forest Division are stopped.

[Signature]
Divisional Forest Officer
Angolo Division

MEMORANDUM FOR THE DIVISIONAL FOREST OFFICER, ANGOLO DIVISION
Copy forwarded to the Forest Officer, Angolo Forest Division, dated 15/11/2023, in respect of the illegal logging activities in the forest area of the Angolo Forest Division.

[Signature]
Divisional Forest Officer
Angolo Division

Copy forwarded to the Principal Chief Commissioner of Forests, Forest Division, F.O. Angolo, for the Principal Chief Commissioner of Forests, Angolo Division, for information and necessary action.

[Signature]
Divisional Forest Officer
Angolo Division

Copy forwarded to the Principal Chief Commissioner of Forests, Angolo Division, for information and necessary action.

[Signature]
Divisional Forest Officer
Angolo Division



Annexure - A/B/C/D

OFFICE OF THE DIVISIONAL FOREST OFFICER, BALANGIR FOREST DIVISION

AT : P.O. (D.O.F.) - Balangir - 751044

Phone No. - 0674 222474, Email - dfod@odisha.gov.in

Memo No. _____ NF-Misc

Dated, Balangir the _____ of September 2020.

To

The Divisional Forest Officer,
Angul Forest Division, Angul.

Subj

Identification of degraded forest land for Compensatory Afforestation for and mining in respect of Udaal E coal mines by NALCO Ltd, Angul.

Ref

Your memo No.4782 dt.28.7.2020.

In inviting a reference to the above cited memo, it is to inform you that an extent of 340 Ha. of degraded forest land in Barguda R.F. under Sainitala Range has been identified for Compensatory Afforestation in lieu of construction of coal mining in respect of Udaal-E coal mines by NALCO Ltd. in the district of Angul. The Compensatory Afforestation scheme alongwith the map KML/Shape file in six sets is prepared and sent herewith for further action at your end.

Encl: As above (Six sets)

Divisional Forest Officer
Balangir Forest Division

Memo No. _____ NF, Dtl. _____

Copy forwarded to the PCCF, Forest Division and Nodal Officer, F.C. Act, Odisha, Bhubaneswar/the Regional Chief Conservator of Forests, Bhubaneswar Circle for receipt of their kind information and necessary action.

Divisional Forest Officer
Balangir Forest Division

Memo No. _____ NF, Dtl. _____

Copy forwarded to the General Manager (Mines Deptt), Coal Mines Division, NALCO, Angul for his information and necessary action.

Divisional Forest Officer
Balangir Forest Division

Approved
P. I. (a)

Financial Outlay for Compensatory Afforestation Scheme over an area of 340 ha of degraded forest land identified in Barghati RF under Saintala Range in Bolangir Forest Division against proposed diversion of 169.1779 ha of Forest Land for coal mining project in respect of Utkal "B" coal mines. In Angul Forest Division by NALCO.

(Wage Rate @ Rs.303.40 per MD)

Sl. No.	Description	Amount (Rs.)
1.	Cost of ANR Plantation without fencing @ 600 plants per ha over 340 ha @ Rs.71,649.27 per ha with 10 years maintenance	2,43,60,752.00
2.	Cost of vegetative fencing around ANR Plantation area of 340 ha @ 126 mtr/ha @ Rs.135/- per meter.	57,83,400.00
	Sub-Total	3,01,44,152.00
3	SMC activities	
a	LBCD of 5 Mtr length, 1Mtr height, bottom width of 7 mtr, Approx 1mtr of 240 nos @ Rs 20828.00/LBCD	49,98,720.00
b	Staggered Trench 19111 nos in 340 Ha @ Rs 60.68 per trench	11,59,685.00
	Sub-Total	3,53,02,527.00
	Add Escalation Cost (20%)	72,60,505.00
	Grand Total	4,25,63,032.00 Or rounded off to 4,35,63,000.00

(Rupees Four Crore Thirty five Lakh Sixtythree thousand) only

(*)NB:- The cost norm & analysis of rate of above item of works at the revised minimum wage of Rs 303.40/MD are enclosed for necessary action.

Technically Approved


Principal Chief Conservator of Forests
Forest Division & Nadal Officer, FC, ACT

09/10/20

Principal Chief Conservator of Forests
Forest Division & Nadal Officer, FC, ACT
20, Old P.O. Bldg, Bhubaneswar

Annex A 1 (5)

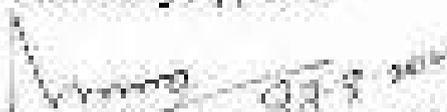
Revised Financial Outlay for Compensatory Afforestation Scheme over an area of 340 ha of degraded forest land identified in Burghati RF under Saintala Range in Bolangir Forest Division against proposed diversion of 169,1779 ha of forest land for coal mining project in respect of Utkal "E" coal mines in Angul Forest Division by NALCO.

(Wage Rate @ Rs.311/- per MD)

Sl. No.	Description	Amount (Rs.)
1.	Cost of ANR Plantation without fencing @ 600 plants / ha over 340 ha @ Rs.73,225.53 per ha with 10 years maintenance	2,48,96,650.00
2.	Cost of vegetative fencing around ANR Plantation area of 340 ha @ 126 mt/ha @ Rs.138/- per meter	59,11,920.00
3.	Soil Conservation Measures	
	(i) L.B.C.D. of 5 Mtr length, 1 Mtr height, bottom width of 7 mtr, Approx 2 mtr of 240 nos. @ Rs.21,199.95 per LBCD	50,87,760.00
	(ii) Staggered trench 19111 nos. in 340 ha @ Rs.62.20 per trench	11,88,794.00
	Sub-Total	3,70,85,064.00
4.	Add Escalation Cost (20%)	74,17,013.60
	Total	4,45,02,077.60 Or rounded off to 4,45,02,100.00

(Rupees Four Crore Forty five lakhs two thousand one hundred) only

Technically Approved


Additional Principal Chief Conservator of Forests
Forest Diversion & Nodal Officer, FC Act

Annexure - A II (c)

LAND SUITABILITY CERTIFICATE

This is to certify that 54000 Ha. of degraded forest land in Hargrah ICZ of Sainthal Range in Bhanagir Forest Division identified for Compensatory Afforestation in lieu of 168179 Ha. of forest land for diversion of DM&E work by M/s. NALCO, Angul is suitable for plantation from management point of view and is free from encroachments and encumbrances. No plantation has been carried out in the particular area previously.


S.K. PATEL
Regional Manager (Technical)
Forest & Wildlife Department
Bhanagir Forest Division, SAI
Angul, Odisha, India


Divisional Forest Officer
Bhanagir Forest Division

AGENCY COPY



NEFT/RTGS CHALLAN for CAMPA Funds

Date : 20-01-2021

Agency Name	NALCO
Application No.	5841142155
MoEF/GO File No.	20072876/FC
Location	ORISSA
Address	NALCO Bldg, P-1, Bapatnagar
Amount (in Rs)	1902140500

Amount in Words: Nineteen Crore Two Lakh Fourteen Thousand and Fifty Rupees Only

NEFT/RTGS to be made as per following details:

Beneficiary Name	ORISSA CAMPA
IFSC Code	UBIN0603790
Pay to Account No.	150825041142155 <small>(Valid only for this Challan amount)</small>
Bank Name & Address	Union Bank of India Lodhi Complex Branch, Block 11/COO Complex, Phase I, Lodhi Road, New Delhi - 110003

This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

The amount deposited in the ORISSA CAMPA account no 150825041142155 on 09.06.2021 for Odisha Coal Mining Project for different schemes are furnished below:

(A)	Compensatory Afforestation Schemes	- Rs. 4,35,63,000.00
(B)	RDV	- Rs. 14,66,51,050.00
	TOTAL	- Rs. 19,02,14,050.00

(Rupees Nineteen Crore Two Lakh Fourteen Thousand and Fifty Only)

Divisional Project Officer
Angul, Division

S. K. PATEL
Executive Director (P&T)-I
Project & Technical Department,
National Aluminium Company Ltd.
Bhilai, Jharkhand-731251

ANNEXURE - A - III

AGENCY COPY

Union Bank of India

NEFT RTGS CHALLAN for CAMPA Fund

Date : 28-09-2021

Agency Name:	MMDC
Application No.:	204442950
NEFT RTGS File No.:	041202040
Location:	COCHIN
Address:	MMDC Branch, P-1, Marappalamugol
Branch IFSC No.:	UBIN000

Amount to be debited from the Treasury Account of MMDC is Rs. 20,00,000/-

NEFT/RTGS to be made as per following details:

Beneficiary Name:	ORISSA CAMPA
IFSC Code:	UBIN0001118
Pay to Account No.:	10010001144360 Total only to 11 Digit of given amount.
Bank Name & Address:	Union Bank of India, Laxmi Complex Branch, Phase 1, Laxmi Park, New Delhi - 110001

* This Challan is to be used for crediting deposited to CAMPA by NEFT/RTGS only.

BANK COPY

Union Bank of India

NEFT RTGS CHALLAN for CAMPA Fund

Date : 28-09-2021

Agency Name:	MMDC
Application No.:	204442950
NEFT RTGS File No.:	041202040
Location:	COCHIN
Address:	MMDC Branch, P-1, Marappalamugol
Branch IFSC No.:	UBIN000

Amount to be debited from the Treasury Account of MMDC is Rs. 20,00,000/-

NEFT/RTGS to be made as per following details:

Beneficiary Name:	ORISSA CAMPA
IFSC Code:	UBIN0001118
Pay to Account No.:	10010001144360 Total only for the transfer amount.
Bank Name & Address:	Union Bank of India, Laxmi Complex Branch, Phase 1, Laxmi Park, New Delhi - 110001

* This Challan is to be used for crediting deposited to CAMPA by NEFT/RTGS only.

MMDC
MARAPLAMUGOL
COCHIN
PIN - 685001

ORISSA CAMPA
BANK OF INDIA
LAXMI PARK
NEW DELHI - 110001

UBIN0001118
UBIN0001118

The amount deposited to the ORISSA CAMPA account no 10010001144360 on 28.09.2021 for Unkal-E Coal Mining Project for software furnished below:-

- 1) Differential Amount CA Scheme - Rs. 9,38,100/-
(Rupees: Nine Lacks Thirty Nine Thousand and One Hundred Only)

G-85-12212791076723

Divisional Forest Officer
Angul Division



(Signature)
Executive Director
Forest & Technical Dept
National Bureau of Earthquake
Brhananaga-751002

ANGUL - A.D.O.

E-Mail - gdt_ooeb@naktindia.in

OFFICE OF THE DIVISIONAL FOREST OFFICER, ANGUL DIVISION:ANGUL.

Letter No. 2230 /110/001/1021/Divdt. 24-23-2021

To

Sr. Geogy Kishore Patel
S.O. (Tech) NAACO
NAACO Bhawan, P-1, Nayapalli
Dist. Khordha, 751023

Subj:

Proposal for diversion of 156.1779 ha. of forest land for coal mining in respect of Uthal - E Coal Mine under Section 2 of Forest Conservation Act, 1980 by NAACO.

Ref:

1. Proposal No. FF/03/Mining/41142/2019
2. Memo No. 5724 P&E dt 17.03.2021 of Special Secretary to Govt.
3. Memo No. 5447 dt 23.01.2021 of FDO, (Nada)

Sr.

With reference to the above cited correspondence on the subject, it is to inform you that the Government of India, Ministry of Environment & Forests Eastern Regional Office, At Chandernagore, Bihar has accorded Stage-I approval for diversion of for non forestry use of 156.1779 ha of forest land out of originally proposed 169.1779 ha of forest land in favour of M/s. name for Uthal - E Coal mining project in Angul District (Odisha). The scheme for Comp. Afforestation in respect of your above project has been tentatively approved by the Principal Chief Conservator of Forests, Forest Bhawan & Nodal Officer, P.C. Act vide his memo No. 5447 dt 22.01.2021 with a financial outlay of Rs. 4,35,63,002.00/- or Rs. 4,35,63,000.00/- (Rupees Four Crore thirty five lakhs sixty three thousand only)

Hence, you are requested to deposit an amount of Rs. 4,35,63,000.00/- towards the cost of approved Comp. Afforestation in Ad-hoc CAMPA in the saving Bank Account No. 520181368743655, Cooperative Bank, Lathi Complex, Ground Floor, Block No. 11, CGO Complex, Lathi Road, New Delhi through "e" payment immediately and intimate the same to the undersigned for taking further action in the matter.

Yours faithfully

Divisional Forest Officer
Angul Division

Memo No. 2271 / Divdt. 24-23-2021

Copy forwarded to the Principal Chief Conservator of Forests, Forest Bhawan & Nodal Officer, P.C. Act O/o the Principal CCF, Odisha for bearing of your kind information and necessary action with reference to his memo No. 5443 dt 23.01.2021.

Divisional Forest Officer
Angul Division

Memo No. 2272 / Divdt. 24-23-2021

Copy forwarded to the Principal Chief Conservator of Forests, Angul Circle Angul for bearing of your kind information and necessary action with reference to memo No. 5443 dt 22.01.2021 of Principal Chief Conservator of Forests, Forest Bhawan & Nodal Officer, P.C. Act O/o the Principal CCF, Odisha.

Divisional Forest Officer
Angul Division

Angul - 11/11/21

OFFICE OF THE DIVISIONAL FOREST OFFICER, ANGUL DIVISION, ANGUL.

Letter No. 110/DFO/2021 Dated: 22.09.21

To: Sri Ranjay Krishna Patel, Sr. N.M. (I) (NAC) DO
KALCO Bhawan, P-1, Nayapalli, Dist-Khordha, 751013

Sub: Proposal for conversion of 169.1779 ha. of forestland for coal mining in respect of Utkal -B Coal Mines under Section-2 of Forest (Conservation) Act, 1980 by NACCO, Angul - Deposit of approved Camp. Affn. amount in CAMPA Fund.

- Ref:
1. Proposal No. EP/08/Mining/11142/2019
 2. No. P-07/TMGD-FC dt: 12.03.2021 Gal. No. E7 & C.
 3. Memo No. 15643 dt. 09.09.2021 of Conservator of Forests (Kodit), P.O.P(3).
 4. This office Letter No. 1270 dt. 24.03.2021.

Sr,

With reference to the above cited letter on the subject, it is to inform that the Govt. of India MIRE & CC vide G.O. letter No. P-07/2020-FC dt. 12.03.2021 have sanctioned in principle approval under section-2 of the Forest (Conservation) Act, 1980 by NACCO identified in English B.F. under Salinda Range in Balangir Forest Division. The revised scheme @ current wage rate of Rs 211/- for Camp. Afforestation in respect of your above project has been technically approved by the Principal Chief Conservator of Forests, Forest Division & Social Officer, FC Act vide his memo No. 15640 dt. 09.09.2021 [copy enclosed] with a financial out lay of Rs. 9,39,100/- (Rs. 4,41,42,100.00 - Rs. 4,15,63,000) (Rupees Nine lakhs thirty nine thousand one hundred) only of Balangir Forest Division.

Hence, you are requested to deposit an amount of Rs. 9,39,100/- (Rupees Nine lakhs thirty nine thousand one hundred) only towards the differential cost of Camp. Afforestation Ad-hoc CAMPA in the saving Bank Account No. 520181768743655 Cooperation Bank, Lohit Complex, Ground Floor, Block No. 11, CGO Complex, Lodh Road New Delhi through "e" payment immediately and intimate the same to the undersigned for taking further action in the matter.

Yours faithfully


 Divisional Forest Officer
 Angul Division

Memo No. 110/DFO/2021 Dated: 22.09.21

Copy forwarded to the Divisional Forest officer, Balangir Forest Division for information and necessary action.


 Divisional Forest Officer
 Angul Division

Hemo No. 7453, Dated: 22/09/21

Copy forwarded to the Regional Chief Conservator of Forests, Angul Circle for
further information and necessary action with reference to memo No. 15643 dt. 09.09.2021
of Asst. Principal Chief Conservator of Forests, Forest Division & Model Officer, P.E. Act, O/o
The Principal Chief Conservator of Forests, Odisha


Divisional Forest Officer
Angul Division

Hemo No. 7453, Dated: 22/09/21

Copy forwarded to the Principal Chief Conservator of Forests, Forest Division
& Model Officer, P.E. Act, O/o the Principal Chief Conservator of Forests, Odisha for receipt of
information and necessary action with reference to his memo 15643 dt. 09.09.2021.


Divisional Forest Officer
Angul Division

APPENDIX A-10

Procedure for Submission of the Application to Transfer of Funds Requested from the User Agency to the Agency in Charge of the

1. Name of Special Office	Subject to be transferred from the User Agency to the Agency in Charge of the
2. Date of the report	10/10/2021
3. Name of the agency	Ministry of Health, T.B.C.C. Department of Health
4. Name of the project	103.1719 ha
5. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
6. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
7. Date of the report	10/10/2021
8. Name of the agency	Ministry of Health, T.B.C.C. Department of Health
9. Name of the project	103.1719 ha
10. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
11. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
12. Date of the report	10/10/2021
13. Name of the agency	Ministry of Health, T.B.C.C. Department of Health
14. Name of the project	103.1719 ha
15. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
16. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
17. Date of the report	10/10/2021
18. Name of the agency	Ministry of Health, T.B.C.C. Department of Health
19. Name of the project	103.1719 ha
20. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
21. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
22. Date of the report	10/10/2021
23. Name of the agency	Ministry of Health, T.B.C.C. Department of Health
24. Name of the project	103.1719 ha
25. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
26. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the
27. Date of the report	10/10/2021
28. Name of the agency	Ministry of Health, T.B.C.C. Department of Health
29. Name of the project	103.1719 ha
30. Description of the project	Transfer of funds from the User Agency to the Agency in Charge of the

Director of the Agency

Signature

Project Name	Application No.	Category	Amount	Start Date	End Date	Project Status	Project Budget	Project Notes
PROJECT 1: [Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]
PROJECT 2: [Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]
PROJECT 3: [Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]
PROJECT 4: [Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]
PROJECT 5: [Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]	[Illegible]



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For any queries, please contact the relevant department.



Ministry of Coal - Govt of India

**Mine Plan And Mine Closure Plan
(First Modification/Revised)
For**

**Utkal D and Utkal E Coal Mines
TALCHER Coal Field
(Under Rule 236 of MCR 1951)
Angul
ORISSA**

Project area 853.33 ha
**Targeted Capacity 4 MTPA
Peak Rated Capacity - 6.0000MTPA**

Prepared By
DEBASHIS ROY

Contact No. - 8437349021
Email ID - debashis.roy@nalcop.com.in

APPLICANT
National Aluminium Company Limited
NALCO Limited,
NALCO Bhawan,
Plot IV, Nayabali, Bhubaneswar
Odisha - 751013
India


Divisional Forest Officer
Angul Division


S. K. PATEL
Executive Director (P&T)-I
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751001

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2	Certificate of Coal Field category (C/F) / Accredited Mining Plan providing agency (AMPA) and Block Government / and geo-technical co-ordinates of the proposed mining area. jpg	Annexure-2A	Ann-2A Certificate of Coal Field category (C/F) - NALCO_20080406.doc	43 - 44
		Annexure-2B	Ann-2B Geo-technical co-ordinates of the proposed mining area - NALCO_20080406.doc	50
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3	Approval of the Company Board Approval	Annexure-3A	Ann-3A Approved Board Resolutions on Mining Plan - U384-046.pdf	66 - 68
4	Copy of earlier approved mining plan	Annexure-4A	Approved Earlier Approved Mining Plan.pdf	67 - 68
5	Plan for identification of mine blocks suitable for progressive and final stages with a list of important stations	Annexure-5	Ann-5 Identification of mine blocks suitable for progressive and final stages with a list of important stations.pdf	69 - 73
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		Annexure-6	140301200805Mining_Plan_Application_1 for U384-046 Coal Mine - NALCO.pdf	75
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1	Location plan	Plan/Plate 1	Plate 1 Location Plan.pdf	79
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		Plan/Plate 2B	Plate 2B General Plan of 10000 SQ. FT. 01-03-17.pdf	81
3	EMU line of development lease area, Project Area and geological block	Plan/Plate 3A	Plate 3A EMU on Gas Lease.pdf	82
		Plan/Plate 3B	Plate 3B Project Area on Gas Lease.pdf	83
		Plan/Plate 3C	Plate 3C EMU on Gas Lease.pdf	84
4	Geological plan showing geological block boundary and proposed mining block & title boundary superimposed over it in detail view showing line, area and block details etc.	Plan/Plate 4	Plate 4 Geological Plan.pdf	85
5	Geological plan showing all the boreholes drilled and proposed to be drilled showing utility lines, boundary and located in the area	Plan/Plate 5A	Plate 5 Geological Plan.pdf	86
6	Geological Logging	Plan/Plate 6A	Plate 6 Logging.pdf	87
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8	Conceptual plan showing infrastructure facilities including railway, boundary of mining area, mine shaft location etc. in the area of 10000 SQ. FT. 01-03-17	Plan/Plate 8	Conceptual Plan Infra, Mine, Road.pdf	89
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14	Final stage plan area showing road/rail alignment	GC Plan/Plate 14	Final Stage Plan Area.pdf	128

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17	Layout of the aerial lift work system, also Lagoon, Cattle and Horse, Sand & Filter, rock (lagoon etc)	UG Plan Page 16		
17	Layout of pipes in lagoon	UG Plan Page 17		
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21	Proposed pipe layout with stage plan indicating stages of 1st, 2nd, 3rd, year of achieving design capacity of the pipe and end of life (showing area to be dumped, biological, for 100 and over with special projects and installation systems (UG)	Plan Page 21A	21A Stage Plan - 1st Year.pdf	130
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23	Additional Plans if applicable	Additional Plans 23	Page 23 Elements of Pricing System.pdf	136

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CHECKLIST

Details		Notes
Chapter-1	Project Information	<input checked="" type="checkbox"/>
Chapter-2	Feasibility, Geology, Seismicity, Ground Water and Reserves	<input checked="" type="checkbox"/>
Chapter-3	Mining	<input checked="" type="checkbox"/>
Chapter-4	Safety Management	<input checked="" type="checkbox"/>
Chapter-5	Infrastructure Facilities proposed and their Location	<input checked="" type="checkbox"/>
Chapter-6	Land Reclamation	<input checked="" type="checkbox"/>
Chapter-7	Environmental Management	<input checked="" type="checkbox"/>
Chapter-8	Progressive & Final Mine Closure Plan	<input checked="" type="checkbox"/>
Annexure	Copy of letter from the Mining officer	<input checked="" type="checkbox"/>
Annexure	Copy of Certificate of Qualified person/ Licensed Mining Plan preparing agency, PMAA if the project area is covered within the restricted block boundary/ mining lease area. Where the project area extends beyond the mining lease area, a certificate of Qualified person/ Licensed Mining Plan preparing agency (MPP) should be submitted with a certificate of State Government/ Mineral and Geology Department need to be attached, which should specify [a] extent of the State Government/ Mineral and Geology and the related geological information relating mining lease, [b] non-existence of Coal/ Lignite in the lease area and the restricted block boundary/ mining lease area, [c] mining lease area to be mined, [d] the issue of the proposed area use of land leasing and beyond the restricted block boundary/ mining lease area in the lease area.	<input checked="" type="checkbox"/>
Annexure	Approval of the Company Board	<input checked="" type="checkbox"/>
Annexure	Copy of letter received of mining plan.	<input checked="" type="checkbox"/>
Annexure	Plan chart showing schedule of implementation of Mine closure activities (progressive and final closure) with duration of important activities.	<input checked="" type="checkbox"/>
Annexure	Expert Review report carried out by an Accredited Mining Plan preparing Agency (MPPA)	<input checked="" type="checkbox"/>
Annexure	Other documents (if any)	<input checked="" type="checkbox"/>
Stage	Location plan	<input checked="" type="checkbox"/>
Plan	Plan defined by Qualified person/ Licensed Mining Plan preparing agency (where the project area is covered within the restricted block boundary/ mining lease area and where the project area extends beyond the block boundary) a Plan certified by Qualified person/ Licensed Mining Plan preparing agency (MPP) should be submitted with a plan with correct co-ordinates & is certified by the Mineral and Geology Department of the concerned State Government. Signed and sealed as per sub-ii	<input checked="" type="checkbox"/>
Plan	Printed copy of the KMA, the incorporated in the recent past, shall be in one year from the issue date) dated copy is being submitted by Accredited Agency (which has to be attached) Note: The printed copy of the KMA, shall also be part of the Soil copy of the Mining Plan.	<input checked="" type="checkbox"/>
Plan	Cartoon/plan showing a plan and cross-sectional view of the proposed mining lease & Mine workings superimposed on a 1:10,000 scale color showing topography and a 1:10,000 scale map.	<input checked="" type="checkbox"/>
Plan	Geological plan showing all the boundaries called and proposed to be mined & showing all the block boundary and restricted lease area.	<input checked="" type="checkbox"/>
Plan	Representation of water table log	<input checked="" type="checkbox"/>
Plan	Surface plan showing drainage pattern, Contour, polarity of Demarcation, location of all boreholes	<input checked="" type="checkbox"/>
Plan	Geological plan showing structure, faults, faulting pattern, location of mining lease, mining pattern, rock including the 3 dimensional view of all etc.	<input checked="" type="checkbox"/>

Plan	Topo (2% and 4% pitch showing level line) (Civil, forest and water supply) and site plan survey.	
Plan	Plan contour plan and section & profile, no-grade plan	
Plan	Cost section showing modification (s)	
Plan	Plan showing existing and proposed surface (spot/s)	
Plan	Plan showing layout plan for all and construction of road and stopping table (in case of concrete) (CC) (Miner)	
Plan	Plan showing any plan showing total road alignment (in case of CC Miner)	
Plan	Plan showing grade and location of vertical and surface (as well as level of underground) (UG) (Miner)	
Plan	Layout of the plan for each system (like long wall, Continuous Miner, Road & Rail, road machine and should be given in case of UG Miner)	
Plan	Layout of pillar extraction (in case of UG Miner)	
Plan	Layout system (in case of UG Miner)	
Plan	Management system (in case of UG Miner)	
Plan	Plan showing land use plan	
Plan	Progressive mine construction plan (in case of UG Miner)	
Plan	Facilities plan	

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Sl.No	Clearance Type	Conditions	Compliance Status
1	Submission of Contract Deed (Plan)	Contract Deed (Plan) for Udaipur Coal Block submitted was submitted at the office of Authorized Authority, Ministry of Coal, Govt of India 2019	Completed
2	Payment of Deposit Amount	Required amount of the Udaipur Coal Block deposited by M/s.	Completed
3	Mining Plan Approval by M/s. Coal	Mining Plan for Udaipur-03 - Coal Block submitted in formulation process.	Decision if any, will be submitted
4	Environment Clearance by MoEF & CC, Govt	Environment Clearance for Udaipur-03 Coal Block submitted in formulation stage. Form-1/PPR will be submitted shortly.	Decision if any, will be submitted
5	Forest Clearance by MoEF & CC, Govt	Forest Clearance is yet to be obtained for Udaipur-03 Coal Block completed.	Decision if any, will be submitted
6	Consent to establish (CTC) & Consent to Operate (CTO) from Central State Pollution Control Board	Consent to establish (CTC) & Consent to Operate (CTO) is yet to be obtained for Udaipur-03 Coal Block completed.	Decision if any, will be submitted
7	Let issued for Terms & Conditions for Lease deed grant by Dept. of Geol. & Mines, Government of India	Terms & Conditions is yet to be issued by Dept. of Geol. & Mines, Govt	Decision if any, will be submitted
8	Mining Lease Grant by Govt. Coal	Mining Lease grant is yet to be obtained	Decision if any, will be submitted
9	Deposit Account Opening by Coal Controller at Udaipur	Deposit account is yet to be open with the Udaipur-03 Coal Block completed.	Decision if any, will be submitted
10	Mine opening permission	Mine opening permission is yet to be obtained.	Decision if any, will be submitted
1.4.5	Reasons for difference between the planned and actual production levels	Udaipur-03 Factor as it own as compared other company approval of Mine Closure Plan	Udaipur-03 De-allocation before

1.5 PARAMETERS OF APPROVED MINING PLAN VS. AS PROPOSED BY M/S. MAA :

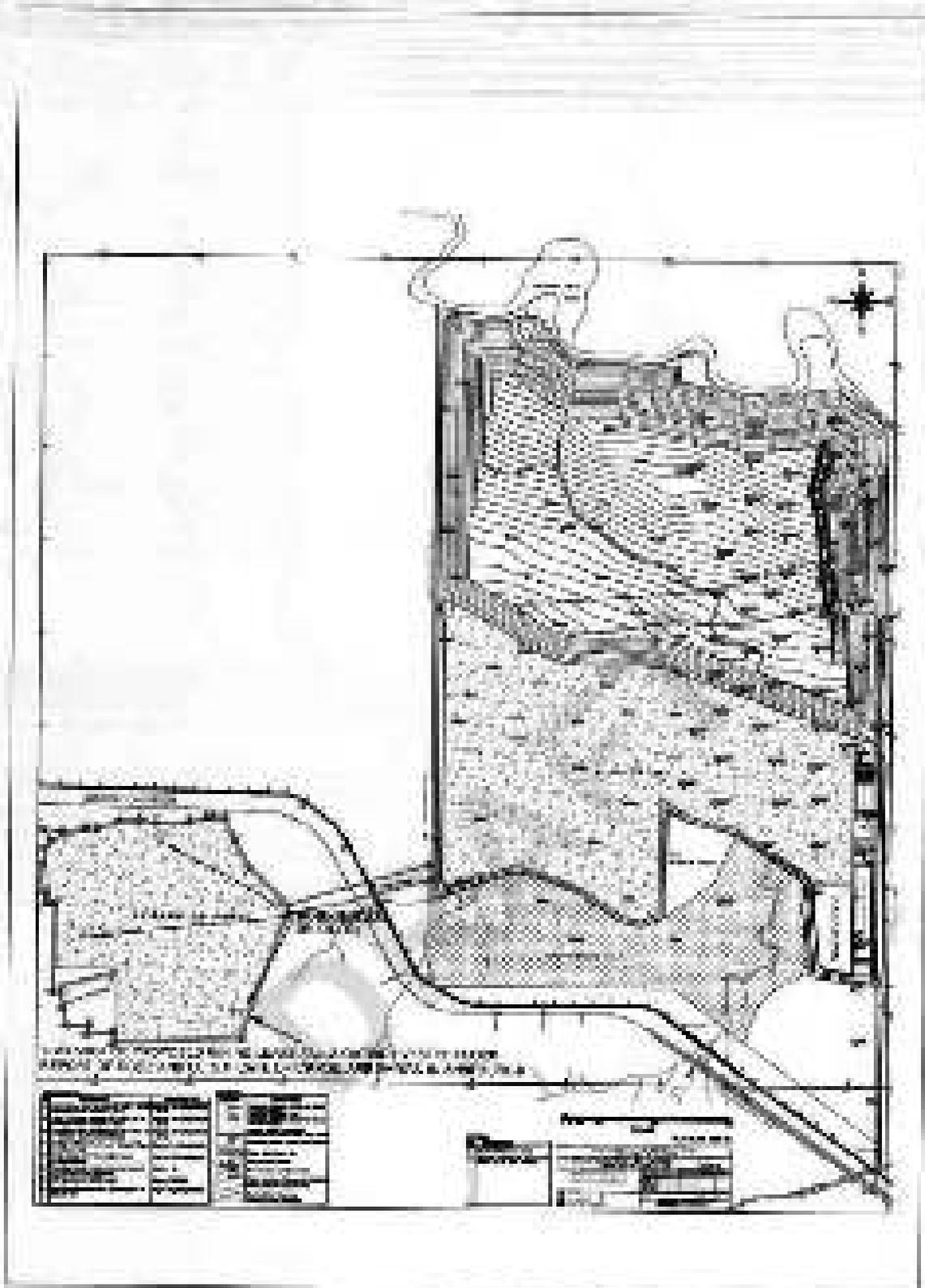
Sl.No	Parameter	Approved Mining Plan	Proposed Mining Plan
1.5.1	Geological Block Area (ha)	206	200.000
1.5.2	Mineralogical Block Area (ha) (incl. and excl.)	206.21	200.44
1.5.3	Lease Area (ha)	138.80	133.000
1.5.4	Exposed Area (ha)	206.21	200.000
1.5.5	Life of the Project (Yrs)	22	22
1.5.6	Minimum and Maximum Depth of Mining	Minimum - 30.00 Meters to 50.00	Minimum - 30.00 Meters to 50.00
1.5.7	Geological Block Area yet to be allocated (ha)	200.70	134.55
1.5.8	Production Target (MTP)	4	4.180
1.5.9	Blocks Available for Coal (ha)	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100	01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Chapter-2: Exploration, Geology, Seam Sequence, Coal Quality and Reserve

2.1 Details of the Mine

Sl. No.	Particulars	Details
2.1.1	Particulars of adjacent blocks: North, South, East, West	North: Proposed East and West block and Handmade block South: Block C East: No coal block West: A block, except 0.25 sq km area, which is not
2.1.2	Location of the Block	Taluka: Chikandapada and Jarasana, village Handichod (Gopabandhu), Gopabandhu, Jango, Koko, Kunkarna, Lango, Kunka, Muthana, and Pan-Loy
	Area	2883.84
	District	Angul
2.1.3	Area of the Block: Ha'	2884
2.1.4	Area of the geological block proposed in 'III' (Area of the geological block considered for acquisition of coal reserve)	2883.84
2.1.5	Balance area yet to be proposed 'III'	NIL
2.1.6	Mineral Reserve in the area yet to be developed 'III'	NIL
2.1.7	Cardinal Point Co-ordinates of the non-coal/lignite bearing areas relating mining lease outside the allotted Coal/Lignite block	Cardinal Point data given below
2.1.8	Cardinal Point Co-ordinates of the non-coal/lignite bearing areas relating mining lease outside the allotted Coal/Lignite block	Cardinal Point data given below
2.1.9	Certificate of Qualified person, Accredited Mining Plan preparing Agency (MPPA) for proposed area is confirmed, and the boundaries relating mining lease and Cardinal Point Co-ordinates of the proposed area outside the non-coal/lignite block is given, subject to a letter Geological Coal/Lignite block.	Document 2A, document 2B, document 2C The Project area, lease area and geological block area in the shall initial intelligent Document 2A is in project section, Document 2B is in project section, Document 2C is in project section. Requesting application for the above for Unit B, block please refer Annexure 3.10 at Page 2 and for Unit C, please refer in Directorate of Geology, Govt of Odisha 3rd area required subject Nil (No block) to the coal bearing, Certificate of MPPA, (MPPA) is also attached at Page 11. Kind of State Government to give issue of this block boundary is attached at Page 11 and Page 12 of the document. Issue will apply for area 505.00 Ha. This includes additional area of 21.9624 Ha outside coal block, 11.04 sq km of the 11.76 sq km area forestland and 2.26 Ha of Durgam Bhawan Forest. 104.00 Ha area applied to include the 2.26 Ha Durgam Forest and their mining lease. Present proposal of 504.96 Ha mining lease include 503.00 Ha of Unit B and C.
2.1.10	PHL file of the Proposed lease area, Proposed Area and geological block.	File attached in Annex section below
2.1.11	Whether the proposed project area is bounded by an all-India/State boundary relating mining lease. If not, the nature of available coal/allotted block boundary, may be given.	No High mineral depth and high stripping rate during three years require high initial strip ratio (1:1.5) to 1:2.0. High strip ratio will result in coal block of Durgam Bhawan Forest which has been left as a non-coal and lignite containing 110.26 Ha outside coal block is proposed for District O.P. Dept. Land for safe distance and road corridor are required.
2.1.12	If the project area extends outside the allotted block boundary relating mining lease, confirmation about the occurrence of rock type in the area under reference needs to be furnished.	Report of Directorate of Geology, Govt. of Odisha and certificate of OMPDL, are enclosed at Annexure 3.11, page 2 to page 10. 2 bore holes were drilled in depth between 141m to 140m up to Boulder bed of Tacher formation over the proposed area from 141m to 140m and from 141m to 140m. No indication of coal seam within the drilled depth.
2.1.12.1	Year of Granting	2021
2.1.12.2	Type of the Project	Open cast coal (in-situ) (single) (single) (single)

Cardinal Point Co-ordinates of the non-coal/lignite bearing areas relating mining lease outside the allotted Coal/Lignite block :



(Duly certified in line with para 1.9 of the Guideline, if fresh minning lease required) :

BHO	Area (sq)	Length (m)
1.0	80°21'11.40000"	84°25'08.00000"
2.0	80°21'18.10000"	84°25'08.10000"
3.0	80°21'21.30000"	84°25'08.20000"
4.0	80°21'24.50000"	84°25'08.30000"
5.0	80°21'27.70000"	84°25'08.40000"
6.0	80°21'30.90000"	84°25'08.50000"
7.0	80°21'34.10000"	84°25'08.60000"

DRAFT

Summary of LITHAL LITHO Blocks

All the formations, established to occur in certain part of the Tertiary stratigraphic column in the area are defined as litho blocks.

Geological succession of Litho Block

Geological succession of Litho blocks is shown below in Table - 2.11.

Table - 2.11
Geological succession of litho blocks

Age	Group	Formation	Thickness (m)	Lithology
Recent		Recent Deposits	2-30	Silt, clay, sand, etc.
Lower Pleistocene		Chitola Formation	140	Medium to coarse grained (up to 1000 microns) grey to black clay shale and sandstone
	Upper Pleistocene	Parvathar Formation	100-170	Thin bedded yellow coloured massive, medium to coarse grained sandstone containing cherts of thin plates and barrenes
Upper Pleistocene to Lower Pleistocene		Taluk Formation	150-170	Medium to coarse, red to grey, s. shales, siltstones and shales.
Tertiary				
Upper Tertiary to Lower Pleistocene		Pre-Cambrian Metamorphic		Granites, gneisses and associated metamorphic rocks.

Geological Structure

Geological structure of the block is mainly based on taluk, Chitola having a dip, whereas the topographical and the structural interpretation available from the adjacent block.

Dip and Dip

General strike of the beds is, roughly N 20° E to N 40° W with a slight variation in the central part of the block. The direction of the dip of the beds is towards N to NE and the amount varies from 2 to 10°.

Description of Faults

3 faults with throw ranging from 8 to 15 meter having both North & Southward. Faults occur mostly in the central part of the block. These are also part of the Chitola block. Details are given in table below. Details are given below in table-2.12.

Table - 2.12
Details of faults

Fault No.	Strike	Trend	Throw		References
			Direction	Amount (m)	
F1	N 20° E to N	N 40° W to S	5-8	10	<ul style="list-style-type: none"> a. Continues from adjacent block & occurs in the East and also occurs in the block (see Table-2.11). b. Lower extension of fault in former extension (see Table-2.11) & (see Table-2.11). c. Direction of strike of fault is N 20° E to S.
F2	N 40° E to S	S 20° W to N 40° E	10 to 15 m	15	<ul style="list-style-type: none"> a. Continues from adjacent block & occurs in the East and also occurs in the block (see Table-2.11). b. Direction of foot of fault is, roughly N 40° E to S, extension of foot of fault is N 40° E to S and extension of fault in former extension (see Table-2.11) & (see Table-2.11). c. Direction of strike of fault is N 40° E to S.
F3	N 40° E to S	S 20° W to N 40° E	5 to 8	10-15	<ul style="list-style-type: none"> a. Continues from adjacent block & occurs in the East and also occurs in the block (see Table-2.11). b. Direction of foot of fault is, roughly N 40° E to S, extension of foot of fault is N 40° E to S and extension of fault in former extension (see Table-2.11) & (see Table-2.11). c. Direction of strike of fault is N 40° E to S.

COAL SEAMS

There total of 20 identifiable coal seams (BA to X) present in the block. Formation of an ascending order from bottom to top, are preserved in the block. Among the 20 seams, there are 10 (BA, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X) are of moderate to thick seams and others are thin seams. The thickness of the seams varies from 10 to 100 cm. However, the seams are located in the block. The thickness of the seams varies from 10 to 100 cm. However, the seams are located in the block. The thickness of the seams varies from 10 to 100 cm. However, the seams are located in the block.

CHARACTER OF COAL SEAMS

The character of coal seams, their thickness, stratigraphic, lithologic, and intervening partings are indicated in the boundaries, listed below, in the block is given in descending order in Table - 2.13.

Table - 2.13
Character of coal seams, indicated

Coal seam Number	Thickness (m)				No. of Interbeds
	Partings		Structure		
	Thin	Thick	Thin	Thick	
Table 2.13					10

	111 KONTI 001	117 KONTI 001	119 KONTI 001	120 KONTI 001	
Parking	847 KONTI 001	1230 KONTI 001			33
Room 2	848 KONTI 001	1231 KONTI 001	854 KONTI 001	888 KONTI 001	33
Parking	849 KONTI 001	1232 KONTI 001			33
Room 3	1233 KONTI 001	2433 KONTI 001	855 KONTI 001	900 KONTI 001	33
Parking	850 KONTI 001	833 KONTI 001			33
Room 4	1234 KONTI 001	844 KONTI 001	1234 KONTI 001	244 KONTI 001	33
Parking	851 KONTI 001	1235 KONTI 001			34
Room 4B	852 KONTI 001	1236 KONTI 001	1236 KONTI 001	911 KONTI 001	34
Parking	853 KONTI 001	1237 KONTI 001			34
Room 5	854 KONTI 001	1238 KONTI 001	1238 KONTI 001	912 KONTI 001	34
Parking	855 KONTI 001	1239 KONTI 001			34
Room 5B	856 KONTI 001	1239 KONTI 001	1239 KONTI 001	913 KONTI 001	34
Parking	857 KONTI 001	1240 KONTI 001			34
Room 6	858 KONTI 001	1240 KONTI 001	1240 KONTI 001	914 KONTI 001	34
Parking	859 KONTI 001	1241 KONTI 001			34
Room 6B	860 KONTI 001	1241 KONTI 001	1241 KONTI 001	915 KONTI 001	34
Parking	861 KONTI 001	1242 KONTI 001			34
Room 7	862 KONTI 001	1242 KONTI 001	1242 KONTI 001	916 KONTI 001	34
Parking	863 KONTI 001	1243 KONTI 001			34
Room 7B	864 KONTI 001	1243 KONTI 001	1243 KONTI 001	917 KONTI 001	34
Parking	865 KONTI 001	1244 KONTI 001			34
Room 8	866 KONTI 001	1244 KONTI 001	1244 KONTI 001	918 KONTI 001	34
Parking	867 KONTI 001	1245 KONTI 001			34
Room 8B	868 KONTI 001	1245 KONTI 001	1245 KONTI 001	919 KONTI 001	34
Parking	869 KONTI 001	1246 KONTI 001			34
Room 9	870 KONTI 001	1246 KONTI 001	1246 KONTI 001	920 KONTI 001	34
Parking	871 KONTI 001	1247 KONTI 001			34
Room 9A Top	872 KONTI 001	1247 KONTI 001	1247 KONTI 001	921 KONTI 001	34
Parking	873 KONTI 001	1248 KONTI 001			34
Room 9B	874 KONTI 001	1248 KONTI 001	1248 KONTI 001	922 KONTI 001	34
Parking	875 KONTI 001	1249 KONTI 001			34
Room 10	876 KONTI 001	1249 KONTI 001	1249 KONTI 001	923 KONTI 001	34
Parking	877 KONTI 001	1250 KONTI 001			34
Room 10B	878 KONTI 001	1250 KONTI 001	1250 KONTI 001	924 KONTI 001	34
Parking	879 KONTI 001	1251 KONTI 001			34
Room 11	880 KONTI 001	1251 KONTI 001	1251 KONTI 001	925 KONTI 001	34
Parking	881 KONTI 001	1252 KONTI 001			34
Room 11B	882 KONTI 001	1252 KONTI 001	1252 KONTI 001	926 KONTI 001	34
Parking	883 KONTI 001	1253 KONTI 001			34
Room 12	884 KONTI 001	1253 KONTI 001	1253 KONTI 001	927 KONTI 001	34
Parking	885 KONTI 001	1254 KONTI 001			34

Seam 100	0.26 (200.00%)	1.00 (100.00%)	3.00 (300.00%)	2.00 (200.00%)	70
Seam 101	0.10 (100.00%)	1.74 (174.00%)			44
Seam 102	0.10 (100.00%)	0.84 (84.00%)	0.78 (78.00%)	2.00 (200.00%)	40

1. The following table shows the details of the blocks:

1.1 Details of the exploration blocks:

2.2.3	Geological Block Area (HA)	11.9
2.2.4	Extent of Exploration of the block	

The exploration in the above mentioned blocks is carried out in different stages by M.A. and M.P.O. A preliminary drilling was carried out in Block 100 & 101. Details of the blocks are given in Table 2.2.1.

Table - 2.2
Details of Exploration

Exploration Agency	Block No.	Period of Operation		Drilling		Type of Exploration	Nature of Documentation
		From	To	No. of Holes	Metres Drilled		
MCO	101	Apr 2011	Apr 2011	4	175 m	Regional	Geological Report on Exploration for Coal, Iron, Manganese, Titanium Oxides, Graphite, etc.
	102	Apr 2011	Apr 2011	4	164 m	Regional	Geological Report on Exploration for Coal, Iron, Manganese, Titanium, etc. dated 04/05/2011.
M.P.O. - 100, Bhatnagar	100A	Feb 2011	Dec 2011	20	2714 m	Detailed	Geological Report on Coal Exploration Block 100A, Bhatnagar, M.P.O.
	100B	Feb 2011	Dec 2011	2	176 m	Detailed	Geological report on coal exploration Block 100B, Bhatnagar, M.P.O.
M.P.O.	100C	Apr 2011	Apr 2011	1000 Holes	8000 m	Geological report on coal exploration Block 100C, Bhatnagar.	
M.P.O. - 101, Bhatnagar	101A	Feb 2011	Apr 2011	10	1400 m	Detailed	Geological report on coal exploration Block 101A, Bhatnagar, M.P.O.
				122	1181 m		

Thus, 122 boreholes providing over 3.88 sq. km. area and involving 11811 metres of drilling have been drilled in the above stated reference. The blockwise density of the blocks comes to 14 boreholes per ha. Data of nearby boreholes of adjacent blocks have also been considered for geological interpretation & modelling.

Survey

Survey of data has revealed certain exploration gaps in the area for the further work. Table 2.2.2 shows the gaps in the area from the survey & a list of the surface contours are attached in the enclosed table 2.2.2.1.

2.2.2	Area covered by "detailed" exploration within the block (sq. km)	2.08
2.2.3	Whether entire area has been covered by detailed exploration.	No
2.2.4	No. of boreholes drilled within the block.	122
2.2.5	Whether any further exploration is required or suggested and when same is likely to be completed.	No
2.2.6	Year wise future programme of exploration.	NA
2.2.7	Overall borehole density within the block (No. of Holes per Ha)	14
2.2.8	Map of Block is enclosed as per CR (Geological Report)	Seams 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.
2.2.9	Seams not considered for Mining with Reasons.	Seams 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.
2.2.10	Dip of the Seams	The dip of the seams in the mine is towards N to NE and the overall varies from 30 to 60.

Soil No.	Thick-ness Range (m)	Depth Range (m)	Dist. from Ref. Point (m)	Soil Description			Total Moisture (%)	Moist. Cont.		Cut-off %	Atterberg Limits				Flow No. For Plasticity Chart
				Type	Color	Consistency		Liquid (%)	Plastic (%)		Liquid Limit		Plasticity		
											LL (U.S.)	LL (C.S.)	U.S. High	U.S. Low	
Soil No. 1	1.15-1.30	10.1-10.25	0.00	0.27	0.11	0.54	3.88	0.90	30						
Part No.	1	10.1-10.25				0.00							0.00	0.00	
Soil No. 2	1.30-1.45	10.25-10.4	0.00	0.45	1.42	0.86	1.52	0.26	1.45						
Part No.	2	10.25-10.4				0.00							0.00	0.00	
Soil No. 3	1.45-1.60	10.4-10.6	1.12	0.48	0.10	0.11	0.02	0.17	0.06						
Part No.	3	10.4-10.6				0.00							0.00	0.00	
Soil No. 4	1.60-1.75	10.6-10.75	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	4	10.6-10.75				0.00							0.00	0.00	
Soil No. 5	1.75-1.90	10.75-10.9	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	5	10.75-10.9				0.00							0.00	0.00	
Soil No. 6	1.90-2.05	10.9-11.05	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	6	10.9-11.05				0.00							0.00	0.00	
Soil No. 7	2.05-2.20	11.05-11.2	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	7	11.05-11.2				0.00							0.00	0.00	
Soil No. 8	2.20-2.35	11.2-11.35	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	8	11.2-11.35				0.00							0.00	0.00	
Soil No. 9	2.35-2.50	11.35-11.5	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	9	11.35-11.5				0.00							0.00	0.00	
Soil No. 10	2.50-2.65	11.5-11.65	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	10	11.5-11.65				0.00							0.00	0.00	
Soil No. 11	2.65-2.80	11.65-11.8	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	11	11.65-11.8				0.00							0.00	0.00	
Soil No. 12	2.80-2.95	11.8-11.95	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	12	11.8-11.95				0.00							0.00	0.00	
Soil No. 13	2.95-3.10	11.95-12.1	0.00	0.10	0.00	0.00	0.00	0.00	0.00						
Part No.	13	11.95-12.1				0.00							0.00	0.00	

Part No	032-1115	239-3030						1.80											1.00	0.00
See also	0-00-487	104-2258	810 1	211 2		1.28 2	1.48 2	2.31 20		5.12 7	2.25 4		4.00 3						2.00	1.80
Part No	173-1132	129-1517						0.00 03											1.00	0.00
See also	1-1-450	204-1521	571 7	244 15		0.40 2	0.00 3	2.81 13		2.00 4	0.15 4		2.60 2						1.00	2.00
Part No	212-1211	213-2764						0.00 03											1.00	0.00
See also	0-00-450	174-5238	148 20	418 3		0.80 6	0.10 2	0.44 03		0.18 7	0.40 11		5.10 4						0.00	5.70
Part No	0-50-818	241-1091						0.00 02											0.00	0.00
See also	0-00-247	188-4743	284 20	878 2		1.80 0	0.08 2	12.8 070		12.8 26	0.50 8		12.2 107						0.00	12.2 1
Part No	0-17-2182	188-2220						0.00 02											0.00	0.00
See also	0-00-1090	254-221	22 1 02	178 20		2.0 2.26 1		18.8 040		12.0 80	0.40 1		12.0 27						0.00	12.0 1
Part No	0-10-880	308-1700						0.00 00											0.00	0.00
See also	0-11-245	275-282	214 9	531 8		0.42 1	1.25 4	4.97 80		2.77 5	3.11 2		2.80 2						0.00	2.80
Part No	0-03-732	454-728						0.00 10											0.00	0.00
See also	1-13-883	115-120	0.50 7	418 2		0.8 0.00 2	0.80 10			2.42 0	0.17 2		0.20 5						0.00	0.20
Part No	140-1241	316-1528						0.00 10											0.00	0.00
See also	0-10-804	20-201	101 11	708 2		1.20 4	0.45 1	0.10 20		4.00 7	0.40 3		4.48 4						1.00	4.48
Part No	202-958	383-280						0.00 00											1.00	0.00
See also	0-00-280	411-160						0.00 02											0.00	0.00

For this study a sample collected from previous analysis (17°C) and a control of some were finished. Coal seams more than 100m below level of ground were finished. In this study a total of 17000 tonnes of coal were finished. Coal quality and interaction data were entered into MINEX software database.

With software interface and manual intervention, design structure with file, file and image was established.

Through MINEX software, volume of each seam and zoning 100 above the seam was calculated in the software through 1000000 tonnes of capacity. Most volume is used in 100 above the seam through built in process.

Following specific conditions are assigned to different grades of GCV as follows:

2.2.1.1.1. Specific conditions for the different grades of coal considered			
Sl. No.	GCV RANGE	GRADE NAME	SPECIFIC GRAVITY
1	Exceeding 1000	G-1	1.37
2	Exceeding 900 and not exceeding 1000	G-2	1.41
3	Exceeding 800 and not exceeding 900	G-3	1.45
4	Exceeding 700 and not exceeding 800	G-4	1.47
5	Exceeding 600 and not exceeding 700	G-5	1.5
6	Exceeding 500 and not exceeding 600	G-6	1.55
7	Exceeding 400 and not exceeding 500	G-7	1.61
8	Exceeding 300 and not exceeding 400	G-8	1.7
9	Exceeding 200 and not exceeding 300	G-9	1.8
10	Exceeding 100 and not exceeding 200	G-10	1.9
11	Exceeding 50 and not exceeding 100	G-11	1.95
12	Exceeding 20 and not exceeding 50	G-12	1.98
13	Exceeding 10 and not exceeding 20	G-13	1.98
14	Exceeding 5 and not exceeding 10	G-14	1.98
15	Exceeding 0 and not exceeding 5	G-15	1.98
16	Exceeding 0 and not exceeding 0	G-16	1.98
17	Exceeding 0 and not exceeding 0	G-17	1.98

The following formula is used to determine the high moisture content of coal, by taking the report 1% for each grade: $Gp, Cr = 1.25 + 0.01 \times Gp$. Mining plan (final and design) was designed through MINEX software. The mining plan is a set of physical report which is generated in the software and called for the design. A calculating was also performed for the plan and design to reflect the advance and temporary during the plan.

Coal stored in barrels, bags and for other factors were also considered similarly in the analysis and

2.2.1.1.2. ASSUMPTIONS FOR RESOURCES ESTIMATION

1. Data obtained from the assessment of coal is based on the effective thickness of seam. All thin bands 1m and above in thickness and five centimetre and below considered in coal design with a minimum thickness of 1m and above have been included for the coal resources of coal seam.
2. Since the original Geological report was based on URP method of grading system, calculated GCV values and a revised GCV is not available has been considered for grade-wise relative distribution in GCV system.
3. Grade-wise specific gravity has been considered for converting volume of coal into weight.
4. Resource has not been calculated from the area which means thickness is less than 1m.
5. A production of 0.5% has been given for unmineral geological uncertainty to adjust the net geological resource of the seam.
6. Several minor corrections has been used for correction of mineral and moisture even as per standard practice.

Average Mining loss considered is 1% over Mining in Reserve while quarry

2.2.1.1.3. LIMITATIONS

1. Ash plus Moisture values considered for different categories of coal and other properties are Coal (Ash+Moisture) ratio is 10%, Sinerge coal (Ash+Moisture) is 4.7%, upper 88%, Carbonaceous shale (Ash+Moisture) is 55%, lower 75%, Other (Ash+Moisture) is 60%, High Carbonaceous shale (Ash+Moisture) is 65%, upper 75% has not been taken into consideration while preparing the report.
2. Calculated GCV has been considered whereas determined GCV is not available.

Original information is available in mineral report (log file) and has been modified in some cases in order to avoid isolated areas of development with less no. of benches and to make a proper case of seam development and for making accurate mineral reserve.

2.2.1.2. Average GCV (Scaling)

Reserve GCV is determined as follows:

2.2.1.2.1	Initial Geological Reserve of the stock 'Mg'	90371
2.2.1.2.2	Net Geological Reserve of the stock 'Mg'	897690
2.2.1.2.3	Mineral Reserve of the stock 'Mg'	180980
2.2.1.2.4	Block of Reserve 'Mg'	110240
2.2.1.2.5	Converting the mineral reserve of the stock 'Mg'	175
2.2.1.2.6	Percentage of Reserve	14.88

3.3.22	Research study conducted (5 use of Mining Plant)	3
3.3.24	Subs and Rupture (at an above C.M.M.)	175,000

DRAFT

Chapter-3: Mining

3.1 Mining Method

S.No	Parameters	Details																																																																						
3.1.1	Feasible method of mining of the coal seam	Underhand operation																																																																						
3.1.2	Proposed method of mining with justification on suitability of method of mining.	<p>Choice of Mining Method Open cast Mining with full mechanization by employing high capacity excavators, surface miners, loaders and crushing dumps. Average coal quality is G12 and occurs up to a depth of 242.00 m. Thickness of seams vary from this shallower to 20 m. The thickest seam contributes about 50% of total reserves. Thickness of the upper seams are thicker and occur at shallow depth. Yearly output target is a minimum 4.0 Mtpa. More than 70% of total is Obala-Obala coal block rate under ground and occur up to a depth of 242.00 m. In view of multi seam deposit, coal quality, seam depth, depth of mining, etc. envisaged. Table below shows average thickness values of various seams with the planned quality.</p> <table border="1"> <thead> <tr> <th>Seam/Parting</th> <th>Average thickness with Quality (m)</th> </tr> </thead> <tbody> <tr><td>TA:OH</td><td>16.61</td></tr> <tr><td>X</td><td>4.17</td></tr> <tr><td>Parting</td><td>2.74</td></tr> <tr><td>X</td><td>2.57</td></tr> <tr><td>Parting</td><td>(5.2)</td></tr> <tr><td>Y</td><td>20.8</td></tr> <tr><td>Parting</td><td>2.21</td></tr> <tr><td>W:TOP</td><td>3.44</td></tr> <tr><td>Parting</td><td>0.32</td></tr> <tr><td>W:BOTTOM</td><td>1.12</td></tr> <tr><td>Parting</td><td>0.09</td></tr> <tr><td>W:</td><td>2.24</td></tr> <tr><td>Parting</td><td>5.43</td></tr> <tr><td>W:</td><td>1.43</td></tr> <tr><td>Parting</td><td>11.47</td></tr> <tr><td>W:</td><td>1.44</td></tr> <tr><td>Parting</td><td>11.5</td></tr> <tr><td>W:</td><td>0.09</td></tr> <tr><td>Parting</td><td>2.81</td></tr> <tr><td>W:</td><td>1.79</td></tr> <tr><td>Parting</td><td>5.8</td></tr> <tr><td>W:</td><td>2.11</td></tr> <tr><td>Parting</td><td>7.63</td></tr> <tr><td>W:TOP</td><td>2.31</td></tr> <tr><td>Parting</td><td>1.64</td></tr> <tr><td>W:BOTTOM</td><td>1.4</td></tr> <tr><td>Parting</td><td>6.87</td></tr> <tr><td>W:</td><td>2.11</td></tr> <tr><td>Parting</td><td>1.81</td></tr> <tr><td>W:TOP</td><td>1.87</td></tr> <tr><td>Parting</td><td>2.41</td></tr> <tr><td>W:BOTTOM</td><td>2.26</td></tr> <tr><td>Parting</td><td>2.22</td></tr> <tr><td>W:</td><td>2.26</td></tr> </tbody> </table> <p>Lower seams are thicker in the Obala seam zone to a depth, and at a depth between 100m and 60m. It is pointed that by open cast mining method, production from upper seams and lower seams can be mined in a manner to gain the most economy. By underground mining, annual production of 4.0 Mtpa is achieved. Total production may not exceed 40% of available coal.</p>	Seam/Parting	Average thickness with Quality (m)	TA:OH	16.61	X	4.17	Parting	2.74	X	2.57	Parting	(5.2)	Y	20.8	Parting	2.21	W:TOP	3.44	Parting	0.32	W:BOTTOM	1.12	Parting	0.09	W:	2.24	Parting	5.43	W:	1.43	Parting	11.47	W:	1.44	Parting	11.5	W:	0.09	Parting	2.81	W:	1.79	Parting	5.8	W:	2.11	Parting	7.63	W:TOP	2.31	Parting	1.64	W:BOTTOM	1.4	Parting	6.87	W:	2.11	Parting	1.81	W:TOP	1.87	Parting	2.41	W:BOTTOM	2.26	Parting	2.22	W:	2.26
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3.1.3	Coal production capacity proposed Mtpa	4.000																																																																						
3.1.4	Additional for cut position coal production capacity																																																																							

Justification for Determination of targeted capacity
 For calculation of load requirement, reference was taken from "Annualized Consumption Meter" of the "Scheme Records for Coaptive Power Plant Sub-station" issued by CoAL India Limited.
 COA of G-12 coal mine (1800 MW) coal mine is expected to be 54.77 lakhs/yr. Average grade of coal shall be 12-13 grade, falling in grade range of 5400/5600 Btu/kg.
 As per Government estimates above, coal requirement for G-12 plant of capacity between 1800 MW to less than 200 MW for G-12 coal is 51.27 lakhs/annum/yr.
 For power plant (rate of 250 MW) coal is 10000 metric tonne/annum/yr.
 Coal requirement for units 1 & 2 (1000 MW each) 10,00,000 metric tonne/annum/yr.
 Coal requirement for units 11 & 12 (250 MW each) 25,00,000 metric tonne/annum/yr.
 Total requirement 12,04,200 metric tonne/annum or 3,055 million metric tonne per year, rounded off to 3,000 Mtpa.

1. Both units of new power plant 11 & 12 will be commissioned in initial years from start of coal production.
2. Permission to operate 1000 MW plant has been obtained as per schedule of Coal-SEC Contract for 1000 MW.
3. There will not be any litigation or legal hurdle in commissioning all approved coal mines and power plants of coal from Odisha Mining Corporation, previous owner of Uda-11 & 12 coal mines.
4. Technical specifications given by existing manufacturers are correct and up-to-date.
5. Parameters of calculation of load and productivity by CMPP are approved.

Discussions: 4 discussions were mentioned at committee meeting

2.14	Calendar year from which the production will start	2025-26
1.15	Year of achieving need production	2027-28

3.1.7 Targeted Coal Production (Mtpa)

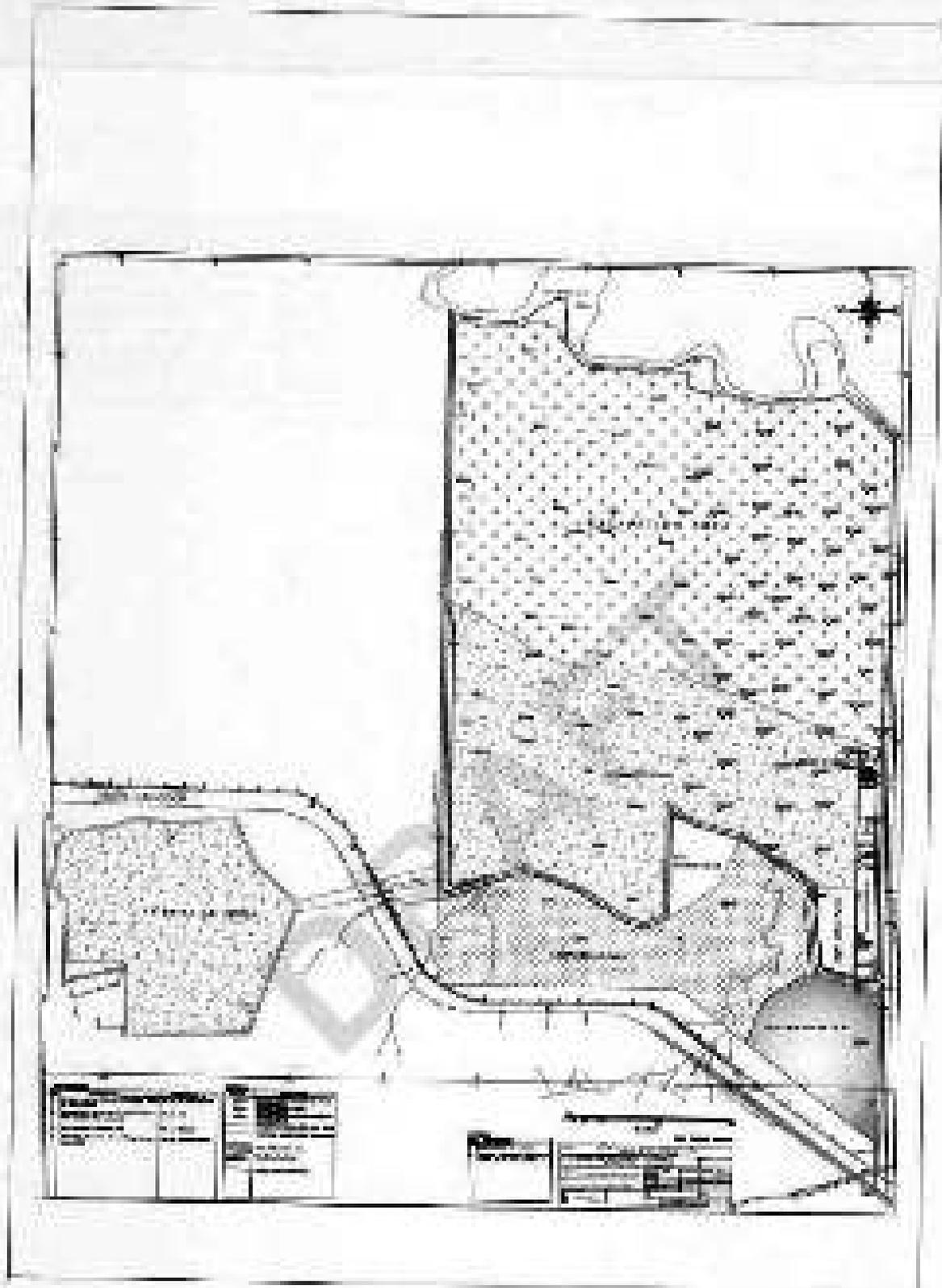
Year of Commission	Calendar Year	OCMP which are scheduled			OC (Mtpa)	EB
		UG	DC	Total		
1	2021-22	0	0	0.0000	0	
2	2022-23	0	0	0.0000	0	
3	2023-24	0	0.42	0.4200	0.60	
4	2024-25	0	1.8	1.8000	2.2000	
5	2025-26	0	2	2.0000	2.2000	
6	2026-27	0	2.5	2.5000	2.4000	
7	2027-28	0	4	4.0000	2.9000	
8	2028-29	0	4	4.0000	3.4000	
9	2029-30	0	4	4.0000	3.4000	
10	2030-31	0	4	4.0000	3.4000	
11	2031-32	0	4	4.0000	3.4000	
12	2032-33	0	4	4.0000	3.4000	
13	2033-34	0	4	4.0000	3.4000	
14	2034-35	0	4	4.0000	3.4000	
15	2035-36	0	4	4.0000	3.4000	
16	2036-37	0	4	4.0000	3.4000	
17	2037-38	0	4	4.0000	3.4000	
18	2038-39	0	4	4.0000	3.4000	
19	2039-40	0	4	4.0000	3.4000	
20	2040-41	0	4	4.0000	3.4000	
21	2041-42	0	4	4.0000	3.4000	
22	2042-43	0	4	4.0000	3.4000	
23	2043-44	0	4	4.0000	3.4000	
24	2044-45	0	4	4.0000	3.4000	
25	2045-46	0	4	4.0000	3.4000	
26	2046-47	0	4	4.0000	3.4000	
27	2047-48	0	4	4.0000	3.4000	
28	2048-49	0	4	4.0000	3.4000	
29	2049-50	0	4	4.0000	3.4000	
30	2050-51	0	4	4.0000	3.4000	
31	2051-52	0	4	4.0000	3.4000	
32	2052-53	0	4	4.0000	3.4000	
33	2053-54	0	4	4.0000	3.4000	
34	2054-55	0	4	4.0000	3.4000	
35	2055-56	0	4	4.0000	3.4000	
36	2056-57	0	4	4.0000	3.4000	
37	2057-58	0	4	4.0000	3.4000	
38	2058-59	0	4	4.0000	3.4000	
39	2059-60	0	4	4.0000	3.4000	
40	2060-61	0	4	4.0000	3.4000	
41	2061-62	0	4	4.0000	3.4000	
42	2062-63	0	4	4.0000	3.4000	

40	2892-81	C	4	4 8000	5.28	2 1074
44	2894-85	C	4	4 8000	5.17	1 2075
46	2895-89	C	4	4 2000	5.15	1 6522
46	2895-87	C	4	4 2000	5.15	1 6575
47	2897-89	C	4	4 2000	3.48	2 9690
48	2898-89	C	3.68	2 8000	3.75	1 2475

CCM, Caltrans, FHWA/California Dept. for Executive By of the state

3.1.6	Rated Capacity Alpa	By OC : 4 By LR : 11 Overall : 10000																																																																																																														
3.1.9	Life of the main track	By OC : 48 By LR : 0 Overall : 48																																																																																																														
3.1.10	Whether the proposed extent of CC is acceptable to local community bearing in mind whether development is feasible in the local area of responsibility	Proposed extent of CC is acceptable to local community bearing in mind whether development is feasible in the local area of responsibility																																																																																																														
3.1.11	Whether the proposed extent of CC is acceptable to local community bearing in mind whether development is feasible in the local area of responsibility	Yes. Annex A 3.10, page 2-3																																																																																																														
3.1.12	Whether the proposed extent of CC is acceptable to local community bearing in mind whether development is feasible in the local area of responsibility	Investigation carried out 1. Records by geologic structure and re-assessment of soil resources by the CC, which has identified soil resources 2. Investigation by geologic base which has identified soil resources 3. Social Impact Assessment Study by Fair Development Management Studies (FHWA) 4. Alternative 4. W&L Conversion Plan 5. Alternative 5. W&L Conversion Plan by using board method																																																																																																														
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3.1.14	Updated Project Document	OC : DG Max data sheet series LR : No																																																																																																														

OC Document:



Chapter-4: Safety Management

4.1 Safety Management

S/N	Parameters	Details
4.1.1		Major Risks and emergency to the project viz. fire, explosion, landslides, ground water, gas, etc. shall be identified and appropriate measures shall be taken. Risk assessment shall be carried out for the project. Risk assessment shall be carried out for the project. Risk assessment shall be carried out for the project.
4.1.2	A Committee from the Company shall be constituted to monitor the safety of the project. The committee shall be constituted to monitor the safety of the project. The committee shall be constituted to monitor the safety of the project.	As per Draft Contract from the meeting of the 30th meeting of Board of Directors of MCLCO held on 28.08.2021 at Bhubaneswar, Para No. 22.2.4.1 shall be approved. As per Draft Contract from the meeting of the 30th meeting of Board of Directors of MCLCO held on 28.08.2021 at Bhubaneswar, Para No. 22.2.4.1 shall be approved. As per Draft Contract from the meeting of the 30th meeting of Board of Directors of MCLCO held on 28.08.2021 at Bhubaneswar, Para No. 22.2.4.1 shall be approved.

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Chapter-5: Infrastructure Facilities proposed and their Location

5. Infrastructure Facilities

S.No	Facilities	Details		
		Infrastructure to be built/ to be put in use	Infrastructure to be already/ to be in use	
5.1	Other Infrastructure required	1	Office Building	7 Road Side
		2	Operational Buildings	2 Road Side, 2 Near Parking
		3	Water Power supply with pipeline	Connect with D. No. House and Talcher House
		4	Substation and distribution cables	House Workshop
		5	Water Supply	2. 400 Meter up
		6	Medical Consultation	2. 400 Meter up
		7	Surface Road	2. 400 Meter up
5.2	Power supply & Distribution			

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POWER SUPPLY & ILLUMINATION

SOURCE OF SUPPLY

Follow by a list of alternatives:

a. Power from the Capria power plant of 100MW
The project is a 220 KV substation double circuit overhead line from the CPP to the project. This alternative is not suitable considering the distance and the cost involved in it. Moreover, as the grid station is at 11 KV the cost of stepping up the voltage will be prohibitive and it is to be ruled out.

b. POWER AT 200KV/11KV FROM MANERHATTA (MH) substation
The project may also get power from Manerhatta (MH) substation. 100 MW is having a diesel/Inverter arrangement with CRDCO. Under this agreement MH (CP) will supply power to the Grid or draw power from Grid in case of drop in generation in their Capria power plant. This alternative is also not considered for the projective cost.

c. 11 KV power from OS900
As 11 KV power of OS900 being used is highly disturbed and is liable to frequent breakdowns, drawing 11 KV power is also ruled out.

d. 33 KV power from OS900
This alternative was also ruled out with the CRDCO officials. They have agreed to supply of 33 KV power to the tune of the requirement i.e. 5.4 MW.

As per latest development, it has been decided that Connectivity of power supply will be made with CRITICAL system through a cable and cable overcrossing line with some part to be underground cable system which will be drawn from 132KV/33KV substation station of Jajpur. This will be constructed under the supervision of CRDCO.

The 33KV line extension for the above line at grid Sub-station, Jajpur will be constructed by CRITICAL. As 100% requirement is to be drawn of 7 MW power to 11KV CRITICAL Sub-Station, MH (CP).

TRANSFORMER CAPACITY

Considering anticipated load of the project, the amount desired has been estimated to be about 3401 KW. This amount is estimated to be achieved after considering the loss of 8.5 and improving the power factor to 0.95 by installing 200 KVAR of capacitor banks at various 11KV busbars. 7 x 5.15 MVA, 33/11 KV transformers will be provided in the project sub-station. These should have to be of oil type for the loads of CRITICAL pumps, lighting, etc.

VOLTAGES & SYSTEM EARTHING

The various voltages proposed at the levels of the project are:	
Incoming supply	33 KV
Feeding	6.6 KV, 5.4 KV, 4.15 KV
Workshops	4.15 KV
CRITICAL	11 KV & 4.15 KV
Control & meter supply	4.15 KV
Lighting in the quarry	240 (p.u.) Volt

Disturbed earthed neutral system has been proposed to be adopted for all as required. To ensure safety in working process and to the prevention of fire hazards, an effective earthing system has been adopted. There will be an earthing grid extending far into substation. The combined resistance of the earthing grid in the substation, shall preferably be kept below one ohm.

QUARRY ILLUMINATION

The working areas of the quarry shall be illuminated by a system of 400W/1000V lamps mounted on 15m high masts. Power to these lights will be fed through 1000V, 3.6/230V, 1.5 MW lighting transformers.

SMALL POND ILLUMINATION

Small pond illumination will be provided by 200W/1000V lamps mounted on 15m high masts. In particular lighting mast erected along the main road. Power to these lamps would be supplied from 3.6/230V, 1.5 MW transformers.

SPILL DUMP ILLUMINATION

Spill dump illumination would be done by 100W/1000V lamps mounted on 15m high masts. Power will be supplied from 3.6/230V, 1.5 MW transformers.

GENERAL ILLUMINATION

Workshop provision would be made for illumination of various workshop buildings, roads and all other buildings placed by 200W/1000V lamps. Refer to equipment CRITICAL will supply the power independent of other power systems.

EMERGENCY ILLUMINATION

Provision would be made for portable emergency light, battery operated units, for illuminating the required location, such as, petrol filling, substation, shop, personal mess, etc. and other small offices etc. (Refer to CRITICAL and CRITICAL project cost sheet).

10.2. Details are 5. Pumping: Assessment of Volume of Water for Pumping, Pumping Capacity and Pump Selection.

Chapter-5: Land Requirement

5.1 Land requirement

S.No	Particulars	Details	
0.1	Total Land requirement for the mine in "Ha" - Indicative source of data		
	Mining Lease area	108.17 Ha	
	Part held outside Block boundary	38.21 Ha	
	Total	146.38 Ha	
* Details of Land Use Pattern of High in TopC (break up of per mining lease area) (Indicative) are source of data.			
S.No	Land Type	Comprises/Utilization	Area
1	Tenancy	Agriculture	20.818
2	Tenancy	Industrial	1.000
3	Tenancy	Barren	12.171
4	Tenancy	Commercially	8.48
5	Govt. Forest	Agriculture	22.902
6	Govt. Forest	Industrial	1.780
7	Govt. Forest	Barren/Barren	2.465
8	Govt. Forest	Barren	22.228
9	Govt. Forest	Mulch/Forest	28.222
10	Govt. Forest	Commercially	11.888
11	Govt. Forest	Road	8.115
12	Private	Private/Forest Land	312.628

5.1.2 Dump mining Land use details

Type	Land Use (Proposed)	Land Use (Total/Use)	Land Use (Total/Current)					Total
			Agriculture (Ha)	Industrial	Water Body	Public/Commercial/any Use	Forest Land (Barren/Use)	
Hard Road before graded								
Hard Road on								
Division of Ridge River Or Hole Or Canal	11.15	11.15			11.15			11.150
Industrial Area	200.41	16.45			16.45			1048.4
Deciduled Area		264.93		264.93	1.88			266.810
Reforested Wood		126.18					62.15	188.330
Without Reforest on								
Top Soil Camp								
Barren/ Camp	245.01	246.47		246.47		1.05		247.520
Gravel/Stone	23.07	23.21		23.21				23.310
Hard Road/Industrial Area	85.17	58.11	11.26			54.05		65.180
Water filled on/Off	17.27	17.21			17.21			17.410
Gravel/Drain	0.86	0.88			0.88			0.880
Embankment	0.35	0.08			0.08			0.880
Gravel/Drain	8.15	8.12			8.12			8.120

Chapter-7: Environment Management

7. Environmental Management

Sl. No.	Particulars	Details
7.1	Cover letter from the regional proponent that the company will comply with the Environmental and Forest Conditions laid in the respective clearances.	MCA 2013 (6) Safety, Environment and Forest (SSEF) 2013 comply with the Government and Forest Conditions stipulated in the respective clearances. Compliance is observed as Annexure-12.

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Chapter-8: Progressive & Final Mine Closure Plan

8.1.1 Land Degradation and Restoration Schedule

Terrestrial Land Degradation and Terrestrial Restoration (Commercial Area 16)									
Year/Stage		Land Degraded				Terrestrial Restored Area			
Life of the mine plus post-closure period		Native	Grass (20% + Top Soil)	Intertropical	Total	Height	Grass (20% + Top Soil)	Others	Total
Up to 2021	2021	0	0	0	0.0000	0	0	0	0.0000
Y-1	2022-23	0	0	0.00	0.0000	0	0	0.00	0.0000
Y-2	2023-24	0.00	12.11	18.08	30.1900	0	13.11	17.08	30.1900
Y-3	2024-25	0.00	22.83	27.43	50.2600	0	23.83	26.43	50.2600
Y-4	2025-26	0.00	132.20	21.85	257.3600	0	112.31	144.05	256.3600
Y-5	2026-27	0.00	228.09	27.50	454.0000	16.89	198.83	255.14	441.2500
Y-6	2027-28	0.00	243.89	27.53	527.8200	17.73	190.14	255.14	442.8100
Y-7	2028-29	0.00	246.41	27.50	652.0000	22.74	188.41	255.14	466.3500
Y-8	2029-30	0.00	246.41	27.50	652.0000	18.13	188.41	255.14	466.3500
Y-9	2030-31	0.00	246.41	27.50	725.2000	18.85	188.41	255.14	467.4000
Y-10	2031-32	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-11	2032-33	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-12	2033-34	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-13	2034-35	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-14	2035-36	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-15	2036-37	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-16	2037-38	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-17	2038-39	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-18	2039-40	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-19	2040-41	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-20	2041-42	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-21	2042-43	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-22	2043-44	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-23	2044-45	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-24	2045-46	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-25	2046-47	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-26	2047-48	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-27	2048-49	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-28	2049-50	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-29	2050-51	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-30	2051-52	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-31	2052-53	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-32	2053-54	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-33	2054-55	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-34	2055-56	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-35	2056-57	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-36	2057-58	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-37	2058-59	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-38	2059-60	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-39	2060-61	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-40	2061-62	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-41	2062-63	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-42	2063-64	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-43	2064-65	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-44	2065-66	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-45	2066-67	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-46	2067-68	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-47	2068-69	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-48	2069-70	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-49	2070-71	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-50	2071-72	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-51	2072-73	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-52	2073-74	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-53	2074-75	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-54	2075-76	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-55	2076-77	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-56	2077-78	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-57	2078-79	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-58	2079-80	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-59	2080-81	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-60	2081-82	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-61	2082-83	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-62	2083-84	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-63	2084-85	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-64	2085-86	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-65	2086-87	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-66	2087-88	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-67	2088-89	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-68	2089-90	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-69	2090-91	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-70	2091-92	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-71	2092-93	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-72	2093-94	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-73	2094-95	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-74	2095-96	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-75	2096-97	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-76	2097-98	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-77	2098-99	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-78	2099-00	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-79	2100-01	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-80	2101-02	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-81	2102-03	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-82	2103-04	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-83	2104-05	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-84	2105-06	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-85	2106-07	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-86	2107-08	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-87	2108-09	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-88	2109-10	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-89	2110-11	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-90	2111-12	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-91	2112-13	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-92	2113-14	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-93	2114-15	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-94	2115-16	0.00	246.41	27.50	750.8000	20.77	188.41	255.14	468.3200
Y-95	2116-17	0.00	246.41	27.50					

2.1	Post Closure Water Quality Management	Management plan will be made in respect of usage of treated effluent freely in the catchment ponds by changing the make of water in different periods of the day/night of the year. The first week of the quarter is to be used as a water reserve for water harvesting and also for use in the quarter if the quality is not good. The following paragraphs describe the quality of water for industrial and firefighting purposes of nearby areas. A check of quality of water made after monsoon and after a period of banking and watering for the local population. Practically, the watering of water in the area is not possible as the drainage system of the catchment area will be such that the water will be directed to the pond of the area which will be developed as a water reserve for water harvesting and also for keeping the water in the surrounding area.
2.2	Post Closure Air Quality Management	The mining and its related activities will be conducted in a closed area. The ambient air will be monitored due to presence of dust, SPH, SO ₂ , HCl, which will be monitored due to various activities related to the project. The concentration of pollutants will vary depending upon micro-meteorological parameters of area. Appropriate air pollution control measures will be taken so that the ambient air quality is maintained within specified standards. Both preventive and suppressive measures to be taken as elaborated below. LOCAL GOVERNMENT: All sites will be enclosed with dust enclosures, covered during a rain or wet. Proper maintenance and handling of dust or water will be done. Coal production will be done by using semi-automated Surface Miners. MACHINERY: Use of TBM Blasting will be done in a proper way to minimize the generation of fugitive dust, noise and vibration. Proper spacing and location of blast holes will be maintained. OPERATIONS: TRUCKS: The haul trucks will be sprayed regularly with water. All services roads will be encased. The roads of open-pit, closed haul roads, inter-division, service buildings area and other areas will be made. COAL HANDLING: MACHINERY: PROVISION OF FUGITIVE DUST CONTROL: With all dust suppressing arrangements. Provision of covers on the conveyor belts, enclosing transfer points to prevent emission of dust. Bag houses of dust dust in transfer points and other points in the coal flow should be provided to collect dust and dry fog system. Minimization of the height of coal-dust transfer points to reduce the air generation and if necessary, provision of dust suppression systems. Improved maintenance of all dust machinery to ensure provision of dust control machinery and systems. FIRE AND SAFETY: COAL STORAGE: Storage of coal in order to prevent accidents due to self-heating should have a proper fire-fighting organization under the control of the mine or the Safety colour. Fire-fighting stations should be maintained and the fire-fighting equipment should be adequate. Fire-fighting equipment should be provided in the mine with adequate fire-fighting equipment. Adequate number of persons should be trained in handling who should be familiar with all fire-fighting equipment. The coal stock should be regularly inspected to see if it could be properly stored and made cover applied to prevent entry of air and prevent spontaneous heating. High limit should be set around the coal stock in line with fire in case of emergency. In the eventuality, the coal should be properly covered and no loose coal should be left which facilitate spontaneous heating. Before discharging any equipment in the mine, it should be checked about with fire and fire-fighting facilities to control.

Table 2.1: Waste Management (Inputs to HMT) (Continued)

Waste/Slurry	Life of the mine plus post-closure (Yr)	CG Removal (T/annum)			Coloured Drain (T/annum)		Spent Material (T/annum)		Emulsified (T/annum)	
		Top Soil	CG	Total	Top Soil	Run	Top Soil	CG	Top Soil	CG
Up to Dec 2021	2021	0	0	0	0	0	0	0	0	0
Y-1	2022-23	0.11	0	1.07	1	0	0	0	0	0
Y-2	2023-24	0.11	1.21	1.09	1.11	1.81	0	0	0	0
Y-3	2024-25	0.11	3.42	4.41	0.25	0.12	0	0	0	0
Y-10	2030-31	0.17	11.74	12.91	0.17	0.12	0	0	0	0
Y-15	2035-36	1.57	49.52	110.45	1.54	21.35	0	1.87	0	0
Y-20	2040-41	1.90	144.24	151.83	1.04	101.42	0	21.97	0	0
Y-25	2045-46	1.30	144.72	201.67	1.34	103.75	0	22.37	0	0
Y-30	2050-51	1.35	214.04	227.68	1.01	103.91	0.02	20.34	0.01	0.02
Y-35	2055-56	1.30	274.24	260.28	2.11	103.81	0.12	133.41	0.11	0.12
Y-40	2060-61	0.25	301.74	323.48	2.21	120.51	0.03	101.20	0.20	0.03
Y-45	2065-66	0.50	284.62	303.35	2.11	120.01	0.01	102.20	0.04	0.02
Y-50	2070-71	0.50	284.18	302.74	2.11	120.01	0.01	102.21	0.04	0.02
Post Closure										
Y-51	2071-72	0.25	302.41	326.74	2.11	120.01	0.01	102.21	0.04	0.02

Table 2.2: Top Soil Management - (Including source data for Top Soil in a separate Table)

Waste/Slurry	Life of the mine plus post-closure (Yr)	Top Soil Removal (T/annum)	Spending Over (T/annum)		Top Soil Used (T/annum)		Total (T/annum)
			Spending Over (T/annum)	Spending Over (T/annum)	Spending Over (T/annum)	Used in Other (T/annum)	
Up to Dec 2021	2021	0	0	0	0	0	0
Y-1	2022-23	0.11	0	0	0	0	0
Y-2	2023-24	0.11	0	0	0.11	0.07	0.07
Y-3	2024-25	0.11	0	0	0.11	0.15	0.12
Y-10	2030-31	0.17	0	0	0.17	0.15	0.02
Y-15	2035-36	1.57	0	0	1.04	2.15	1.12
Y-20	2040-41	1.90	0	0	1.04	3.15	1.78
Y-25	2045-46	1.30	0	0	2.01	4.15	1.98
Y-30	2050-51	1.35	0.01	0	2.11	4.10	1.24

Demarcating of infrastructure & disposal of waste and using Machinery	Demarcating of workshop	La	40000	100	0.00
	Rehabilitation of the Corporation building	La			
	Demarcating of pump and pump/culvert building	La	2000	100	0.04
	Demarcating of storm water, providing of pump for excess pumping on a wet soil				
	Demarcating of all equipment				
Quality and Quantity	Providing water piped to dump on particular island	La			0.20
	Demarcating of power line	n	6000	100	0.11
	Any other Activity				
	Barbed wire fencing around dump				
	Barbed wire fencing around 10000	Ch			
	Barbed wire fencing with Mandatory wire	n	2000	4000	1.00
	Concrete wall with Hazardous pillars on wet soil				
	Sealing air leak and installation of air vent 2000				
	Excavation/landfill				
	Concrete wall fencing around the waste load				
	Perimeter wall around the water body				
	Sanitization (to be done as per the plan of the water body)				
	Iron wall around the dump				
	Overhead Drain around the dump				
	Drainage of water from road to dump	n	1000	4000	0.47
Any other Activity					
Technical and Biological Rehabilitation of mixed soil of land and OB dump	Final disposal	Ha			
	Top soil replacement	MM3			
	OB Replacement for each m ²	MM3			
	Fencing, stabilizing with soil and vegetation of Hazardous Dump	Ch	27.90	110000	1.00
	Plant and seed, water, water pump, cement and glass of land	Ch			1.00
	Equipment on development of Agriculture land	Ha	11.00	100000	1.00
	Landscape and Planting	n	0.24	2000000	1.74
Any other Activity					
Plant Culture management (100 to 200000)	Plant 10000	Ch	2.04	4.00	1.72
	Plant using water quality management	La	100	2100	0.00
	Plant using air quality management	La	200	4000	1.72
	Subsidence monitoring for 5 years	La			
	Waste management	La	20	100000	4.00
	Waste management	La	10	40000	4.00
	Manpower Cost and equipment				
Others	Entrepreneurship development/consultancy/evaluation/monitoring/coordination/management/technical support	Ha	1.71	11000	1.00
	Grants/Handy with management benefit (100 employees of CC)				

Category	Number of beneficiaries of each benefit to be provided under the plan	Estimated Annual Cost	Estimated Annual Revenue
Direct financial grants to local level institutions for building a school	No	13	25000
Provision of school uniforms for 100000 children	No	10	10000
Contribution of other services for building of school etc			
Any other activity			
Total			35000

Amount of Annual Income to be deposited in the account of the trust to be set up for the purpose of the closure of the plan.

Particulars	Apr-19	12-13
Balance b/d		100
Transfer from Govt. Account		100
Interest on Govt. Bonds	100	100
Dividend from Govt. Bonds	1	100
Profit from Govt. Bonds	1	100
Amount due to be paid to Govt. Account for 12-13	1	100
Amount due to be paid to Govt. Account for 13-14	1	100
Net Amount to be deposited in the Govt. Account for 13-14	1	100
Balance b/d		100
Transfer from Govt. Account		100
Interest on Govt. Bonds	100	100
Dividend from Govt. Bonds	1	100
Profit from Govt. Bonds	1	100
Amount due to be paid to Govt. Account for 12-13	1	100
Amount due to be paid to Govt. Account for 13-14	1	100
Net Amount to be deposited in the Govt. Account for 13-14	1	100

Amount to be deposited in the account

Year	PG	UG	Total
1	1.152		1.152
2	1.155		1.155
3	1.158		1.158
4	1.161		1.161
5	1.164		1.164
6	1.167		1.167
7	1.170		1.170
8	1.173		1.173
9	1.176		1.176
10	1.179		1.179
11	1.182		1.182
12	1.185		1.185
13	1.188		1.188
14	1.191		1.191
15	1.194		1.194
16	1.197		1.197
17	1.200		1.200
18	1.203		1.203
19	1.206		1.206
20	1.209		1.209
21	1.212		1.212
22	1.215		1.215
23	1.218		1.218
24	1.221		1.221
25	1.224		1.224
26	1.227		1.227
27	1.230		1.230
28	1.233		1.233
29	1.236		1.236
30	1.239		1.239

21	7,613			7,613
22	7,893			7,893
23	8,298			8,298
24	8,811			8,811
25	9,346			9,346
26	9,917			9,917
27	10,528			10,528
28	11,183			11,183
29	11,887			11,887
30	12,644			12,644
31	13,459			13,459
32	14,337			14,337
33	15,283			15,283
34	16,292			16,292
35	17,370			17,370
36	18,513			18,513
37	19,728			19,728
38	21,011			21,011
39	22,369			22,369
40	23,800			23,800
41	25,312			25,312
42	26,903			26,903
43	28,582			28,582
44	30,357			30,357
45	32,228			32,228
46	34,194			34,194
47	36,254			36,254
48	38,408			38,408
49	40,656			40,656
50	43,000			43,000
51	45,440			45,440
52	47,977			47,977
53	50,612			50,612
54	53,346			53,346
55	56,180			56,180
56	59,115			59,115
57	62,153			62,153
58	65,295			65,295
59	68,543			68,543
60	71,898			71,898
61	75,362			75,362
62	78,937			78,937
63	82,625			82,625
64	86,428			86,428
65	90,348			90,348
66	94,386			94,386
67	98,545			98,545
68	102,827			102,827
69	107,234			107,234
70	111,769			111,769
71	116,435			116,435
72	121,235			121,235
73	126,171			126,171
74	131,246			131,246
75	136,463			136,463
76	141,825			141,825
77	147,335			147,335
78	152,996			152,996
79	158,811			158,811
80	164,784			164,784
81	170,919			170,919
82	177,219			177,219
83	183,688			183,688
84	190,330			190,330
85	197,148			197,148
86	204,146			204,146
87	211,328			211,328
88	218,698			218,698
89	226,259			226,259
90	233,915			233,915
91	241,670			241,670
92	249,528			249,528
93	257,493			257,493
94	265,569			265,569
95	273,750			273,750
96	282,040			282,040
97	290,443			290,443
98	298,963			298,963
99	307,604			307,604
100	316,370			316,370
Total	15,380		15,380	15,380

DRAFT

Annexures

Annexure 1A1

Annexure 1A1

Ministry of Health
 Ministry of Health
 Health Services Division
 Health Services Division, New Delhi

Office of the Director General of Health Services, New Delhi
 New Delhi, India

Subject: **Annexure 1A1**

To: **Director, Health Services, New Delhi**

From: **Director, Health Services, New Delhi**

Date: **10/10/2018**

Reference: **Annexure 1A1**

By: **Director, Health Services, New Delhi**

S.No.	Name of Specialist Post	Qualification	Contractual Basis	Category
1	Senior Lecturer (Health Services)	B.Sc. (Hons.) in Health Services	Contractual	Level 10
2	Senior Lecturer (Health Services)	B.Sc. (Hons.) in Health Services	Contractual	Level 10
3	Senior Lecturer (Health Services)	B.Sc. (Hons.) in Health Services	Contractual	Level 10
4	Senior Lecturer (Health Services)	B.Sc. (Hons.) in Health Services	Contractual	Level 10

Annexure 1A1



and the procedures by Civil Affairs Group, Fort Bragg, N.C. (2000-0001) and attached
B) of attached list of subjects (2000-0001) and (2000-0002) and (2000-0003) and (2000-0004) of
the Civil Affairs Special Forces (2000-0001) and (2000-0002).

AND WHEREBY the above is a part of a contract for information which will be made to the
above mentioned information.

It is the policy of the United States to provide information and the laws, from which it is
and other and for continuing operations conducted by the United States and

It is the policy of the United States to provide information and the laws, from which it is
and other and for continuing operations conducted by the United States and

AND WHEREBY the above is a part of a contract for information which will be made to the
above mentioned information.

AND WHEREBY the above is a part of a contract for information which will be made to the
above mentioned information.

AND WHEREBY the above is a part of a contract for information which will be made to the
above mentioned information.

AND WHEREBY the above is a part of a contract for information which will be made to the
above mentioned information.

AND WHEREBY the above is a part of a contract for information which will be made to the
above mentioned information.

CONFIDENTIALITY AND SECURITY INFORMATION

1. The above information is classified as Confidential and is to be controlled in accordance with
the provisions of the Executive Order on Confidentiality, Executive Order 11652, and the
provisions of the Executive Order on Security Information, Executive Order 11652.

2. All the rights, title and interest in the information contained herein and
any information, data, or other material in possession of the United States and
any part of the rights, title, interest and information, were available to the
personnel, equipment, and other.



Map's name

Abstract 1. Particulars of the ...

Part 1 - Description of the ...

Name of Field	Area - μ
Field 1	...
Field 2	...
Field 3	...
Field 4	...
Field 5	...
Field 6	...
Field 7	...

Name of Field	Area - μ
Field 8	...
Field 9	...
Field 10	...
Field 11	...
Field 12	...
Field 13	...
Field 14	...



...

Part 2 - Description of Land to be Reported on this Form

Type of Land - Leasehold Land - Mining, Logging, Mining Lease

Type of Land - Leasehold Land - Other than Mining, Logging, Mining Lease

Name	Value - A Area (Acres)	Value - B Area (Acres)	Total Area (Acres)
Leasehold Land	10.00	10.00	20.00
Other Land	10.00		10.00
Total Land			30.00

Type of Land - Leasehold Land - Other than Mining, Logging, Mining Lease

Name	Value - C Area (Acres)	Value - D Area (Acres)	Total Area (Acres)
Leasehold Land	10.00		10.00
Other Land	10.00		10.00
Total Land			20.00



Part 1 - Description of Other Submissions in relation to the mine

1.1. Other Submissions in the Assessment Phase

N/A

1.2. Other Submissions in the Final Environmental Assessment

Types of Land: Forest Land for Commercial, Residential

N/A

Type of Land: Agricultural Land for Commercial, Residential

Region	Total - 01 Area (hectares)	Total - 02 Area (hectares)	Total Area (hectares) (01 + 02)
Commercial Land	23,122		23,122
Private Land			
Forest Land			

1.3. Miscellaneous Development and Rehabilitation Land

Type of Land: Residential and Recreational Land/Land

S/N	Name	Land Number	Area of Rights (ha)	Area Element
1	Living	124	10,000,000	10,000,000 (100%)
2	Living	125	10,000,000	10,000,000 (100%)
3	Living	126	10,000,000	10,000,000 (100%)
4	Living	127	10,000,000	10,000,000 (100%)
5	Living	128	10,000,000	10,000,000 (100%)
6	Living	129	10,000,000	10,000,000 (100%)
Total				60,000,000 (100%)

Type of Land: Agricultural and Recreational Land/Land

Region	Total - 01 Area (hectares)	Total - 02 Area (hectares)	Total Area (hectares) (01 + 02)
Commercial Land	11,000		11,000
Private Land		1,000	1,000
Forest Land			



Annexure 2. Parameters of contract between private contractors, suppliers or vendors used by the Central Government which are being considered through the Administration.

S. No.	Contract Clause	Modality	Letter No.	Value
1	Approval of Contract Form at Value 100 Lakhs	Agency Modality - Direct	No. 1011/2009/CP/MS/1	27.4 Lakhs
	CP Form - Direct Mode		No. 1011/2009/CP/MS/1	1181.200
2	Working Order	Agency Modality - Direct	No. 1011/2009/CP/MS/1	11.01 Lakhs
	Additional for Approval of Working Order under Section 2(c) and in Section 2(b) of the MSME Act, 2006		No. 1011/2009/CP/MS/1	11.01 Lakhs



**Annexure A: Particulars of statutory bodies, boards, committees, agencies or
institutions created by the Government of Karnataka to be treated as agencies for
allotment.**

S. No.	Statutory Body/Board/Committee/Agency/Institution	Ministry/Agency	Letter No.	Date
1	Government of Karnataka Karnataka Karnataka Karnataka	Ministry of Transport and Roadways	No. K.T.R. 100/2007 (10/07)	10/07/2007
2	Food Corporation of India - Karnataka District Milk Producers' Cooperative Societies	Ministry of Food and Public Distribution	No. K.F.P.D. 100/2007 (10/07)	10/07/2007
3	Public Works Department - Karnataka District Milk Producers' Cooperative Societies	Ministry of Public Works	No. K.P.W. 100/2007 (10/07)	10/07/2007
4	State Road Transport Corporation Karnataka	Ministry of Transport and Roadways	No. K.T.R. 100/2007 (10/07)	10/07/2007
5	State Road Transport Corporation Karnataka	Ministry of Transport and Roadways	No. K.T.R. 100/2007 (10/07)	10/07/2007
6	State Road Transport Corporation Karnataka	Ministry of Transport and Roadways	No. K.T.R. 100/2007 (10/07)	10/07/2007



Page 10

Summary of Description of contracts, permits, provisions, approvals or contracts issued by the State Government to be included or excluded from the plan.

Sl. No.	Contract/ Provision	Issuing Agency	Letter No.	Year
1	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
2	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
3	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
4	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
5	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
6	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
7	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
8	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
9	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
10	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
11	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000
12	Contract for supply of fuel - Diesel Motor Vehicle - 1000 Liters	State Pollution Control Board	No. 1000/2000 2000/2000 No. 2000/2000 11/05/2000	2000/2000



U.S.	Post Office	Business Reply	Permit No.	1000
------	-------------	----------------	------------	------



POSTAGE WILL BE PAID BY ADDRESSEE

Journalize the following transactions for the month.

The company has not yet received payment for the sale of goods to the client.

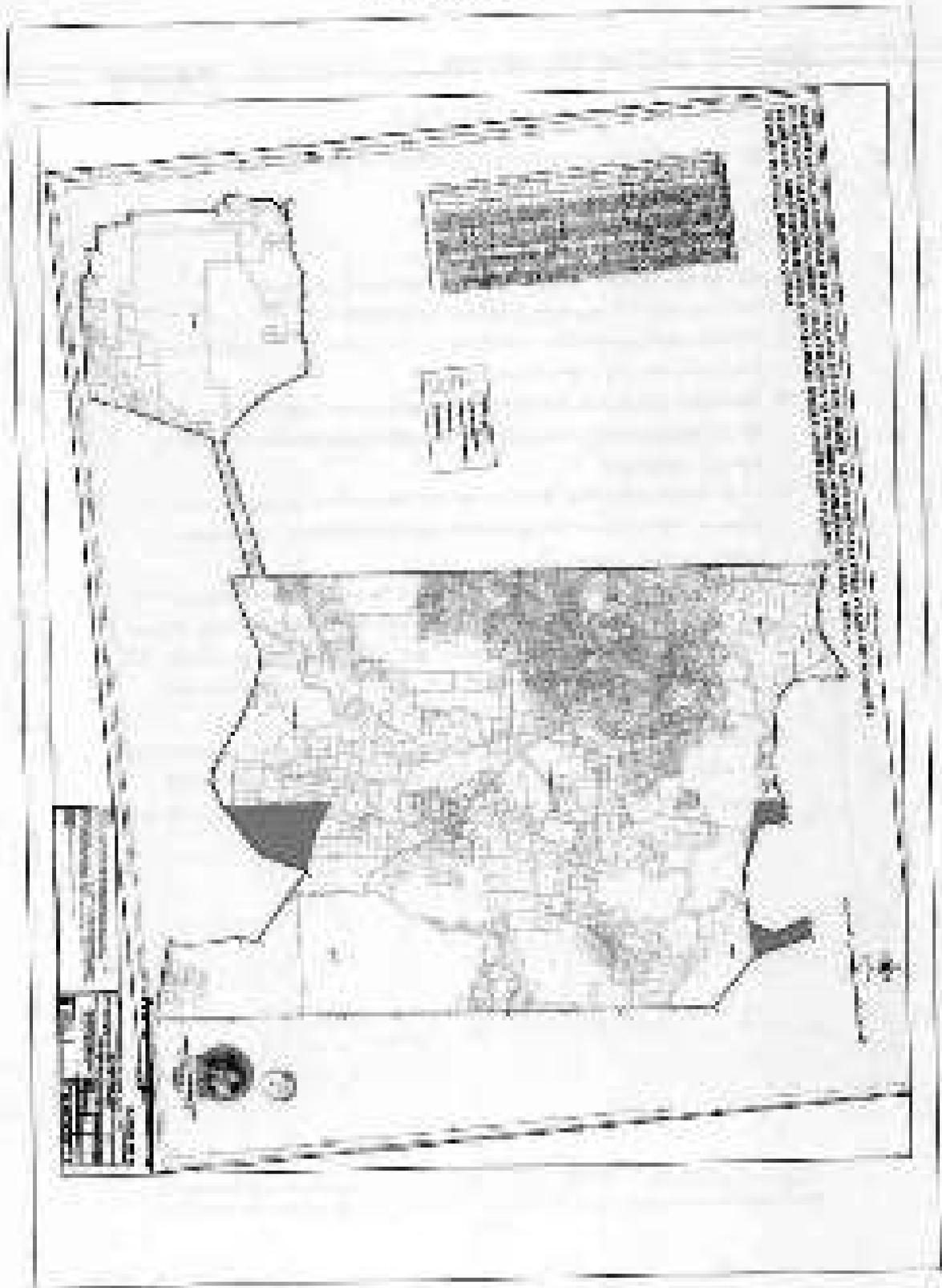


Journal

Annexure 2A

Sl. No	Latitude	Longitude
1.8	20°57'14.43480"	84°41'18.08340"
2.6	20°57'14.43480"	84°41'18.08340"
3.6	20°57'14.43480"	84°41'18.08340"
4.0	20°57'14.43480"	84°41'18.08340"
5.0	20°57'14.43480"	84°41'18.08340"
6.2	20°57'14.43480"	84°41'18.08340"
7.2	20°57'14.43480"	84°41'18.08340"
8.0	20°57'14.43480"	84°41'18.08340"
9.0	20°57'14.43480"	84°41'18.08340"
10.2	20°57'14.43480"	84°41'18.08340"
11.2	20°57'14.43480"	84°41'18.08340"
12.0	20°57'14.43480"	84°41'18.08340"
13.0	20°57'14.43480"	84°41'18.08340"
14.0	20°57'14.43480"	84°41'18.08340"
15.2	20°57'14.43480"	84°41'18.08340"
16.2	20°57'14.43480"	84°41'18.08340"
17.2	20°57'14.43480"	84°41'18.08340"
18.0	20°57'14.43480"	84°41'18.08340"
19.0	20°57'14.43480"	84°41'18.08340"
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21.0	20°57'14.43480"	84°41'18.08340"
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35.0	20°57'14.43480"	84°41'18.08340"
36.0	20°57'14.43480"	84°41'18.08340"
37.0	20°57'14.43480"	84°41'18.08340"
38.0	20°57'14.43480"	84°41'18.08340"
39.0	20°57'14.43480"	84°41'18.08340"
40.0	20°57'14.43480"	84°41'18.08340"
41.0	20°57'14.43480"	84°41'18.08340"
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49.0	20°57'14.43480"	84°41'18.08340"
50.0	20°57'14.43480"	84°41'18.08340"
51.0	20°57'14.43480"	84°41'18.08340"
52.0	20°57'14.43480"	84°41'18.08340"
53.0	20°57'14.43480"	84°41'18.08340"
54.0	20°57'14.43480"	84°41'18.08340"
55.0	20°57'14.43480"	84°41'18.08340"
56.0	20°57'14.43480"	84°41'18.08340"
57.0	20°57'14.43480"	84°41'18.08340"
58.0	20°57'14.43480"	84°41'18.08340"
59.0	20°57'14.43480"	84°41'18.08340"
60.0	20°57'14.43480"	84°41'18.08340"
61.0	20°57'14.43480"	84°41'18.08340"
62.0	20°57'14.43480"	84°41'18.08340"
63.0	20°57'14.43480"	84°41'18.08340"
64.0	20°57'14.43480"	84°41'18.08340"
65.0	20°57'14.43480"	84°41'18.08340"

Annexure 2B



504-004

DESCRIPTIVE LOG	
Location	KOH-3
Interval	
Remarks	
Depth	1.00 m
Interval	0.10 m
Remarks	1.00 m (1.00 m) interval
Depth	1.10 m
Interval	0.10 m
Remarks	1.10 m (1.10 m) interval
Depth	1.20 m
Interval	0.10 m
Remarks	1.20 m (1.20 m) interval
Depth	1.30 m
Interval	0.10 m
Remarks	1.30 m (1.30 m) interval
Depth	1.40 m
Interval	0.10 m
Remarks	1.40 m (1.40 m) interval
Depth	1.50 m
Interval	0.10 m
Remarks	1.50 m (1.50 m) interval

KOH-1

INITIAL DRILLING IS STOPPING AS THERE WAS NO INDICATION OF CARBONACIOUS MATERIALS BEING
 REACHED DURING DRILLING

Logging is used for the identification of the grade below the surface
 Core depth

Depth (meters)	Interval (m)	Remarks	Grade	Interval	Remarks
1.00	0.10	1.00 m (1.00 m) interval	1.00	0.10	1.00 m (1.00 m) interval
1.10	0.10	1.10 m (1.10 m) interval	1.10	0.10	1.10 m (1.10 m) interval
1.20	0.10	1.20 m (1.20 m) interval	1.20	0.10	1.20 m (1.20 m) interval
1.30	0.10	1.30 m (1.30 m) interval	1.30	0.10	1.30 m (1.30 m) interval
1.40	0.10	1.40 m (1.40 m) interval	1.40	0.10	1.40 m (1.40 m) interval
1.50	0.10	1.50 m (1.50 m) interval	1.50	0.10	1.50 m (1.50 m) interval

1.00 - 1.10 m
 1.10 - 1.20 m
 1.20 - 1.30 m

Statement of Compliance (1) Notified by State Government and District in
 the outside world from (2) Intent of State Government to issue mining block
 Page - 12

FINANCIAL PERFORMANCE

INDICATOR	KPI
REVENUE	PROFITABILITY
EBITDA	FCI
NET OPERATING ASSET	EBITDA
DEBT TO EQUITY RATIO	EBITDA
RETURN ON INVESTMENT	EBITDA/Total capital employed
RETURN ON EQUITY	EBITDA
RETURN ON ASSETS	Net Assets
RETURN ON CAPITAL	EBITDA
ROCE	EBITDA

See the weekly and the monthly financial reports for the period 1st January to 31st March of 2011 for the details of the various financial ratios. Further details can be found in the financial statements of the company. The financial statements of the company for the period 1st January to 31st March 2011 are available on the website of the company.

Usha-CSE
 Director of Mining
 Department of Geology

Usha-CSE

Usha-CSE
 Director of Mining
 Department of Geology

Usha-CSE
 Director of Mining
 Department of Geology

Statement of Usha-CSE (1) No coal is mined by State Government and CMPL, as per outside vested block and (2) Mine of State Government is given outside block
 Page - 6

10
 11

EXHIBIT 1 - FINANCIALS

UNITED STATES	UNITED STATES
1. FEDERAL GOVERNMENT	1. FEDERAL GOVERNMENT
2. STATE GOVERNMENTS	2. STATE GOVERNMENTS
3. LOCAL GOVERNMENTS	3. LOCAL GOVERNMENTS
4. PRIVATE CORPORATIONS	4. PRIVATE CORPORATIONS
5. INDIVIDUALS	5. INDIVIDUALS
6. OTHER	6. OTHER
7. TOTAL	7. TOTAL
8. NET DEBT	8. NET DEBT
9. NET DEBT PER PERSON	9. NET DEBT PER PERSON
10. NET DEBT PER PERSON PER YEAR	10. NET DEBT PER PERSON PER YEAR
11. NET DEBT PER PERSON PER YEAR PER PERSON	11. NET DEBT PER PERSON PER YEAR PER PERSON

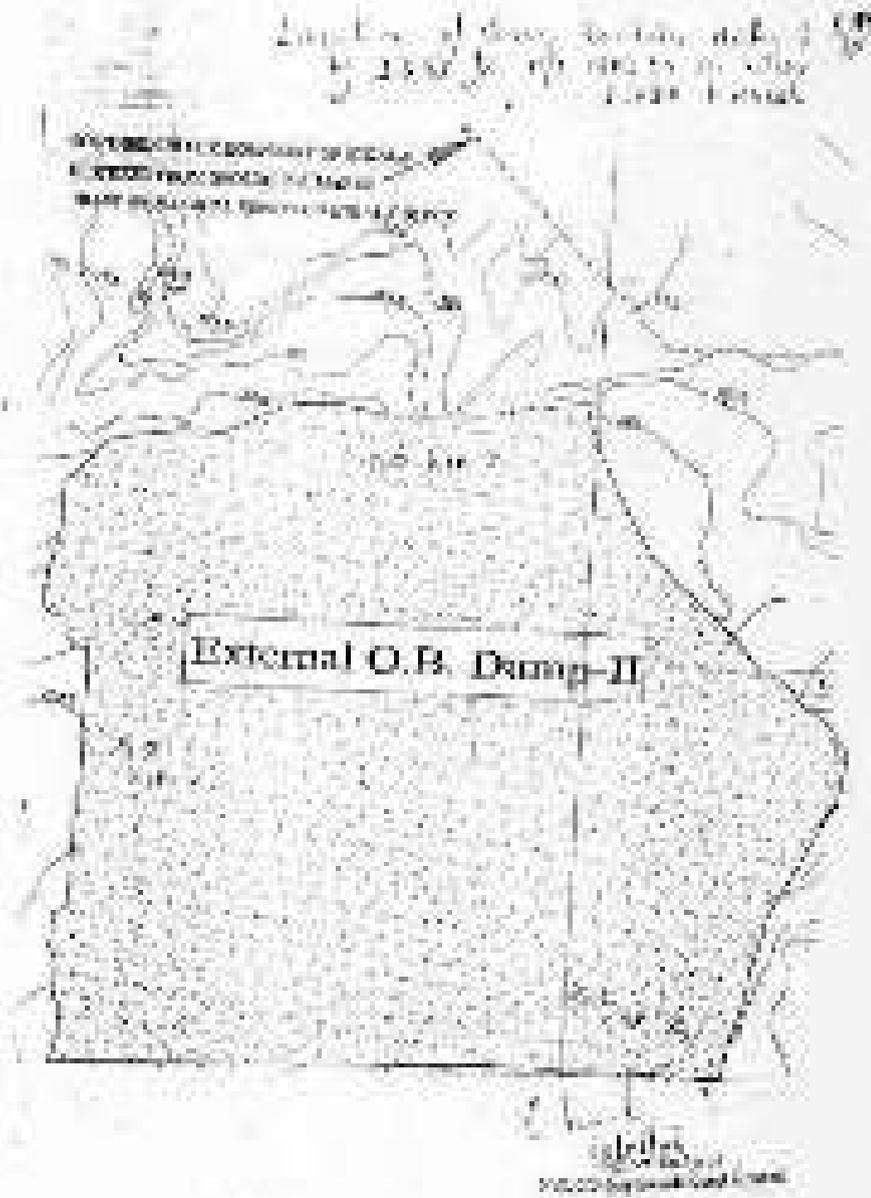
These figures are based on the latest available data and are subject to change. The data are preliminary and are subject to change. The data are preliminary and are subject to change. The data are preliminary and are subject to change.

Director of the Office of Economic Policy
 International Department
 Washington, D.C.

John C. Williams
 Director of the Office of Economic Policy
 International Department
 Washington, D.C.

John C. Williams
 Director of the Office of Economic Policy
 International Department
 Washington, D.C.

Chartered by the Board of Governors of the Federal Reserve System and the Board of Directors of the Federal Reserve Bank of New York. The Board of Directors of the Federal Reserve Bank of New York is composed of representatives of the member banks of the Federal Reserve System.



Location of Study Section, State of Wisconsin to 1982 by the Department of Transportation
and 1982 by the Department of Transportation
Page 10



Distorted to GP with "No-Data" north-south by State Government and GP-01 in
this sub-invested block and (1) state of Ohio Government in this sub-block's
Page - 10

नालको NALCO

year to the Coal Commission, working from the extent of production and rehabilitation works carried out as envisaged in the approved mine closure plans, progressive and final closure.

WHEREAS FURTHER that, consent of the State by and its terms was accorded that NALCO will obtain a Mine Closure (and/or Early Coal) Certificate in the effect that the progressive rehabilitation and rehabilitation work under MCF in accordance with the approved Mine Closure Plans and Mine Closure Plans (interim) succeed the state and lead to the State Govt. concerned.


G. V. S. Mahapatra
 General Secretary
 National Coal Development Corporation
 100/100, New Delhi, India
 Telephone: 2771, 2772, 2773, 2774

अखिल भारतीय अलुमिना संयंत्र
 अखिल भारतीय अलुमिना संयंत्र
 अखिल भारतीय अलुमिना संयंत्र

NALCO Alumina Company Limited
 A Company of the Government of India
 100/100, New Delhi, India
 Telephone: 2771, 2772, 2773, 2774

www.nalco.com | www.nalco.co.uk | www.nalco.in | www.nalco.org

Approval of Mining Plan for Utkal-C

The undersigned, Secretary,
Ministry of Mines,
Government of India.

New Delhi, India: 17/2/2021

To
M/s National Development Company Ltd.,
State, Odisha,
P.O. Nayaguda,
Bhubaneswar - 751 011,
Odisha.

Subject: Approval of Mining Plan for Utkal-C, and Mine (Area-20),
of M/s National Development Company Ltd.

1. You advised, in writing, your letter No. NDCW/2020/202 dated 26/12/2020 submitted under 1001 to the Utkal-C, and Mine for approval of the Central Government and to call for the mining plan for the Utkal-C, and Mine (Area-20) of M/s National Development Company Ltd. for its development and the approval of the Utkal-C, and Mine (Area-20) for its development under Section 4 of the Mines and Minerals (Development and Regulation) Act, 1957 subject to the following conditions:-

1. The mining plan, which is submitted herewith is submitted with the consent of the competent authority, M/s National Development Company Ltd. and is approved for its development for its development.

2. The approval of the mining plan is subject to the condition that the mining plan is approved for its development under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957.

3. The approval of the mining plan is subject to the condition that the mining plan is approved for its development under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 and the mining plan is approved for its development under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957.

Yours faithfully,



Secretary to the Ministry of Mines,
Government of India.

Encl: 1 (Mining Plan)

Annexure-5

Mining Plan & Mine Closure Plan – Uda Coalfield
 Modification-1, February 2021

MMD @ BALCO
 www.balco.com

ANNEXURE-5

Plan/Chart showing schedule of implementation of mine closure activities (progressive & final) with duration of important activities

Sl	Description	Duration
A Progressive Closure		
1	Fencing around open-pit/shafts	July 2021-March 2022
2	Excise Plantation	Nov. 2021-March 2022
3	Grass seed	April 2022-March 2023
4	Installation of topsoil and storage	Nov. 2021-March 2022
5	Construction of air and road drainage	April 2022-March 2023
6	Drainage of air and road drainage	April 2022-March 2023
7	Concrete wall with masonry gate in road air	April 2022-March 2023
8	Installation of air road drainage	Nov. 2021-March 2022
9	Plantation/Topsoil storage in air road drainage	April 2022-March 2023
10	Installation of final water pump	April 2022-March 2023
11	Construction and commissioning of air road drainage	April 2022-March 2023
12	Plantation around existing SS pumps	Nov. 2021-March 2022
13	Topsoil storage around drainage	April 2022-March 2023
14	Water Quality monitoring	Nov. 2021-March 2022
15	Air Quality monitoring	Nov. 2021-March 2022
B Final Closure		
1	Construction of final air road drainage, SS pumps and water pump	April 2022-March 2023
2	Air and Water Quality monitoring	April 2022-March 2023
3	Crossing the demarcation of final pit/shafts	April 2022-March 2023
4	Fencing around final water body	April 2022-March 2023
5	Drainage and flooding of final water body	April 2022-March 2023
6	Installation of final drainage pump	April 2022-March 2023
7	Installation of topsoil storage system for drainage	April 2022-March 2023

C. Deming's

A. Preparative Closure

1. Establish a contract team
2. Select a leader
3. Assign roles
4. Establish communication protocols
5. Review and approve contract terms
6. Review and approve contract terms
7. Review and approve contract terms
8. Review and approve contract terms
9. Review and approve contract terms
10. Review and approve contract terms
11. Review and approve contract terms
12. Review and approve contract terms

B. Final Closure

1. Complete a final contract review
2. Complete a final contract review
3. Complete a final contract review
4. Complete a final contract review
5. Complete a final contract review
6. Complete a final contract review

Milestones		Start	End	Duration
A. Preparative Closure				
1	Establish a contract team			
2	Select a leader			
3	Assign roles			
4	Establish communication protocols			
5	Review and approve contract terms			
6	Review and approve contract terms			
7	Review and approve contract terms			
8	Review and approve contract terms			
9	Review and approve contract terms			
10	Review and approve contract terms			
11	Review and approve contract terms			
12	Review and approve contract terms			
B. Final Closure				
1	Complete a final contract review			
2	Complete a final contract review			
3	Complete a final contract review			
4	Complete a final contract review			
5	Complete a final contract review			
6	Complete a final contract review			

DRAFT

Annexure 6



bharatkosh.gov.in
Government of India Receipt Portal

RECEIPT

Transaction Ref No: 0600340002500 Dated: Jul 8 2021 11:07PM

Received from MS NATIONAL FUSION COMPANY LIMITED with
Transaction Ref No: 0607210002566

Dated Jul 8 2021 11:07PM the sum of INR 225000 (Two Lacs Twenty-five
Thousand Five Hundred Only) through internet based Online payment in the
account of

Coal and Lignite - MUMBAI AN PROGRAMS REGULATORY SUPERVISORIAL
CELL

Disclaimer: This is a system generated electronic receipt, hence no physical signature
is required for the purpose of authentication

Printed On: 2021-07-08 11:07:42

DRAFT

Annexure B

	bharatkosh.gov.in Government of India Receipt Portal
RECEIPT	
Transaction Ref No. : 080731000589	Date: 14/8/2023 11:52:45
Received from <u>M/S. RAJESH MALA LENSES & COMPANY LIMITED</u> with Transaction Ref No. <u>080731000588</u>	
Dated <u>14/8/2023 11:52:45</u> the sum of <u>INR 20500 (Two Lakhs Twenty Five Thousand and One Hundred Only)</u> through Internet based Online payment in the account of	
<u>Coal and Lignite - MINING PLAN PROPOSING FEEDBACK D & C COMMISSION BISCO.</u>	
Disclaimer - This is a system generated electronic receipt, hence no physical signature is required for the purpose of authentication	
Printed On: 25/08/2023 09:16:47	

DRAFT

Annexure 7

TO WHOM IT MAY CONCERN

The Mining Plan & Mine Closure Plan of Block D and Block Coal Mine, Coal Mine, Rewa, Bihar by Qualified Person DEBAGH SINGH, CEG Member, which was sent for expert review to Mining Plan Processing Agency-Min. Consultancy Private Limited, CEG Member, COI/MAD/17/19/2019/MSPPA/W/2019 dated Feb 25, 2021.

The Mining Plan & Mine Closure Plan of Block D and Block Coal Mine, Coal Mine has been reviewed from technical and administrative angle and has found to be compliant in line with the guidelines for formulation, processing, scrutiny and approval of Mining Plan and Mine Closure Plan stipulated under MMR dated 28th May 2010. The subject Mining Plan & Closure Plan is hereby recommended for consideration of the Mining Authority for approval.

Digital Signature



Min. Consultancy Private Limited

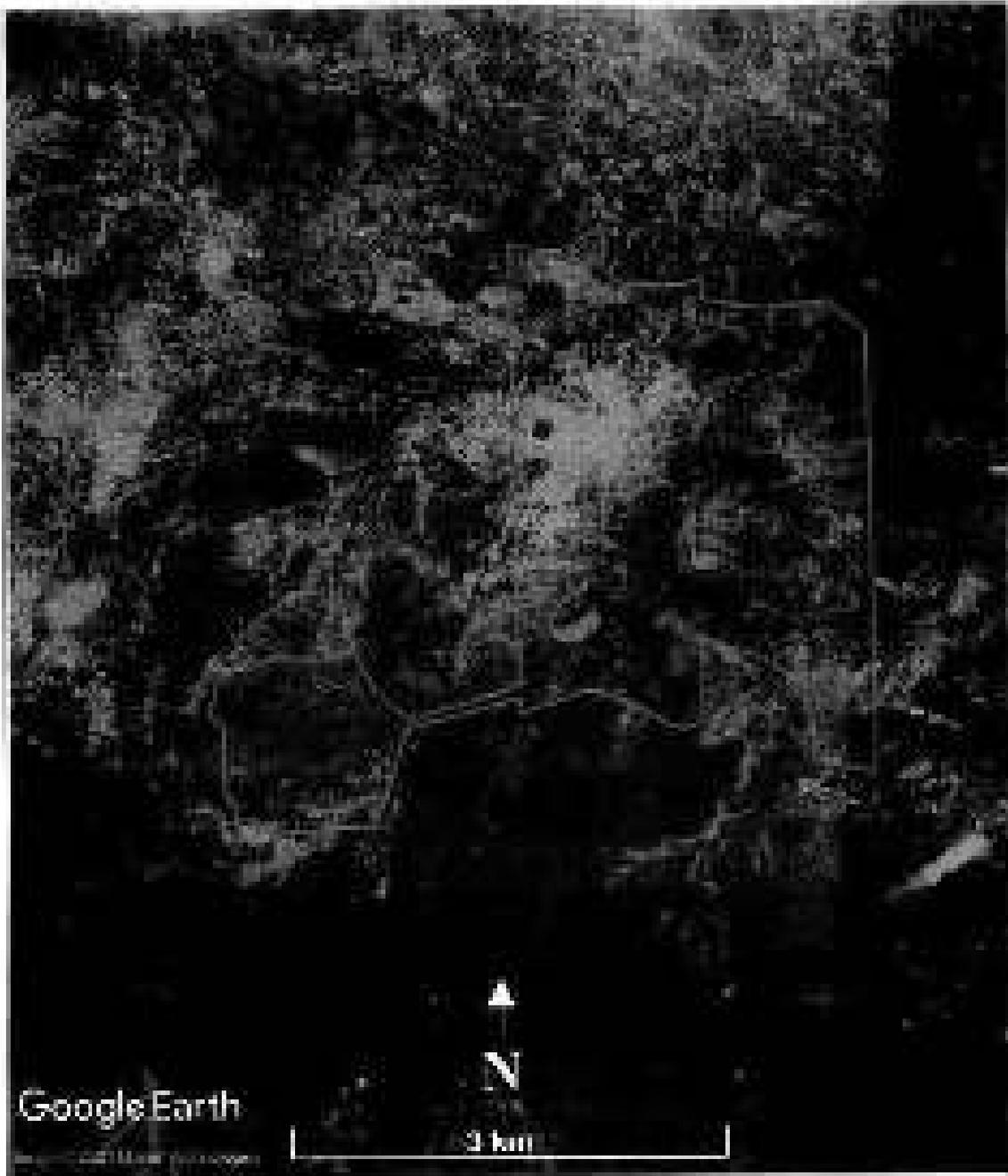
A-121, Paryavastha Complex, GPO Road, New Delhi-110002 SOUTH INDIA

COI/MAD/17/19/2019/MSPPA/W/2019 dated Feb. 25, 2021

8/21/2021

DRAFT

Additional Annexure-8



Additional Annexure-10



bharatkosh.gov.in
Government of India Receipt Portal

RECEIPT

Transaction Ref.No. 8800210012649 Dated: 01/08/2021 12:03 PM

Received from M/S. NATIONAL ALUMINIUM COMPANY LIMITED with
Transaction Ref.No. 8800210012648

Date: 01/08/2021 12:03 PM the sum of INR. 225,000 (Two Lakhs Twenty Five Thousand One Hundred Only) through internet based online payment in the
amount of

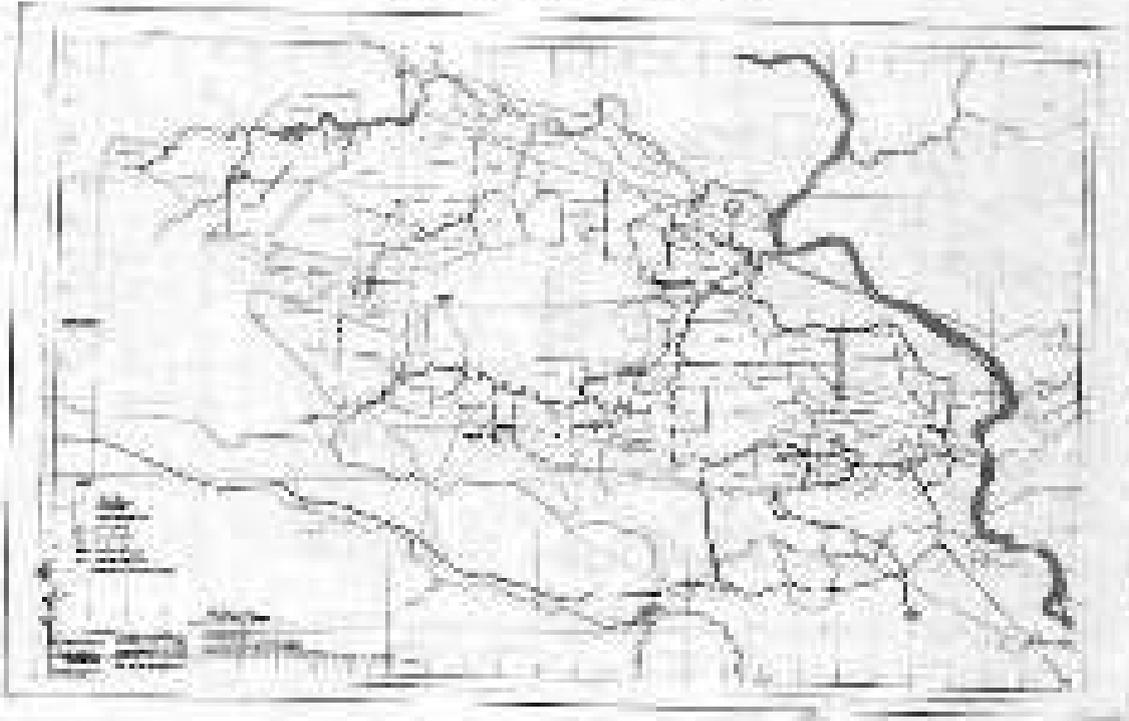
Cost and Charge, NATIONAL ALUMINIUM PROCESSING TAXAL D & E (C.M.H.S.
NALCO)

Disclaimer: This is a system generated electronic receipt, hence no physical receipt is
required for the purpose of authentication

Printed on: 01/08/2021 12:03 PM

DRAFT

Additional Annexure-11



DRAFT



Environmental Clearance (EC) - 2019/2020
Application No. 12345/2019

**Chapter I
ENVIRONMENT MANAGEMENT**

TERMS AND CONDITIONS

Read the terms and conditions of the EC and comply with the Environment & Forest
Conditions attached in the respective drawings.

**Place: Bhubaneswar
Date:**

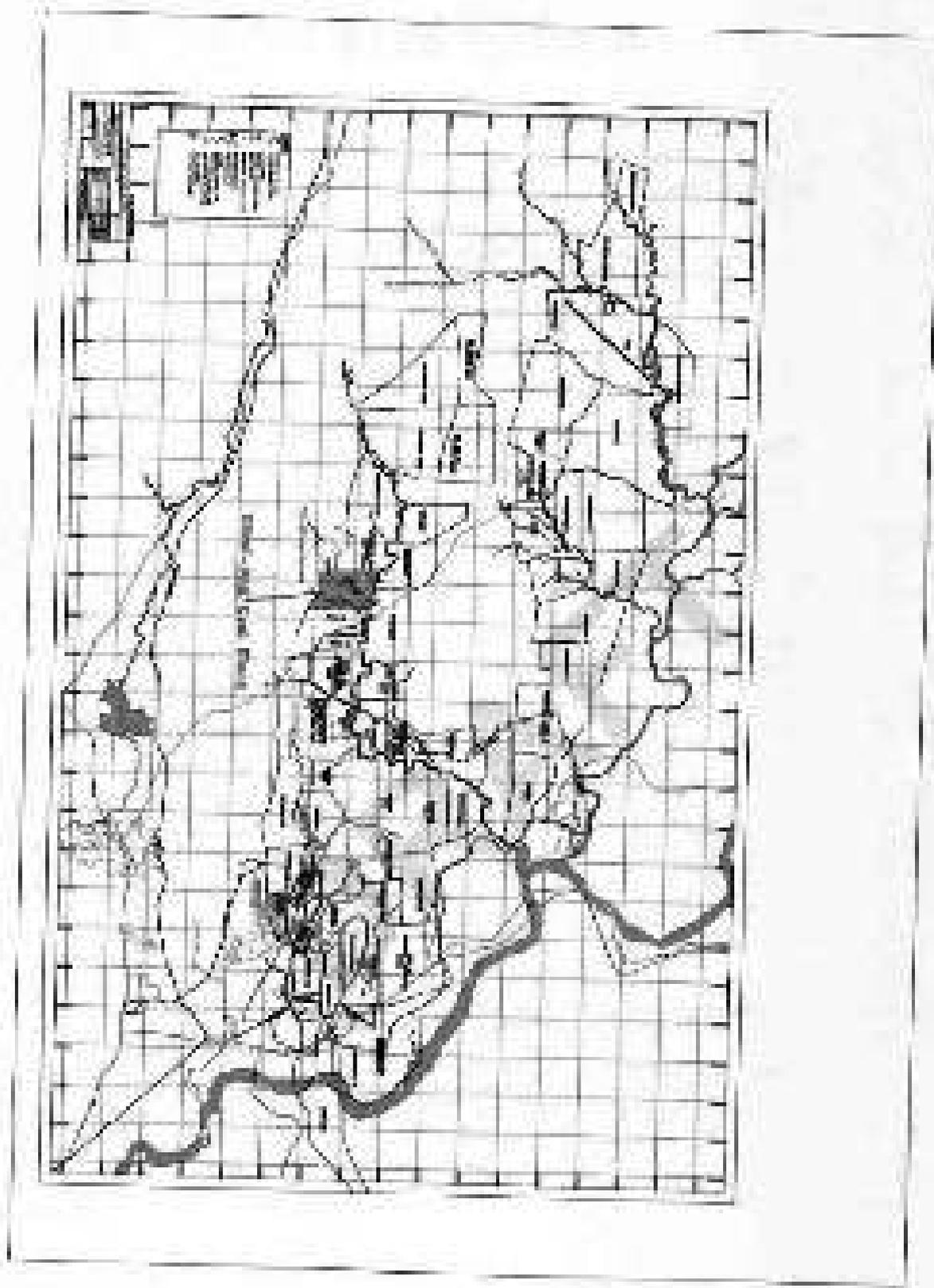
Authorized Signatory

M. K. PATEL
Executive Director (EC)
Project & Training Department
National Aluminium Company Ltd.
Bhubaneswar-751 001

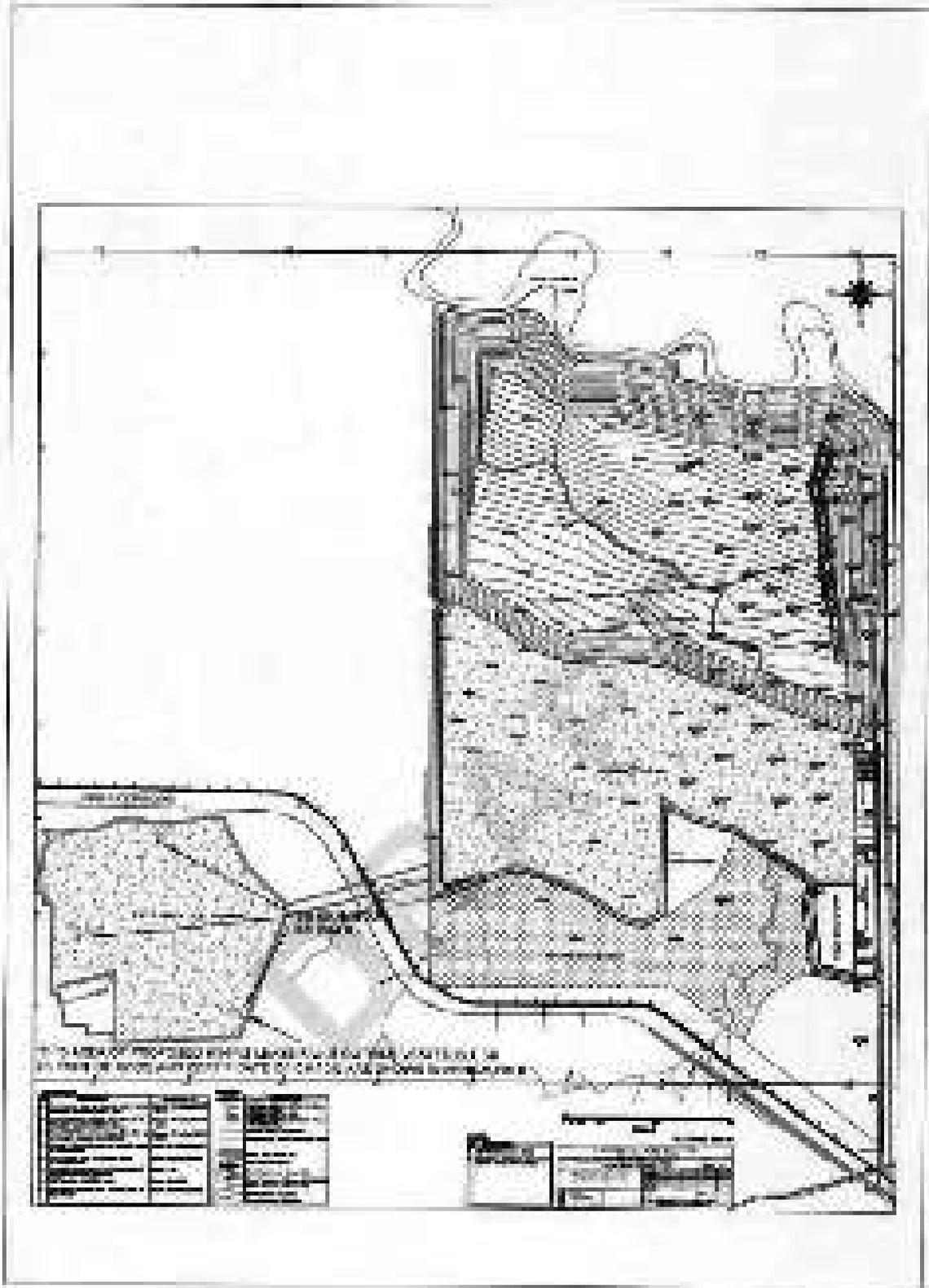
विभागाध्यक्ष कार्यालय मुख्य कार्यालय बिना-बिना	National Aluminium Company Limited 25, Durgachandi Chowk, Bhubaneswar-751 001 COMPONENTS OFFICE
आवक सं. 12345/2019 दि. 12/03/2019	आवक सं. 12345/2019 दि. 12/03/2019
आवक सं. 12345/2019 दि. 12/03/2019	आवक सं. 12345/2019 दि. 12/03/2019
आवक सं. 12345/2019 दि. 12/03/2019	आवक सं. 12345/2019 दि. 12/03/2019

Plan/Plates

Plate 1



Plan / Plate 2A



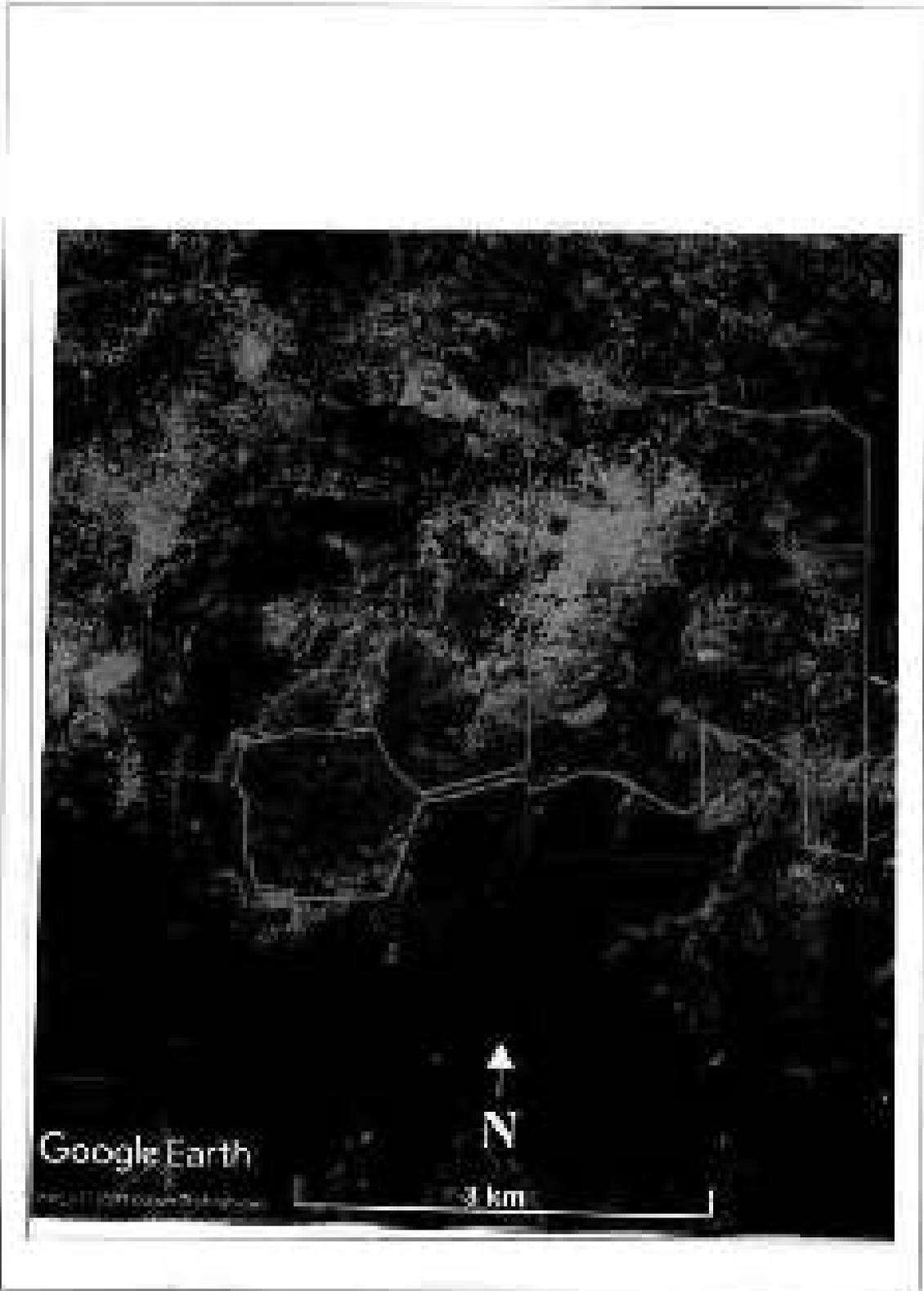
Plan / Plate 3A (Lease Area)

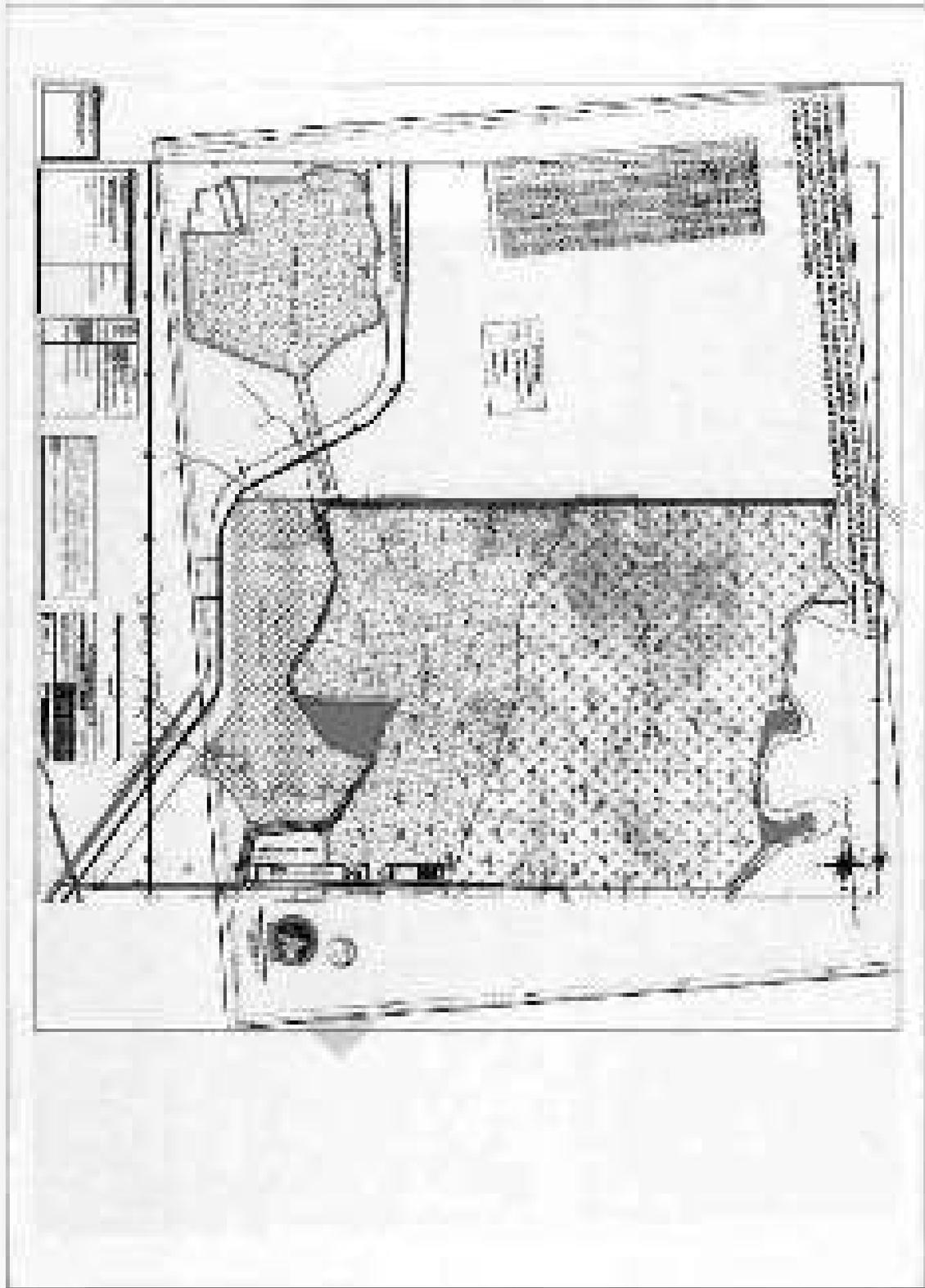


Plan / Plate 3B (Project Area)

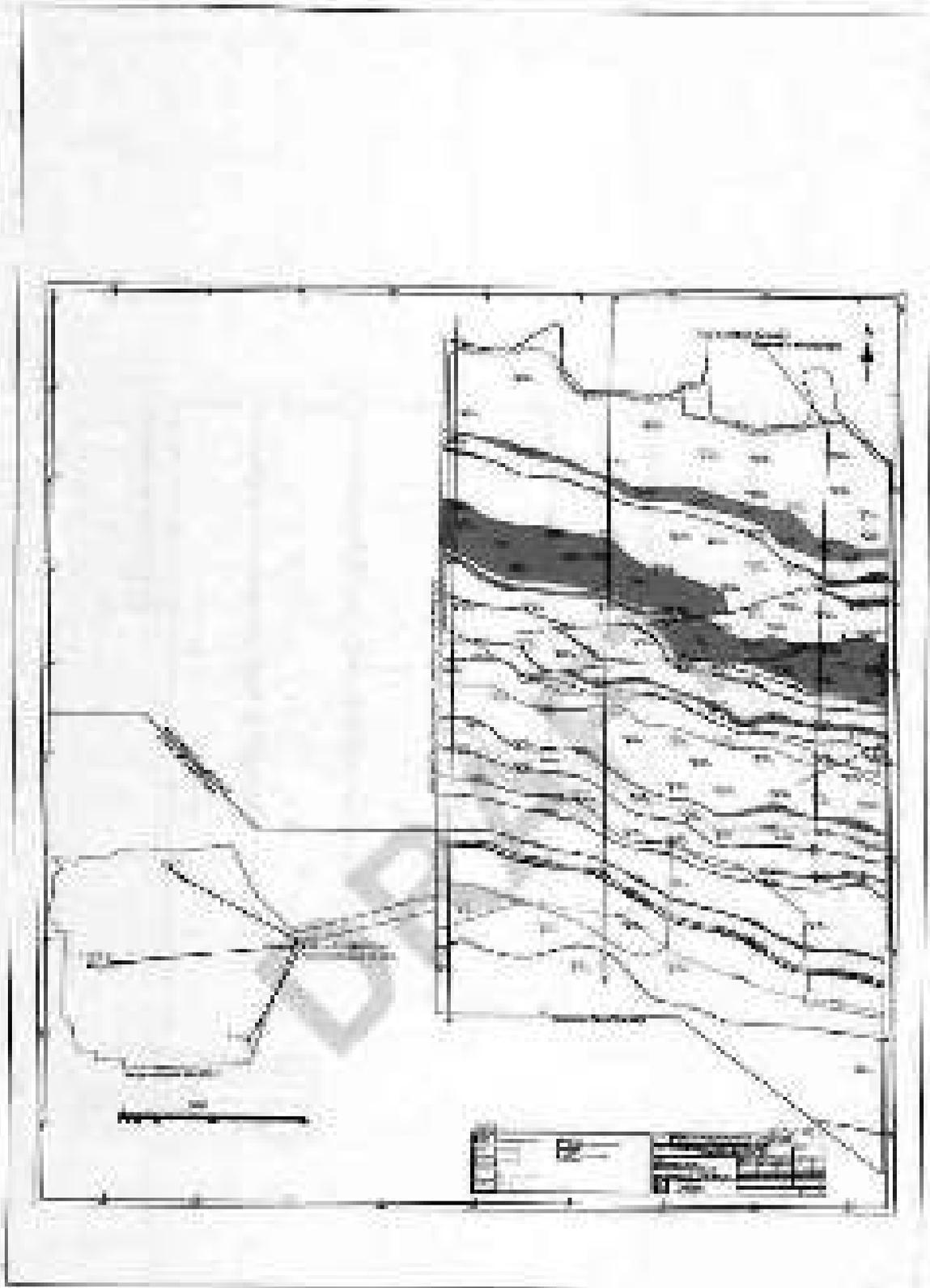


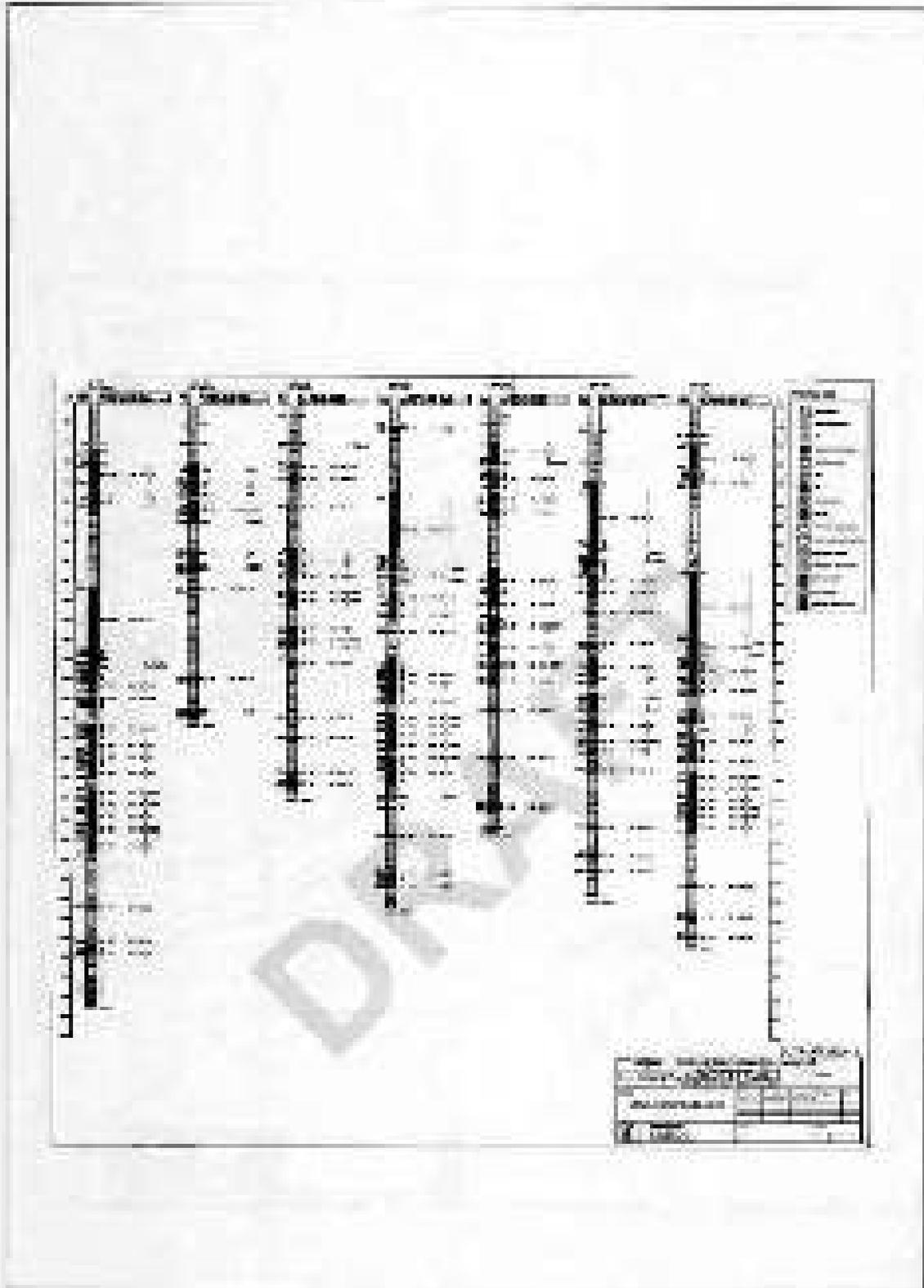
Plan / Plate 3C (Geological Block)



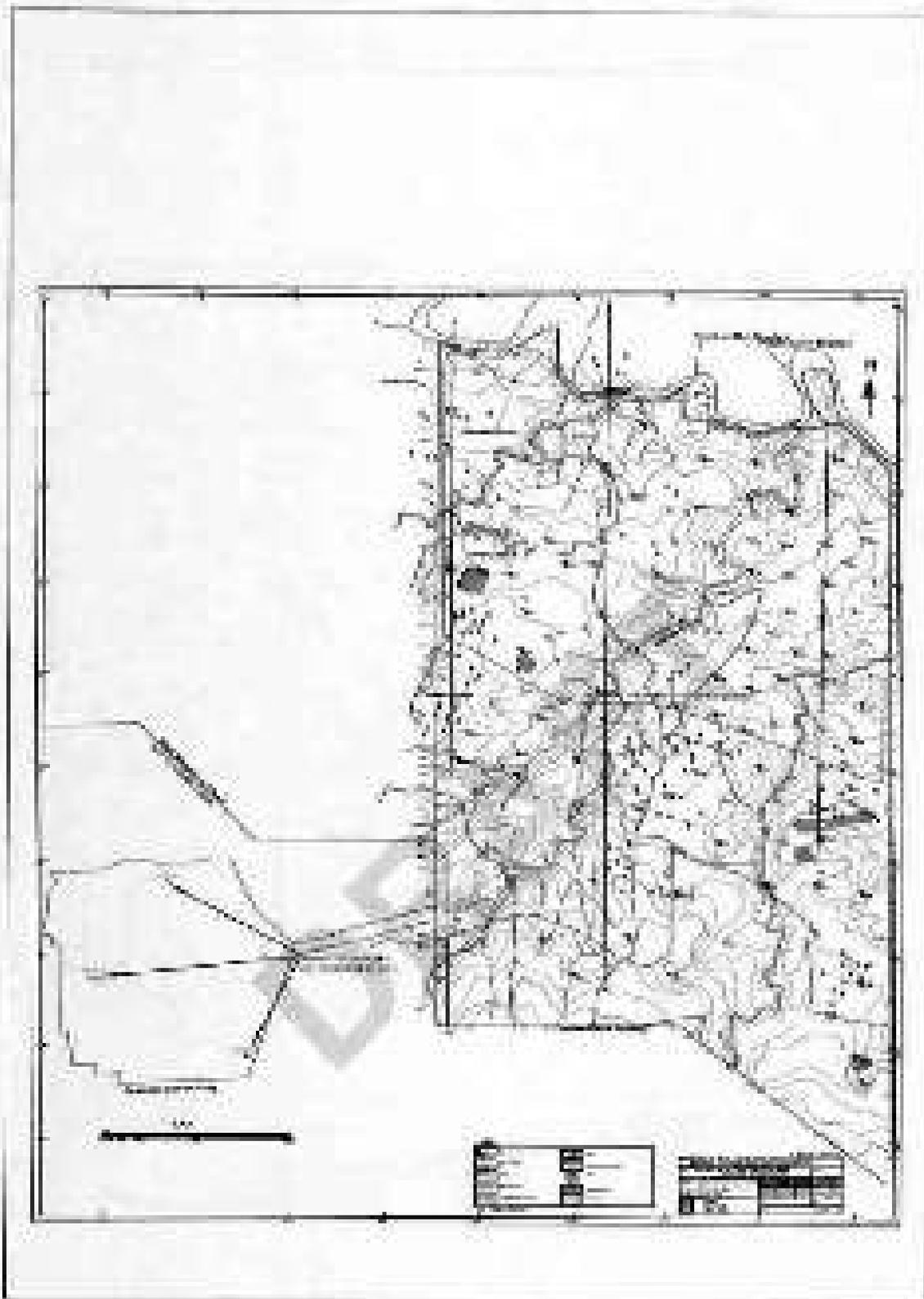


Plan J Plote 5A1

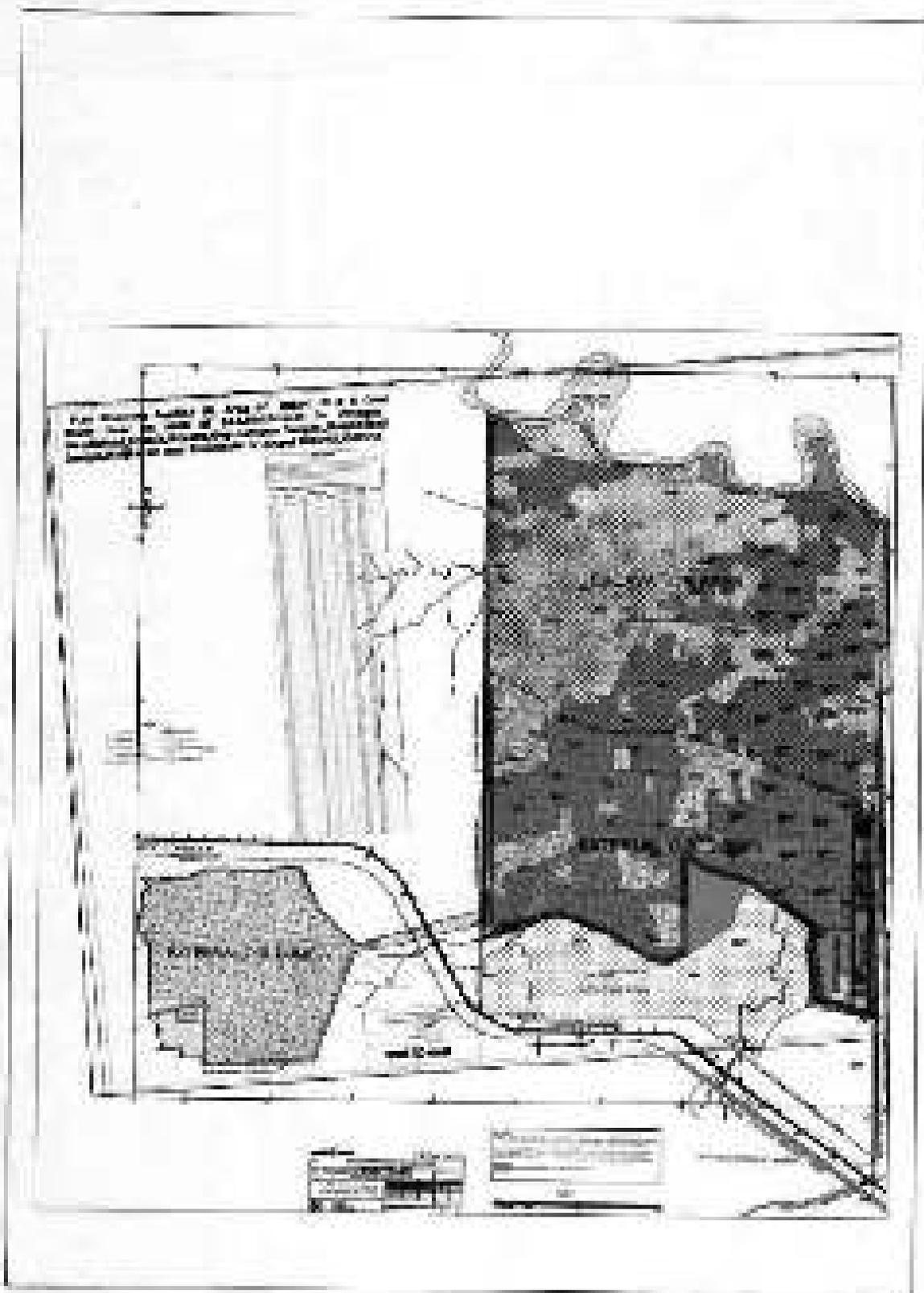




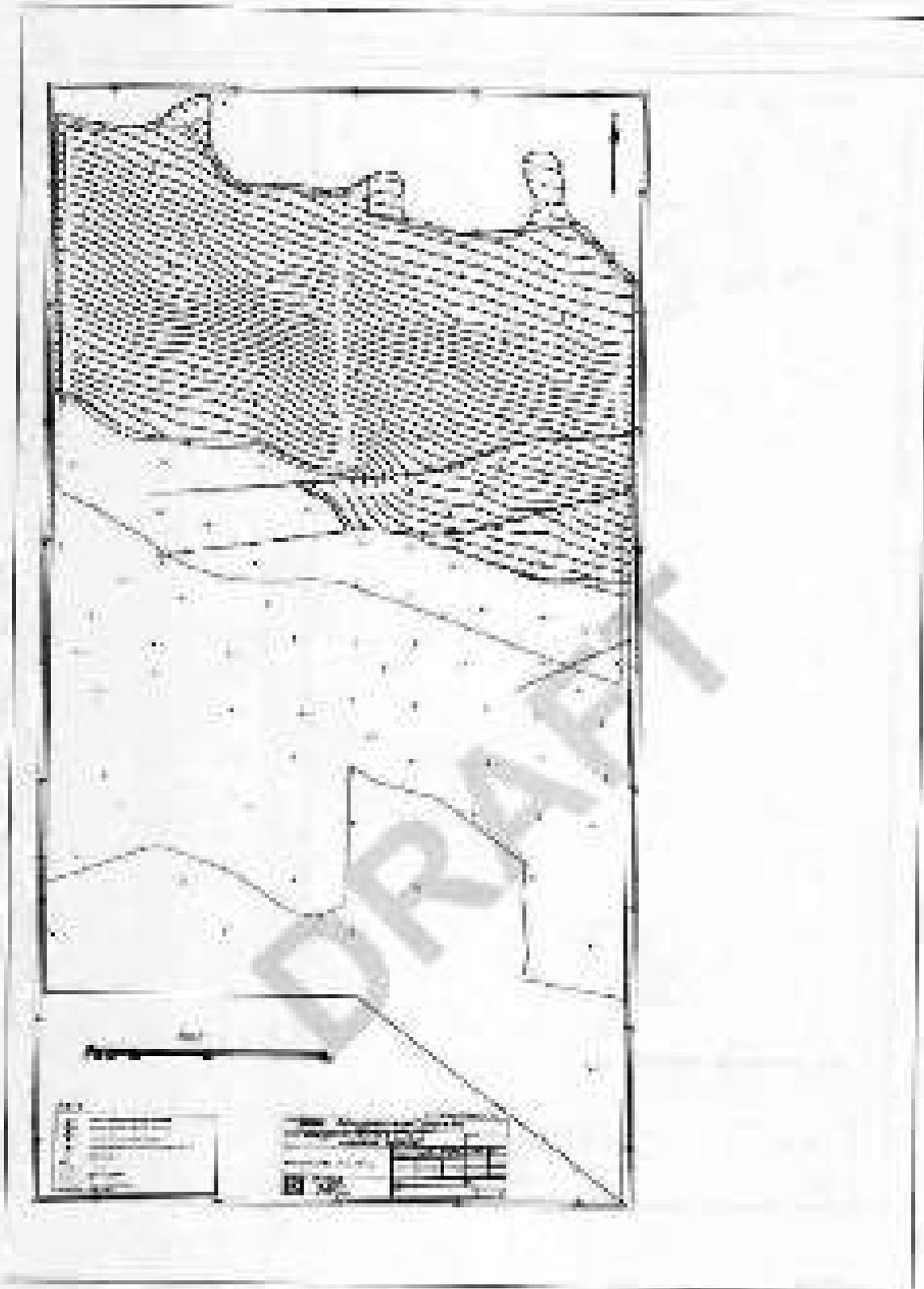
Plan / Plate 7



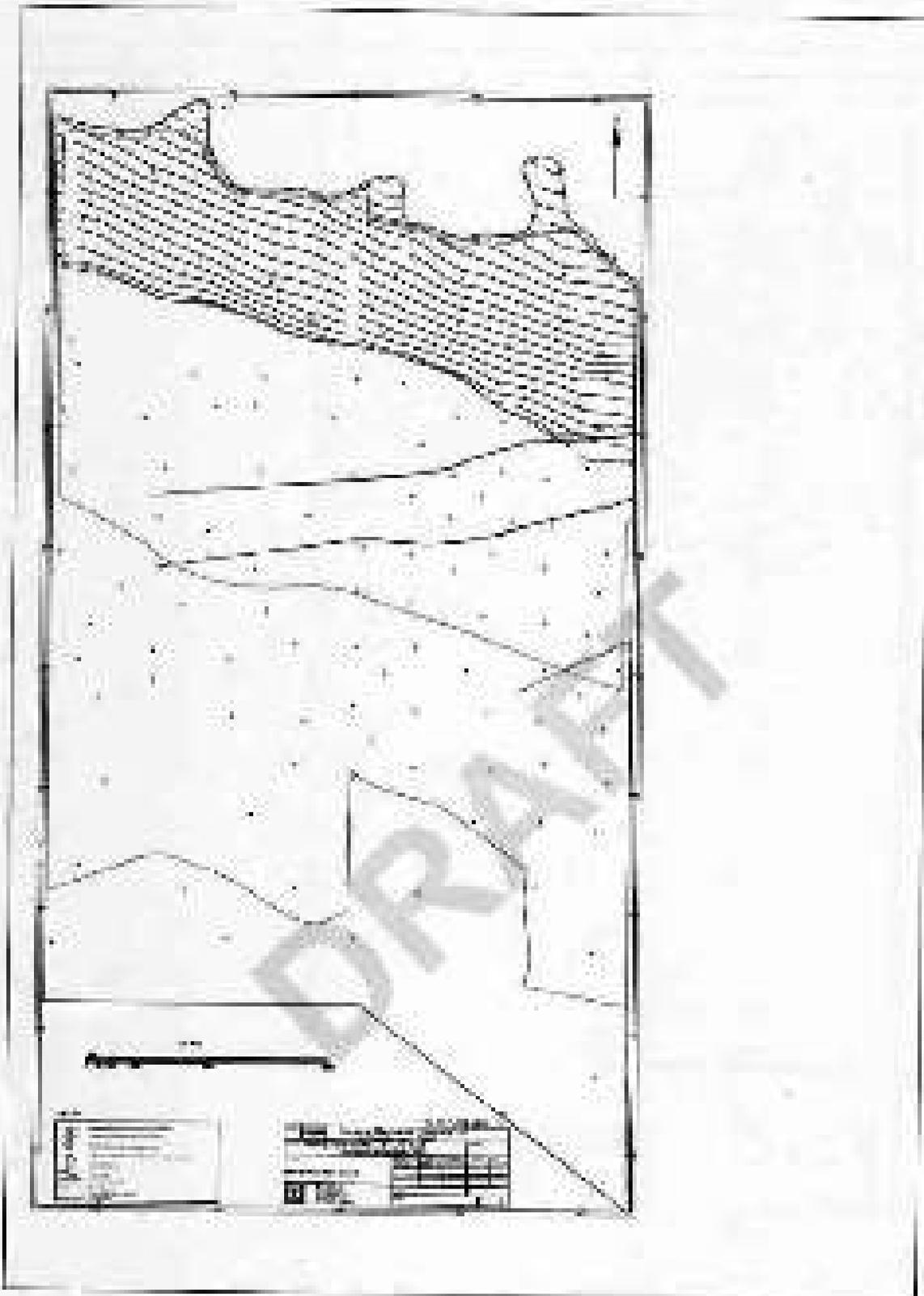
Plans / Plate 8



Plan / Plans 10A2



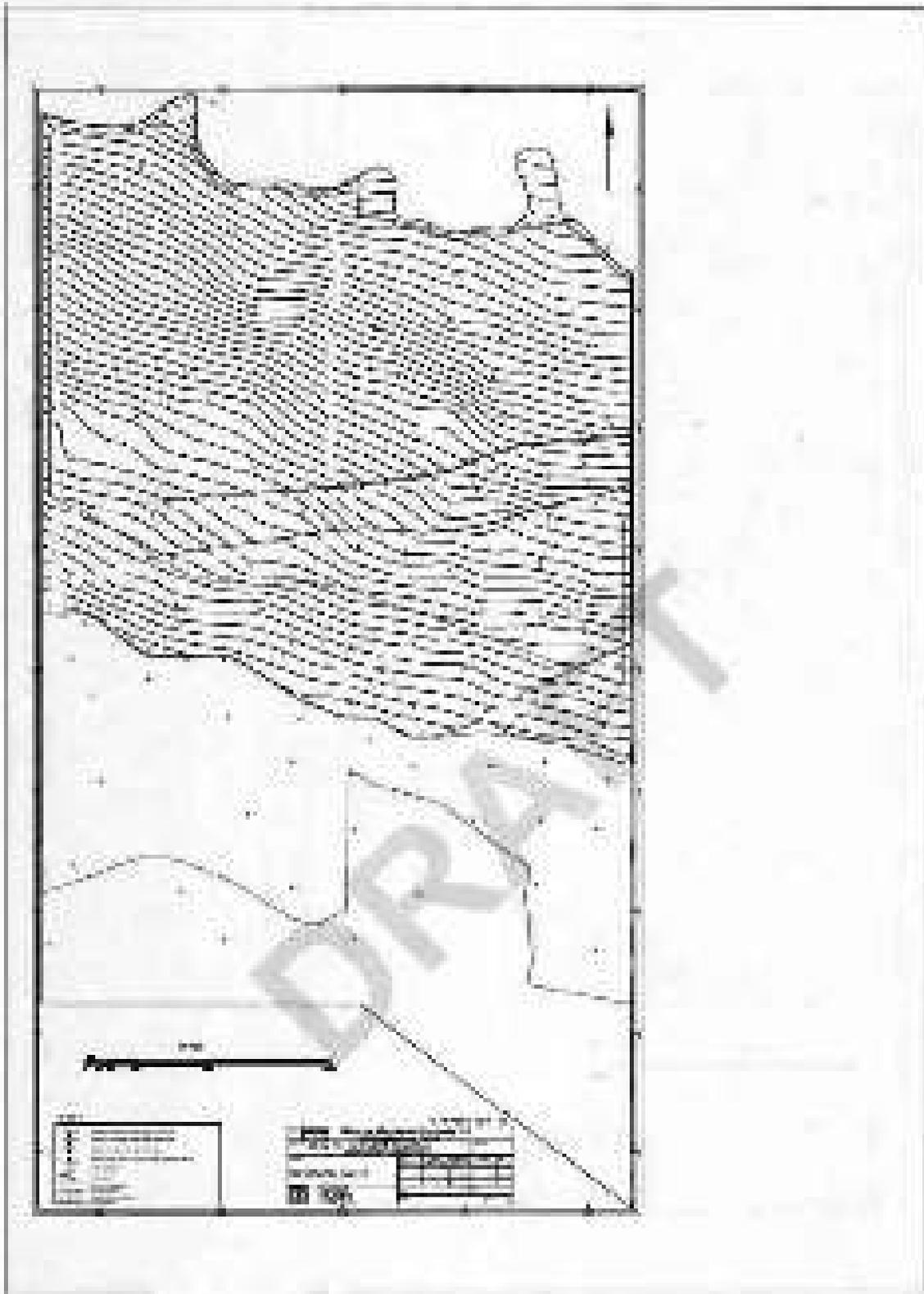
Plan / Plans 10A-4



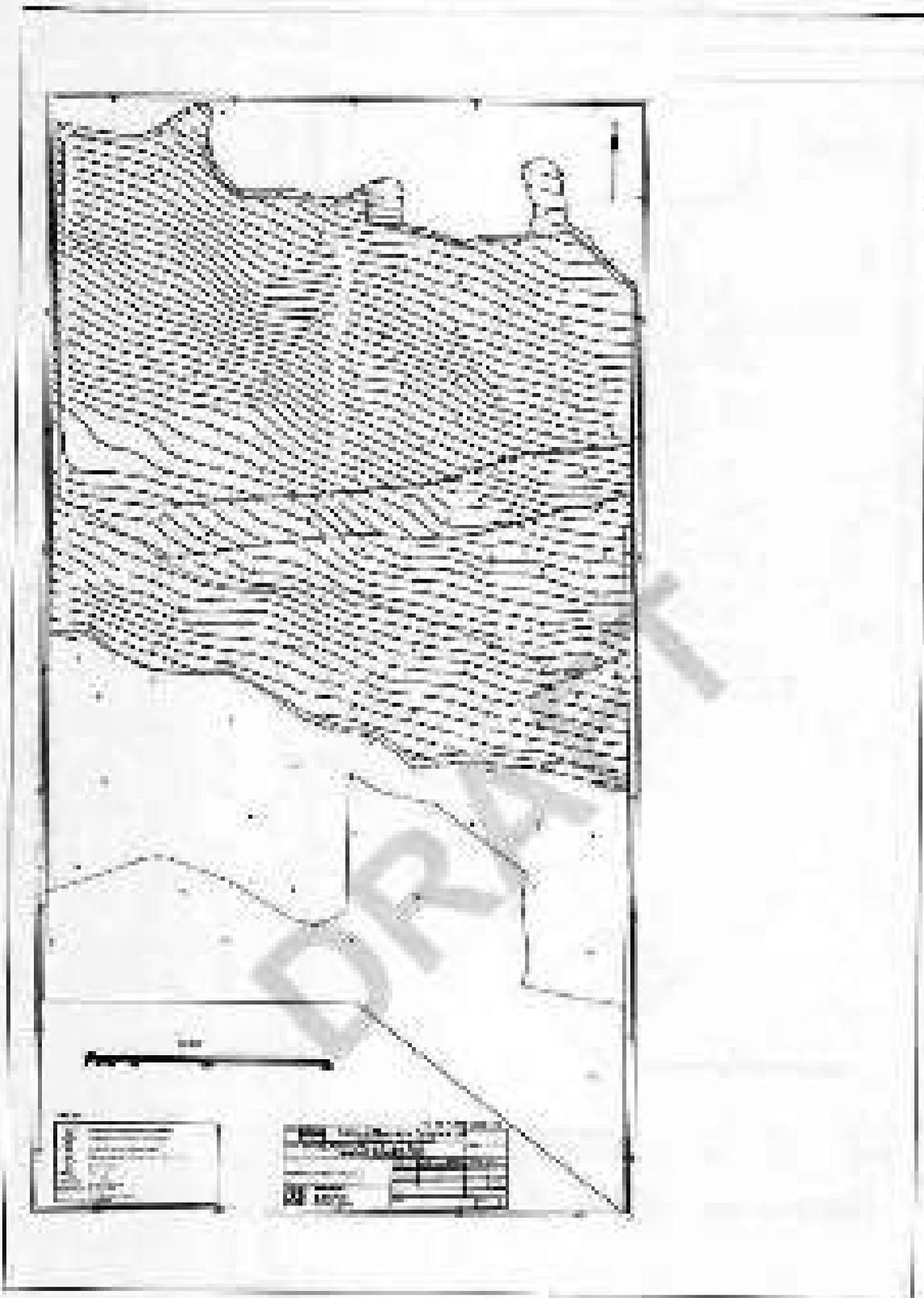
Plan / Plans 10A6



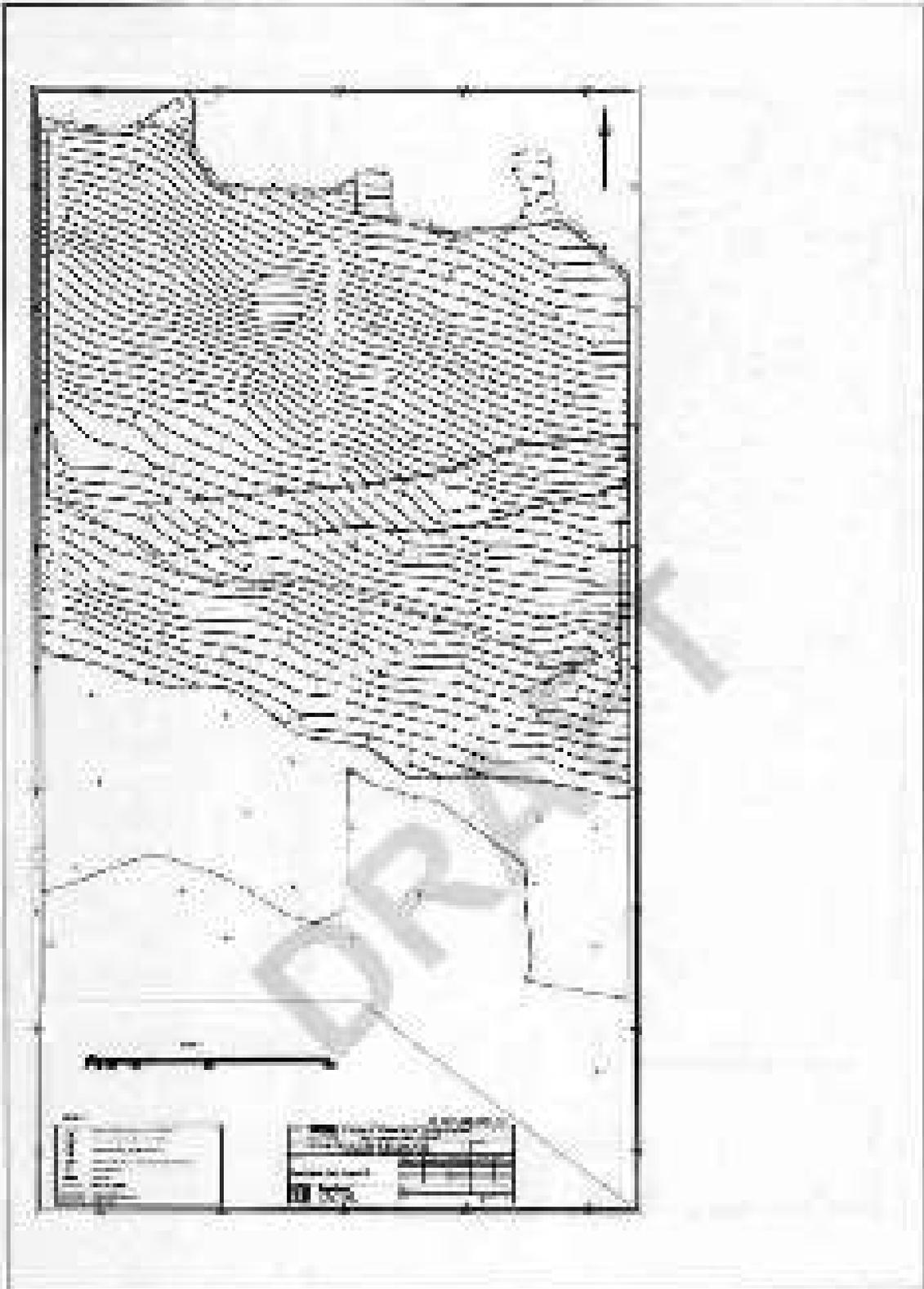
Plan / Plate 10A7



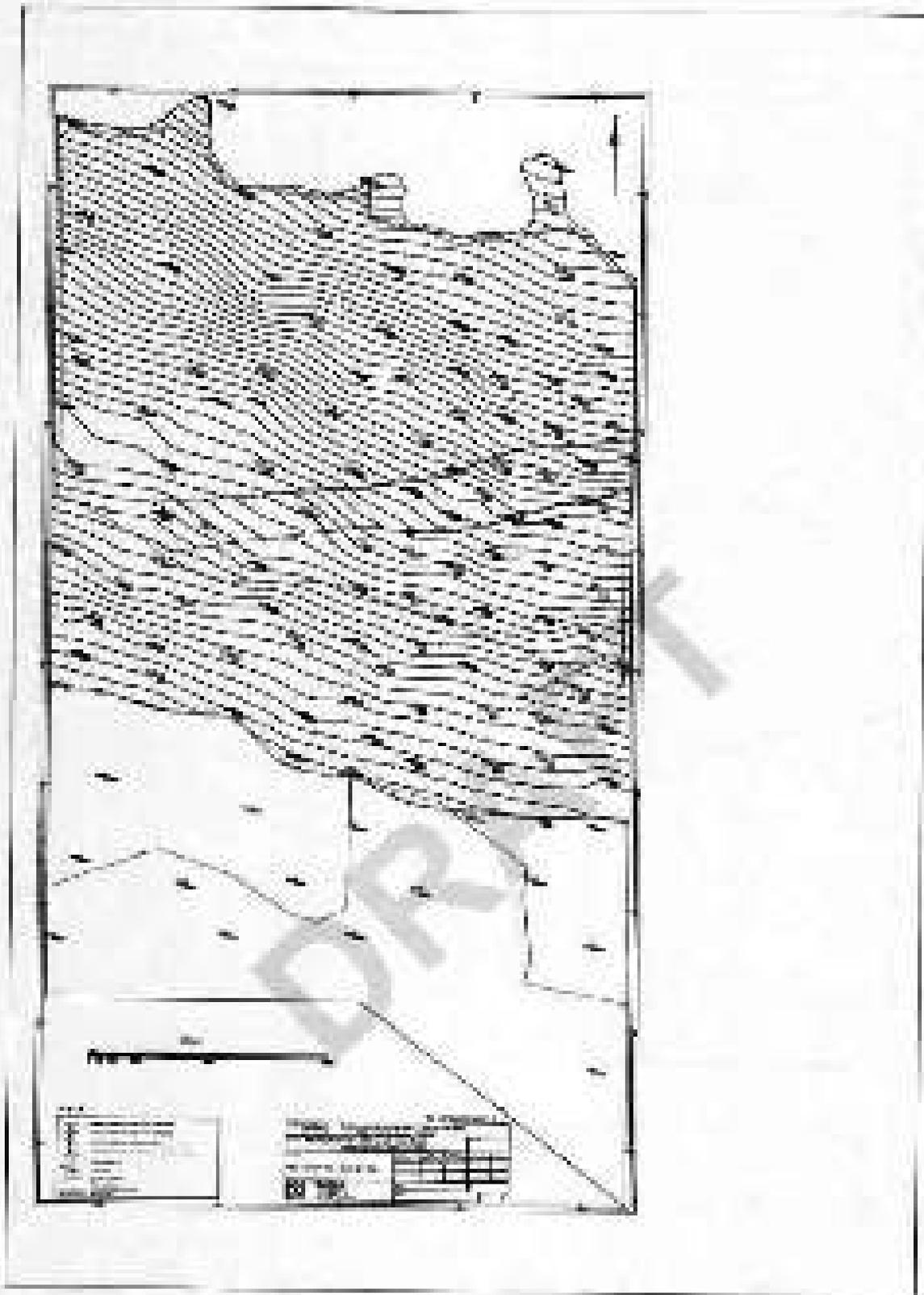
Plan / Plate 10A8



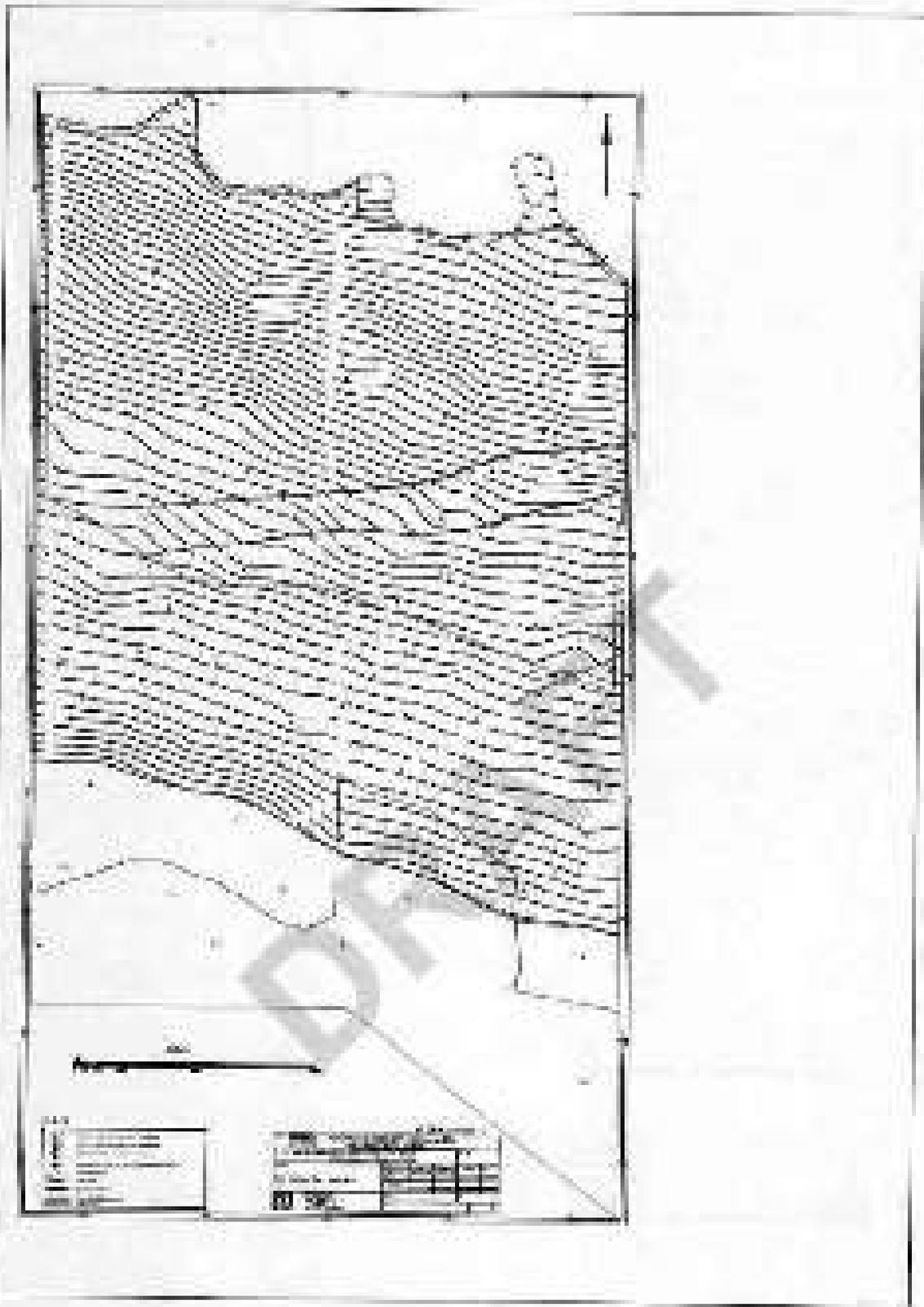
Plan / Plate 10&9



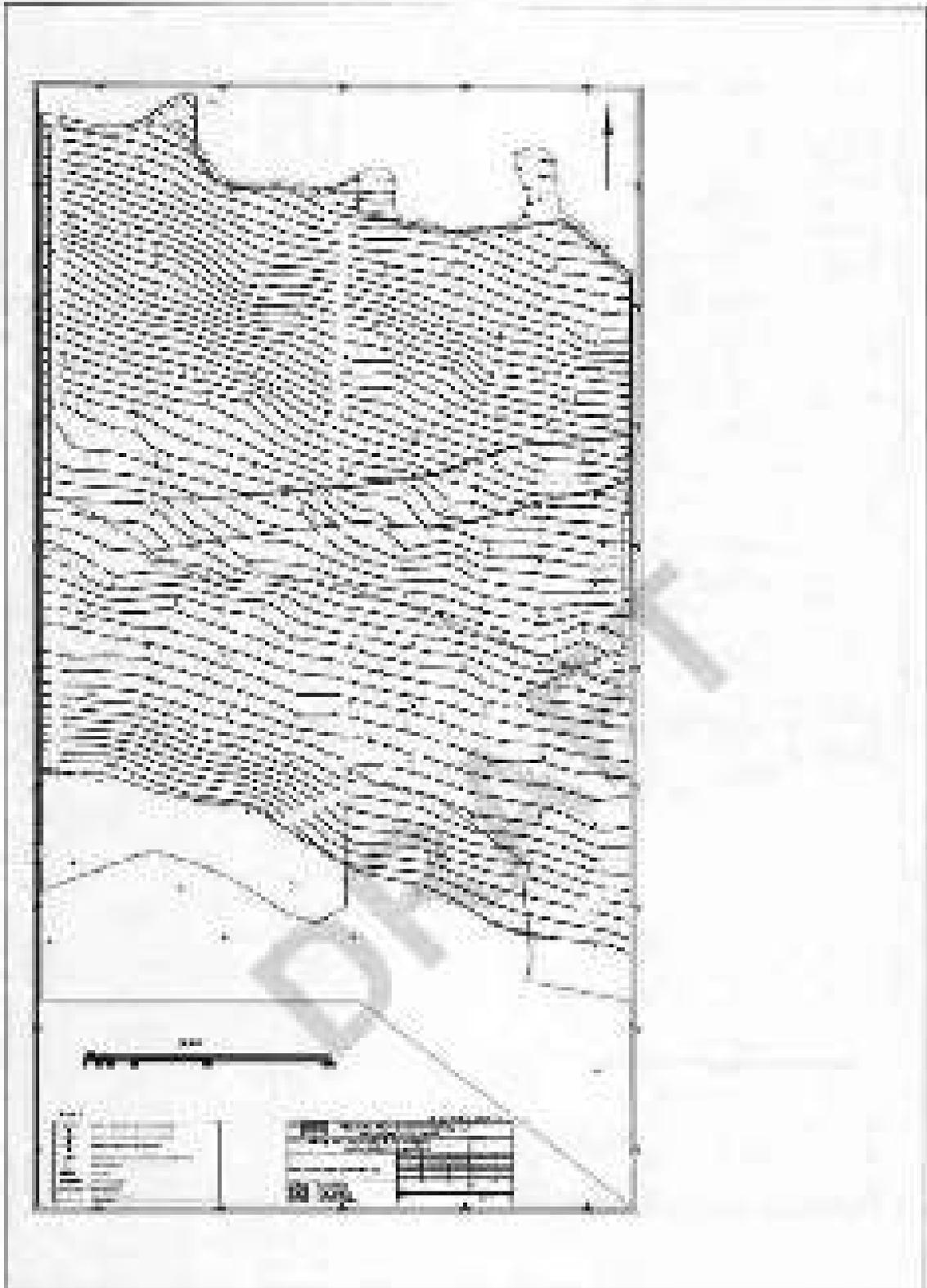
Plan / Plate 10A10



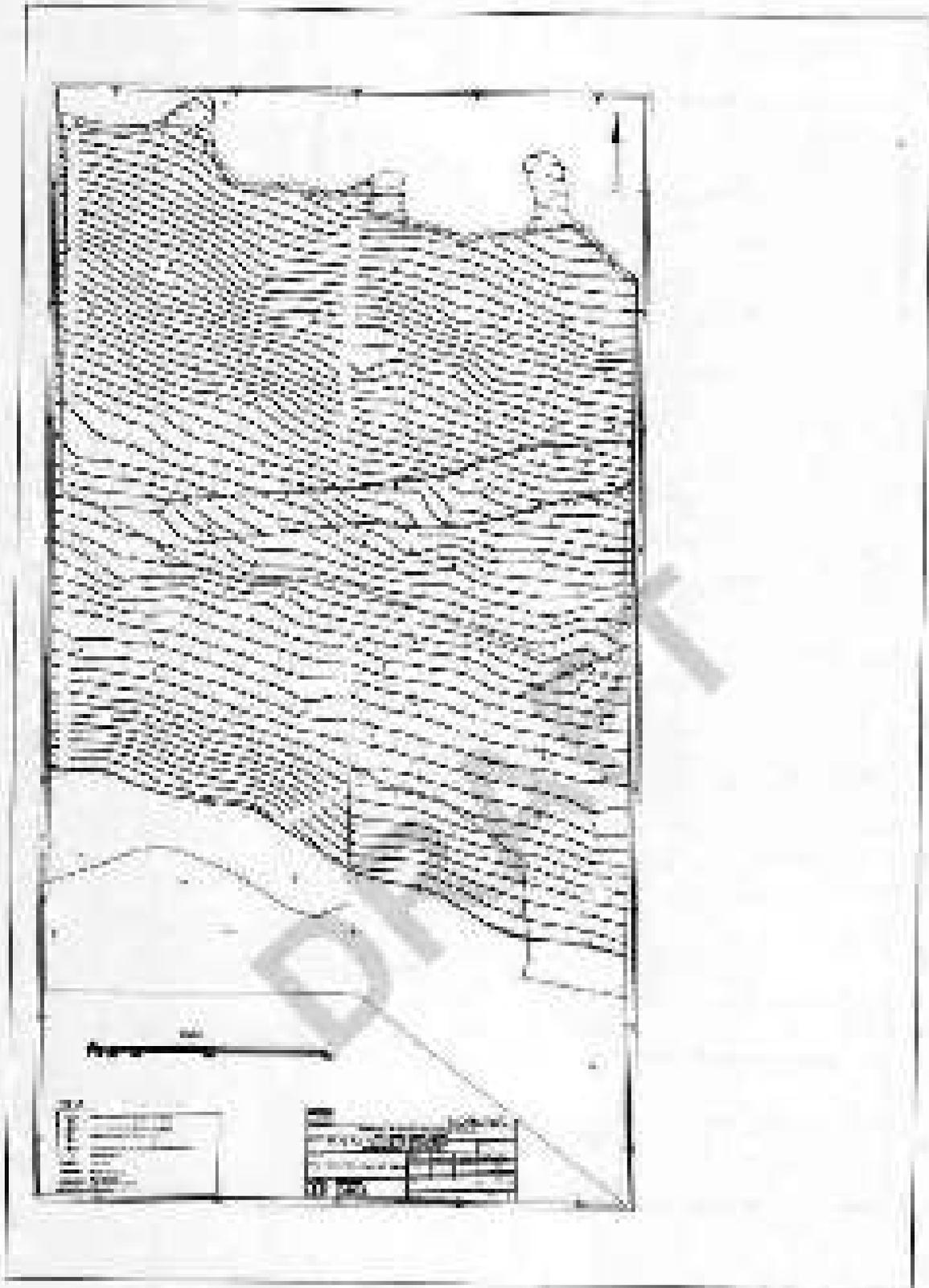
Plan / Plate 10A.12



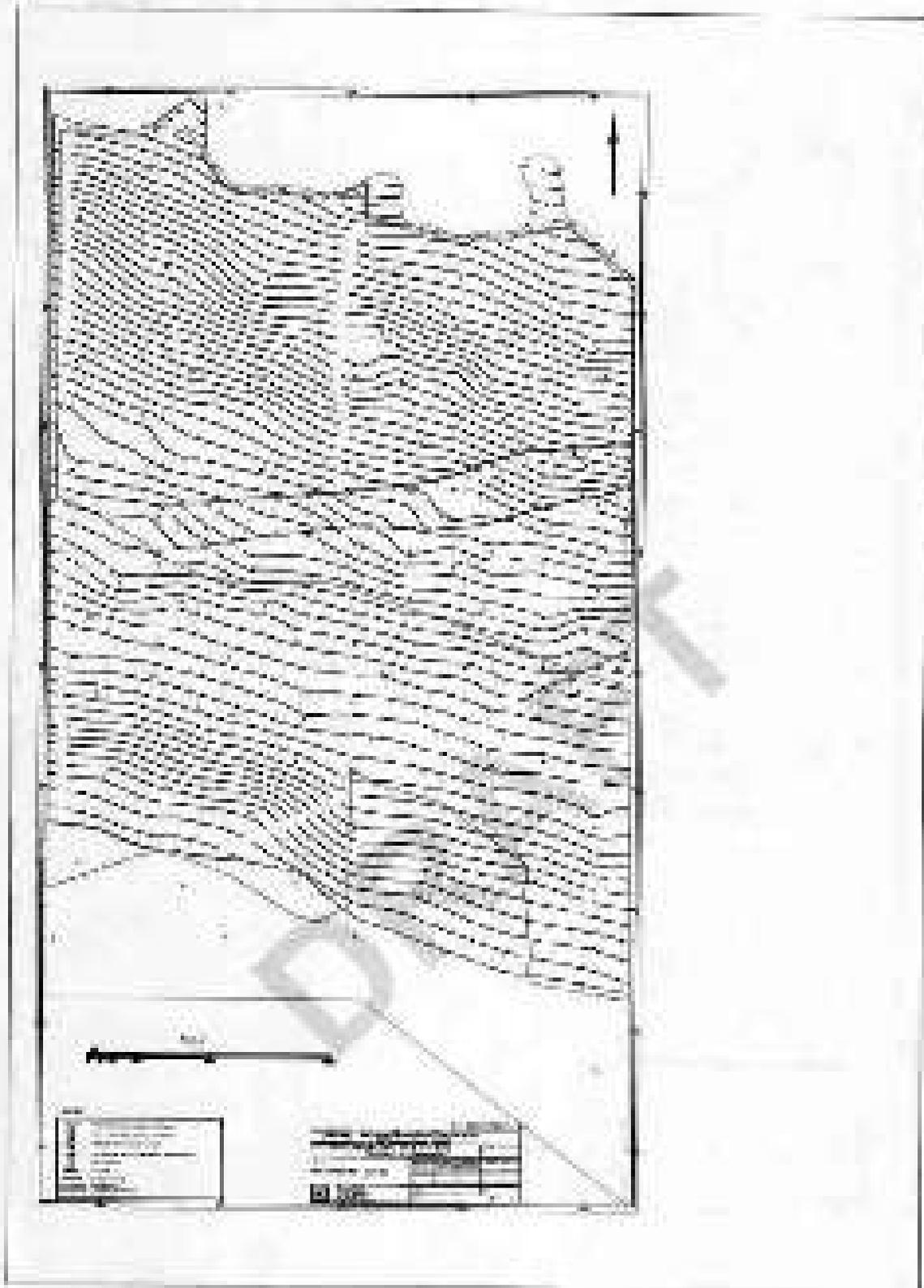
Plan / Plate 10A13



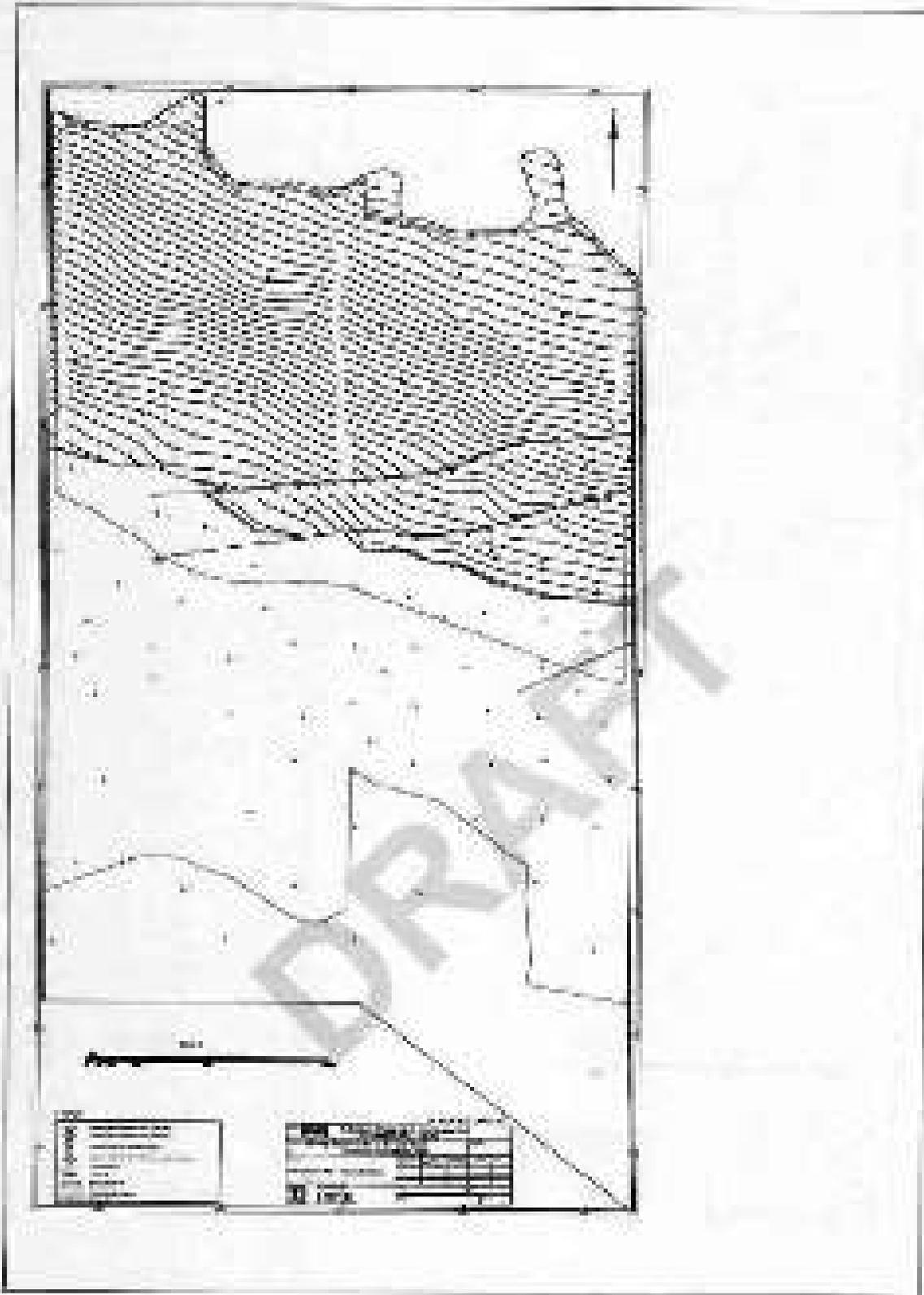
Plan / Plate 10A14

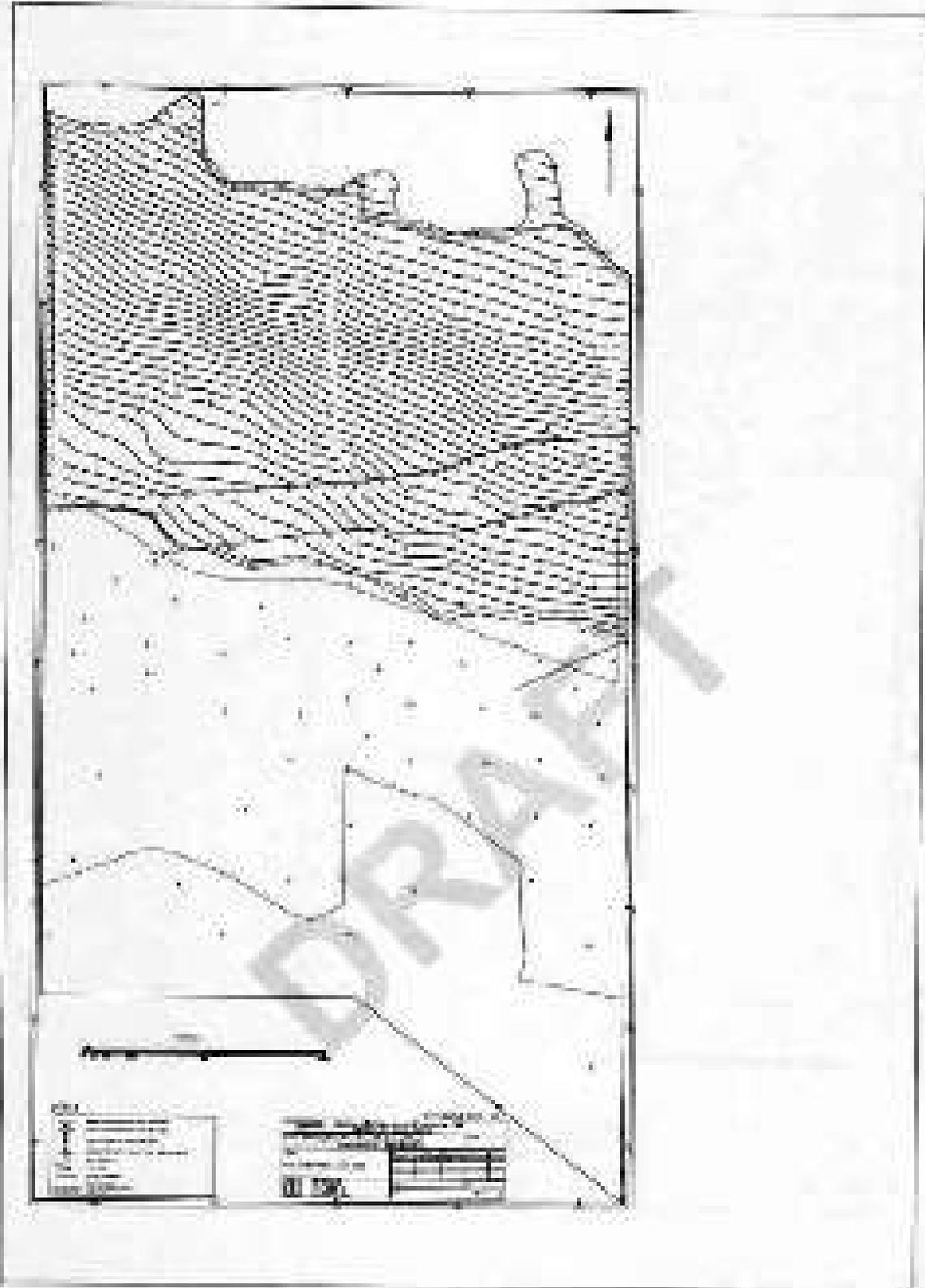


Plan / Plate 10A15

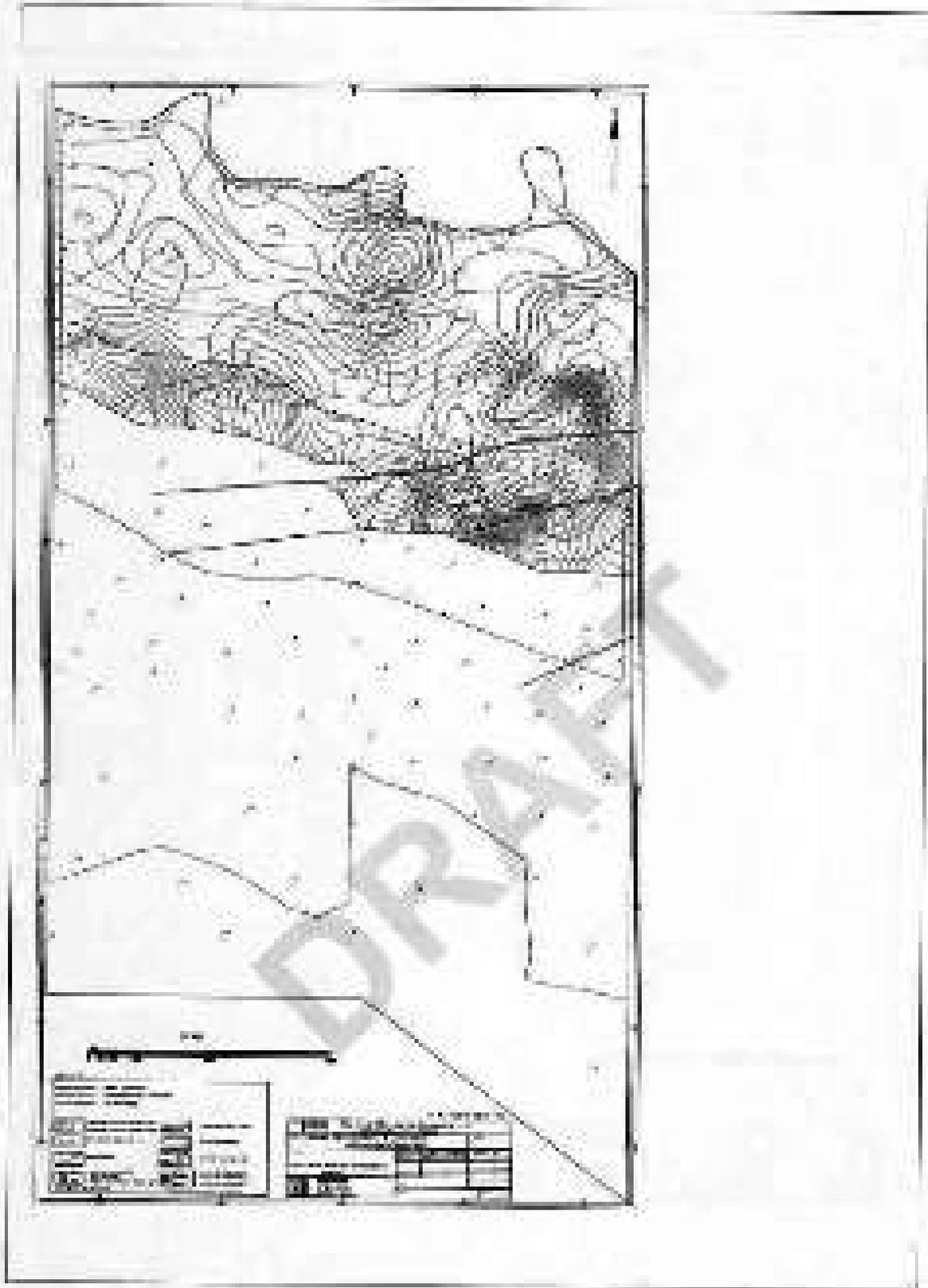


Plan / Plate 10A.10

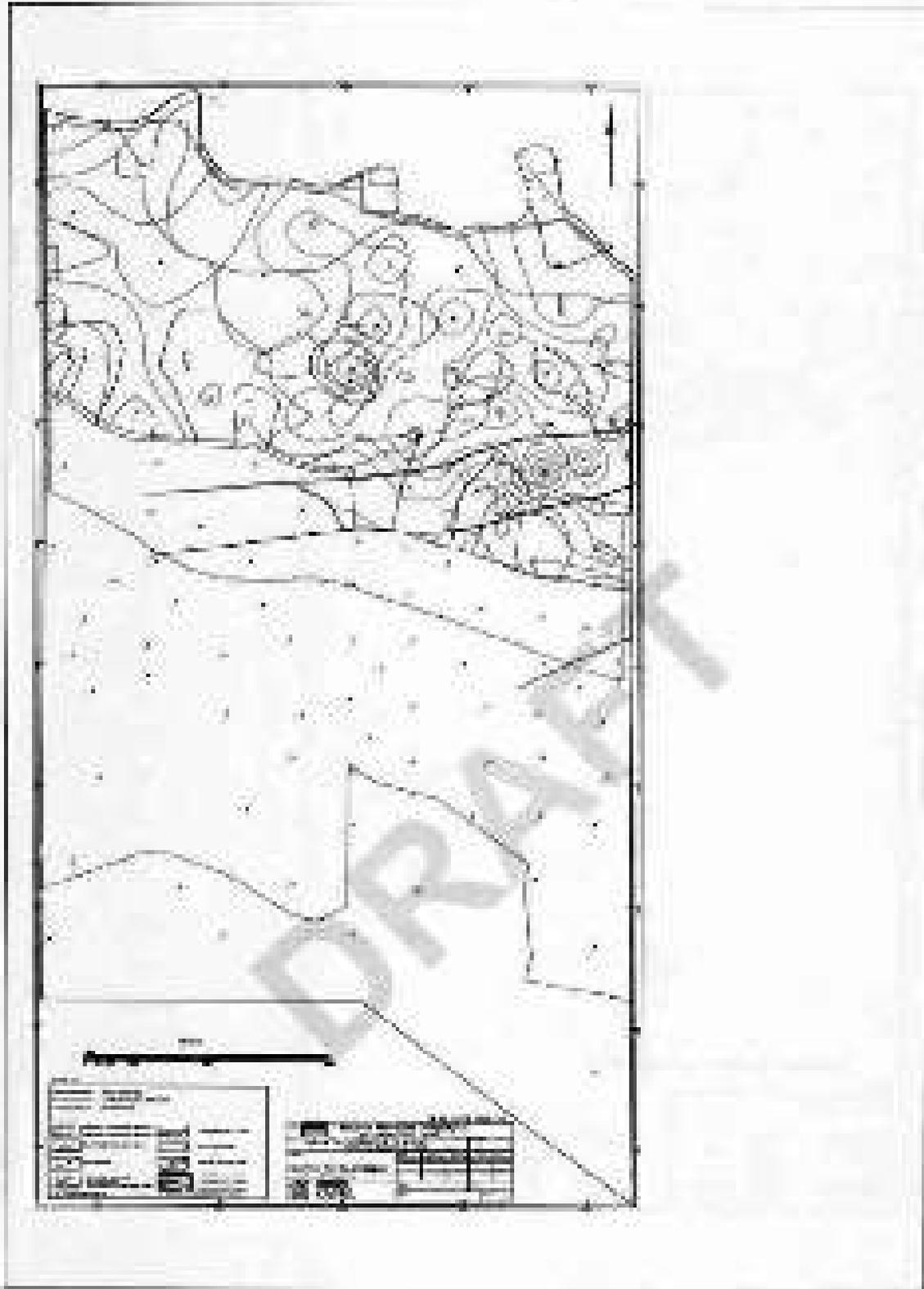




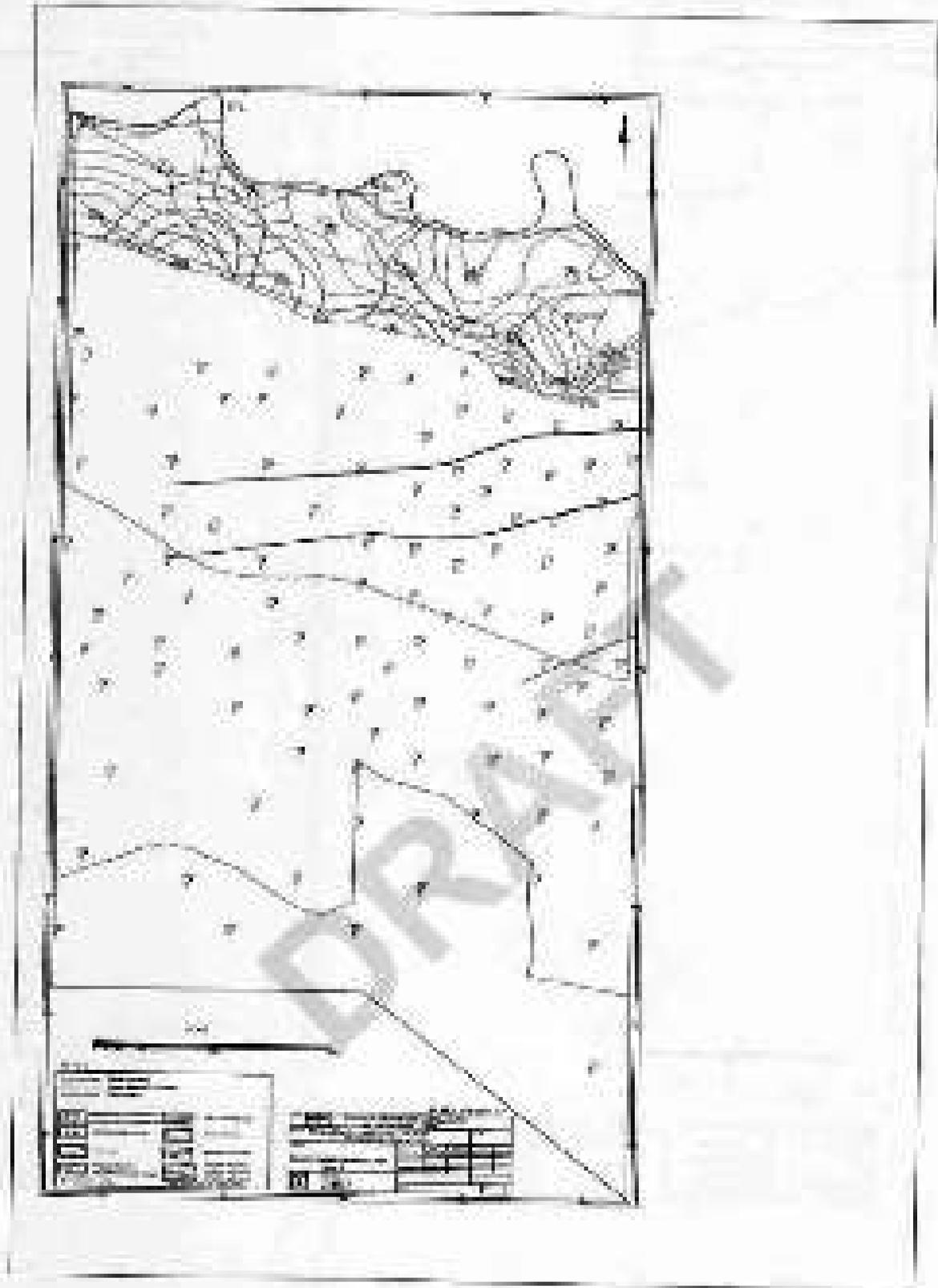
Plan / Plate 10B1

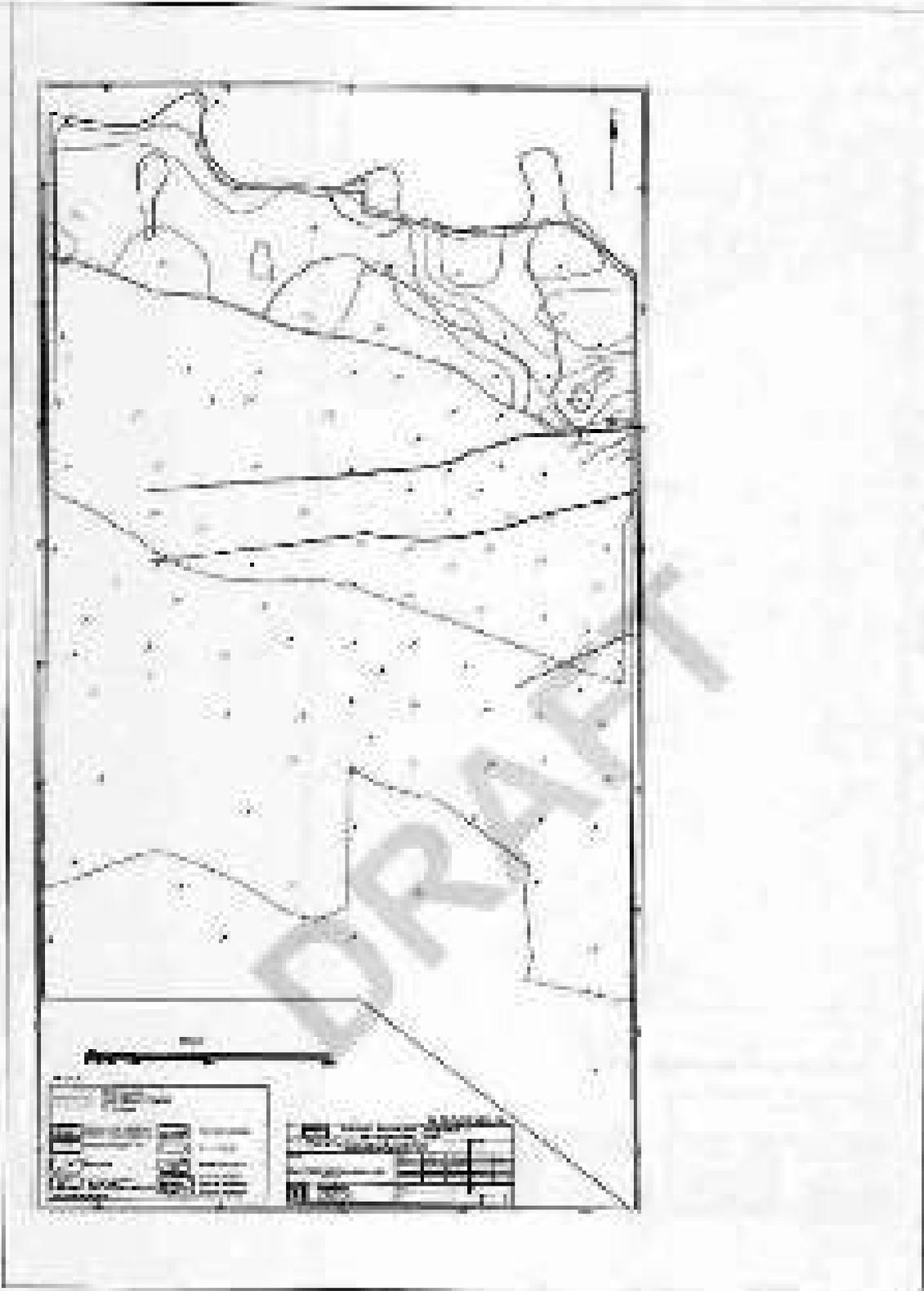


Plan / Plate 1082

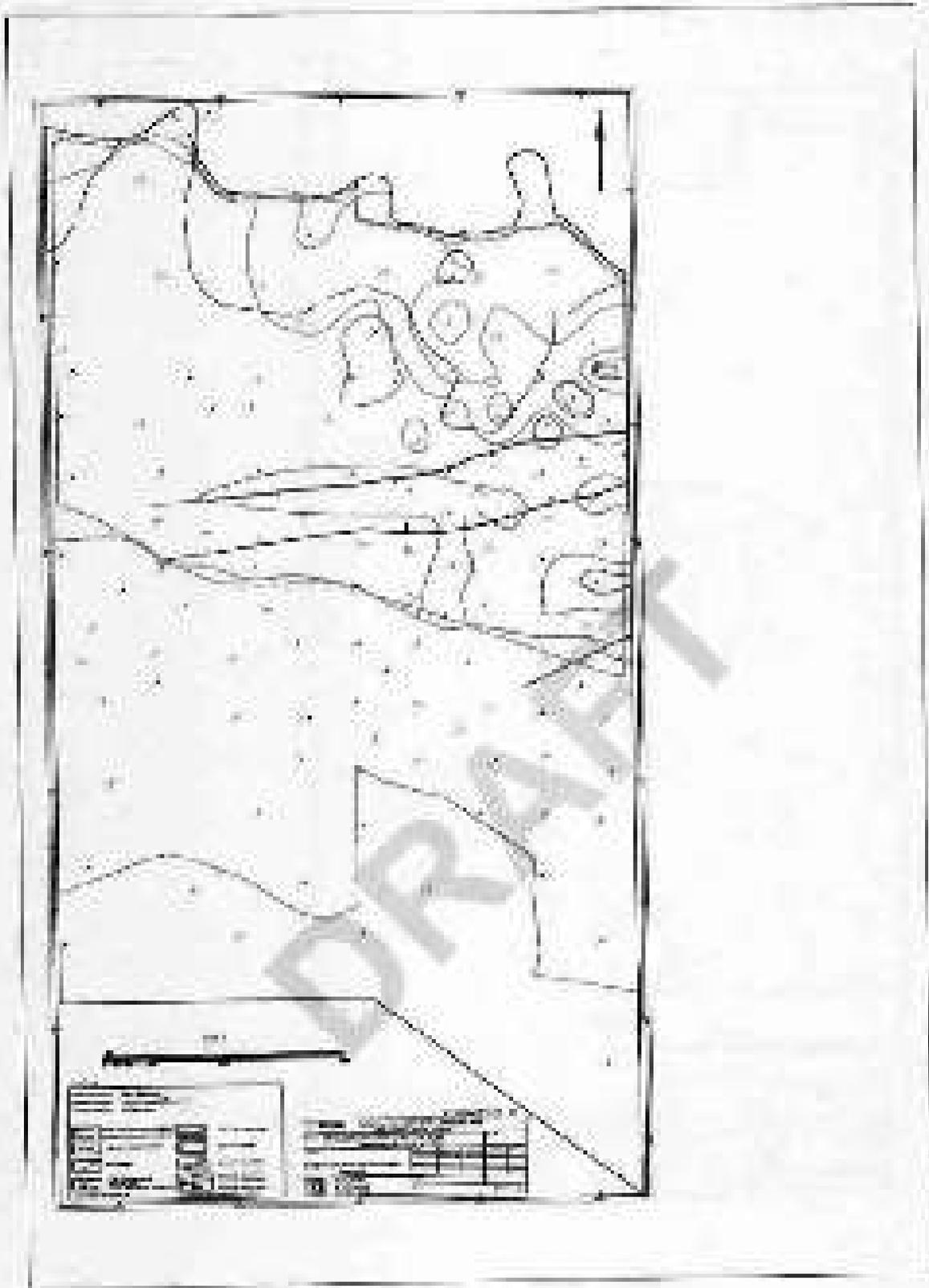


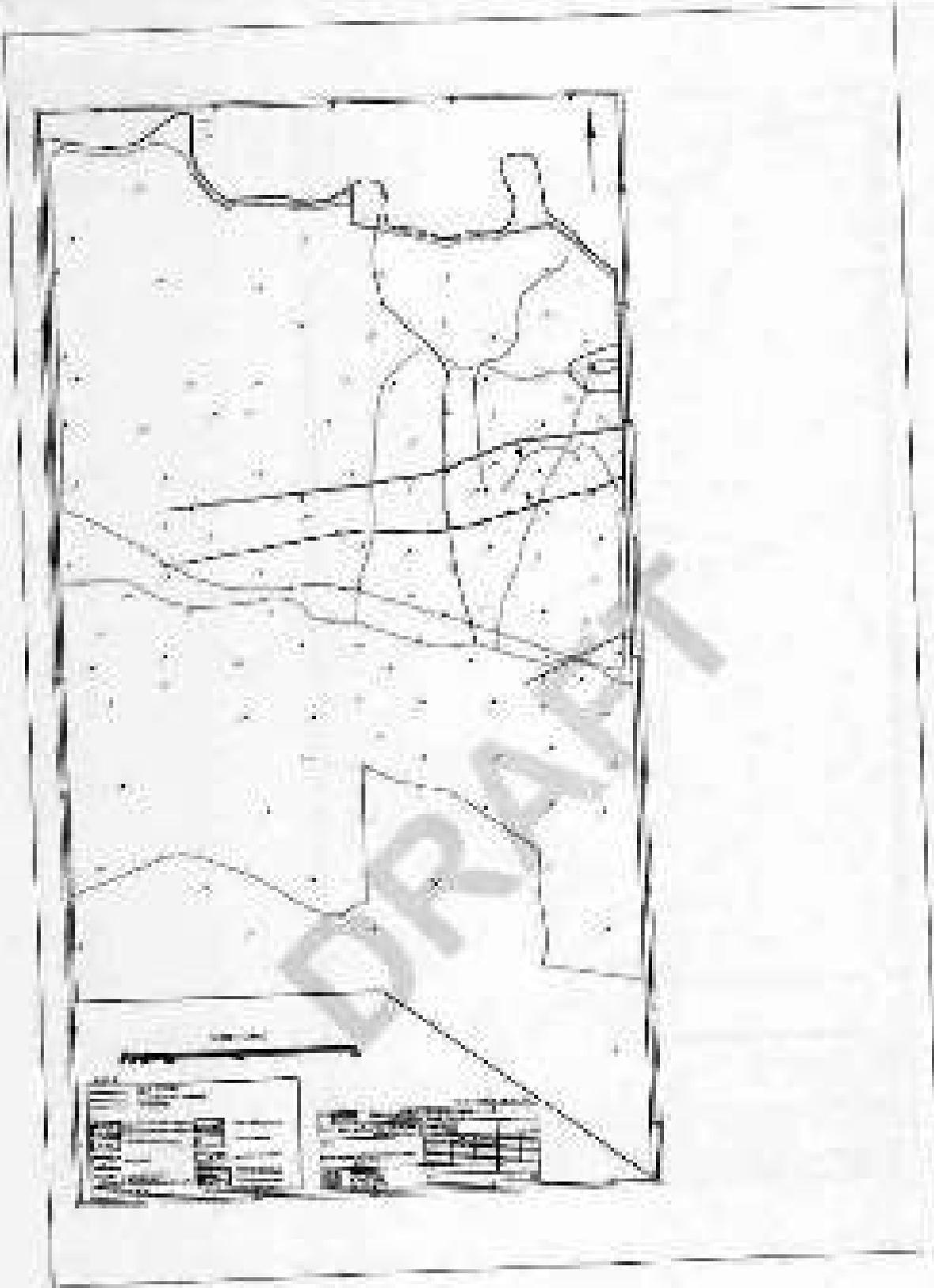
Plan / Plate 10B3



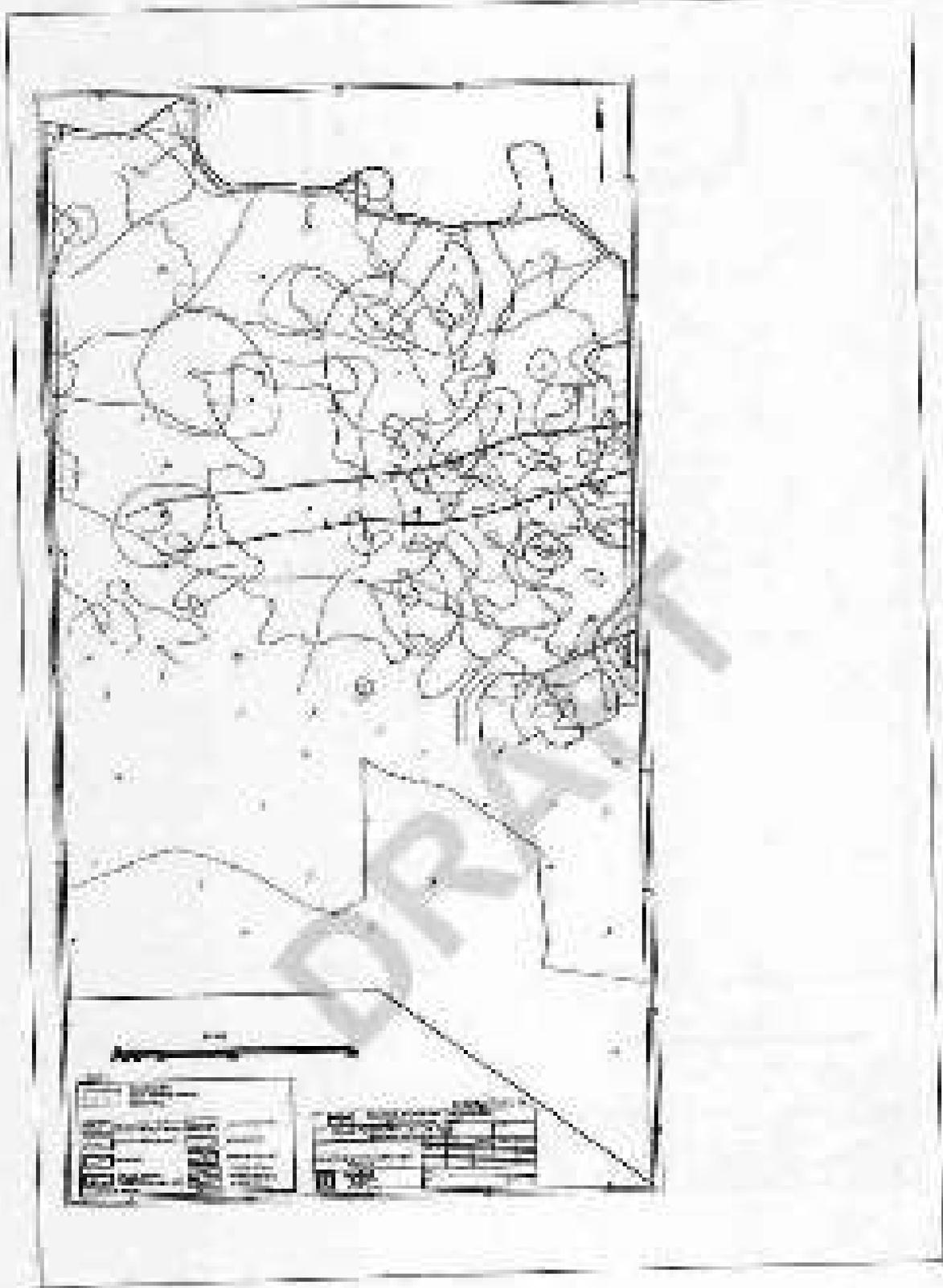


Plan / Plate 10B5

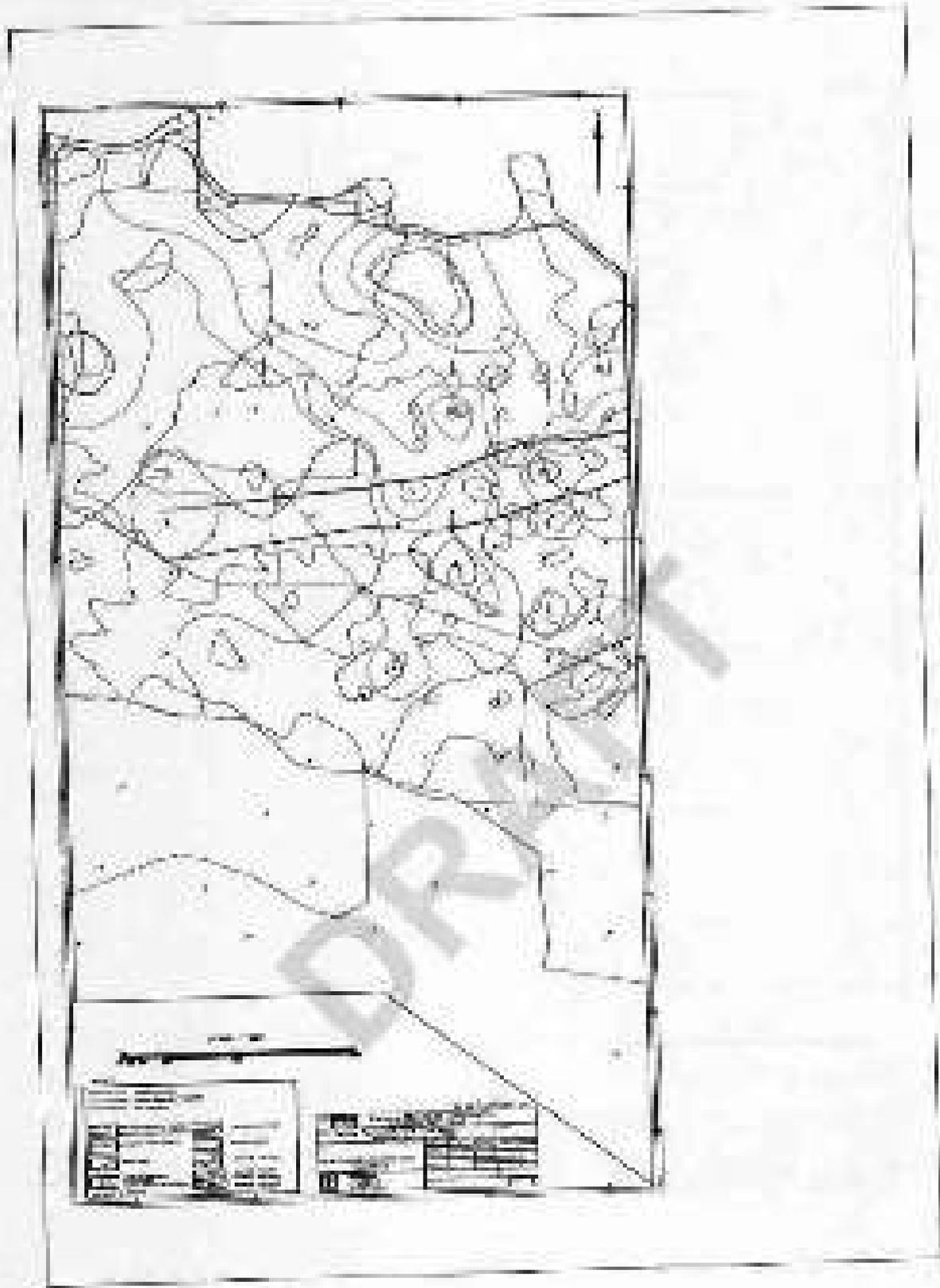




Plan / Plate 1088

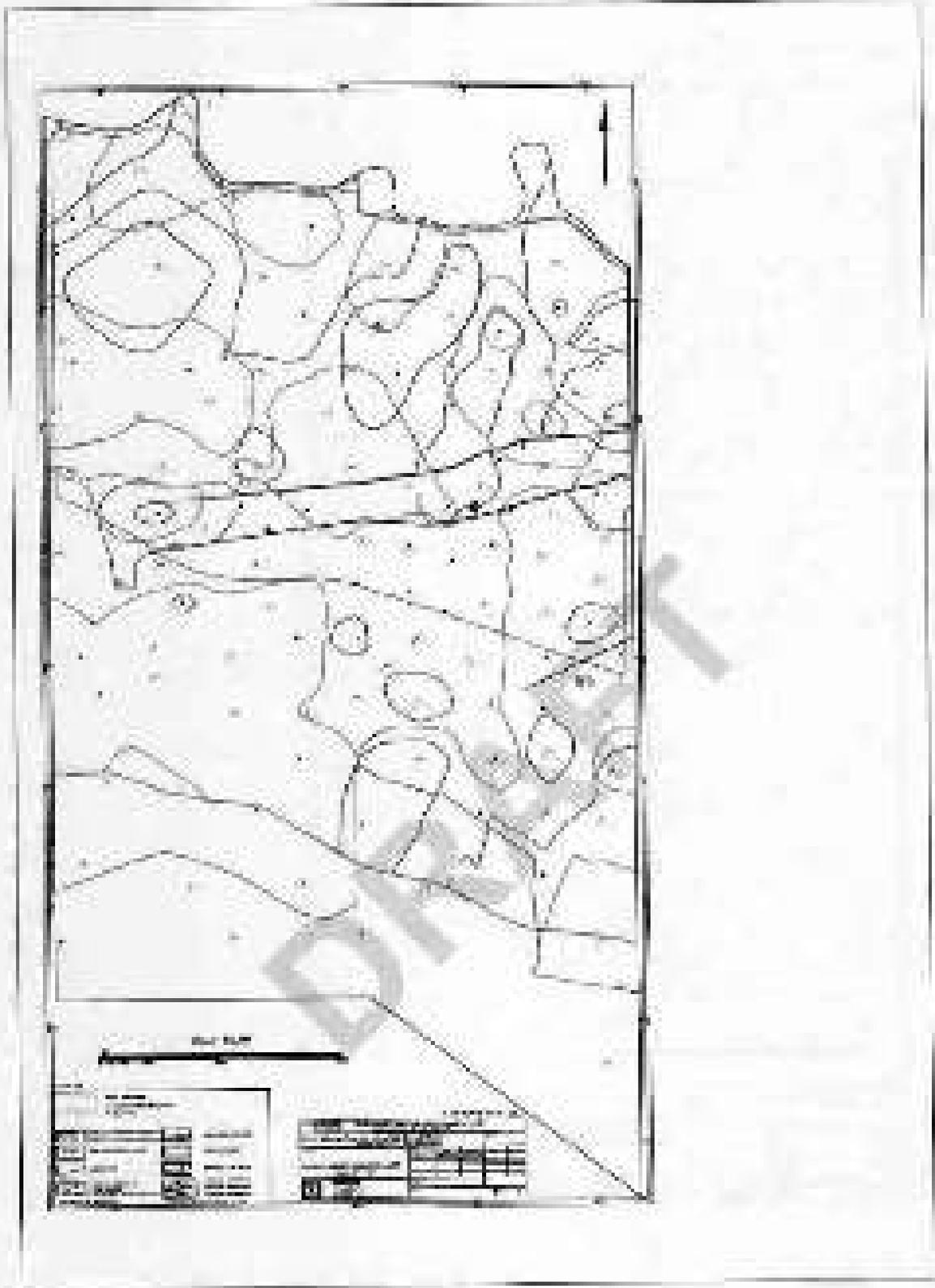


Plan I Plate 10B-10





Plan / Plans 10012

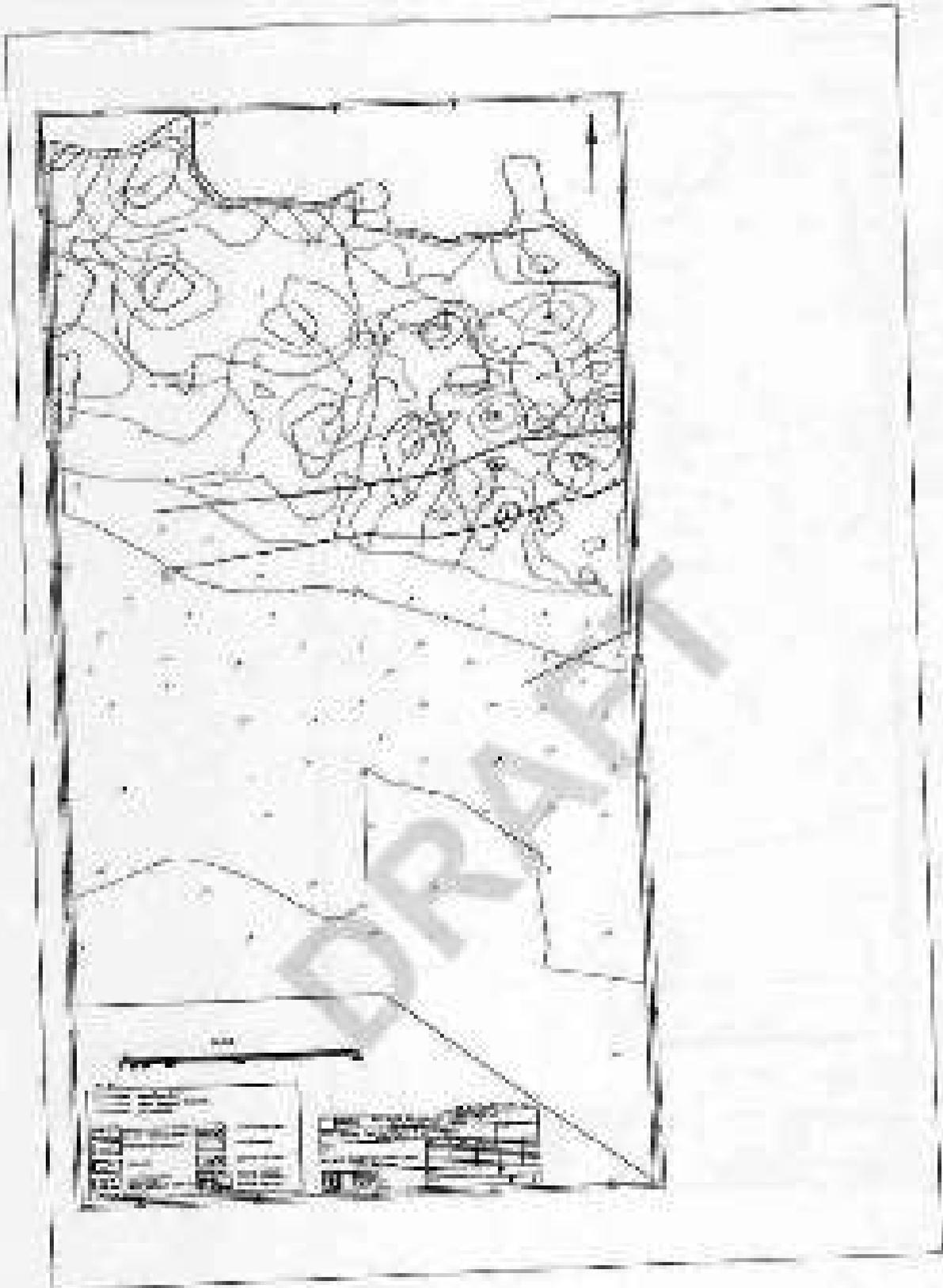


Plan / Plate 10B14

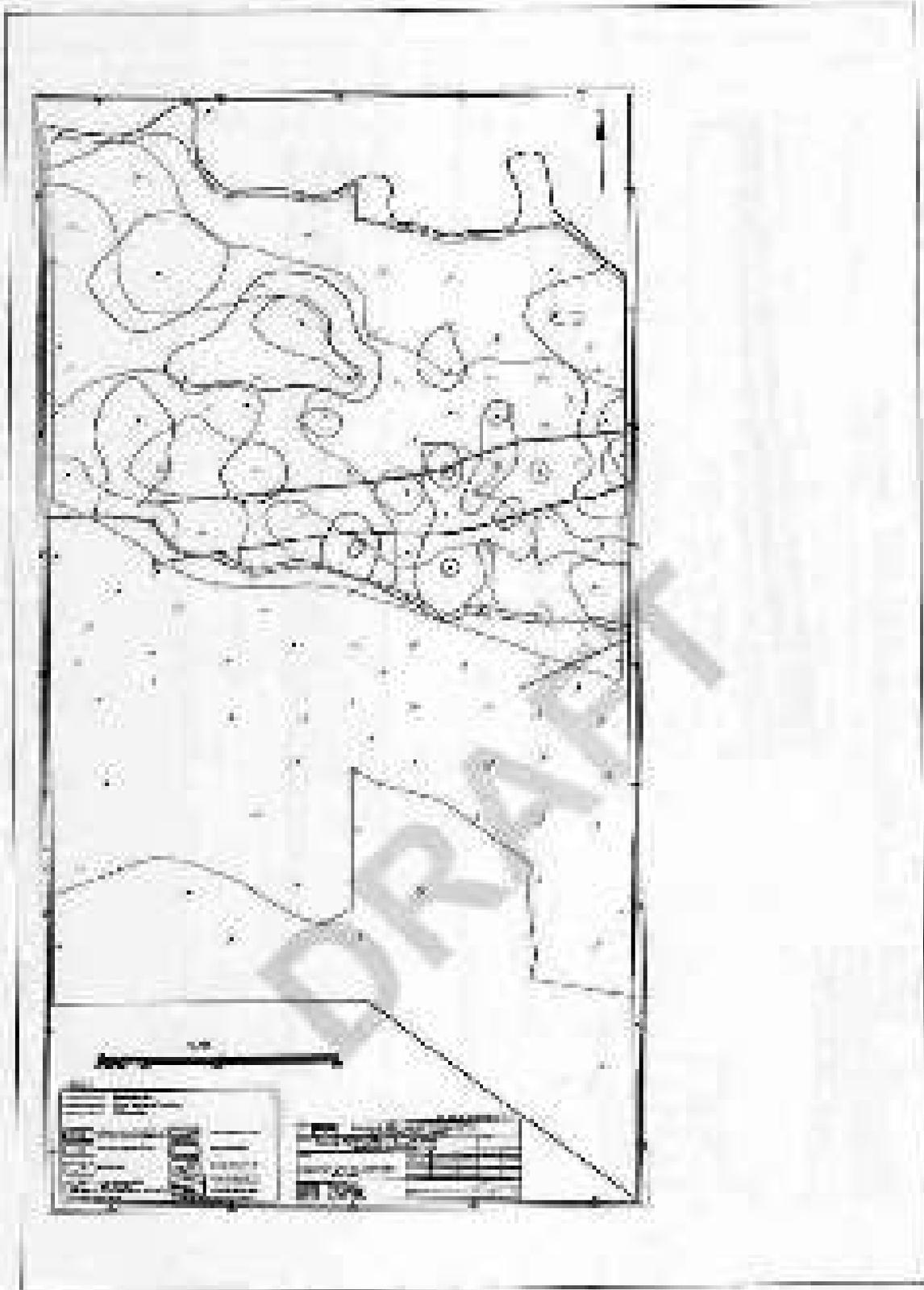


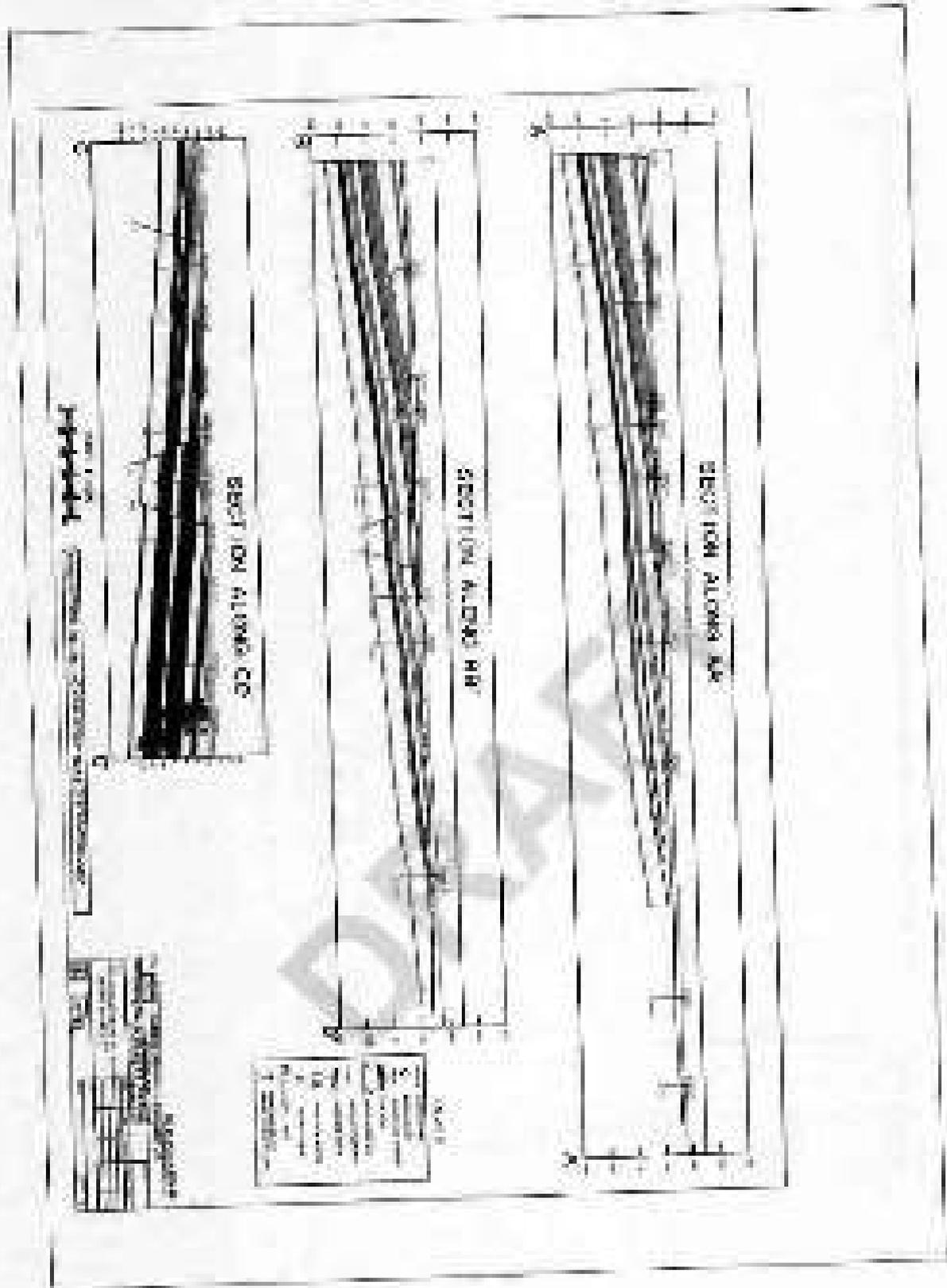
Plan J Plata 10815



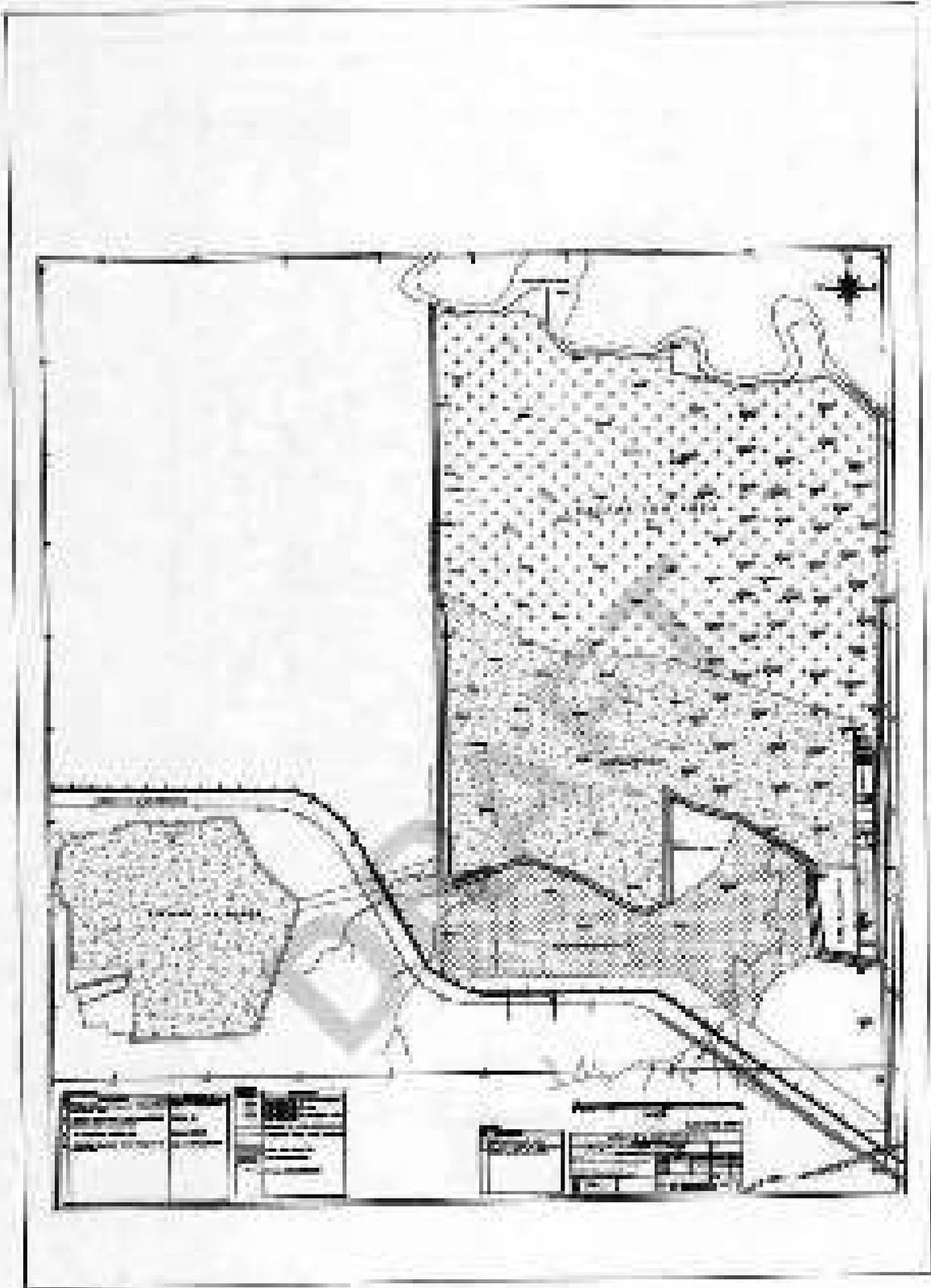


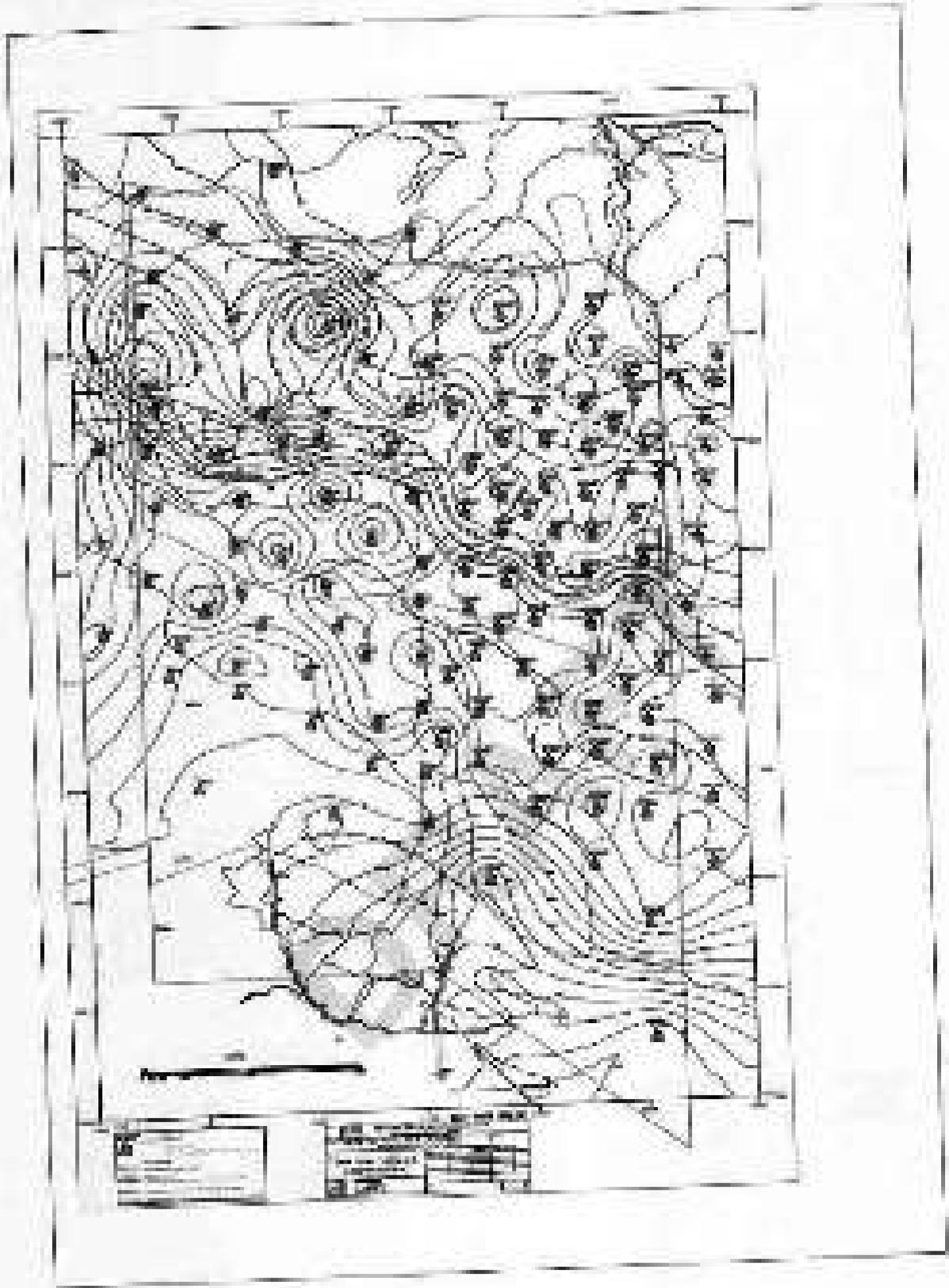
Plan / Plote 10B17



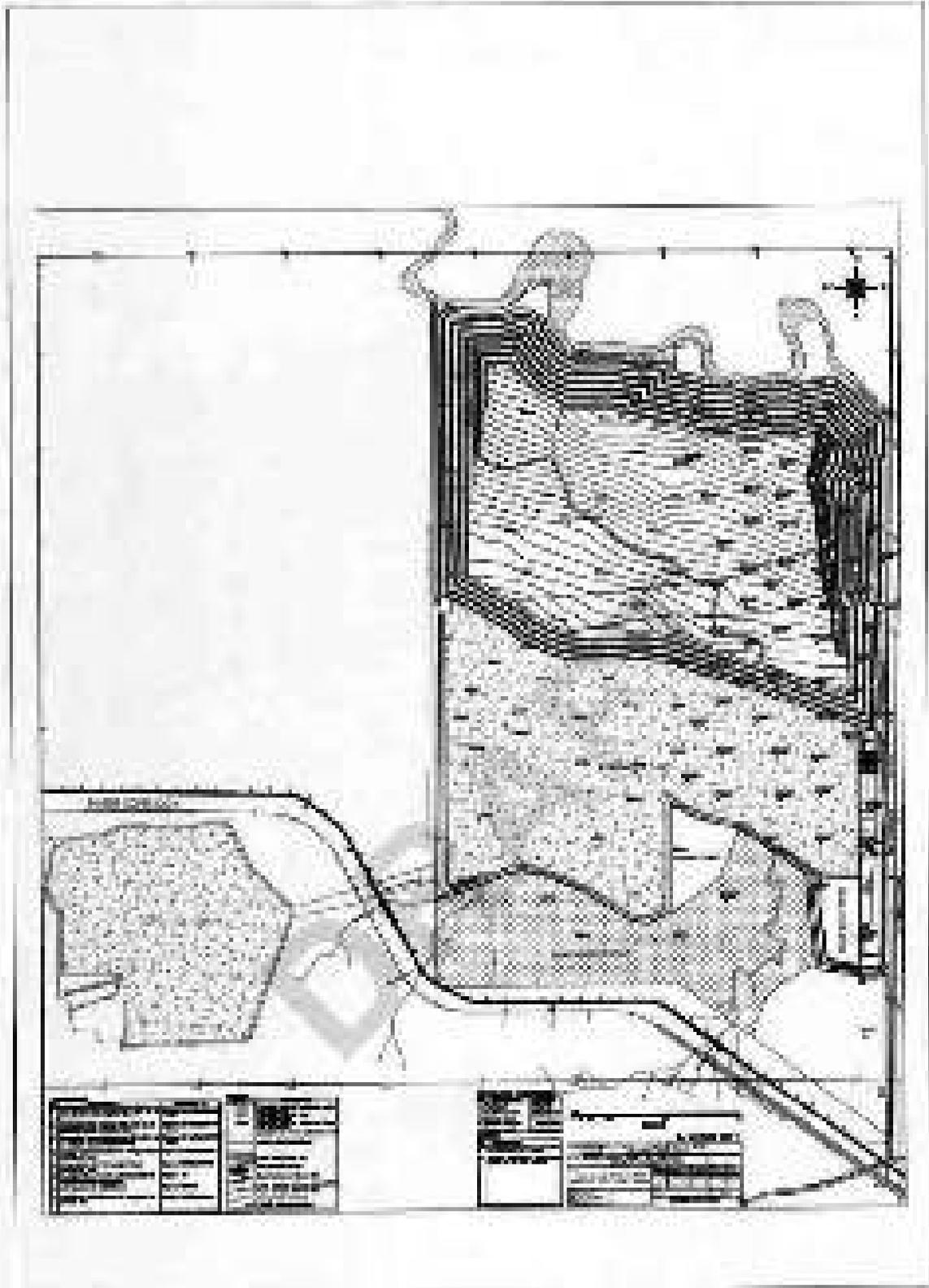


Plan / Plate 12

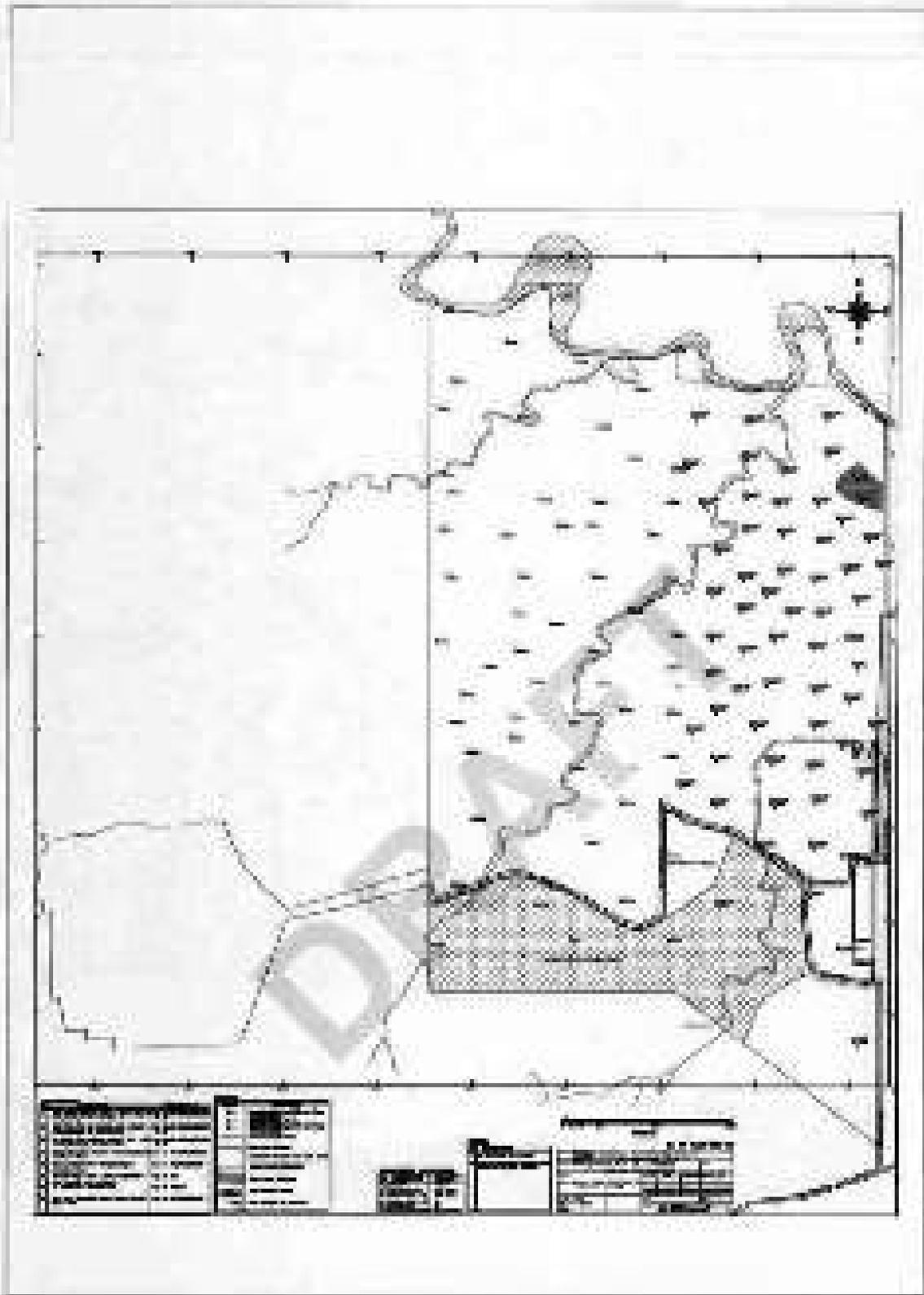




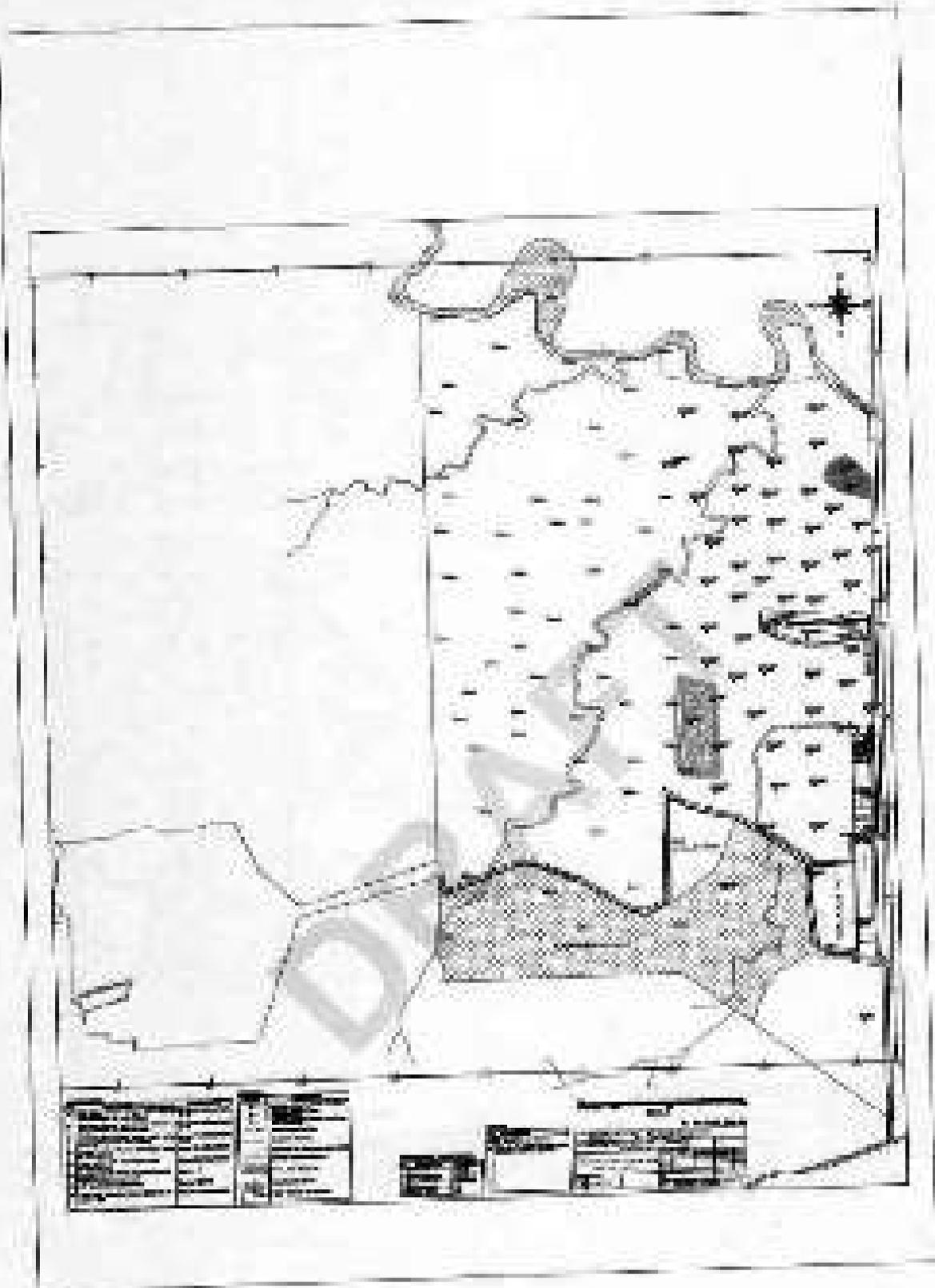
OC Plate-14



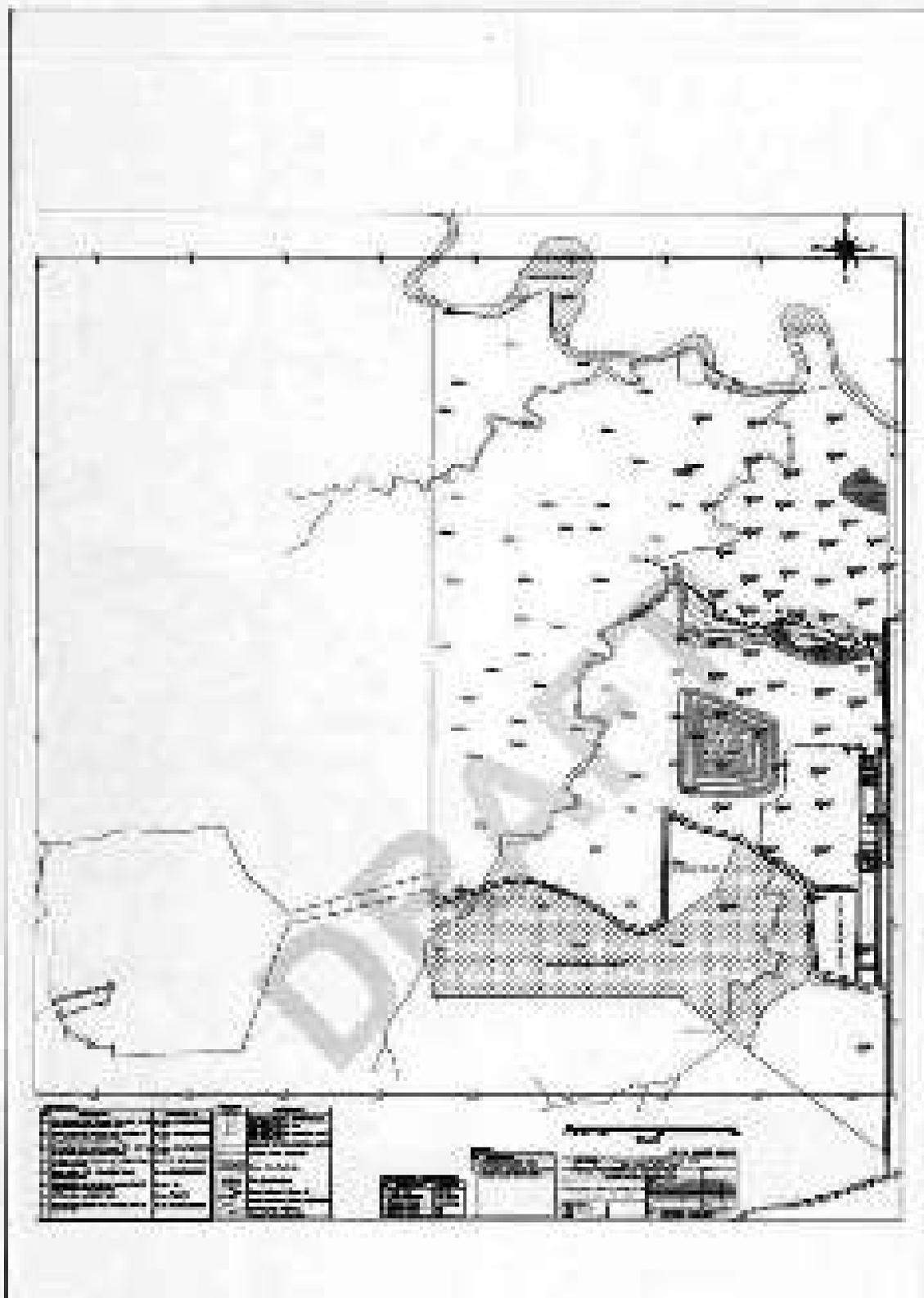
Plan / Plate 21A

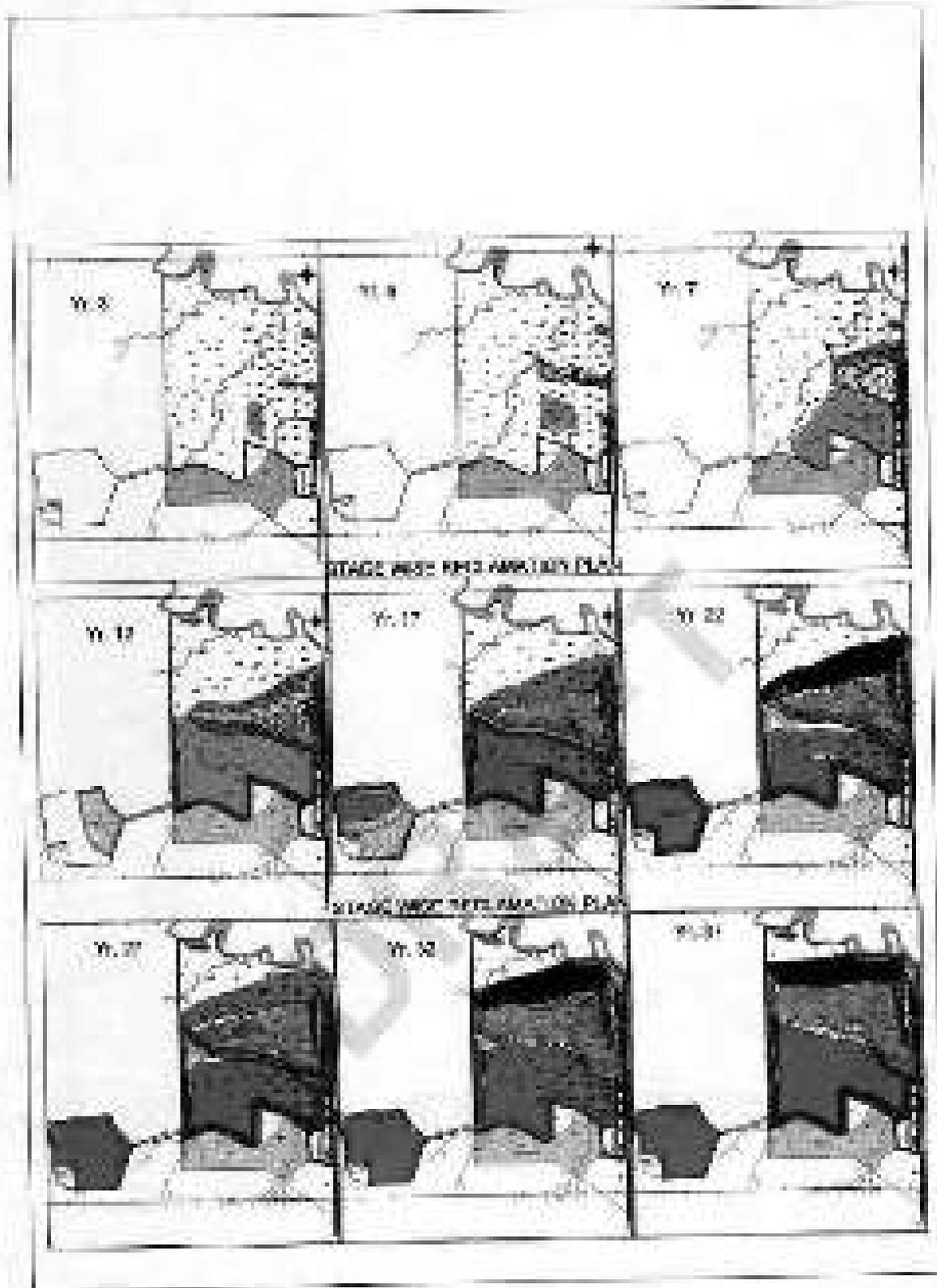


Plan i Placa 21B

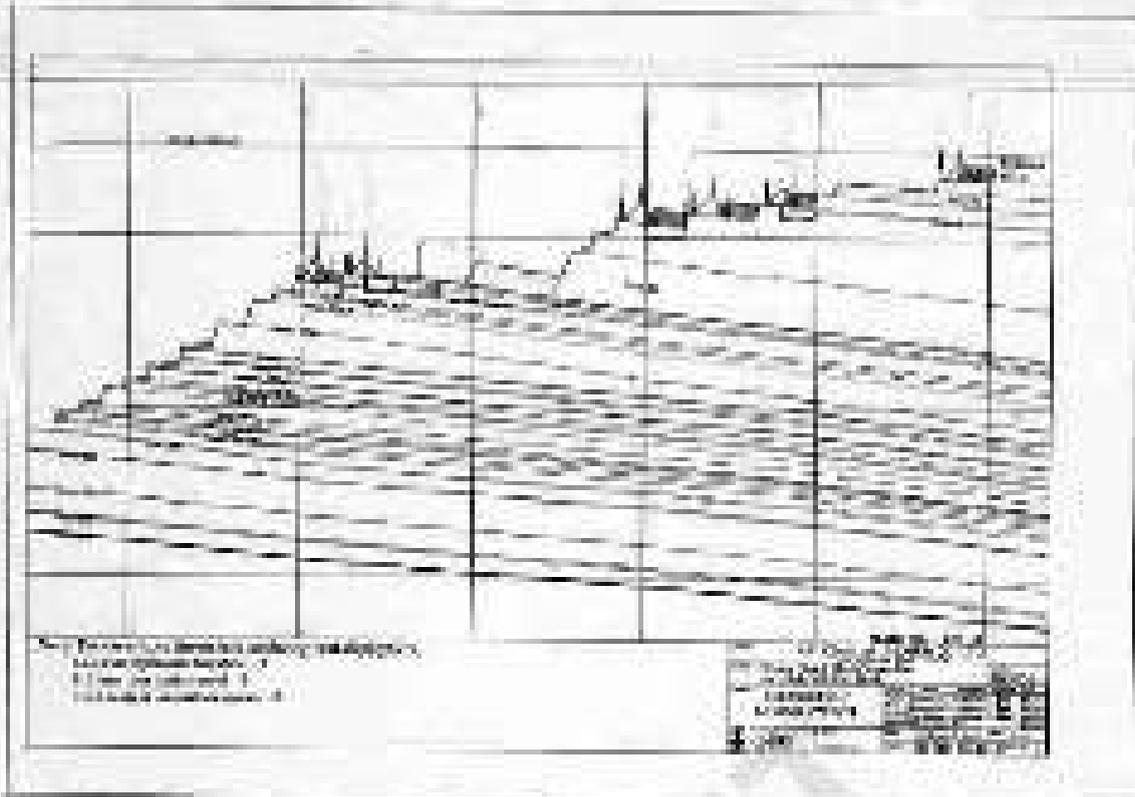


Plan / Plate 210





Additional Plan / Plates-23



DRAFT

UNDERTAKING

ANNEXURE-A-V (5)

MoEF & CC File No. 3-072020-FC dtd. 13.03.2021

Condition No. A (5)

The revised Mining plan having duly incorporated progressive mine closure Plan with backfilling details year wise and financial expenditure to be incurred annually, shall be submitted as part of the compliance report of the conditions of Stage-I approval. The rehabilitated forest area after closure of mining operations shall be handed over to the State Forest Department for sustainable forest management in the future;

Compliance to Condition No. A (5)

In compliance to this condition, this is to inform that Ministry of Coal allotted Utkal D&E (combined) Coal Block to NALCO. NALCO plans to operationalise Utkal-D block in phase-I. Meanwhile, processes for commencement of mining of Utkal-D&E (Combined) Coal block is being carried out which will dovetail mining operations of Utkal-D and continue as Utkal-D&E (combined) mine.

Revised Mining Plan of Utkal D&E (combined) block having duly incorporated progressive mine closure Plan with backfilling details year wise and financial expenditure to be incurred annually has already been submitted to Ministry of Coal.

Nalco do hereby further undertake that the rehabilitated forest area after closure of mining operations shall be handed over to the State Forest Department for sustainable forest management in the future.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division

नेशनल एल्युमिनियम कंपनी लिमिटेड
(मूल कंपनी का नाम)
निजम आवेगल

राजको भवन, उपाध्यायी, भुवनेश्वर- 751 001, भारत

REG. OFFICE: BHUBANESWAR, ODISHA, INDIA-751001, INDIA TEL: 067426 230011

REG. NO. 18/19/2012/PTD, 1/20/1997, 2/20/1997, 2/20/1997, 2/20/1997, 2/20/1997


S. K. PATEL
Executive Director (R&TH)
Proj. 2 & Tech. Host Department
National Aluminium Company Ltd
Bhubaneswar-751001

Authorized Signatory

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO Bldg. No. 1, Bhubaneswar, Odisha-751001, INDIA

REG. NO. 18/19/2012/PTD, 1/20/1997, 2/20/1997, 2/20/1997, 2/20/1997

WWW.NALCO.COM

CHIEF WILDLIFE WARDEN, ODISHA

Department of Forest and Environment, Government of Odisha
PRADEEP KHARWA, P.O. KHARWA, SA. BHOJ KHARWA, BIL. BANSWARA-751037
Email: pradeep.kharwa@odisha.gov.in / pradeep.kharwa@odisha.gov.in

No. 10389 / CWLW-FRWC-FOA/WF/2021

Dated: Bhubaneswar, this 26 October, 2021

To

The Executive Director (P&T)-I
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751005

Subject: Proposal seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980 for non-forestry use of 129.1790 ha of forest land in favour of M/s. KALCO for Lignite Open Cast Mining Project in Angul District (Odisha) - Approval of Site Specific Wildlife Conservation Plan.

Ref:

It is to intimate that you have to implement a Site Specific Wildlife Conservation Plan for the above project in accordance to the Condition No.11 in Para-A (iv) conditions which need to be complied prior to handing over of forest land by the State Forest Department and compliance to be submitted prior to Stage-II approval, stipulated in letter in File No. B-039430-FC dated 12.09.2020 of Government of India, M/S/KCO, FC Division while granting Stage-I approval under Section-2 of the Forest (Conservation) Act, 1980 to the above mentioned proposal.

The Site Specific Wildlife Conservation Plan in regard of the above project & hereby approved with financial forecast of Rs 543.92 lakh (Rupees five crore forty-three lakh ninety-two thousand) only for implementation of the activities in project impact area in Angul District, as detailed in the approved plan.

The total cost of Rs 543.92 lakh (Rupees five crore forty-three lakh ninety-two thousand) only may be deposited in State CASPA fund through e portal (odishaforest.nic.in) for implementation of activities in project impact area within Angul forest division. It is further requested to take note of the following conditions for timely compliance.

- * The plan may be revisited after 5 years and the user agency will give understanding to compliance towards the need of the Conservation Plan till the project period, if any.

P T O.



- should there be need for Site Specific Wildlife Conservation Plan after expiry of the present one period, the user agency shall submit another such plan at least one year before expiry of the present Conservation Plan and before the expiry amount spent is approved in case of delay, it will be dealt as per law for violations of Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986.
- The user agency shall also be submitting to the DFO concerned and in case of other category of user also during implementation of the plan.

Yours faithfully,



FDCP (M) & CALM, Cochin

Encl: Copy of approved SANMGP

Memo No. 10391 dt 26/10/2024

Copy forwarded for information and necessary action to DFO :-

1. Director, Environment-Special Secretary to Government of Kerala, PWT, Bangalore, Bangalore with reference to DFO's Memo No.FE-DIV-FLD-0049/2021-8521-FAR dt 17.03.2021
2. Principal Guest Conservator of Forests, Kerala with reference to his memo No.5844 dt 22.05.2021
3. Regional Chief Conservator of Forests, Arjun, Cochin with reference to his memo No 2153 dt 05.10.2021
4. Divisional Forest Officer, Arjun Division along with a copy of the approved SANMGP.



FDCP (M) & CALM, Cochin

AGENCY COPY




NETT: RTGS CHALLAN for CAMPA Funds

Date - 19/01/2021

Agency Name	SELCO
Application No.	201110200
MO/PSO File No.	B-17/2020-PC
Location	ORISSA
Address	SELCO Bhubaneswar, P.V. Bhubaneswar
Amount in Rs.	43946130/-

Amount in Words: Four Crores Twenty Nine Lacs and Twenty Thousand Nine Hundred Rupees Only

NETT/RTGS to be made as per following details:

Beneficiary Name	ORISSA CAMPA
IFSC Code	UBIN0001740
Pay to Account No.	12022004014000 Nodal a/c for this channel account
Bank Name & Address	Union Bank of India Local Computer Branch, Phase I, Local Computer, Phase I, Local Post, New Delhi-110002

- This Challan is strictly to be used for making payment to CAMPA by NETT/RTGS only

The amount deposited in the ORISSA CAMPA account no 150825841142460 on 20.01.2021 for Orissa Coal Mining Project for scheme furnished below:-

- (1) Regional Wildlife Management Plan - Rs. 4,39,46,130.00

[Rupees Four Crores Twenty Nine Lacs Twenty Six Thousand and One Hundred Only]


 Divisional Forest Officer
 Angul Division


S. K. PATEL
 Executive Director (P&T)
 Project & Technical Department
 National Aluminium Company Ltd.
 Bhubaneswar-751001

20 Apr	TO TRANSFER	RTGS INB	PRZT	4294018006	4003739025
21 Apr	INSITUS UTI NO:	ADDRESS			
Apr	5086123164021724879 - LTC& INB	TRANSFER TO			
2021	ADDRESS TRANSFER TO	50861231640217			
	45911244204				

FORM 2024A

FORM 2024B

REPLY COPY

 **Union Bank**



REPT-RTS2 CAN LAR for CARRA Funds

Date: 10-01-2021

Agency Name	RRUCD
Reference No.	007120001
REPT-RTS2 File No.	1-071200010
Location	CHERGA
Address	RRUCD Bhawan, P-1, Mayapuri, New Delhi
Account No.	100000001

Account to Pay: The Credit Party's Loan Account No. 1000000010001

REFUNDING to be made as per following details:

Beneficiary Name	CHERGA CARRA
IFSC Code	UBIN0011110
Pay to Account No.	100000110001 Refer only for this account amount.
Bank Name & Address	Union Bank of India Local Cherkha Branch, Block T1/C2D Complex, Phase I, Lodhi Road, New Delhi - 110001

- This Cheque is strictly to be used for making payment to CARRA by REPT-RTS2 only.

REPLY COPY

 **Union Bank**



REPT-RTS2 CAN LAR for CARRA Funds

Date: 10-01-2021

Agency Name	RRUCD
Reference No.	007120001
REPT-RTS2 File No.	1-071200010
Location	CHERGA
Address	RRUCD Bhawan, P-1, Mayapuri, New Delhi
Account No.	100000001

Account to Pay: The Credit Party's Loan Account No. 1000000010001

REFUNDING to be made as per following details:

Beneficiary Name	CHERGA CARRA
IFSC Code	UBIN0011110
Pay to Account No.	100000110001 Refer only for this account amount.
Bank Name & Address	Union Bank of India Local Cherkha Branch, Block T1/C2D Complex, Phase I, Lodhi Road, New Delhi - 110001

- This Cheque is strictly to be used for making payment to CARRA by REPT-RTS2 only.

REPT-RTS2 TO: CHERGA
TO: CHERGA CARRA
REPT-RTS2 FILE NO: 1-071200010
DATE: 10-01-2021

TRANSMITTED TO: CHERGA CARRA
DATE: 10-01-2021

The amount of Rs. 1,00,00,000/- deposited in the CHERGA CARRA account no. 100000110001 on 18.11.2021 for RRUCD P-1 Phase I Local Area Meeting Project.

UTR- 3FIN12913149A3627



10-1-2021

Divisional Fiscal Officer
Angul Division


S. K. PATEL

Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751001

OFFICE OF THE DIVISIONAL FOREST OFFICER ; ANGUL DIVISION, ANGUL.

Letter No. 22/23 /110/2021/Dated. 25/07/21

To

Sr. Smty Krishna Patel
Sr.GM (Tech), MALCO Bhuban, P. L. Bypass
Bdr Bhubanes - 751011

Subj-

Proposal for diversion of 169.1779 ha. of forest land for coal mining in respect of
Ukal-E Coal Mines under Section-3 of Forest (Conservation) Act, 1980 by MALCO.
- Approval of Site Specific Wildlife Conservation Plan-

Ref:

1 Proposal No. 17/DR/Mining/41142/2019
2 Letter No. 9-07/2020-FC dt. 12.05.2021 of GOI, MOEF & CC
3 Memo No. 10340 dt. 26.10.2021 of PCCF (Wildlife) Odisha

Sir,

With reference to the above cited letter on the subject, it is to inform that the Govt. of India, MOEF & CC vide their letter No. 9-07/2020-FC dt. 12/05/05/2021 have accorded in principle approval under section-3 of the Forest (Conservation) Act, 1980 for non-forestry use of 156.1779 ha of forest land out of originally proposed 169.1779 ha of forest land in favour of M/s. Malco for Ukal-E Coal mining project in Angul District (Odisha).

Hence, as per condition No. A-6 of Stage-I order of Govt. MOEF & CC, you are requested to deposit an amount of Rs. 543.92 lakhs (Five hundred forty three lakhs ninety one thousand) Only as per approved Site Specific Wildlife Conservation Plan by the Principal Chief Conservator of Forests, Wildlife & Chief Wildlife Warden, Odisha Bhubaneswar vide his memo No. 10340 dt. 26.10.2021 (copy enclosed) in the Ad-hoc CAMPA in the saving Bank Account No. 520101203743655, Corporation Bank, Lathi Complex, Ground Floor, Block No. 11, CGO Complex, Lodhi Road New Delhi through "e" payment immediately and intimate the same to the undersigned for taking further action in the matter.

Yours faithfully


Divisional Forest Officer
Angul Division

Memo No. 22/23 /110/2021/Dated. 25/07/21

Copy forwarded to the Regional Chief Conservator of Forests, Angul Circle for
further of kind information and necessary action.


Divisional Forest Officer
Angul Division

Memo No. 22/23 /110/2021/Dated. 25/07/21

Copy forwarded to the Principal CCF, PD & NO (FC Act) O/o the Principal Chief
Conservator of Forests, Odisha/ PCCF (Wildlife) Odisha for favour of information and
necessary action.


Divisional Forest Officer
Angul Division

AMERICAN - AVIA

OFFICE OF THE DISTRICT FOREST OFFICER, ANGLIC DIVISION, AMERICA
1000 ...

To: ...
From: ...
Subject: ...

With reference to the above mentioned ...
The ... of the ...
The ... of the ...

It is requested that you ...
The ... of the ...

Further ...
The ... of the ...

Yours faithfully,
[Signature]
District Forest Officer

Should you require ...
Copy forwarded to the ...

[Signature]
District Forest Officer

Should you require ...
Copy forwarded to the ...

[Signature]
District Forest Officer

Sub-Collector (General Administration)
Angul

Handwritten signature

For Order

As above
Approved
Sub-Collector (General Administration)
Angul

Section at your end.

For the project approved by the Collector, Angul for kind information & necessary
action in your end.
With reference to the file on the subject cited above, I am forwarding
known the Rehabilitation & Resettlement (R&R) plan of HALCO for UARD & E

Dr,

For: Your office with no R&R plan, 25.03.2018

Coal mine Project

Sub: Rehabilitation & Resettlement (R&R) plan of HALCO for UARD & E

Business

National Aluminium Company Ltd

Project & Technical Dept

The General Manager (Technical)

To

OFFICE OF THE COLLECTOR & DISTRICT MAGISTRATE, ANGUL
No. 195
18.8.18 D.L. 17.05.2018



18.8.18 D.L. 17.05.2018

Regional Form Officer
Regional Division
S. K. PATEL
Executive Deputy (R&R)
Prof. J. S. TENDON, Chairman
NATIONAL ALUMINUM CO. LTD.
Bhubaneswar-751001

NATIONAL ALUMINIUM CO. LTD.

BLOCK OF

UTKAL D & UTKAL E-COAL



(R&R) Plan

Rehabilitation

& Resettlement

PROPOSAL ON

2



COAL MINE DIVISION



CONTENTS

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IV. INFRASTRUCTURE WISE MAP OF RRR COLONY FOR UKHAL-E COAL BLOCK

V. PROPOSED RRR SITE MAP OF UKHAL-D COAL BLOCK

VI. Proposed Financial Outlay for DP families of Ukhal Dale Coal Block shifting to RRR Colony

Other coalfield spread over an area of 1000 sq.km contains huge reserves of power grade coal. Government of India has allotted (IHD) & (IHD-E) Coal Block situated in this coalfield to NALCO on 02.06.2016 for coal mining to meet the requirements of its 1st, 10th, 11th and 12th units of Captive Power Plant, which were envisaged to cater to the power needs of the expansion of Smelter capacities.

Captive Coal Block Project

NALCO has also forayed into the "Green Energy" segment and has 50.4 MW (2x4 2.1 MW) Wind Power Plant at Gandakot, AP and 47.6 MW (2x23.8 MW) Wind Power Plant at Jambhner, Rajasthan, 50.4 MW (2x 25.2 MW) Rooftop Solar Power Plant at its Corporate Office at Bhubaneswar.

Sr. No.	Unit	Capacity
1	Bauxite Mines	6.96 MTPA
2	Alumina Refinery-4 streams	2.275 MTPA
3	Aluminium Smelter-4 pot lines	4.80 LAKH TPA
4	Captive Power Plant-120MWx 10	1200 MW
5	Port Facility	0.912 MTPA
6	Wind Power Plants	148.2 MW
7	Rooftop Solar System	280 MW

PHYSICAL PERFORMANCE

The capacities of various facilities are given below:

Bhubaneswar:
 National Aluminium Company (NALCO), a Government (PSU) under the Ministry of Mineral, is one of the country's largest integrated Aluminium smelter located in 1981. The port facility, Aluminium Refinery, Aluminium Smelter and Captive Power Plant, all located in the town of Odisha. The port facility for import of Coking Coal and export of Alumina is at Visakhapatnam Port Trust, east, Visakhapatnam, Andhra Pradesh. The corporate headquarters is located at Bhubaneswar.

4. PROJECT

1. INTRODUCTION



The Ural-D & E Coal block is well approached from village Rajhara located towards west at a distance of about 2 km on Angul-Chemunda state highway. Chemunda (Tahsil HQ) is around 15 km North-East of the block and approximately by Block top road. The distance HQ Angul is about 20 km from the block towards north-west on State Highway No. 23 i.e. (Chandrapada road - Angul) and is connected with Block top road. Nearest rail head is Angul at a distance of about 20km on Sambalpur-Talcher-Bhubaneswar rail line of East Coast Railway. The block is well connected with State medical Bhubaneswar which is around 170 km from the block.

C. COMMUNICATION

State	Orissa
District	Angul
Tahsil / Taluka	Chemunda
Village	Jungla, Kamsa, Kurada
Coalfield	South Central part of Talcher Coalfield
Longitude	84°54'0" E to 84°56'30" E
Latitude	20°58'30" N to 20°59'30" N
Name of Coal Mine	URAL-D

State	Orissa
District	Angul
Tahsil / Taluka	Chemunda
Village	Eastern Residential Kamsa Bamsaha
Coalfield	South Central part of Talcher Coalfield
Longitude	84°56'30" E to 84°57'15" E
Latitude	20°58'30" N to 20°58'55" N
Name of Coal Mine	URAL-D

Description of the mines:

Ural-D & E block is situated in the South-Central part of the Talcher Coalfield in Chemunda Tahsil, Dist- Angul, Orissa. The location of the block is furnished below.

B. LOCATION

Sr No.	Name of the Village	Pvt Land (In Ac)	Govt Non-Forest Land (In Ac)	Govt Forest Land (In Ac)	Total in Village (In Ac)
1	Handfield area Gopdeshpur	329.727	107.005	251.587	688.319
2	Kundapan Jungle	59.559	7.277	145.794	212.630
3	Kosala	7.792	38.558	0.000	46.350
4	Gopnathur Jungle	23.818	0.000	42.741	66.559
5	Hall Road Kundapan Jungle	1.732	0.478	0.590	2.800
6	Land & Expenses in Kosala	112.881	195.149	0.000	308.030
	TOTAL LAND (In Ac)	523.523	382.870	418.388	1324.781
	TOTAL LAND (In Hrs)	214.8579	142.6800	169.1719	526.7097

E. VILLAGE WISE LAND DETAILS:-
*** Utkale Coal Block:-**

These villages are at a distance of 20 to 40 kms from District Headquarters. Almost in all the villages, the population is distributed in 2-4 hamlets.

The proposed location for the project is a Revenue Village Area & encompasses a group of 7 villages administratively defined Handfield area Gopdeshpur (fully affected), Gopnathur Jungle (partly affected), Kosala Srisaani (Partly affected), Kundapan Jungle (No impact) & Rajhama (Partly affected) of Chandrapur District of Andhra Pradesh. The dominant scheduled tribes in the area include Gond, Scheduled Castes include Erioda & Hari and Other Backward Classes are Chasa, Mali, Gond, Bania, Kamma, etc.

D. PROJECT AFFECTED VILLAGES



b) Further that Coal Open Cast Project is not being under scheduled areas but among the people and to involve all sections of the village. Restoration were consulted and involved during the process. To ensure participation of the state institutions of local self government. The Participatory institutions

gender participation

at The Socio Economic survey of the project affected families had been conducted by Maharashtra Community Centre for Development Studies, which included collection of primary and secondary data through PRA exercises, Focus group discussions, Personal interviews, door to door survey with a specific focus on

procedures :-

The Rehabilitation and Resettlement Plan emphasizes that the project will play a positive role in the socio-economic upliftment and betterment of quality of life of the people residing in the area. In addition to providing the rightful compensation to the land owners, efforts have been made to ensure transparency in the process of planning and execution. The preparation of the plan includes the following

01. Introduction :-

F. METHODOLOGY OF R&R PLAN :

Sr No.	Name of the Village	Pvt Land (in Ac)	Govt. Hort Forest Land (in Ha)	Govt Forest Land (in Ac)	Total in Village (in Ac)
1	Rajkhon	177.5700	0.2700	55.4100	233.25
2	Hanshotol alias Gopidhamur	145.3800	62.8400	272.5200	480.7400
3	Sambhal	2.0000	0.0000	38.1500	38.1500
4	Kevra	1.2800	8.1000	0.0000	7.4800
5	Kunjhal Junga	0.0000	5.2900	20.8100	26.1000
	TOTAL LAND (in Ac)	329.2800	74.4700	369.8900	768.6200
	TOTAL LAND (in Ha)	133.2800	30.1400	155.8400	319.2600

B. UTKAL-D COAL BLOCK :-

As per the H & R Policy the damage survey had been carried out in the project affected villages for all livelihood assets, community assets, as well as government assets by district auditors.

An impact 'photo survey' (for damaged buildings and houses, hospital, Anganwadi, school, electricity, water supply, etc.) of nearby areas of such projects affected shall be deposited with the concerned District Collector.

4. Compensation for Assets

Impact Assessment: After implementation of the plan, a Social Impact evaluation (SIE) shall be done up to provide a base for future interventions.

approval of the plan.

Time frame: The time frame for actualization and implementation of the Rehabilitation and Resettlement Plan would be five (05) years from the date of

project will be included in the R&R Plan.

account of acquisition of whether agricultural/other assets and are affected by the publication of section 4(1) Notification under Land Acquisition Act, 1954 and on have been pending for a minimum of 5 years in the project area prior to the date of

Eligibility: As per Rehabilitation and Resettlement Plan-2005, all families who

3. Guiding Principles of the Rehabilitation and Resettlement Plan

area.

any adverse impact on the existing bio-diversity and natural environment, in the the MOEF & CC, Govt. of India. Now Delhi. utmost care shall be taken to avoid of and shall be implemented as per Environment Management Plan approved by issued by the MOEF & CC, Govt. of India, all possible impacts shall be taken care / perceived impacts have been outlined. Keeping in mind necessary guidelines Environment Impact Assessment (EIA) Study has been carried out and all possible To assess the impacts of the Ultra Mega Coal Mining Project, NATCO, an

2. Perceived Impacts on environment due to execution of project

education, health facilities etc.

improvement in the quality of living, improving access to order daily of



COAL MINE DIVISION

10

7. Compensation for other immovable assets attached to Land: Compensation for all other immovable assets attached to land, i.e. Pond, Dam, well, open wells etc. that are paid to the individual beneficiaries or to the Govt. authorities as the case may be.

For houses, situated in the areas being acquired by the project, cost of the assets as ascertained by the concerned district authorities is paid / being paid to the individual beneficiaries as per the rate with escalation as per guidelines.

8. Compensation for houses:

Compensation for lands has been / is being paid to the individual beneficiaries as per rate fixed by the District Govt. authorities.

9. Compensation for Trees:



For the purpose of B & R category under the policy of Government of Odisha, the development projects are classified into three categories and the project comes under TYPE-B (Mining Project) and as per the guidelines the original family means the family which at the time of notification as per LA Act 1954 is living together in a single household with a common kitchen. But the extended family will include the following categories that are also eligible for B & R benefits:

coming under the PAF's buffer zone and the outcrops and waste lands are coming under the PAF's buffer zone and the outcrops and waste lands are The households from Kharak, Simbarkh, Rajhawan and a part of Korada are fully / partly separated from them though they may remain where they are

Project Affected Families (PAFs) - PAFs are those whose livelihood is such area or required to be displaced and on account of acquisition of either homestead land is displaced here and on account of notification under the provisions of the relevant Act of Odisha means a family ordinarily residing in the project area prior to the

Displaced Family (DFs): Displaced family as per the B & R policy of Govt to their livelihoods and other members residing with him or her and dependent on him or her for unmarried daughters, minor brothers or unmarried sisters, father, mother

Family: Family means, the person and his or her spouse, minor sons, household with a common kitchen

Original Family: Original family means, the family, which at the time of notification under provisions of relevant Act(s) is living together in a single household with a common kitchen

Blindness - 751013 in all the affected villages of Project area.

A comprehensive Socio-economic study and impact assessment has been done by Maharashtra Chendany Centre for Development Studies, Odisha.

II. SUMMARY OF THE SOCIO-ECONOMICS STUDY REPORT

A. UTKAL E - COAL BLOCK:-

- The list of 47 Project Displaced Families and 211 Project Affected Families indicated in the proceedings of 1st RPDA meeting dt. 01.02.2010
- Source: Survey Survey, 2008.

Sl. No.	Village	Total Displaced Persons	Affected Persons	Total Project
A. Fully Displaced				
1	Nandiod	205	250	
2	Godnathur	12	15	
Sub-Total				265
B. Partially Affected				
1	Kassa	-	150	
2	Kassa	-	181	
3	Kundhori Jungla	-	205	
Sub-Total				536
Grand Total				801

Distribution of Total DP Families to be displaced and PAP families affected by Utkal Coal mine project

- (i) As per the socio-economic survey conducted by Nabakrishna Choudhary Centre for Development Studies, Odisha, Bhubaneswar - 751012, the estimated number of displaced families (family as defined in R & R Policy, 2006 of Govt of Odisha) are as under -

B. SOCIO-ECONOMIC CONDITIONS & DEMOGRAPHIC PROFILE OF UTKAL-COAL BLOCK

- (a) A major son (irrespective of his marital status
- (b) An unmarried daughter & Sons/ above thirty years of age.
- (c) A widow or woman divorcee.
- (d) Physically and mentally handicapped persons (suffering from more than 50% permanent disability) irrespective of their age and sex.
- (e) Minor orphans who have lost their parents.

Uxal - D Coal Mine Block was earlier allotted to M/s Odisha Mining Corporation, Odisha which has been now allotted to NALCO on 02.09.2018. As per the approved plan policy of Uxal-D, there are 87 displaced families in the block.

The R&R Colony for Rehabilitation of the Displaced Families had already been constituted in the village of Feringa and that has already been registered in the names of DP Families.

(c) Uxal-D - COAL BLOCK:-

Source: Primary Survey, 2008.
 NB: Figures in parentheses are percentages in total

Sl. No.	Villages	Population				Sub-Total
		SC	ST	ODD	General	
A. Fully Displaced						
1.	Hardyford	22	185	100	8	405 (100.00)
2.	Chandipur	0	12	0	0	12 (100.00)
Sub-Total		22	197	100	8	417 (100.00)

Distribution of DP Families according to Ethnic Groups

However the number of families may change subject to the approval of RPDA. Similarly as per the cost and revenue record the details of affected families are as follows

Further, where losses would be incurred by the project and would not be covered by the project, the following would be provided to the project:

At the financial assistance shall be provided to the displaced families as per the Orissa R&R Policy 2008 - 5th Biennial Revision of Rehabilitation Grants in Monthly terms and as per proceeding of the sub-committee meeting of RRDC held on 13.10.2008 as mentioned below:-

B. RESETTLEMENT BENEFITS :

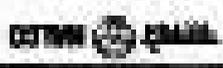
NALCO shall take all steps for implementation of the R&R plan as per the Orissa Rehabilitation and Resettlement Policy 2008 and its subsequent amendments.

NALCO shall take all steps for implementation of the R&R plan as per the Orissa Rehabilitation and Resettlement Policy 2008 and its subsequent amendments. The land acquisition process in which R & R plays a crucial role is basically governed by Orissa Rehabilitation and Resettlement Policy 2008 (amended up to August 2013). As per this policy, our project comes under Type-B (Mining) projects. According to the policy a detailed socio-economic survey was conducted through Rehabilitation Community Centre for Development Studies, Cuttack, Bhubaneswar - 751013 (para 4(f)) notification.

NALCO shall take all steps for implementation of the R&R plan as per the Orissa Rehabilitation and Resettlement Policy 2008 and its subsequent amendments. While considering its commercial interests, NALCO has been aware of its corporate social responsibilities. The projects development, rehabilitation of displaced families and other issues have received articulated and methodical focus in a professional manner. NALCO's corporate philosophy governing public responsibilities & social obligations flows out of the vision. NALCO accepts its responsibility to make numerous measures of goodwill and welfare for the well-privileged to enable their growth through self-employment. This is a constant pursuit in line with the mission set by the Company.

A. OBJECTIVE OF THE R & R PLAN

III. RESETTLEMENT AND REHABILITATION PLAN



of vacation
 displaced families on vacation of land/lease for a period of one year from the date
 NALCO shall provide maintenance allowance of Rs. 5,000/- per month in all the
 (iv) Maintenance Allowance:-
 for shifting to the re-settlement location or their new place of habitation.

NALCO shall provide transportation allowance of Rs. 5,000/- or free transportation
 (iii) Assistance for Transportation:-
 to the person, an amount of Rs. 17,000/- as assistance for Temporary shed.

For families who are dismantling their residential structures in the village,
 handing over possession to NALCO and awaiting the village, NALCO shall pay
 (ii) Assistance for Temporary shed:
 The above aids were approved by Collector and District Magistrate, Angul.

The above aids were approved by Collector and District Magistrate, Angul.

where Project measuring an area of 10 dec.]
 for URAHE Coal Mine Project & 07 plots at Panning R & R site for URAHE Coal
 (out of 514 Dec of URAHE Coal Mine Project) plots are to be allotted at Khasra R & R site

URAHE Coal Mine which is already developed
 of Khasra for URAHE Coal Mine which is yet to be constructed & at Panning for
 Therefore the above displaced families can be accommodated at Resettlement site

shifting to the allotted plot at resettlement site.
 the homestead land. shall be provided to each family in due course of time, when
 provided with land measuring up to 10 dec. for homestead purpose. Land pods of
 Each displaced family, who shall opt for resettlement in the R&R Colony, shall be

III. Provision of Homestead land in R&R Colony:-

mentioned by the NALCO.
 the OMC by NALCO through an appropriate affidavit on or before the cut off date as
 Colony in different R&R sites earmarked (taking over from earlier project provision
 The eligible displaced families shall submit their consent for resettlement in the R&R

OPTION-1 - FAMILIES OPTING TO RESETTLE IN R&R COLONY:-



01 NALCO shall provide Rehabilitation benefit to the project displaced and other affected families as per the provisions of Orissa R&R policy-2001. (Type B Mining Project) for the purpose of Rehabilitation benefit each family will nominate one member of the family. NALCO will give preference

C. REHABILITATION BENEFITS:-

One cash grant of Rs. 2,55,000/-

(A) House Building assistance:- Each of the displaced family who opts for self relocation elsewhere other than the resettlement habitat shall be given one-

of vacation

displaced families on vacation of land/structure for a period of one year from the date NALCO shall provide maintenance allowance @ Rs.5000/- per month in all the

(B) Maintenance allowance:-

for shifting to the resettlement location or their new place of habitation.

NALCO shall give de transportation allowance of Rs.5000/- or the transportation

(iii) Assistance for Transportation:-

to the person an amount of Rs.17,000/- as assistance for Temporary shed

handing over possession to NALCO and evacuating the village. NALCO shall pay For families who are departing that household structure in the village.

(iv) Assistance for Temporary shed:-

Rs.5000/- in lieu of house purchased land.

relocation elsewhere, other than R&R colony, shall be given cash grant of Rs. 5,00,00/-

A displaced family, who chooses by providing consent through an affidavit for self relocation elsewhere, other than R&R colony, shall be given cash grant of Rs. 5,00,00/-

(5) Assistance for self Relocation:-

communicated by NALCO.

The rights displaced families shall submit their consent for self relocation elsewhere, through an irrevocable affidavit on or before the cut off date as will be

OPTION-2: FAMILIES OPTING FOR SELF RESETTLEMENT:-

2,55,000/-

A displaced family, who chooses by providing consent through an affidavit for self relocation elsewhere, other than R&R colony, shall receive house building assistance of Rs. 5,00,00/-

(iv) House Building assistance:-

Government. At the state level, there will be a council headed by the Chief Minister to advise, review and monitor implementation of Rehabilitation and Resettlement policy. The council may comprise of Ministers, selected representatives of the people, leading social activists, academicians and experts of national and international repute and senior officers of the Government.

In order to encourage participation of displaced people and their elected representatives in implementation and monitoring of R&R package to oversee and monitor part-time development a Rehabilitation-cum-Part-time Development Advisory Committee (RDAC) for the project has been formed. The committee under the chairmanship of the Revenue Divisional Commissioner (RDC) includes people's representatives and selected Government Officers.

E. PLANNING AND IMPLEMENTATION OF R & R PLAN:

Already Rs.71.89 Crores was estimated towards the infrastructural facilities at Resettlement site at Kovvur for Utkal Coal Mine Project & at Parangla for Utkal Coal Block (the Project) which is already completed. cost of which has already been estimated to the tune of 5.38 crores.

D. ESTIMATEID COST OF R&R COLONY B INFRASTRUCTURE FACILITIES (excluding Land cost):

Before the persons eligible to get employment, off-shore training modules will be developed for inserting training to persons across particularly to women and SHGs will be formed through which income generating schemes will be started in process.

- Alternative Income Generation
- R & R Colony Rehabilitation:

R&R Colony as per government order No.1818/HR-47/10-2502/HR&DM dated-17.05.2011. R&R Colony as per government order No.1818/HR-47/10-2502/HR&DM dated-17.05.2011. R&R Colony as per government order No.1818/HR-47/10-2502/HR&DM dated-17.05.2011. R&R Colony as per government order No.1818/HR-47/10-2502/HR&DM dated-17.05.2011.

The Community development projects of NATCO are aimed at communities of the targeted villages. The Endeavour being to improve the quality of life of the people, in order to make a long term impact, the contribution would be on providing access to basic services on water, sanitation, roads, health, education and relevant infrastructure.

F. COMMUNITY DEVELOPMENT ACTIVITIES:

An effective Grievance Redressal Mechanism will be set up at District and division level to deal with grievances of the project affected people relating to land acquisition, resettlement and rehabilitation. Besides, the project authorities will set up an effective Grievance Redressal mechanism relating to their project. Effective participation of the affected communities will be ensured in the process.

(d) Grievance Redressal Mechanism:

Whenever required, adequate budget provision will be kept towards land acquisition and R&R establishments to ensure effective implementation of R&R Policy.

(c) Budgetary Provision and Allotment:

Depending on magnitude of the R&R works at the project level, there may be a Project Director, Resettlement and Rehabilitation (PDRR), who shall be assisted by such other officers as Government, may decide. The PDRR shall be the Chief Coordinating Officer between all the two departments in the matter of resettlement and rehabilitation. He will be responsible for implementation of the Policy and timely execution of R&R works under the overall supervision and guidance of the Collector and the Director of R&R. Where R&R work of lesser magnitude, the same can be undertaken by the LNO of the Directorate.

(b) District/Project Level:

A Directorate of R&R will be constituted to design and oversee the implementation of the R&R Policy. Detailed structure and functions of the Directorate will be notified by the Government.

(a) State Level:

ii) LA and R&R Structure:



The RSR Colony for Rehabilitation of the Displaced Families are already completed in the village of Pavnaga as approved by the RPDVO. Kalkera Chuk and Kora Phikon Pira.

The RSR Colony for Utkal-D Coal Block displaced families is situated adjacent to the main highway (D) (Angul-Chendipada) which is about 200 mtrs. away from

DISPLACED FAMILIES.

M. LOCATION OF R & R SITE FOR UTKAL-D COAL BLOCK

was approved by the 2nd RPDVO meeting on 07.02.2011

- The total land for RSR Colony measures Ac. 67.27 and the location of the site is 5 kms. from the western side of Palkheri Chuk.
- Village Kora is adjacent to main highway (D) (Angul-Chendipada) and adjacent houses under Chendipada Taluk in Angul District which is about 5 kms. from
- The R & R site for Utkal-D Coal Block displaced families, is situated at Kora

DISPLACED FAMILIES.

C. LOCATION OF R & R SITE FOR UTKAL-E COAL BLOCK

- Implementation of NALCO KI LABETI for upliment of girls education (Korai)
- Providing drinking water through bore wells & overhead tanks.
- Financial assistance for diverse socio-cultural activities in Project affected villages.
- Strengthening of roads.
- medicines

- Conducting regular health check-up camps in villages and free distribution of

2004 to 2017 is detailed below.

activities undertaken by NALCO in Utkal-E Mining Lease Area during the period

partially villages of NALCO.

Education, Health, Training, Employment and infrastructure up-gradation in the community development activities have been taken up across 5 major villages of

As part of the company's commitment towards Corporate Social Responsibility, several Govt. departments and other people representatives. Parniya Development Society has been formed with members consisting of in the regard under the chairmanship of the Collector and District Magistrate.



- Homebased and (10 per cent family) and provide houses with water supply, sanitary, electrical fittings & connection with a provision of upstair connection by the affected persons at their own cost as per approval of proceedings of 2nd appeal;
- Deposed Persons opting for self-relocation elsewhere other than R & R colony to get necessary travel/transport Allowance plus cash grant
- Compensation for land & immovable properties and assets attached to the land (like structures, trees, well, ponds)

Each family who opted for resettlement in the colony shall be provided with a plot of size of 10 Decimals. The Record of Rights of the land allotted to the displaced persons shall be handed over to the residing families by the District Administration.

MALCO has design the resettlement villages. The Rehabilitation habitat have all the basic amenities and facilities like Road, Drainage, Electricity, Drinking water, School, religious places of worship, cremation ground, Shopping Center, Community Centre, Market place, Post Office, Primary Health Center, Village Pond Park, etc. for the resettlement of the displacement families of the project.

Salient features of the R&R Colony: -

1. The Rehabilitation and Resettlement Colony has been established at Paranga for URB-D Coal Block 5 to be established at Kowla for URB-E Coal Block, where the total (1+1+1) nos. of displaced families can be accommodated.
2. Specific care has been taken to minimize the land requirement for the R&R colony, to ensure that there is no displacement arising out of acquisition of the land.
3. All deposed families having opted for settling in the R&R colony shall be allowed dwelling houses/units in the R&R colony.

HIGHLIGHTS OF PACKAGE



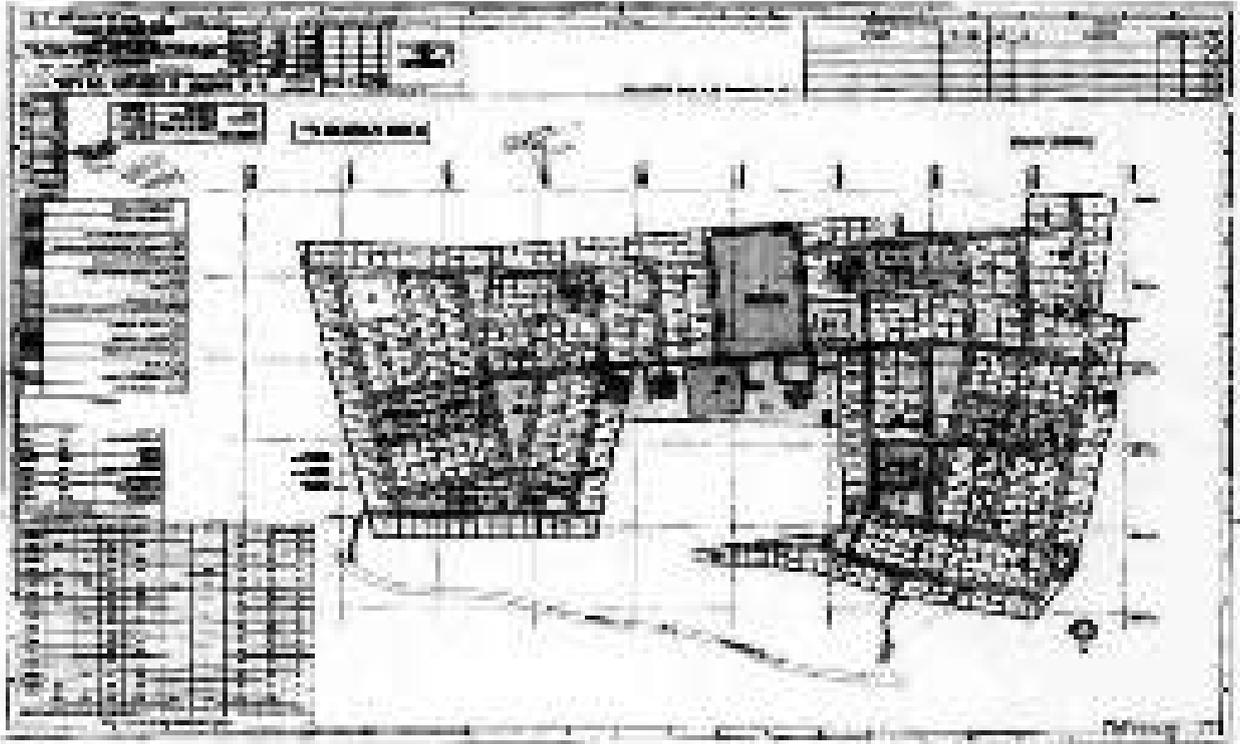
- Coal development Support & Training to enhance the employability of the member of Displaced Families.
- One time financial assistance in loss of employment.
- Assistance for self employment & training.
- Transportation (Betting) allowance, maintenance allowance, incentive for daily drilling and kitchen garden grant.

- 13. Ponds
- 12. BWHM Complex & Host Office
- 11. Play ground & Parks
- 10. Place of worship (Temples)
- 9. Avenue Parkon along village road
- 8. Electric Connections
- 7. Community Center
- 6. Drinking Water Facilities
- 5. Health Center
- 4. School
- 3. Access Road from Main Road
- 2. Street Lighting
- 1. Proper Sanitation

• Provisions in proposed R & B orders :



Rot: This master plan is approved by Collector, Angul on 28.04.2012



IV. Infrastructure wise Map of R&R Colony for Utkal - E Coal Mine Block :

W1. Proposed Financial Outlay for DP Families of Upland D&E Coal Block Mining to RRR Colony

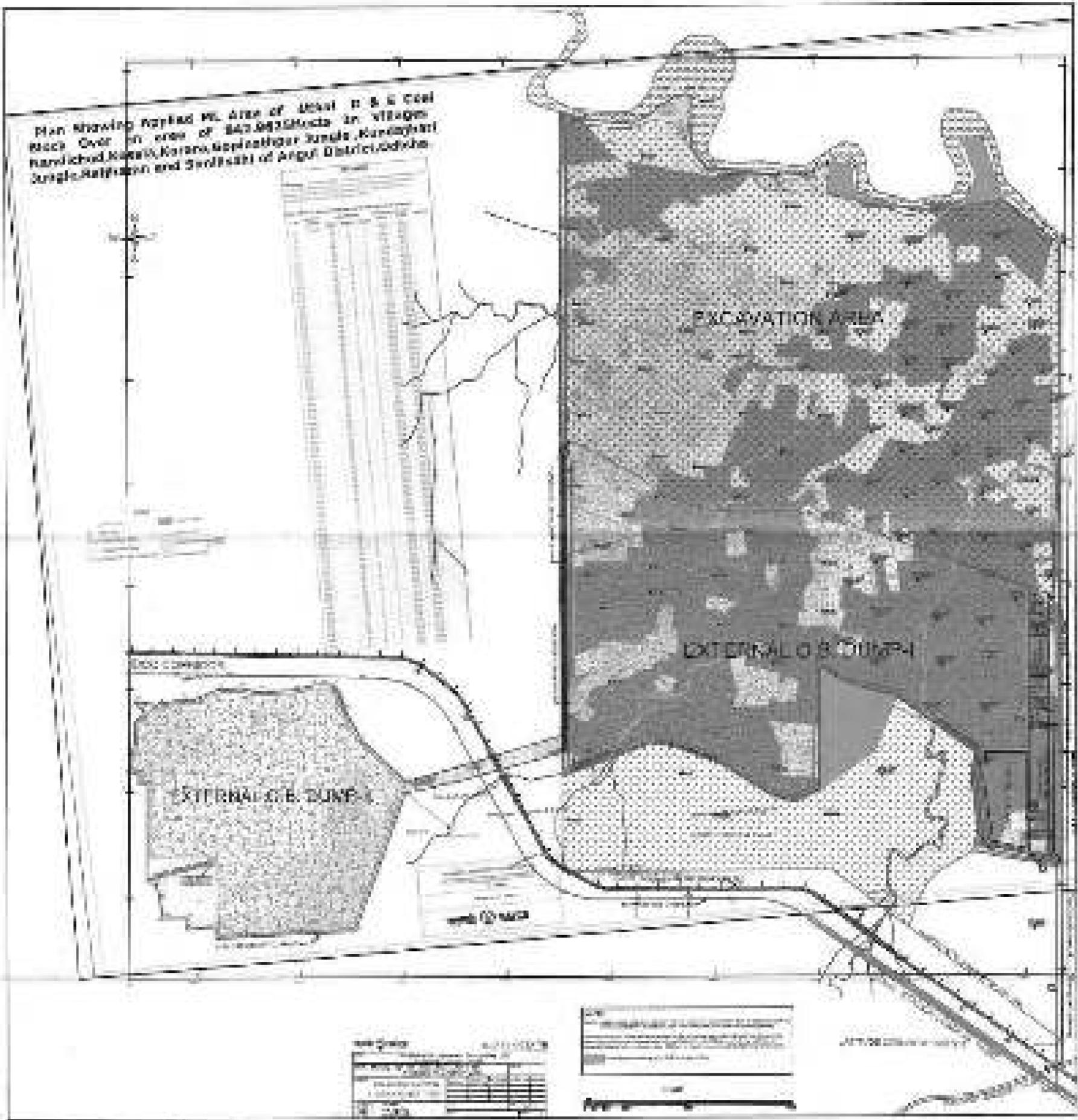
SI No	Description	Unit	Quantity	Rate (Rs.)	Amount (In Rs.)
1	Land for RRR Colony of Upland Coal Block at Parangya	ac	1.8		1,000,000.00
2	Land for RRR Colony of Upland Coal Block at Koyala	ac	1.8		1,000,000.00
3	Hardwarfare allowance for DP families for one year @ 5000/- per month	417 Nos			20,845,000.00
4	Transportation allowance for DP families	614 Nos			2,575,000.00
5	RRR Colony Condition for DP families including Common Infrastructure (as per the decision of 2nd RPJAC) Dtd. 07.02.2011 & Extension made by M/M Director Col. for 500 nos of quarters and infrastructure for 417 dwelling units in 1st year - 2014-15 @ 10000/- for future expansion	250 Nos			2,50,000,000.00
6	Upland RRR Colony to be taken over from prior allotment	100 Nos			52,811,100.00
7	Training for self-employment for Depleted Persons & PwDs (as per the Survey Report of Rehabilitation Community Centre for Development Studies, Bhubaneswar) @ 2000/- per person	900 Nos			1,80,000.00
8	RRR Colony (as per Govt)	514 Nos			1,542,00,000.00
9	Land acquisition for early mining (within one month of notification by Coal Admin.) to RRR Colony	514 Nos			12,850,00,000.00
10	One time cash allowance in lieu of employment to Project Depleted Families (Considering no employment for any DPs of both Upland D&E Coal Block)	614 Nos			432,900,000.00
Total					1,217,488,000.00

NR - The rates for item 01 Rs. 14.83 are as per the proceedings of RPJAC Sub-Committee held on Oct. 10.10.2006 - 51.00 & 10.00 per 000 Sq.Meter RRR Policy, 2008 - 5% awarded revision of the rehabilitation grants in monetary terms. 417 Nos. 10000/- 2014-2015, Dtd. 28.07.2014, which is w.e.f. 01.08.2015. Hence all Depleted Persons opt for employment the total budget outlay will be approximately Rs. 90000 crores.

S. K. RAJ ET AL

Chief Engineer, Anupal

Divisional Forest Officer
April Division
Project & Technical Department
National Aluminium Company Ltd
Bhubaneswar, 751004



(Handwritten Signature)

S. K. PATEL
Executive Director (P&T)-I
Proj. I & Technical Department
National Aluminium Company Ltd
Bhubaneswar-751001

(Handwritten Signature)
Divisional Forest Officer
Arghal, Division

UNDERTAKING

ANNEXURE A-IX

MaEF & CC File No. 8-07/2020-FC dtd. 13.03.2021

Condition No. A(9)

Thirteen (13) ha of forest land proposed to be used for Office, R.S. and other infrastructure, is not allowed as part of this proposal.

Compliance to Condition No. A(9)

In compliance to this condition, this is to inform that Ministry of Coal allowed Ukai D&E (combined) Coal Block to NALCO. Commencement of mining of Ukai D&E (Combined) Coal block is being carried out which will discontinue mining operations of Ukai-D and continue as Ukai-D&E (combined) mine.

As per the proposed revised Mining plan of Ukai- D&E (combined) Coal Block, no part of the land in Ukai-E Coal Block will be used for Office, R.S. and other infrastructure. Earlier proposed thirteen (13) ha of forest land will be used as external overburden dump of Ukai D&E (combined) Coal Block. Proposed land use plan of Ukai D&E (Combined) Coal Block enclosed.

In view of the above we request you to kindly reconsider diversion of balance 13 Ha forest land of Ukai-E Coal Block for the recommendation of Forest Advisory Committee MaEF & CC.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division

Authorized Signatory


S. K. PATEL

Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751024

नेशनल एल्युमिनियम कंपनी लिमिटेड
(बॉम्बे स्टॉक एक्सचेंज में सूचीबद्ध)
निगम कार्यालय

National Aluminium Company Limited
A Subsidiary of India Corporation
CORPORATE OFFICE

बंगलौर कार्यालय, बंगलौर, कर्नाटक 560 028, भारत

NALCO BHARAT, Nayapalli, Bhubaneswar-751024, INDIA

फोन: (भारत) (BPMR) 0674 221221, 221222, 221223, 221224, 221225, 221226, 221227, 221228, 221229

TELEFON: (India) 0674 221221-221229

ईमेल: Fax: 0674 221234, 221235, 221236, 221237, 221238 & 221239

TELEFAX: (India) 0674 221234-221239

(1)

FORM-NALCO-D-1

नालको NALCO

Achieve

For

GAP PLANTING, SOIL & MOISTURE CONSERVATION ACTIVITIES TO RESTOCK AND REJUVENATE DEGRADED OPEN FORESTS (HAVING CROWN DENSITY < 0.4, IF ANY LOCATED IN THE AREA WITHIN 100M OUTER PERIMETER OF MINING LEASE

In compliance

with

Condition No. 5 (12) of

Stage-I Forest Clearance Granted vide

Vide Letter No.8-07/2020-FC, Dated, 12.11.2021

of Govt. of India, Ministry of Environment, Forests & CC,

New Delhi,

for

Reversion of 169.179 Ha of Forest Land

(including of safety zone)

Within 523,325 Utkal (L) Coal Mining Lease

of

M/S National Aluminium Company Ltd. (NALCO)

In

Chitrotpala Taluk Sub-Divn - Angal, Dist. Angal

Odisha.

GAP PLANTING, SOIL & MOISTURE CONSERVATION ACTIVITIES TO RESTOCK AND REJUVENATE DEGRADED OPEN FORESTS (HAVING CROWN DENSITY < 0.4) IF ANY LOCATED IN THE AREA WITHIN 100M OUTER PERIMETER OF MINING LEASE

1. INTRODUCTION

Govt. of India of Coal had allotted Utkal-D & Utkal-E Coal Block in Talcher Coal field to M/s NALCO vide allotment Order No. F.No.305/342015/N.S., dated 02.05.2016. The Block is located in the South-Central part of Talcher Coal field is between Utkal-C Coal Block to the West & Utkal -D Coal Block to the East. Utkal-E Coal Mine spans over an area of 4.60 sq km between Latitude 20°56'57" and 20°58'58" N and Longitude 84°55'49" and 20°56'37" E. Administratively it is under the jurisdiction of Chhendipada Tehsil, Angul district. Utkal-E Coal Mine is covered under Survey of India Toposheet No. 73/D/13 on RF 1:50,000 (2 cm to 1 km) and special toposheet No. L2 on RF 1:10,000 (10cm to 1 km) and falls within Angul District of Odisha. Utkal-E Coal Mine comprises an area of 525.7325 Ha, out of which 169.1779 Ha. area is of Revenue Forest land, which is required to be diverted under Forest Conservation Act 1980. The remaining area 132.6581 Ha is Govt. Non forest land and 222.8965 Ha is Private Land.

The area approved for grant of mining lease is 525.7325 ha. The total forest land is 169.1779 Ha, out of which 169.2319 Ha. is to be diverted for Non-Forest mining use and 3.946 Ha. shall be used as Safety Zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only.

The Stage-I Forest clearance viz of FC Act 1980 was granted by MoEF & CC vide their letter No. 8-07/2020-FC Dt. 12.03.2021 where in it has been stipulated as per condition no. 27 Gap Planting and Soil & Moisture Conservation Activities to restore and rejuvenate the degraded open forest (having crown density < 0.4) if any, located in the area within 100 m from outer perimeter of the mining lease.

2. LOCATION

The mining lease area has been covered in the Survey of India top sheet No.73 (D13) on RF 1:50,000 (2 cm to 1 km) and special top sheet No. E3 on RF 1:10,000 (10cm to 1 km) and falls within Angul District of Odisha. The mine spans over an area of 160 sq km between Latitude $20^{\circ}58'37''$ and $20^{\circ}58'58''$ N and Longitude $84^{\circ}55'49''$ and $84^{\circ}56'37''$ E. Administratively it is under the jurisdiction of Chhendipada Taluk, Angul district. Mining lease area is approachable from Angul covering a distance of 22 km by a black topped road up to Chhendipada.

The nearest railway station is Angul on Talcher-Sambalpur railway line of East Coast Railway at a distance of 22 km from Mine. This railway line connects Puri to Sambalpur. The nearest airport is Bhubaneswar at a distance of 172.0 K.M. The ML area is in Chhendipada Range of Angul Forest division.

LOCATION MAP

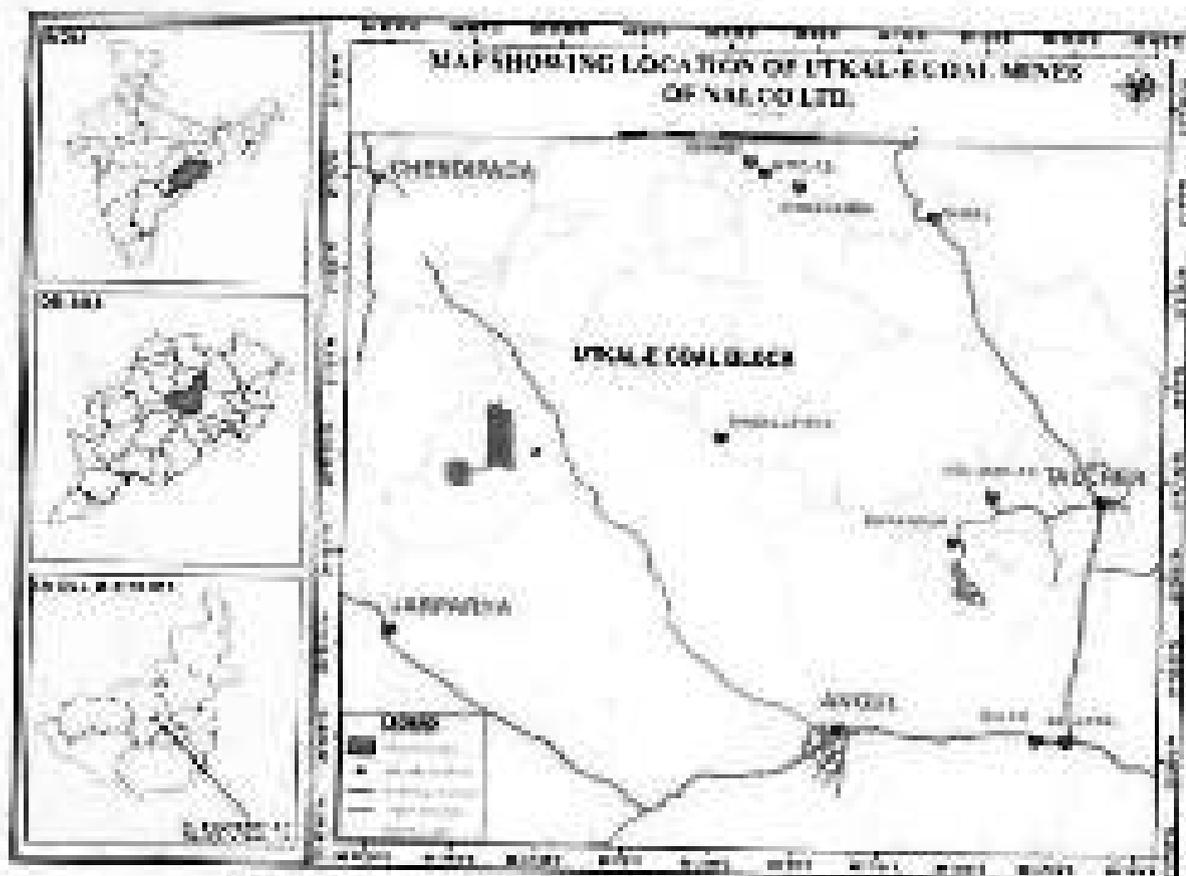


Fig.1: Location Map of Utkal 'E' Coal Block, NALCO

Map of the Project

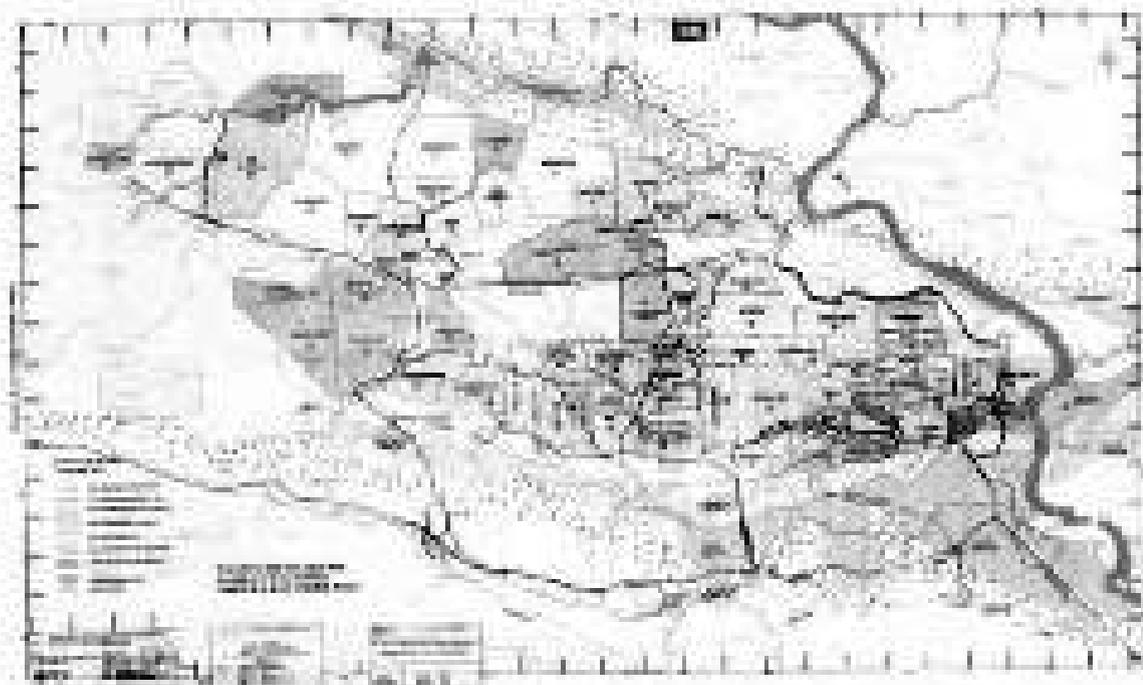


Fig.2: Mining Lease Map of Uthai 'D' Coal Block, NALCO

3. TOPOGRAPHY

The Central and Southern part of this Coal Block is generally flat land. Northern part is moderately undulated. Overall ground slope is dipping towards North. Sinda River is the main drainage of surrounding area, which is a tributary of Baramati river. The maximum elevations of the lease areas is 180 m above msl and lowest 155 m.

4. LAND USE PATTERN

Sl. No.	Pattern	Area in (Ha.)		
		Village Forest	Non-Forest	Grand Total
1	Mining	42,337.9	154,548.6	296,776.5
2	Dumping	151.77	158.117	249.887
3	Top Soil Stock	1.87	0	1.87
4	Road & Corridor	2,644	3,153	5,197
5	Office, K.S. & Other infrastructure	15	5,249	18,249
6	Barrier & Embankment	4.32	9.58	13.9
7	7.5 Safety Zone Area barrier along the lease boundary	2,739	6,443	9,182
8	Singra Jolu & its 50m Safety Zone barrier	1,207	9,499	10,706
9	Maganje & its safety Zone area	0	8,465	8,465
	Total Safety Zone area	3,946	24,407	28,353
	Grand Total	169,177.9	354,554.6	523,732.5

5. DETAILS OF FOREST LAND WITHIN THE LEASE AREA

Forest land to be worked for mining and allied purpose ... 155,331.9 Ha

Area set aside for Safety Zone ... 5,915.1 Ha
169,177.9 Ha

6. SOIL TYPE

The soil type occurring in this area is mostly sandy loam having good soil depth with pH varying from 6 to 8.

7. CLIMATE

The climate of this area is tropical with hot and humid summer and short spell of winter. Occasional thunder storm during pre-monsoon season is common. Monsoon sets in from late June and continues to middle of October. Maximum temperature varies to 47° c during summer and minimum 10° c during winter.

8. DRAINAGE

River Brahmani flowing in approximately north-south direction along the eastern boundary of the lease area provides the main drainage. Single Drove into flowing east to east along northern boundary of this Coal Block carries the local drainage in to river Brahmani. Single Drove maintains a base flow even during dry summer months.

9. EXISTING VEGETATION

The area proposed for diversion includes species as detailed below:

Local Name	Botanical Name
Kurum	<i>Adina cordifolia</i>
Jack Fruit	<i>Artocarpus heterophyllus</i>
Garhar	<i>Cassia arborea</i>
Tamarind	<i>Tamarindus indica</i>
Raman	<i>Swartzia coccinea</i>
Babul	<i>Acacia nilotica</i>
Kutum	<i>Shorea robusta</i>
Maharaj	<i>Albizia coriaria</i>
Sira	<i>Albizia lebbek</i>
Sikote	<i>Podocarpus longifolia</i>
Mango	<i>Mangifera indica</i>
Asan	<i>Ternstroemia alata</i>
Sanjhari	<i>Acacia eucalyptoides</i>
Saran	<i>Cassia fistula</i>
Karaj	<i>Pongamia pinnata</i>

10. OBJECTIVE OF THE SCHEME

The main objective of the present scheme is to fulfill the condition no. 77 which envisages to undertake gap plantation and soil & moisture conservation activities to protect and rejuvenate the degraded open forest (having crown density less than 0.4) if any, located in the area within 100m from outer perimeter of the mining lease. The steps to be followed are as under:

- a) To protect and rejuvenate the degraded forest land and AML plantation within 100m from the outer perimeter of the lease area.
- b) To demarcate and fence the area in ground to distance with plastic interlocking.

- c) To improve the micro-climatic conditions by undertaking suitable soil and moisture conservation measures within the ANR Plantation.
- d) To create awareness among the local villagers for protection and maintenance of this plantation in particular and the adjoining forest for ensuring enrichment of the ecosystem in general.

11. PROPOSED TECHNIQUE

To achieve the above objectives, it has been proposed to take up ANR plantation @200 plants/Ha at a spacing of 2.5 mt X 2.5 mt in identified permanent gaps. The following items of work prescribed in the scheme will be taken up, the detailed expenditure statement of which is enclosed in Annexure- I.

To achieve the above objectives, the following items of work are mainly prescribed to be taken up:

12. SURVEY AND DEMARCATION OF BOUNDARY

The boundary of this lease area is as detailed below:-

- North --- Steps Area
- South --- Durgapur Reserve Forest
- East --- Initial Coal block 'C'
- West --- Initial Coal Block 'D'

The only feasibility of taking up plantation in degraded Forest is Durgapur R.F. located adjacent to the southern aspect of this Coal block. The GPS reading of the identified area is mentioned below:

GPS Reading - 15.0 Ha of ANR Plantation with 300 plants per Ha will be raised.

Sl no.	Longitude	Latitude
01	84°53'01.141"	20°57'15.912"
02	84°53'03.720"	20°57'17.172"
03	84°56'01.392"	20°57'25.652"
04	84°56'12.878"	20°57'19.816"

05	84°56'19.104"	20°57'15.660"
06	84°56'24.005"	20°57'14.504"
07	84°56'27.708"	20°57'14.769"
08	84°56'29.936"	20°57'16.534"
09	84°56'30.048"	20°57'12.548"
10	84°56'29.164"	20°57'11.844"
11	84°56'28.340"	20°57'11.520"
12	84°56'24.146"	20°57'11.052"
13	84°56'23.316"	20°57'11.124"
14	84°56'17.592"	20°57'12.756"
15	84°56'11.156"	20°57'16.430"
16	84°56'01.716"	20°57'20.246"
17	84°55'50.376"	20°57'14.292"
18	84°55'40.692"	20°57'14.040"
19	84°55'34.004"	20°57'15.744"
20	84°55'34.112"	20°57'12.696"

The identified degraded forest limits will be surveyed clearly with reference to the Topo Map and reserve forest boundary and demarcated by setting R.C.C pillars at every curvature point of boundary line and the Scheme proposes financial implication for the same.

The species available in the identified area are as under:-

Local Name	Botanical name	Family
Adra	<i>Melastoma indicum</i>	Rubiaceae
Ardis	<i>Emblica officinalis</i>	Euphorbiaceae
Asan	<i>Tournefortia odor</i>	Compositaceae
Bahada	<i>Tournefortia Asplenifolia</i>	Compositaceae
Darun	<i>Cassia verticillata</i>	Leguminosae
Behi	<i>Argemone mexicana</i>	Ranunculaceae
Chacanda	<i>Cassia sophera</i>	Fabaceae
Chhatra	<i>Albizia lebbekii</i>	Leguminosae
Dhama	<i>Cassia sophera</i>	Fabaceae

Gangooli	<i>Artemisia arbuscula</i>	Glabrous
Haridi	<i>Terminalia chebula</i>	Umbelliferae
Kinoh	<i>Citrus aurantium</i>	Euphorbiaceae
Kinun	<i>Albizia corallifolia</i>	Rubiaceae
Nira	<i>Asclepias tuberosa</i>	Melastomaceae
Sal	<i>Albizia lebbekii</i>	Dipterocarpaceae

13. REGENERATION CLEANING AND TENDING OPERATION

The operation aims at tending (climber cutting, cleaning, double shoot cutting, pruning etc.) of the existing crop for the growth of promising principal species of the locality (Sal with associates) for ensuring better growth of plants. It includes removal of infested, diseased, malformed, dead dying and defective tree growth and disposal of them by distributing it among the local VSS members. Apart from it, seed evaluation is also an integral part as they interfere with the growth of both planted species and natural regeneration.

The detailed operation to be carried out is as follows:-

- i) Cutting of herbs and shrubs interfering with growth of promising species.
- ii) Cutting back of top broken pole crops interfering with growth of well formed pole crops.
- iii) Cutting back of malformed and diseased species.
- iv) Cutting of climbers up to hand's reach.

During the 1st year climber cutting, and cutting of high stumps, weeds and malformed and diseased species will be done. In the next two years, cutting back of malformed individuals and singling of coppice shoot in case of desired species will be done in the subsidiary silvicultural activities.

14. PLANTING & POST-PLANTING

The area will be re-stocked by raising plantation (artificial regeneration) @ 200 plants/ha in ABR (assigned Natural Regeneration) model. Taking into consideration, the site specific soil condition, existing indigenous species growing there and the beneficial requirement of the local people, the species have been proposed to be planted in areas mentioned in Point no. 13.

The main objective of the present scheme is to raise gap plantation in degraded forest as well as to apply soil & moisture conservation measures to check & regenerate degraded forest within 100m within the outer perimeter of mining lease of Mkal E - NALCO. Such Plantations will act as a transition crop to support the main crop of the lease area.

Hence, the main objective of the present scheme is as follows:-

- i) To afford the degraded forest land and to restore the degraded forest lands by ANR model
- ii) Clearly demarcation and fencing with brush wood the area to dispense with the biotic interferences.
- iii) To improve the micro climatic conditions by undertaking suitable soil and moisture conservation measures.
- iv) To protect the area against encroachment, illicit felling, fire incidences, grazing and all other forms of biotic interference.
- v) To create awareness among the local villagers for protection and maintenance of plantation for ensuring enrichment of the ecosystem and replacement of the degraded areas with natural green cover.

15. LAND SCHEDULE

Since the area identified within Duggapur R.E., no land schedule is required.

16. SELECTION OF SITE FOR GAP PLANTING

The above degraded forest land is situated within the 100m outer perimeter of the mining lease. The proposed area has been selected considering proximity of the mining lease area. The main purpose of the plantation will be to involve the local VSS. The VSS members will have a share in the wealth in future which will cater to their need, so far as benefit requirement of fuel wood and small timber is concerned. The topography of the site is sloppy in nature. The soil is mostly rocky/sandy loam type at patches and depth of the soil is of limited extent. The gap plantation will be carried out over an area of 5.0 Ha in one patch.

4. Choice of species for plantation

As far as possible, care shall be taken to select indigenous species for plantation. The list of species to be adopted for the plantation is as follows:

Sl No	Local Name	Scientific Name
1	Archi	<i>Ferula officinalis</i>
2	Harra	<i>Dendrocalamus strictus</i>
3	Kanaja	<i>Pongamia pinnata</i>
4	Asan	<i>Terminalia alata</i>
5	Siso	<i>Dalbergia sisoo</i>
6	Gaerhar	<i>Gmelina arborea</i>
7	Nera	<i>Acacia indica</i>
8	Hirita	<i>Terminalia chebula</i>
9	Hahaan	<i>Terminalia bellirica</i>
10	Kasi	<i>Bridelia retusa</i>

17. RAISING OF NURSERY

Seedlings required for the plantation shall be raised in Nursery of Forest Dept. which will meet the requirement. The Nursery should have a capacity of raising adequate seedlings. The selection of sapling will be undertaken in consultation with Forest Dept. All the infrastructures will be provided by NALCO. Work will commensurate one year before the year of plantation so that one and half year seedlings will be available for plantation. About 20% extra seedlings shall be raised to compensate casualty in nursery. Standard nursery practices shall be followed for raising seedling in polybags.

18. ALIGNMENT AND STACKING

Alignment, stacking and pitting will be taken up in the month of March-April pits of size 45cm X 45cm X 45cm will be dug maintaining a spacing of 2.5 mtr (200 plants per hectare).

19. PLANTING

The seedlings will be planted in dug out pits of 45 cm³ maintaining a spacing of 2.5 mtr between the pits (200 seedling per hectare). Plantation should be taken up after last regular shower of monsoon and should be completed by end of august. NPK:DAP fertilizer @ 70 gms/plant should be given as basal dose. Anti-termite and insecticide like @ 5 gms/plant should be given as

local forest. Anti-termite and insecticide like 5 gram per plant should be applied per pit. Foreign earth shall be provided in each pit to get rid the growth of seedlings within a marked period. Country replacement when required during the planting year and in the second year should be undertaken for which the seedling shall be raised.

20. WEEDING, SOIL WORKING AND MANURING

For establishment and better growth of the planted seedlings weeding, soil working and manuring are necessary. It is proposed to carry out two weeding, soil working and manuring added with vermi compost @ 250 gms/plant during first year and second year plantation. Weeding and manuring for the first and second year shall be carried out during September-October and 70 gm & NPK 50 gm and the second one during which 20 gms of vermi compost shall be added to the soil plant. First weeding shall be for entire area and second weeding should be strip weeding. The weeding and third year will be for entire area weeding which shall be carried out during August.

21. APPLICATION OF INSECTICIDES

The plantation site after planting with good seedlings may in course of time get infested with diseases owing to influx of insects and pests into the area which usually cause heavy damage to the soft, tender and widely growing parts of the plant that affects the rate of growth and sometimes causes wide spread mortality of the seedlings. To avoid such incidences, foliar spray and ground application of insecticides at regular intervals weekly on a sunny day in the fore noon shall be done.

22. FIRE LINE TRACING AND MAINTENANCE

Fire causes irreparable damage to the plantation and the forest growth during fire season and to prevent such fire out breaks in the area, the plantation area shall be divided into suitable blocks by tracing fire lines. Boundaries of the plantation patches and these block lines will be stripped of forest growth to a width of 50 mt. during Feb-March and the cut back materials and the dry leaves stacked along these fire lines shall be burnt under direct supervision. This operation is highly essential and the scheme proposes to carry this operation for the first three years. The detailed cost estimate of various operations to be taken up in ANR plantation has been furnished in Annexure-I.

23. POINTS OF IMPORTANCE :

While taking up plantation, the following vital points shall be taken up for consideration:

- All care to be taken to raise healthy seedlings of minimum 45 cm and 20% excess of the required stock be raised. Complete 1 year seedlings shall be used in case of Aman, Arjan, Phasi, Neero, Haradi, Habari, Kadi etc. However, in case of Siroo, Gambar, Chakunda etc 12 months old seedlings can be used. Planting shall be invariably done during February – March. In hilly areas, pits shall be dug along the contours. Planting shall be done in the onset of monsoon and should not be delayed. The gradient of the site is 1:10 which is considered as level ground with slight undulating or slope.
- Basal dose of 70 grams/litrea and 50-200 gms of Vermi Compost of NPK and 5 grams of granular insecticide be applied at the time of planting. Casualty replacement, weeding and soil working, application of fertilizer and insecticides shall be taken up as per the provisions in the cost norm at the proper time. Engaging requisite watchmen as per norm who shall take up tracking of irregularities such as fire line and maintenance of fence and provide watch and ward for the entire life of plantation i.e. 10 years.
- All-out efforts be taken to keep the plantation free from grazing, fire and other biotic interference.

24. SOIL CONSERVATION MEASURES

To check soil erosion and the rain water flowing out of the area, it has been proposed to take up special conservation measures by digging staggered trenches along the contour over the area @ 250 Nos. per hectare. The size of the trenches will be 2 mtr x 0.5 mtr x 0.5mtr. Digging of staggered trenches will be done during September of 1st year. Agree plugging will also be taken up in the diagonal soil of the trench for its stabilization and to restrict the diagonal soil from re-filling into the trench.

The detail of estimate of staggered trench is given in Annexure-II.

25. WATCH AND WARD

To protect the area against grazing, fire accident and other biotic interference it is proposed in the cost estimate for ANR Plantation to engage watchmen for ten years from the year of plantation.

26. EXECUTING AGENCY

All the works under this scheme shall be executed by the User Agency having specialized departments headed by qualified persons with resources man and machinery. To facilitate this, the user agency shall establish cost executing and supervising cells along with required infrastructural facilities. In order to maintain the quality of work, in house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

27. SPECIALIZED CELLS

Name of Executive	Educational Qualification	Present Designation	Expertise
F. Pattnaik	B.Tech (Met.)	General Manager (S)	Project Management
J. Miro	B.E. (Mech.)	Deputy Gen. Manager	Project Management
Dr. A. Reul	B.Tech (Mining), M.Tech (Environment)	Deputy Gen. Manager (Mining)	First Class Mines Manager Certificate (Coal)
H. Pradhan	B. Tech. (Elect.)	Asst. Gen. Manager (Elect.)	Electrical Engg.
N.C. Behera	B.A.	Sr. Manager (Sec.)	HRD, Admn & Land
B. Krishna	B. Tech (Mining), M. Tech (Mining)	Manager (Mines)	Mining Engineer
S. K. Sathy	Diploma (Civil)	Manager (Civil)	Civil Engg.
T. C. Jaiswal	B. Tech (Mining)	Deputy Manager (Mines)	Second Class Mines Manager Certificate

28. REQUIREMENT OF FUNDS

The total cost of implementation of proposed scheme will be Rs. 32,58,403/- (Rupees Twenty Two Lakhs Fifty Eight Thousand Four Hundred Three) only.

TOTAL COST OF GAP PLANTING, SOIL & MOISTURE CONSERVATION WITHIN 100 METRE OUTER PERIMETER OF MINING LEASE TO RESTOCK AND REJUVENATE THE DEGRADED OPEN FOREST.

Wage Rate Rs. 311.00/-Day

1	ANR Plantation with 200 seedling per Ha or or 15.0 ha	1,881,000/-
	Add 20% escalation	1,76,400/-
	Grand Total	2,057,400/-
		Or
		2258403/-

(Rupees Twenty Two Lakhs Fifty Eight Thousand Four Hundred and Three) only


Forest Range Officer
Chandipada Range


Authorized Signatory

S. R. PATEL
Executive Director (P&T)
Engg. & Technical Department
Incorporated Mining Company Ltd
Mumbai-400001


Joint Conservator of Forests
Angul Division


Counter signed
Divisional Forest Officer
Angul Division

Approved Rs. 2258403/-


Regional Chief Conservator
of Forests, Angul Circle

Annexure - I

Cost Norm for AIDED NATURAL REGENERATION (ANR) @ 200 plants per Ha (ANR Plantation) (18 Months old seedlings)

For the year maintenance						
Wage rate @ Ha. 311						
Sl No.	Item of Work	Preferable period of Execution	Person days	Labour (Rs)	Material (Rs)	Total (Rs)
Previous year (advance work) Nursery raising						
1	Nursery Cost (18 Month Old Seedling) Part @38.04/Seedling (Rs 9.48 To Rs Released) For 120 Seedling (200+20)	Nov-March	5.7	1772.7	313.6	2086.3
	S. Total		5.7	1772.7	313.6	2086.3
2	Monitoring & Supervision charges 5% of the cost					104.3
	Total					2190.6
0th Year (advance work)						
3	Survey, Demarcation and pillar posting, GPS Reading with mapping	Nov-Dec	2	622	0	622
4	Site preparation	Nov-Dec	2	622	0	622
5	Silvicultural Operation including clearance of weed, climber cutting, High stump cutting, singling of shade etc.	Jan- Feb	5	1555	0	1555
6	Nursery cost (18 months old seedling) part @ Rs. 38.05/-seedling (Rs. 24.14 to be released) for 200 seedlings (200+20)	Apr-March	4.2	1315.2	2644.4	3959.6
7	Contingency and Unforeseen Expenditure		0	0	155	155
	S. Total		13.2	3215.2	2817.4	6032.6
8	Monitoring & Supervision charges 5% of the cost					301.63
	Total					6334.23

1st Year/Planting Year

9	Nursery cost (18 months old seedling) balance @ Rs.4.42 for 250 seedlings.	Apr-June	2.8	901.9	12.4	914.3
10	Planting 45cm x45 cm x 4% @2420	May-June	18	5598	0	5598
11	Carriage and planting material replacement and application of insecticides manure etc.	July-Aug	5	1555	0	1555
12	Complete seedling, Soil working and manuring.	Aug-Sept	6	1866	0	1866
13	Cost of vermicompost 200 gram/plant @ Rs.30/- per kg =Rs.600.00 and Granular Insecticide 5 gram per plant @ Rs.35/- per kg =Rs.81.00	Aug-Sept	0	0	885	885
14	Cost of Chemical Fertilizer (a) Urea 70gm/plant in two subsequent doses @ Rs.6/- per kg = Rs.84.00 (b) NPK 50 gram/plant @ Rs.24/- per kg= Rs.240.00 as basal dose	Jul-Aug	0	0	324	324
15	Soil cultural Operation including clearance of weed, clamber, cutting, high camp curing, singling of shoot etc.	Sept-Oct	15	4665	0	4665
16	Soil Conservation measures in the form of staggered trenches of 2m L*0.5m*0.5m @ 40trenches or its equivalent	Sept/Oct	30	6270	0	6270
17	Fire line tracing and inspection path	Feb-March	3	833	0	833
18	Watch & Ward		24	7464	0	7464
19	Contingency and unforeseen expenditure X Total		0	0	104	104
			93.90	28102.90	1590.4	30785.30
20	Monitoring & Supervision charges 2% of the cost					1539.65
	Total					32324.95

2nd Year maintenance						
21	Casualty Replacement 10% with nursery cost (20 Nos. seedling @ 35.00/-)	July-Aug	1	311	761	1072
22	Weeding (complete weeding) and cultural operation	Sep-Oct	2	622	0	622
23	Soil working and manuring	Sep-Oct	1	622	0	622
24	Cost of vermicompost @ 200gms/plant @ Rs.20/- per Kg = Rs.800.00 And Granular Insecticide Spres per plant @ Rs. 45/- per Kg = Rs. 80.00	Sep-Oct		0	808	808
25	Soil conservation measures (Renovation of staggered benches etc)	Sep-Oct	8	2408	0	2408
26	Fire line tracing and inspection path (2m wide fire line over 400m long)	Feb-March	1	311	0	311
27	Watch & Ward	April-March	24	7464	0	7464
28	Contingency and Unforeseen expenditure		0	0	181	181
	S.Total		38	11818	1750	13568
29	Monitoring & Supervision charges 5% of the cost					678.4
	Total					14246.4
3rd Year maintenance						
30	Weeding (complete weeding) and cultural operations	Aug-Sept	1	311	0	311
31	Soil working	Aug-Sept	1	311	0	311
32	Fire line tracing and inspection path (2m wide fire line over 400m long)	Feb-March	1	311	0	311
33	Watch & Ward	April-March	24	7464	0	7464
34	Contingency and Unforeseen expenditure	Feb-March	0	0	200	200
	S.Total		27	8197	200	8397
35	Monitoring & Supervision charges 5% of the cost					429.85
	Total					8826.85
4th Year maintenance						

37	Fire line tracing and inspection path (2m wide fire line over 400m long) & cultural	Feb-March	1	311	0	311
38	Watch, Ward & Cultural Operations	April-March	24	7464	0	7464
	S.Total		25	7775	0	7775
39	Monitoring & Supervision charges 2% of the cost					388.75
	Total					8163.75
5th Year maintenance						
38	Fire line tracing and inspection path (2m wide fire line over 400m long) & cultural	Feb-March	1	311	0	311
39	Watch, Ward & Cultural Operations	April-March	24	7464	0	7464
	S.Total		25	7775	0	7775
40	Monitoring & Supervision charges 2% of the cost					388.75
	Total					8163.75
6th Year maintenance						
41	Fire line tracing and inspection path (2m wide fire line over 400m long) & cultural	Feb-March	1	311	0	311
42	Watch, Ward & Cultural Operations	April-March	24	7464	0	7464
	S.Total		25	7775	0	7775
43	Monitoring & Supervision charges 2% of the cost					388.75
	Total					8163.75
7th Year maintenance						
44	Fire line tracing and inspection path (2m wide fire line over 400m long) & cultural	Feb-March	1	311	0	311
45	Watch, Ward & Cultural Operations	April-March	24	7464	0	7464
	S.Total		25	7775	0	7775
46	Monitoring & Supervision charges 2% of the cost					388.75
	Total					8163.75

8th Year maintenance						
45	Fire line tracing and inspection path (2m wide fire line over 400m long) & cultural	Feb-March	1	311	0	311
46	Watch, Ward & Cultural Operations	April-March	24	7464	0	7464
	S.Total		25	7775	0	7775
49	Monitoring & Supervision charges 5% of the cost					388.75
	Total					8163.75
9th Year maintenance						
50	Fire line tracing and inspection path (2m wide fire line over 400m long) & cultural	Feb-March	1	311	0	311
51	Watch, Ward & Cultural Operations	April-March	24	7464	0	7464
	S.Total		25	7775	0	7775
52	Monitoring & Supervision charges 5% of the cost					388.75
	Total					8163.75
10th Year maintenance						
53	Fire line tracing and inspection path (2m wide fire line over 400m long) & cultural	Feb-March	1	311	0	311
54	Watch, Ward & Cultural Operations	April-March	24	7464	0	7464
	S.Total		25	7775	0	7775
	Monitoring & Supervision charges 5% of the cost					388.75
	Total					8163.75

* Watch & ward should be engaged throughout the year. As 15 Ha ANR area is very less so watch & ward has been estimated accordingly for better result.

** Nursery cost has been taken from cost norm for Urban Plantation for 1000 saplings (Full seedling Plantation of 18 months old)

Abstract

Year	Person Days	Labour Cost (Rs)	Material Component	Monitoring & Supervision charge 5% of the total cost	Total Cost (Rs)
Previous Year	5.7	1772.7	313.6	104.315	2190.615
1 st Year	23.2	7315.2	2817.4	501.65	10534.21
1 st Year	93.9	29702.9	1580.4	1539.165	32822.465
2 nd Year	38	11818	1750	638.4	14206.4
3 rd Year	27	8507	240	429.85	9276.85
4 th Year	25	7775	0	388.75	8163.75
5 th Year	25	7775	0	388.75	8163.75
6 th Year	25	7775	0	388.75	8163.75
7 th Year	25	7775	0	388.75	8163.75
8 th Year	25	7775	0	388.75	8163.75
9 th Year	25	7775	0	388.75	8163.75
10 th Year	25	7775	0	388.75	8163.75
TOTAL	362.80	112830.80	8661.4	5074.61	125466.81

Cost of ANR plantation over 15.0 Ha

Rs. 125466.81/- x 15.0 Ha = 1882002.15/- or 1882000.00/-

(Rupees Eighteen Lakh Eighty Two Thousand Two only)


Authorized Signatory

S. K. PATEL

Executive Director (P&T)

Project & Technical Department
National Aquaculture Company Ltd.
Bhubaneswar-751001


Asst. Conservator of Forests
Angul Division


Confirmed
Divisional Forest Officer
Bhubaneswar-751001
Angul Division


Forest Range Officer
Chhendipada Range

UNDERTAKING

ANNEXURE - A - ~~VI~~ ^{X(2)}

MuFF & CC File No.8-07/2021-FC dtd. 12.03.2021

Condition No. A (12)

Your agency either himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to File No.8-07/2021-FC re-stock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located in the area within 100 meter from outer perimeter of the mining lease. The plan for plantation and SMC activities will be prepared and submitted to MuFF & CC before Stage-II Clearance.

Compliance to Condition No. A (12)

In compliance to this condition an scheme has been approved by RUCF Angul with total financial outlay of Rs 22.56, 40/- (Copy of the approval scheme enclosed). NALCO do hereby undertake to implement the approved scheme for gap planting and soil & moisture conservation activities to re-stock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located in the area within 100 meter from outer perimeter of the mining leases at the project site.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division

Authorized Signatory


G. K. PATEL
Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751007

नेशनल एल्यूमिनियम कंपनी लिमिटेड

(एनएलसी लिमिटेड का हिस्सा)

निगम कार्यालय

नालको भवन, बभनपुरी, भुवनेश्वर - 751 007, भारत

Co. Name (English) (P&T) 230520, 230520, 230520, 230520, 230520, 230520, 230520

Phone Nos. (P&T) 230520, 230520, 230520, 230520, 230520, 230520, 230520

National Aluminium Company Limited

(A Subsidiary of NALCO Division)

CORPORATE OFFICE

NALCO BHAVAN, Bhubaneswar, Bhubaneswar-751007, INDIA

Website Address: www.nalcoindia.com

नालको NALCO

Notice

for

**DE-SILTING OF VILLAGE TANKS AND OTHER WATER BODIES
LOCATED WITHIN 05 KM FROM THE MINE LEASE BOUNDARY SO AS
TO MITIGATE THE IMPACT OF SILTATION OF SUCH TANKS/WATER
BODIES**

In compliance

with

Condition No. A (II) of

Stage-I Forest Clearance Granted vide

Vide Letter No. B-07/1004-FC, Dated 12.01.2021

of Govt. of India, Ministry of Environment, Forests & CC,

New Delhi,

for

Reversion of 169,178 Ha of Forest Land

(including of safety area)

Within 523,7325 Hektar "E" Coal Mining Lease

of

M/S National Aluminium Company Ltd. (NALCO)

in

Chhendipada Tahsil, Sub-Divn.- Angul, Dist. Angul

Odisha.

DE-SILTING OF VILLAGE TANKS AND OTHER WATER BODIES LOCATED WITHIN 05 KM FROM THE MINE LEASE BOUNDARY SO AS TO MITIGATE THE IMPACT OF SILTATION OF SUCH TANKS/WATER BODIES

1. INTRODUCTION

Govt. of India (Coal) has allotted Utkal-D & Utkal-E Coal Block in Tachar Coal field to M/s NALCO vide allotment Order No. F No. 103/547615/NA, dated 02.09.2016. The block is located in the South-Central part of Tachar Coal field in between Utkal-F Coal Block in the West & Utkal-D Coal Block in the East. Utkal-E Coal Mine spans over an area of 4.60 sq.km between Latitude 20°58'57" and 20°58'58" N and Longitude 84°58'49" and 84°58'57" E. Administratively it is under the jurisdiction of Chhindipada Tehsil, Angul District. Utkal-E Coal Mine is covered under Survey of India Toposheet No. 7512 (I) on RI 1:50,000 (12 km to 1 km) and special toposheet No. 12 on RI 1:10,000 (10 km to 1 km) and falls within Angul District of Odisha. Utkal-E Coal Mine comprises an area of 523.7375 Ha, out of which 169.1779 Ha. area is of Revenue Forest land which is required to be cleared under Forest Conservation Act-1980. The remaining area 312.0381 Ha. is Govt. Non forest land and 222.4965 Ha. is Private Land.

The area approved for grant of mining lease is 523.7375 ha. The total forest land is 169.1779 Ha. out of which 165.2319 Ha. is to be diverted for Non-Forest mining use and 3.946 Ha. shall be used as Safety Zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only.

The Stage-I Forest clearance act of FC Act-1980 was granted by MHA/FC vide their letter No. 84072020-FC, Dt. 12.03.2021 where in it has been stipulated as per condition no. A-15 desilting of village tanks and other water bodies located within 05 km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/water bodies.

2. LOCATION

The mining lease area has been covered in the Survey of India toposheet No.7512 (I) on RI 1:50,000 (12 km to 1 km) and special toposheet No. 12 on RI 1:10,000 (10 km to 1 km) and falls within Angul District of Odisha. The mine spans over an area of 4.60 sq.km between Latitude

20°50'57" and 20°50'58" N and Longitude 84°55'40" and 84°56'37" E. Administratively it is under the jurisdiction of Chikindipada Tahasil, Angul district. Mining lease area is approachable from Angul covering a distance of 22 km. by a black topped road up to Chikindipada.

The nearest railway station is Angul on Talcher-Sambalpur railway line of East Coast Railway at a distance of 22 km from Mines. This railway line connects Puri to Sambalpur. The nearest airport is Bhubaneswar at a distance of 122.0 K.M. The ML area is in Chikindipada Range of Angul Forest Division.

LOCATION MAP

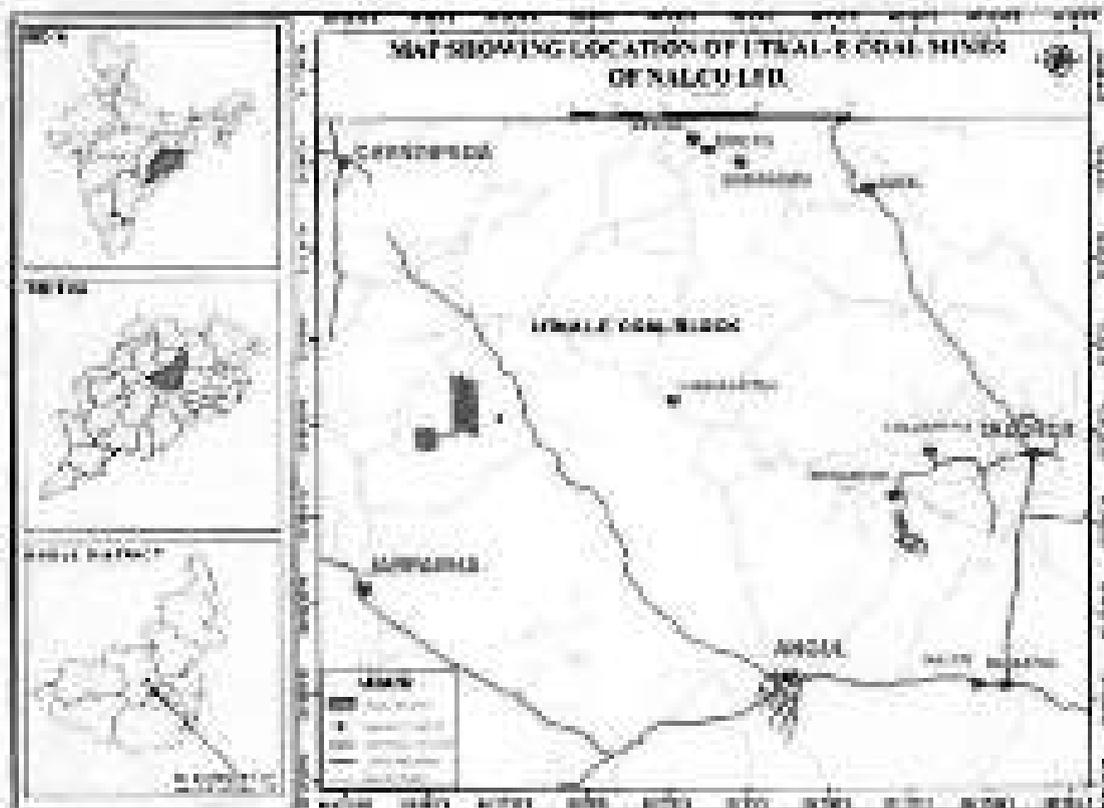


Fig.1: Location Map of Utkal E Coal Block, NALCO

Map of the Project



Fig.2: Mining Lease Map of Initial 'D' Coal Block, NALCO

3. TOPOGRAPHY

The Central and Southern part of this Coal Block is generally flat land. Northern part is moderately undulated. Overall ground slope is dipping towards North. Sinda Jher is the main drainage of surrounding area, which is a tributary of Brahmani river. The maximum elevation of the lease area is 181 m above msl and lowest 135 m.

4. LAND USE PATTERN

Sl. No.	Pattern	Area in (Ha.)		
		Village Forest	Non Forest	Grand Total
1	Mining	42,2270	168,0486	210,2756
2	Barrening	101.71	148.117	249.887
3	Top Soil Stock	1.87	0	1.87

4	Road & Canal	2,044	8,133	5,189
5	Delim, U.S. & Other infrastructure	12	5,249	11,209
6	Barrier & Embankment	4,32	6,58	11,9
7	7.5 Safety Zone Area barrier along the lease boundary	2,719	6,443	9,162
8	Single Jala & its 50m Safety Zone Area	1,307	4,400	10,705
9	Majeneh & its safety Zone area	0	1,465	8,165
	Total Safety Zone area	3,916	24,187	78,533
	Grand Total	169,579	364,554	623,733

3. DETAILS OF FOREST LAND WITHIN THE LEASE AREA

Forest land to be worked for rubber and other purpose ... 165,2719 Ha

Area set aside for Safety Zone ... — — — — — 3,916 Ha
169,1879 Ha

4. SOIL TYPE

The soil type occurring in this area is mostly sandy loam having good soil depth with pH varying from 6 to 8.

7. CLIMATE

The climate of this area is tropical with hot and humid summer and short spell of winter. Occasional thunder storm during pre-monsoon season is common. Monsoon sea in from late June and continues to middle of October. Maximum temperature ranges to 47° c during summer and minimum 10° c during winter.

8. DRAINAGE

River Brahmani flowing in approximately north-south direction along the eastern boundary of the lease area provides the main drainage. Single Jala river flowing west to east along northern boundary of the Card Block carries the local drainage in to river Brahmani. Single Jala maintains a base flow even during dry summer month.

9. FACTORS RESPONSIBLE FOR SILTATION

Siltation is an inherent problem with ponds, lakes and almost all types of water reservoirs over a long time. Siltation occurs due to deposition or settling of soil eroded from the land mass, decaying fallen leaves, grass and other vegetative materials and decomposed organic materials settled on pond bottoms. Soil erosion may be attributed as the primary factor responsible for pond siltation in this area. Higher gradient and escarpment hills are the most common reasons of soil erosion. Erosion of soil occurs from the waste dumps, excavated areas and naturally denuded ground surfaces. However, looking into the common problem of siltation of the village ponds, the major factors are the surface runoff containing silt particles entering into the pond. As the age of the ponds increases, new layers of silt accumulate on the older ones and the silt layers become thicker. Finally the depth of the pond decreases and it loses its water storage capacity. At this time it needs to be desilted to recover. The best practice against siltation is to desilt the bottom of the pond at regular interval as well as taking appropriate preventive measures.

10. SELECTION OF PONDS

For the purpose as mentioned in condition no. A 11 of the Stage-I approved letter, a survey of ponds were surveyed within 5 km vicinity of the lease area. The result of the ponds surveyed are listed below:

- (i) Pond No. 1 : Situated in Gopinathpur Village
- (ii) Pond No. 2 : Situated in Korala Village
- (iii) Pond No. 3 : Situated in Korala Village
- (iv) Pond No. 4 : Situated in Kundaipur Jungle Village
- (v) Pond No. 5 : Situated in Gopinathpur Village

11. POSSIBILITY OF SILTATION OF THE VILLAGE PONDS/WATER BODIES DUE TO MINING ACTIVITIES

The sub watershed where the mining lease falls is drained mainly by Singla Jhora Nala which is flowing West to east along Northern boundary of the Coal Block. The area has an overall ground slope is dipping towards North East. As far as village ponds in the proximity of

the lease are concerned, it is observed that the identified village ponds are not affected from the surface runoff carrying any silt from the lease area, as there are located either far away from the working pits. However, siltation in these identified village ponds may occur due to possible silt erosion outside the lease area beyond the sub watershed boundary. Hence, de-silting of these village ponds may be considered in subsequent phases.

12. METHODOLOGY

It is proposed to carry out the total desilting of the selected ponds as above every five years during summer when the ponds shall dry up exposing the silt. The dried silt shall be removed manually or mechanically based on the ground condition. In case of mechanical removal of silt, small excavators such as back-hoe, small hydraulic shovels or pay loader, depending upon the quantity of silt accumulation shall be used. For the purpose of evaluation of work required for de-siltation, an estimate of de-siltation in the individual ponds was made, has been summarized in Annexure-1.

The work shall comprise:-

- a) Total desilting in the first year period.
- b) Implementing preventive measures during the following four years to minimize re-siltation of the ponds.
- c) To prevent or slowdown future siltation, the embankment stabilization by grass sowing, weed picking, plantation of suitable species and constructing buffer plot is also included in the de-silting and improvement plan.

It is proposed that the ponds having accumulation of over 1000 m³ shall be desilted by mechanical means and the rest shall be handled manually. It is proposed to deploy one 3.9 m³ back hoe with one 30 tone tipper for de-silting of the pond in a period of two-three days. The machines shall be replaced in a planned manner to complete the work in a shortest time frame. Necessary advice of concerned (B.O) and Panchayat Sarpanch will be taken into account.

In case of smaller ponds, where the accumulation of silt is very small, the de-siltation operation shall be done manually by engaging sufficient manpower.

The ponds shall be allowed to dry up completely during the early summer i.e. during March and April followed by desilting in the above described manner:

g) 1st Year Plan & Management:

The first year work shall also comprise the following preventive measures to minimize siltation:

- Providing embankment to the ponds where ever necessary.
- Strengthening the existing pond embankment to check external flow of surface run-off in to the pond.
- Regular removal of aquatic weeds and polythene bags & bottle thrown by stragglers.
- Plantation of trees on the embankment and stone picking on the slopes to prevent bank erosion.
- Plantation of selected species like Bam, Awabha, Lemon, Custard Apple, Guava, Papaya, Mango will be taken up.

h) Subsequent 2 Years Plan and Management:

In the subsequent 2 years, the rate of siltation shall be negligible, which can be dealt by manual method using the local labourers. This will also otherwise help in employment generation.

i) Preventive Measures & Maintenance:

It is essential to take up preventive measure in order to minimize siltation of the ponds. Activities like pond bank strengthening and stabilization by way of earth work with stone pitching, grass seeding and plantation of appropriate species shall be taken up in the first year followed by their maintenance in successive four years.

j) Dewatering of village ponds:

This will be carried out by engaging dewatering pump.

k) De-silting:

After pumping out the water from the pond, silt has to be removed either manually by deploying blower or excavator & dumper combination.

f) Earthwork Estimation:

Wherever required, soil has to be removed for deepening the pond to increase water holding capacity of the pond.

g) Bathing Ghat (separately for men and women):

In the above Ponds, separate arrangement will be made for bathing by male and female of the Villages. Since the villagers are conscious from mythological point of view, a Tola (Ukraman means) Chhatra (Platform) has also to be provided where the villagers after bath can offer water to Sun God. The Detailed estimate is enclosed as Annexure-2.

h) Sitting Platform on the embankment of the Pond (s):

In each Pond, a masonry platform will be provided where the villagers (age old persons and youth) can sit during summer evening. This platform will also serve the purpose of shade/umbra.

i) Planting all along the embankment of the Pond:

According to availability of land all along the ponds, plantation of Bela, Pipal, Chhatra, Badi (s) will be made to form a Green belt. This Green belt will also give an aesthetic view to the area and villagers can collect leaf, fruit, flower etc. for mythological purposes. The detailed estimate of plantation programme is enclosed in Annexure-3.

13. INSPECTION AND MONITORING

After commencement of raining season, this scheme will be implemented. For successful implementation of the above mitigative measures, intensive inspection and technical guidance from concerned technical wing is required. Sufficient funds/resources charges for technical experts shall be provided by the user agency for proper execution of these programmes. Budgetary provision of 1.5% of the total project cost has been earmarked on this score.

14. EXECUTIVE AGENCY

All the works under the present scheme shall be executed by NALCO without sourced man and machinery. To facilitate this the User Agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of

Work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the local administration.

15. SPECIALIZED CELL

Name of Executive	Educational Qualification	Present Designation	Expertise
1. Patil	B.Tech (MCI)	General Manager (S)	Project Management
2. More	B.E. (Mech.)	Deputy. Gen. Manager	Project Management
Dr. A. Raul	B.Tech(Mining) M. Tech (Environment)	Deputy. Gen. Manager (Mines)	First Class Mines Manager Certificate (Coal)
B. Prahar	B. Tech. (Elec.)	Asst. Gen. Manager (Elec.)	Electric Engg.
M.C. Bhera	B.A.	Sp. Manager (Sec. I)	IHD, Admin. and
K. Krishna	B. Tech (Mining), M. Tech./Mining	Manager (Mines)	Mining Engineer
S. K. Soley	Diploma (CIV)	Manager (CIV)	Civil Engg.
T. C. Jinal	B. Tech (Mining)	Deputy Manager (Mines)	Second Class Mines Manager Certificate

16. REQUIREMENT OF FUNDS

The total cost of this scheme for desilting and improvement of the selected pond in Ekpatanwar village and Gopinathwar village is Rs. 69,88,333/00- (Rupees Sixty Nine Lakhs 88 Thousand Three Hundred Thirty Three) only.


 Authorized Signatory
 S. K. PATEL
 District Engineer (Water)
 Jalgaon District
 Jalgaon-382001


 Asst. Conservator of Forests
 Arga Division

Countersigned


 Divisional Forest Officer
 Arga Division


 Forest Range Officer
 Gendhoda Range

Approved


TOTAL COST OF THE PROJECT

Sl. No.	Description of Job	Estimate for Fund of Corporation	Estimate for Fund of Capital Budget	Total fund required (Rs.)
1	Excavation, loading, unloading & carriage by mechanical means of all kinds of soil including heavy earth, gravel & mortar etc. four spread with boulders up to 1/2 cum size with 1/2% & de-lifts including trimming of slopes & bed to design section & depositing the excavated materials away from work site as per the specification & directed by IGT with an initial load of 1.00 KM from the place of excavation complete. Providing rough earth (15cm-30cm) dry packing in apron & all top four sides berm with one local boulder supplied by management. Construction of bearing pit with local boulder. Room near bearing pit for change of clothes by women. Construction of Bench on the embankment for sitting.	3306483.00		3306483.00
2	Tide Charge	88,911.00	10,911.00	21,822.00
3	Preparation of ring on one side of the pond with cope for the village cattle to go near the water body on I. S. @ Rs. 15000/- per pond	15,000.00	15,000.00	30,000.00
4	Provision for plantation on all three sides to control soil erosion (plant will be supplied by management) and resting place of villagers coming for bathing.	7,78,142.20	7,78,142.20	15,56,284.40
5	Provision for annual maintenance of pond for clearing aquatic weeds from pond & cutting off bushes from apron & berms.	45,000.00	45,000.00	90,000.00
Total				50,04,589.40
Escalation 10%				10,00,517.88
Total				60,05,107.28
6	Inspection, monitoring and evaluation 1% of the total Project cost			9,00,526.09
Grand Total				69,05,633.37
Or				69,06,333.00

**DESILTING THE POND, CONSTRUCTION OF BATHING GHAAT & BENCH AT
GAMPATHUR & GOPIRALLABHUR POND BY MS MALCO**

S/No	Item	Location	No	L	B	H	Qty	Unit	Rate	Amount
1	Sampling of water to be drilled						15	litres	374.00	5610
2	Desilting the pond	Gayathapur	1	82	165	0.75	7533.5	cum		
		Goiphalabapur	1	115	15	0.75	1038.8	cum		
							28691.25	cum	51.51	1466455.25
3	Removal of earth & back from the bank of the pond	Gayathapur	4	50	4		600	cum		
		Gayathapur	4	50	4		600	cum		
							1120	cum	1.12	1264
4	Removal of earth from the pond	Gayathapur	4	55	1		1000	cum		
		Goiphalabapur	4	60	1		1500	cum		
							2000	cum	23.11	71778.8
5	Rough work necessary for bathing ghat	Gayathapur	4	10	0.6	0.45	10.8	cum		
		Goiphalabapur	2	10	0.5	0.4	22.5	cum		
			4	10	0.6	0.4	108	cum		
			2	10	0.5	0.4	22.5	cum		
							66.0	cum	1202.50	82404.5
6	Stone work	Gayathapur	1	10	3.2		32	cum		
		Goiphalabapur	1	10	3.2		32	cum		
		Step face	40	2.5	0.2		20	cum		
		Chamara work	2	5	2		20	cum		
							100	cum	197.90	18581.0
7	Mud cement pointing	Gayathapur	1	10	3.2		32			
		Goiphalabapur	1	10	3.2		32			
		Step face	40	2.5	0.2		20			

		Change room floor	7	5	2		20			
							101	sqm	9.87	286548
8	Earth work in excavation	Change room								
		Capitol floor	1	7	0.4	0.4	1.48			
			2	12	0.4	0.4	0.1			
			3	2	0.4	0.4	0.32			
			4	6	0.4	0.4	0.36			
		Drop ball adaptor	1	2	0.4	0.4	0.48			
			2	12	0.4	0.4	1.4			
			3	2	0.4	0.4	0.32			
			4	6	0.4	0.4	0.36			
		Hand	12	24	0.4	0.4	4.8			
							9.12	sqm	171.58	1564500
										8
9	CC 1:20	Change room								
		Capitol floor	1	5	0.4	0.4	0.12			
			2	12	0.4	0.4	1.1			
			3	2	0.4	0.4	0.08			
			4	6	0.4	0.4	0.24			
		Capitol adaptor	1	3	0.4	0.4	0.12			
			2	12	0.4	0.4	0.1			
			3	2	0.4	0.4	0.08			
			4	6	0.4	0.4	0.24			
		Scrub Floorlay	12	60	0.4	0.4	0.24			
			3	5	2	0.1	2			
							5.22	sqm	1031.8	1272150
10	CC 1:20	Hand pit	4	10	2.5	0.0	5			
11		Change room								
		Capitol floor	1	7	0.2	0.2	2.84			
			2	12	0.2	0.2	1.92			
			3	2	0.2	0.2	1.36			
			4	6	0.2	0.2	1.68			

		non							
		Diagonal	2	3	2.4	14.4			
			4	1.2	2.4	12			
			2	2	2.4	9.6			
			2	6	2.4	28.8			
		Diagonal	2	3	2.4	14.4			
			4	1.2	2.4	12			
			2	2	2.4	9.6			
			2	6	2.4	28.8			
					129.6				
16	Roofing with G.I sheet		2	3	1		sqm	8.11	1188.64
							sqm	150.22	2253.45
17	Carrying of the 10 size & covering of steel		2	3	1	4.3	kg		
						8.135	MT	1401.8	593,811
18	White wash 2 coats on new surface	Change room	2	2	2.4	11.4			
		Godown	4	1.2	2.4	12			
		Gate	2	2	2.4	9.6			
			2	6	2.4	28.8			
		Diagonal	2	3	2.4	14.4			
			4	1.2	2.4	12			
			2	2	2.4	9.6			
			2	6	2.4	28.8			
					129.6		sqm	38.43	5615.82
							Sub Total	166,489.54	
19	Concrete				15		MT	3072.5	55,997.5
20	Steel				11.035		MT	58.11	3054.8
							sq		
							Total	190,161.7	
							Contingency @ 10%	19,016.17	
							Grand Total	209,177.87	
							sqm	133,483	

CONSTRUCTION OF TULSI CHAURA ON THE BATHING GHAT

@: Rs.211.00

Sl. No.	Description of Items	Unit	Qty	L	M	H	Qr	Rate	Amount
1	Earthwork in excavation	M3	1	5	0.4	0.1	0.6	171.99	102.994
2	Plain cement concrete (1:2:5)	M3	1	5	1.05	0.1	0.175	1851.8	670.565
3	Brick Work (1:6) (Above G.L. In Super Structure)	M3	1	5	8.19	1.9	1.875	2624.3	6706.5625
4	12 mm thick plaster (1:6)	M2	1	5		1.3	1.3	117.8	149.25
5	Applying Lime Wash	M2					1.2	11.4	13.7
Sub Total									9131.319
Contingency 10%									913.1319
Total Amount									10,044.4509
									Dr.
									10,044.00
									Dr.
									10,044.00
									Dr.
									10,044.00

[Signature]
Authorized Signatory
 E. S. Kulkarni
 Executive Engineer (PWT-1)
 Project & Technical Group Head
 National Waterways Corporation Ltd.
 Mumbai-400 015

[Signature]
Asst. Conservator of Forests
 Angul Division

[Signature]
Forest Range Officer
 Chhatrapada Range

[Signature]
Conservationist
 Divisional Forest Officer
 Angul Forest Division
 Divisional Forest Officer
 Angul, Division

**COST NORM FOR PLANTATION OF FRUIT BEARING SPECIES
ALONG THE POND EMBANKMENT @ Rs. 311.80 per MD 400 PLANTS
PER KM. IN 2 ROWS**

Sl No.	Item of work	Man days	Labour rate @ 311.80	Material cost in Rs.	Total (Rs.)
0th year advance work/pre-planting/1st Yr. plant					
1	Site preparation & alignment	2	622	0	622
2	Filling of cuttings	23	7171	0	7171
3	Cost of 400 nos. of 1.6-yr. old seedling @ Rs. 38.14/- per seedling @ 100 nos.	0	0	15256	15256
4	Carriage of plants & planting	6	1869	0	1869
5	1st weeding & mounding	2	622	0	622
6	Canopy replacement	2	622	0	622
7	Soil weeding, application of insecticides	2	622	0	622
8	Cost of FYM & fertilizer including transportation	0	0	3588	3588
9	Cost of fuel oil @ Rs. 48/- @ 1800/- per gallon at 18	0	0	80400	80400
10	Misc. expenditure	0	0	2990	2990
11	Cost of engaging one worker per year (12 months)	264	79734	0	79734
12	Watering at least 3 days in a month for 4 months (8 person a 6 times in a month a 4 months)	192	59712	0	59712
13	Cost of 2 nos. Sign-board at 25.00 Rs. (500/- per signboard)	0	0	2000	2000
	Total :-	465	144815	179196	323811
1st Year Operation					
14	Weeding, soil weeding, mounding (12/100)	4	1247.20	0	1247.20
15	Canopy replacement (5% including cost of seedling including cost of seedlings (60 Nos. @ 38.14/-)	2	622	2887.4	2904.60
16	Cost of fertilizer & pesticides	0	0	1704	1704
17	Canopy maintenance including painting @ Rs. 22/-	20	6234	7400	21030
18	Misc. expenditure	0	0	1500	1500
19	Watering at least 6 days in a month for 8 months (8 person a	230	69530	0	69530

20	Salary (in a month x 8 months) Cost of supplying one voucher for year (12 month)	165	113515	0	113515
Total :-		701	221121.88	26378.40	244743.48
3rd Year Operation					
21	Wooling, soil working	1	933	0	933
22	Gallon maintenance	20	6250	20000	27000
23	Cost of supplying one voucher for year (12 month)	165	113515	0	113515
24	Unkessan	0	0	1500	1500
25	Watering at least 8 days in a month for 8 months (1 April to July & November to March) (8 person x 5 times in a month x 8 month)	120	99520	0	99520
Total :-		706	220168	22400	242468
4th Year Operation					
26	Wooling, soil working	1	933	0	933
27	Gallon maintenance	20	6250	20000	27000
28	Cost of supplies one voucher for year (12 month)	165	113515	0	113515
29	Unkessan	0	0	1500	1500
30	Watering at least 8 days in a month for 8 months (1 April to July & November to March) (8 person x 5 times in a month x 8 month)	120	99520	0	99520
Total :-		706	220168	22400	242468
Grand Total :-		2872	3,86,112.00	7,58,172.40	15,96,264.48

(Rupees Fifteen Lakhs Fifty Six Thousand Two Hundred Eighty Four only)


 Assistant Secretary
 Forest & Technical Department
 Madhya Pradesh Government
 Bhopal-462001


 Asst. Conservator of Forests
 Argal Division


 Forest Range Officer
 Chanderprada Taluqa


 Divisional Forest Officer
 Argal Forest Division
 Divisional Forest Officer
 Argal, Division

ABSTRACT

Sl. No.	Year	Amount in Rs.
1	1st Year	8,31,811.30
2	2nd Year	2,17,477.91
3	3rd Year	2,42,488.00
4	4th Year	2,42,488.00
	Total	15,36,265.21
Total Expenditure for 400 plants =		15,56,284.48
Expenditure for 200 plants =		7,78,142.20


Assistant Quarter
 S. R. PATIL
 Executive, Silviculture
 Forest Range Officer, Chandipada Range
 Maharashtra (14/20)


Forest Range Officer
 Chandipada Range


Asst. Conservator of Forests
 Angul Division


Divisional Forest Officer
 Angul Forest Division
 Divisional Forest Officer
 Angul, Division

नालको NALCO

UNDERTAKING

ANNEXURE-A-~~3111~~ ^{X 100}

M&EF & CC File No. 8-07/2020-FC dttd. 12.03.2021

Condition No. A (13)

The User Agency shall prepare a list of existing village tanks and other water bodies with GPS co-ordinates located within five km from the mine lease boundary. This list is to be duly verified by the concerned Divisional Forest Officer. The User Agency shall regularly undertake desilting of these village tanks and other water bodies so as to mitigate the impact of siltation of such tanks/water bodies. A detailed approved plan for desilting of identified ponds and water bodies to be prepared in consultation with forest department and shall be submitted to M&EF & CC before Stage-II approval.

Compliance to Condition No. A (13)

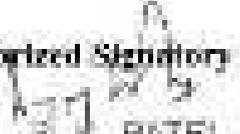
In compliance to this condition an scheme has been approved by RCCF Angul with total financial outlay of Rs 69,56, 335/- (Copy of the approved scheme enclosed). NALCO do hereby undertake to implement the approved scheme for desilting of village tanks and other water bodies so as to mitigate the impact of siltation of such tanks/water bodies at the project cost.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul, Division

Authorized Signatory


B. A. PATEL
Executive Director (P&T),
Engg. & Technical Department
National Aluminium Company Ltd
Bhubaneswar-751007

नेशनल अल्युमिनियम कंपनी लिमिटेड
(ए गवर्नमेंट ऑफ इन्डिया एंटरप्राइज)
नियंत्रण खाता संख्या

राजधानी भवन, राजभवन, पुणे-411 004, महाराष्ट्र

फोन: (020) 261900, 261901, 261902, 261903, 261904, 261905, 261906, 261907, 261908, 261909

फैक्स: (020) 26190100, 26190101, 26190102, 26190103, 26190104, 26190105

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BHAVAN, Rajbhawan, Bhubaneswar-751 007, INDIA

(14)

ANNEXURE - A XII

**SCHEME FOR AFFORESTATION OVER 1.5 TIMES OF SAFETY
ZONE OVER 600 HA AREA OF DEGRADED FOREST LAND
IDENTIFIED IN PHULJHARI R.F. IN KANIHA RANGE FOR NALCO
UTKAL 'E' COAL BLOCK IN ANGUL FOREST DIVISION.**

In compliance

to

condition No. A (14) of

Stage-I Forest Clearance Granted vide

Vide Letter No.S-07/2020-FC, Dated.12.03.2021

of Govt. of India, Ministry of Environment, Forests & CC,

New Delhi.

for

Recreation of 169.1779 Ha of Forest Land

(Including of safety Zone)

Within 533.7325 Ha Coal Mining Lease UTKAL-E

of

NALCO IN ANGUL FOREST DIVISION

SCHEME FOR AFFORESTATION OVER 1.5 TIMES OF SAFETY ZONE 1.5x 1.0 Ha (3346 Ha = 1.5 TIMES 1 OF DEGRADED FOREST LAND IDENTIFIED IN PHULJHARI R.F. OF KANHA RANGE IN ANGUL FOREST DIVISION FOR THE UKAL-F LOCAL MINES OF NALCO

Govt. of India of Coal had allotted Ukhal-D & Ukhal-F Coal Block in Talcher Coal field to M/s NALCO vide allotment Order No. F No 10334/2015/NA, dated 02.05.2014. The Block is located in the South-Central part of Talcher Coal field in between Ukhal-F Coal Block in the West & Ukhal-D Coal Block in the East. Ukhal-F Coal Mine spans over an area of 4.00 sq.km between Latitude 20°50'57" and 20°50'58" N and Longitude 84°55'05" and 20°50'57" E. Administratively it is under the jurisdiction of Chhatrapada Talcher, Angul district. Ukhal-F Coal Mine is covered under Survey of India Toposheet No. 75AD13 and RF 1:50,000 (2 cm to 1 km) and special toposheet No. 1,2 on RF 1:10,000 (10 cm to 1 km) and falls within Angul District of Odisha. Ukhal-F Coal Mine comprises an area of 523.7825 Ha, out of which 169.1779 Ha area is of Revenue Forest land which is required to be diverted under Forest Conservation Act 1980. The remaining area 112.0581 Ha is Govt. Non forest land and 242.4965 Ha is Private Land.

The area proposed for grant of mining lease is 523.7825 Ha out of which 169.1779 Ha area of which 165.2519 Ha is to be diverted for non-forest mining use and 3.946 Ha shall be used as Safety Zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only. To compensate the forest area present in safety zone @ 1.5 times the area for Compensatory Afforestation has been identified in Phuljhar R.F. Compartment-III suitable for plantation under Krishi Forest range under Talcher Taluqa of Dist. Angul.

Site Selected: An area of 6.00 ha of degraded forest has been identified in Phuljhar R.F. of Kanha Range of Angul Forest Division.

Soil Quality: Top soil is sandy loam having good cationic capacity of water. Soils are deep red to red brown of Sal and associated like Asan, Karam, Hils, Kani, Mal, Thana etc. in blocks.

Vegetation: The existing vegetation is mostly over with deficient regeneration and consists of species like Sal (Shorea robusta) and its associates namely Kalkandi (Xylocarpus), Karam (Andira acedifolia), Bija (Pterocarpus marsipura), Mund (Mitragyna parviflora), Munga (Mangifera indica), Jamba (Cassia glabra), Gaabhar (Cordia alliodora), Barhan (Terminalia chebula), Mohra (Machira indica), Kendu (Diospyros malabarica), Kasam (Scheuchzeria palustris), Bahada (Terminalia hirsuta) etc.

History of Management of this RE: In Rehabilitation Working Circle this RE has been included because a good proportion of the area was under shifting cultivation in the last year.

Special Objects of Management

1. To improve quality and stocking of the existing crop through silvicultural operation.
2. To rehabilitate the area and improve soil condition by taking suitable soil and moisture conservation measure.
3. To restock the barren under stocked area by raising plantation with suitable species.
4. To encourage natural regeneration.
5. To provide protection against illicit removal, grazing and fire so as to check further destruction of left over forest growth.
6. To provide adequate rehabilitation measure to protect hill slopes, water bank and eco-fragile area.

Treatment Prescribed- The following treatments are to be made in field while executing the plantation programme.

- High stems will be cut flush to the ground to encourage coppice shoots.
- Singling out of multiple coppice shoots to retain the most promising ones.
- Removal of congestion by clearing operation aimed at encouraging the growth of locally desirable species.
- Adoption of low species per Ha of locally important and desirable species from the available natural regeneration by giving these species preferential treatment.
- Removal of invasive weeds.

Considering the above, it has been decided to manage this area with ANR with gap plantation @ of 600 plants per Ha for 10 Years as per MoEF & CC Guide line D.O.No.11/2017. The approval cost norms include adequate soil moisture conservation and watch and ward provision for 10 years.

Species to be planted

Mahal (*Millettia azadirachta*), Gamhar (*Grevillea arborea*), Asan (*Ternstroemia alata*), Amli (*Albizia officinalis*), Sisu (*Albizia procera* / *lebbek*), Bija (*Pterocarpus marsupium*), Saisa bambao (*Dendrocalamus strictus*), Santari (*Cassia fistula*), Mangro (*Mangifera indica*) - local variety, Tamaris (*Derrisida indica*), Kany (*Pongamia glabra*), Neam (*Acacia indica*), Khair (*Acacia catechu*) or unad area, Bel (*Aegle marmelos*) etc.

5. PLANTING TECHNIQUES

Out of the above species the intensity of plantation for fuel yielding species such as Acacia, Chakunda, Khair, Dhuro shall be planted up to 65% of the total no. of plants, the timber species like Tank, Sisu, Bija & Asan up to 30%, bamboo 5% and fruit bearing NTFP

species like Moringa, Karanja, Amla, Florida, Hibiscus etc, shall be planted up to 5% of the total number of plants.

6. PLANTATION MODEL

The planting of species shall be planted in such a manner that the long term fruit, timber yielding species / varieties shall be accompanied with short term fast wood yielding species. The species should be planted alternate to each other & no separation of species should be planted alternate to each other & no separation of species in close of pits shall be done.

7. PLANTATION METHODOLOGY

For the purpose of raising the seedling in a temporary nursery shall be set up nearest to the planting site where availability of water and sanitation is ensured. Nurseries of 800 plants per Ha. should be planted in the 0th year. Pit size of 45cm X 45cm X 45cm will be dug and planting should be done immediately on the set of nursery.

8. WEEDING

Post planting operation the weeding shall be taken up followed with application of fertilizer in the time of soil working.

2nd weeding should be repeated in the month of October along with half moon trenching around each plot. Weeding and soil working will be repeated during 2nd year and 3rd year. In the 3rd year weeding and soil working training will be done.

9. WATCH AND WARD

For effective protection of area watch and ward shall be provided during project period & post-project period.

10. EXECUTING AGENCY

The Divisional Forest Officer, Arjun division will execute the project.

11. MONITORING & EVALUATION

The Divisional Forest Officer, Arjun division, Arjun will monitor & evaluate the scheme every year.

12. PROJECT COST

The project cost is Rs. 21,16,415.00 to be paid by the User Agency to DFO Arjun Division for execution (Rs. Twenty One Lakh Six Thousand Six Hundred and Five Only).

Twenty One Lakh Six Thousand Six Hundred and Five Only
Counter signed

Authorized Signatory

S. K. PATEL

Executive Director (P&T)
Forest & Technical Department
National Aquaculture Centre
Bhubaneswar-751021

RECEIVED
KAPPA FUND

Divisional Forest Officer
Arjun Forest Division
Divisional Forest Officer
Arjun Division

**COST NORMS FOR AIDED NATURAL REGENERATION
(ANR) WITH GAP PLANTATION @ 600 PLANTS PER HA (ANR Protection)**

18 Months Old seedling

For the Year maintenance

Page No. 36 of 411

Sl. No	Item of Work	Preferable Period of Execution	Person Days	Labour cost (Rs.)	Material (Rs.)	Total (Rs.)
Previous year (advance work) Nursery raising						
1	Masonry work 18 month old seedling (cost @ 32.05/seedling) (Rs. 5.43 to be released) for 600 seedlings (600x09)	Nov-March	17.1	5278.1	900.8	6178.9
	B Total					
2	Monitoring & Supervision charges 5% of the cost		17.1	5278.1	900.8	6258.0
	C Total					6271.845

1st Year (advance Work)

3	Survey, Demarcation and pillar posting, GPS reading with mapping	Feb-Mar	2	600	0	600
4	Site Preparation	Nov-Dec	2	600	0	600
5	Site/culture Operation including clearance of weed, cutting, high (felling) cutting, staking of shoot etc.	Jan-Feb	5	1555	0	1555
6	Masonry work 18 month old seedling (cost @ 32.05/seedling) (Rs. 24.14 to be released) for 600 seedlings (600x04)	Apr-March	17.6	11248.8	1684.6	12933
7	Contingency and Unforeseen Expenditure		0	0	195	195
	S total					
8	Monitoring & Supervision charges 5% of the cost		93.6	16047.6	2687.4	18991
	D Total					18876.5

2nd Year/Planting Year

9	Nursery cost 18 month old seedling (balance @ 4.42 for 150 seedling)	Apr-June	4.7	2253.0	217.3	2470.3
10	Planting 45 cm cube size	May/June	99	11196	0	11196
11	Complete weeding, soil working, application and application of insecticides, manure etc.	July/Aug	16	4655	0	4655
12	Complete Weeding, Soil working, soil Mulching	Aug/Sept	10	5548	0	5548

13	Cost of Vermicompost @ 20kg/m ² plant @ Rs. 24/- per kg = Rs.200.00 and Granular Insecticide 5gm per plant @ Rs. 80/- per kg = Rs. 80.00	Apr/May	0	1	280	280
14	Cost of Chemical Fertilizer (a) Urea 20kg/m ² plant in two subsequent doses @ Rs. 34/- per kg = Rs. 68.00 (b) NPK 10kg/m ² plant @ Rs. 24/- per kg = Rs. 240.00 as Hand dose	Jul/Aug	0	0	92	92
15	Subsistence Operation including clearance of weed, mulch cutting, high stump pulling, digging of abscissa	Sep/Oct	15	1665	0	1680
16	Soil Conservation Measures in the form of staggered trenches of 2m L x 0.5m ² E in @ 30 meter interval equivalent	Scatter	20	625	0	625
17	Fire line Tracing and Inspection Path	Feb/March	3	914	0	914
18	Wash and Ward		20	625	0	625
19	Contingency and Unforeseen Expenditure		0	0	153	153
	A. Total		1357	4120.7	4183.2	4634.9
20	Maintenance & Supervision charges 15% of the cost					619.245
	B. Total					4794.145
2nd Year Maintenance						
21	Locally Replanted (Urea) with nursery cost (60 New seedling @ 28.00/-)	Jul/Aug	1	914	2584	3498
22	Washing to complete weeding and cultural operation	Sep/Oct	8	1666	0	1666
23	Soil working and resources	Apr/Oct	8	1666	0	1666
24	Cost of Vermicompost @ 20kg/m ² plant @ Rs. 24/- per kg = Rs. 336.00 and Granular Insecticide 5 gm ² per plant @ Rs. 80/- per kg = Rs. 80.00	Sep/Oct	0	0	2436	2436
25	Soil Conservation Measures (Restoration of Staggered Trench)	Sep/Oct	8	2483	0	2483
26	Fire line Tracing and Inspection Path (2m wide)	Feb/March	1	511	0	511

27	Fire line over 400ft long Watch & Ward	Apr/Mar E	20	6220	0	6220
28	Contingency and enforcement expenditure		0	0	183	183
	S. Total		44	12644	4900	18284
29	Monitoring & Supervision charges 5% of the cost					914.2
	G. Total					19502.2

3rd Year Maintenance

30	Wooding (complete wooding) and initial operation	Aug/Sep	1	911	0	911
31	Soil Working	Aug/Sep	1	911	0	911
32	Fire line Tracing and Integration Path	Feb/Mar E	1	311	0	311
33	Watch and Ward	April/Mar ch	20	6220	0	6220
	S. Total		13	8593	0	8593
34	Monitoring & Supervision charges 5% of the cost					429.65
	G. Total					8962.65

4th Year Maintenance

35	Fire line Tracing (20m wide Fire line over 400ft long) & initial operation	Feb/Mar E	1	311	0	311
36	Watch & ward	April/Mar ch	20	6220	0	6220
	S. Total		21	6531	0	6531
37	Monitoring & Supervision charges 5% of the cost					326.55
	G. Total					6857.55

5th Year Maintenance

38	Fire line Tracing (20m wide Fire line over 400ft long) & initial operation	Feb/Mar E	1	311	0	311
39	Watch & ward	April/Mar ch	20	6220	0	6220
	S. Total		21	6531	0	6531
40	Monitoring & Supervision charges 5% of the cost					326.55
	G. Total					6857.55

6th Year Maintenance

41	Fire line Tracing (20m wide Fire line over 400ft long) & initial operation	Feb/Mar E	1	311	0	311
42	Watch & ward	April/Mar ch	20	6220	0	6220
	S. Total		21	6531	0	6531
43	Monitoring & Supervision charges 5% of the cost					326.55
	G. Total					6857.55

7th Year Maintenance

44	Fire line Tracing (20m wide Fire line over 400ft long) & initial operation	Feb/Mar E	1	311	0	311
----	--	--------------	---	-----	---	-----

45	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6531	0	6531
46	Monitoring & Supervision charges 25% of the cost					1635.55
	G. Total					8167.55
10th Year Maintenance						
47	Fire Line Tracing (2m wide fire line over 400m long) at cultural operation	Feb/March	1	711	0	711
48	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6931	0	6931
49	Monitoring & Supervision charges 25% of the cost					1732.65
	G. Total					8663.65
10th Year Maintenance						
50	Fire Line Tracing (2m wide fire line over 400m long) at cultural operation	Feb/March	1	711	0	711
51	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6931	0	6931
52	Monitoring & Supervision charges 25% of the cost					1732.65
	G. Total					8663.65
10th Year Maintenance						
53	Fire Line Tracing (2m wide fire line over 400m long) at cultural operation	Feb/March	1	711	0	711
54	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6931	0	6931
55	Monitoring & Supervision charges 25% of the cost					1732.65
	G. Total					8663.65

* Nursery cost data has been taken from cost sheet for urban plantation for 1000 saplings.

(Tall sapling plantation of 18 months old)

** Watch & ward has been estimated 20 remaining for better result.

ABSTRACT					
Year	Period days	Labour Cost [Rs]	Material Component	Monitoring & Supervision	Total
Previous Year	17.1	5312.1	940.8	117.945	6571.845
1st Year	21.4	18047.8	7882.1	945.5	26875.4
2nd Year	195.7	47202.7	4112.2	2329.245	53644.195
3rd Year	66	13884	4500	528.2	19712.2
4th Year	22	4507	0	415.85	4922.85
5th Year	21	6881	0	326.55	7207.55
6th Year	21	6531	0	326.55	6857.55
7th Year	21	6531	0	326.55	6857.55
8th Year	21	6531	0	326.55	6857.55
9th Year	21	6531	0	326.55	6857.55
10th year	21	6531	0	326.55	6857.55
Total	437.4	131366.1	12906.4	7213.58	151485.28

COST OF ANR PLANTATION OVER 6.0 Ha

Rs. 151485.28/- X 6.0 Ha = 9,08,911.22 /- or 9,08,911/-

(Rupees Nine Lakhs Eight Thousand Nine Hundred & Fifteen only)

Authorized Signatory


N. K. PATEL
 Executive Director (P&T)
 Planning & Technical Department
 National Horticulture Commission, U-10
 New Delhi-110028


 Asst. Conservator of Forests
 Angul Division


 Counterchecked
 Divisional Forest Officer
 Angul Forest Division
 Divisional Forest Officer
 Angul Division


 Range Officer
 Kanha Range, Ra

SCHEME FOR SITE SPECIFIC SOIL MOISTURE CONSERVATION ACTIVITIES TO BE UNDERTAKEN AFFORESTATION AREA 1.5 TIMES SAFETY ZONE) OVER 61 HA OF DEGRADED FOREST LAND IDENTIFIED IN PHULBHARI R.F. UNDER KANIHA RANGE OF ANGUL FOREST DIVISION

The degraded forest land identified in Phulbhari ILP having scrub and open forest with crown density of 0.1. The selected site is covered with miscellaneous species, weeds like Lantana and Eupatorium. The main species noticed are Sal (Shorea robusta), Amul (Terminalia) etc.

Soil and moisture conservation activities are essentially required to be dovetailed to plantation activities in order to improve water availability in the proposed site. In order to achieve the objective and implement the program efficiently a well planned strategy is essential. The natural slope of the forest land selected for compensatory Afforestation varies from 2° to 30° being the foothill. The area selected is the catchment where the precipitation touches the ground and subsequently drained through the drainage line. So this becomes the focus area of the soil moisture conservation program. The intervention suggested below is aimed at capturing the rain water to enhance the retention period and to increase the quantity of infiltration.

Contour Line Treatment:

- **Staggered Trenches-** the staggered trenches are primarily aim to break the runoff which otherwise will form rills and gullies. Such rills when converted will form gullies. Continuous gullies when joined together will form a ditch. Therefore it is aimed at excavating 100 Nos. of staggered trenches per Ha. Each such trench will be 2.5m (length) X 1.5 m (width) X 0.5m (depth). These trenches will conserve rain water of this region and facilitates its percolation. Therefore while aligning such trenches adequate care should be taken so that gullies are not formed by the water flowing downhill from the wedges of trench.

Cost of staggered trench per Ha. 40 cum (105 @ Rs 311/- (Rs. 12450 X 6.0 Ha. = Rs. 1,190,100/-)

Birchdaira Fencing per 1 Barrow metre length

Total Length 1047 m

1047 X Rs. 688.50 = Rs. 721,023.15

LOOSE BOLT BEIR CHECK DAM

The structure is to be created across the drainage line for retention of runoff and reduction of velocity. Such structure should preferably have top width of one meter with upstream slope of 1:1 and downstream slope of 1:5. The dimensions of each structure are dependent on several factors such as gradient, catchment size etc. Hence prescription of a fixed dimension (BCD) is not contemplated. Since the cost norms for such structure are fixed on volume,

implementing districts will have desire flexibility to design such structure with appropriate dimension.

A. Size: 10' X 10' X 3'

I. Requirement of bamboo (prepared from quantity)

$12(10' \times 4') \times 10' \times 3' = 332 \text{ cft or } 9.00 \text{ cum}$

Cost of bamboo @ Rs.155/- per cum for 9.0 cum Rs.1,395.00/-

II. Labour for construction of LBCD for 1 cum.

Mulla	1.01 No. X 311.00 = 315.40
Mason-special	0.17 No. X 405.00 = 68.85
Stone packer	0.35 No. X 351.00 = 122.85
Total	507.10

For 9.50 cum $9.50 \times 534.42 = 5076.99$

Grand Total (I + II) **3171.85**

(Rounded to Rs. 3172/-)

Rate for 1 cum is Rs. 325.49 per cum or Rs. 85% per cum

Cost of LBCD over an area of 6.0 Ha. per Ha. 3 Nos. i.e. $6.0 \times 3 \times 325.00 \times 9.9 \text{ cum} =$
1,47,893.00

Financial outlay of SMC activities

Sl No.	SMC Measure	Cost (in Rs)
1	Barbed wire fencing for 1247 m @ 689.00 RM	859,000.00
2	LBCH (Loose Binder Check 1200) size 12 x 10 x 5	6,99,186.00
	Total	1,47,133.00

17/11/21
1200576

Cost of SMC Activities 1,47,133.00 - Rs. 1,47,133.00

(Rupees Eight Lakh Forty One Thousand Five Hundred & Eighty Six only)

Rupees Eight Lakh Forty one thousand five hundred and eighty six only -
- hundred seventy six paise.



Asst. Conservator of Forests
Angul Division

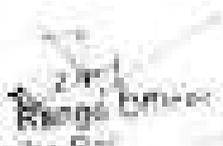


Divisional Forest Officer
Angul Forest Division
Divisional Forest Officer
Angul Division

Authorized Signatory



B. K. PATEL
Executive Director (PATH)
Project & Technical Services
NITUMS Agency, C. 100/2, Ltd.
Bhubaneswar



Range Officer
Kandhara Range

TOTAL FINANCIAL OUTLAY OF THE SCHEME

Sl. No.	ITEM OF WORK	TOTAL COST IN RS	
1	Cost of ANR Plantation @ 570 plants per Ha, Over 5.0 Ha Land	9,88,715.00	
2	Additional Cost for SMC activities	8,46,889.00	21,02,574
	Sub Total	17,35,604.00	17,35,604
	Escalation 20%	3,51,100.80	20,86,704.8
	Grand Total	21,86,704.80	21,86,704.8
	OR,	21,86,705.00	21,86,705

*Report Figures are Lakhs & Thousands are Hundred & Tens only
Report Entries are Lakhs only. Last column of cost - hundred only not in Lakhs.*

Authorized Signatory

[Signature]
D. K. PATEL

Executive Director (P&T)
Forest & Technical Department
Muzaffargarh, Cantt. (S-11)
Muzaffargarh - 507001

[Signature]
Asst. Commissioner of Forests
Angul Division

[Signature]
Range Officer
Kandla Range, Kandla

[Signature]
Assistant Forest Officer
Angul Forest Division
Divisional Forest Officer
Angul, Division

[Signature]
Regional Chief Coordinator
of Forests, Angul Circle

E-Mail - gn.seck@maharajodisha

OFFICE OF THE DIVISIONAL FOREST OFFICER, ANGUL DIVISION, ANGUL.

Letter No. 5200/210/CHP/2021/Dend (2/1/21)

To

Sri Sanjay Krishna Patel
Sr GM (Tech) KALCO
KALCO Bhubaneswar, P-1, Nayapalli
Dist-Khordha, 751012

Subj

Proposal for diversion of 166.1779 ha. of forest land for coal mining in respect of Uttal - E Coal Mines under Section-2 of Forest (Conservation) Act, 1980 by KALCO.

Ref:

- 1 Proposal No. PP/CO/Mining/41142/2015
- 2 Letter No. S-07/2020-FC dt. 12.11.2021 of GOA, MOEF & CC
- 3 Memo No. S210 dt. 11.08.2021 of DCO, Angul.

Sr:

With reference to the above cited letter on the subject, it is to inform that the Govt. of India MOEF & CC vide their letter No. S-07/2020-FC dt. 12/11.2021 has accorded in principle approval under section 2 of the Forest (Conservation) Act, 1980 for non forestry use of 166.1779 ha of forest land out of originally proposed 166.1779 ha of forest land in favour of M/s. Uttal - E Coal mining project in Angul District (Odisha).

Further as per condition No. 3-14 of Stage-I order of Govt., MoEF & CC, you are requested to deposit the following amount as per the approved by the Regional Chief Conservator of Forests, Angul Circle Angul vide his memo No. 3760 dt. 13.08.2021 in the Ad-hoc CAMPA in the saving Bank Account No. 520101363743653, Corporation Bank, Lodhi Complex, Ground Floor, Block No. 11, CGO Complex, Lodhi Road New Delhi through "e" payment immediately and maintain the same to the satisfaction for taking further action in the matter.

Condition No.	Name of the Scheme	Financial outlay (Rs.)
3-14	The scheme for afforestation over 1.5 times of safety zone over 502 ha area of degraded forest land identified in Rajbansal P.E. in Sankha Range	Rs.21,32,899/-

Yours faithfully


Divisional Forest Officer,
Angul Division

(12)

Memo No. 6409 / Dated 16/8/21

Copy forwarded to the Principal Chief Conservator of Forests, Forest Division & Head Office, P.O. Jaj, On the Principal Chief Conservator of Forests, Odisha for review of information and necessary action with reference to Memo No. 3269 dt. 13.08.2021 of Regional CCF, Angul.


Divisional Forest Officer
Angul Division

Memo No. 6410 / Dated 16/8/21

Copy forwarded to the Regional Chief Conservator of Forests, Angul Circle for review of kind information and necessary action with reference to Memo No. 3258 dt. 13.08.2021 of Regional CCF, Angul.


Divisional Forest Officer
Angul Division

(89/8)

Plate No - III
ANNEXURE - A X II (c)

MAP SHOWING PROPOSED AREA OF 5.00 Ha. (1.5 TIME OF SAFETY ZONE AREA 3.346 Ha.) FOR
COMPENSATORY AFFORESTATION WITHIN COMPARTMENT - III OF PHELAJHARI RP UNDER KAYIHA FOREST RANGE
AGAINST LTKAL-E OPEN CAST COAL MINES PROJECT OF NALCO, ANGGH.



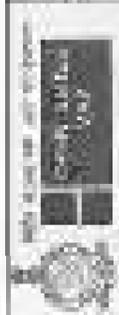
RECORDS OF THE FOREST OFFICER			
No.	Date	Particulars	Remarks
1	10/10/2011	Area reserved for afforestation	5.00 Ha.
2	10/10/2011	Area reserved for afforestation	3.346 Ha.
3	10/10/2011	Area reserved for afforestation	1.654 Ha.
4	10/10/2011	Area reserved for afforestation	1.654 Ha.
5	10/10/2011	Area reserved for afforestation	1.654 Ha.
6	10/10/2011	Area reserved for afforestation	1.654 Ha.
7	10/10/2011	Area reserved for afforestation	1.654 Ha.
8	10/10/2011	Area reserved for afforestation	1.654 Ha.
9	10/10/2011	Area reserved for afforestation	1.654 Ha.
10	10/10/2011	Area reserved for afforestation	1.654 Ha.

- LEGEND**
- Proposed area for afforestation
 - Reserved area for afforestation
 - Reserved area for afforestation
 - Reserved area for afforestation

Map Prepared by:
[Signature]
Forest Officer, Kayiha Forest Range
Anggh, Orissa



**TILD MAP SHOWING PROPOSED AREA OF 6.00 Ha. (1.51 TIME OF SAFETY ZONE AREA 3.344 Ha.) FOR
COMPENSATORY AFForestation WITHIN COMPARTMENT- III OF PHILAJHARI UNDER KAVHA FOREST RANGE
AGAINST UTKAL E OPEN CAST COAL MINES PROJECT OF NALCO, ANGUL**



No. Fd5N4

DATE: 14.08.2013

Area	6.00 Ha.	3.344 Ha.
Forest	6.00 Ha.	3.344 Ha.
Open Cast Coal Mines	6.00 Ha.	3.344 Ha.

PROJECT TITLE

PROJECT DESCRIPTION

PROJECT LOCATION

PROJECT OBJECTIVES



Scale: 1:50,000

[Signature]

Sub-divisional Officer
Angul

[Signature]
Joint Forest Officer
Kavha Forest Range

Map No.

[Signature]

Registered Survey of India Drawing No. Fd5N4/2013
Scale: 1:50,000
Date: 14.08.2013

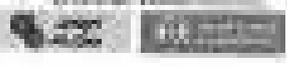
ADDITIONAL ATTACHMENT

13/03/2021 10:01 PM

NETT RTGS CHALLAN

REMIITT COPY

 Union Bank of India



NETT RTGS CHALLAN for CAMPA Funds

Date: 26/12/2021

Agency Name:	HALCO
Application No.:	804142148
NEFT/RTGS File No.:	8-RTGS009-FC
Location:	CHENNAI
Address:	HALCO House, P-1, Rajapet Road, Chennai
Amount (in Rs.)	2132800

Amount in Words: Twenty One Lakh Thirty Two Thousand Nine Hundred Eighty Only

NEFT/RTGS to be made as per following details:

Beneficiary Name:	CHENNAI CAMPA
IFSC Code:	UBIN03178
Pay to Account No.:	150020541142142 Valid only for this specific amount.
Bank Name & Address:	Union Bank Of India, Lodia Complex Branch, Block 11,000 Complex, Phase 1, Lodia Road, New Delhi - 110003

This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

DEBIT COPY

 Union Bank of India



NETT RTGS CHALLAN for CAMPA Funds

Date: 26/12/2021

Agency Name:	HALCO
Application No.:	804142148
NEFT/RTGS File No.:	8-RTGS009-FC
Location:	CHENNAI
Address:	HALCO House, P-1, Rajapet Road, Chennai
Amount (in Rs.)	2132800

Amount in Words: Twenty One Lakh Thirty Two Thousand Nine Hundred Eighty Only

NEFT/RTGS to be made as per following details:

Beneficiary Name:	CHENNAI CAMPA
IFSC Code:	UBIN03178
Pay to Account No.:	150020541142142 Valid only for this specific amount.
Bank Name & Address:	Union Bank Of India, Lodia Complex Branch, Block 11,000 Complex, Phase 1, Lodia Road, New Delhi - 110003

This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

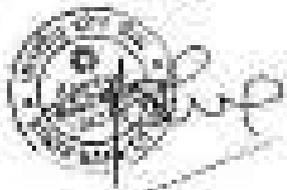
TO: CHENNAI CAMPA
 CREDIT: CHENNAI CAMPA
 DEBIT: HALCO

TRANSFER TO: CHENNAI CAMPA
 CREDIT: CHENNAI CAMPA

The amount deposited in the CHENNAI CAMPA account no. 150020541142142 shall be available for withdrawal from Monday onwards for various activities related to CAMPA.

U/B Branch Address: Union Bank of India, Lodia Complex Branch, Block 11,000 Complex, Phase 1, Lodia Road, New Delhi - 110003

UTR - 580101213000368



Divisional Forest Officer
 Andhra Pradesh

S. K. PATEL
 Executive Director (Part-I)
 Project & Technical Department
 National Aluminium Company Ltd
 B-1, Bhubaneswar - 751004

⑬
A.M. SURE - AX III

**SCHEME FOR FENCING, PROTECTION &
REGENERATION
OF SAFETY ZONE AREA (7.5 M)
OVER 3.946 Ha.**

FOR

**UTKAL-E OPEN CAST COAL MINE OF
M/S NATIONAL ALUMINIUM CO. LTD.**

**IN COMPLIANCE TO
CONDITION NO. A (15) OF STAGE-I FOREST
CLEARANCE GRANTED BY
GOVT. OF INDIA, MOEF & CC
VIDE THEIR LETTER NO. F.NO. 8-07/2020-FC DT 12.03.2021
FOR DIVERSION OF 169.1779 Ha OF FOREST LAND**

PREPARED BY

**DIVISIONAL FOREST OFFICER
ANGUL DIVISION
ANGUL**

**SCHEME FOR FENCING, PROTECTION & REGENERATION OF ENTIRE
SAFETY ZONE AREA (7.54) OVER 3.96 HA. OF UTKAL 'E' COAL BLOCK IN
M/S NATIONAL ALUMINIUM CO. LTD.
IN CHHENDIPADA TALASHI, OF DIST. ANGLI**

1. INTRODUCTION

Govt. of India of Coal had allotted Utkal-B & Utkal-E Coal Block in Tutcher Coal field to M/s NALCO vide allotment Order No. F.No.103/3428/5/NA, dated 02.05.2018. The block is located in the South-Central part of Tutcher Coal field in between Utkal-B Coal Block to the West & Utkal-D Coal Block to the East. Utkal-E Coal Mine spans over an area of 4.80 sq.km between Latitude $20^{\circ}56'57''$ and $20^{\circ}55'51''$ N and Longitude $84^{\circ}55'40''$ and $20^{\circ}56'37''$ E. Administratively it is under the jurisdiction of Chhendipada Tehsil, Angul district. Utkal-E Coal Mine is covered under Survey of India Toposheet No. 73(D)13 on RF 1:50,000 (2 cm to 1 km) and spatial reprojected No. 22 on RF 1:10,000 (10 cm to 1 km) and falls within Angul District of Orissa. Utkal-E Coal Mine comprises an area of 523.7325 Ha. out of which 165.1779 Ha. area is of Revenue Forest land which is required to be diverted under Forest Conservation Act, 1980. The remaining area 150.5581 Ha. is forest. Non forest land and 222.4965 Ha. is Private Land.

The area approved for grant of mining lease is 523.7325 ha. The total forest land is 165.1779 Ha. out of which 165.2319 Ha. is to be diverted for Non-Forest mining use and 3.946 Ha. shall be used as Safety Zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only. To compensate the forest area diverted for non forest purpose, the area for Compensatory Afforestation has been identified in Bargarhi R.F area under Simlaha forest range under Belagari Forest Division of Dist. Belagari. Labour rate is notified @ Rs.311.00 per day.

2. SITE

A patch of 3.946 Ha. is the Safety Zone entire area of the project UTKAL 'E' Block.

3. SOIL TYPE

The soil type occurring in the area is mostly sandy loam having good soil depth. pH of the soil varies from 6 to 8.

4. OBJECTIVE OF THE SCHEME

1. To enhance the environmental condition of locality.

2. To Conserve Soil and Moisture of degraded forest area.

3. To Support the degraded forest patch for regeneration.

5. CHOICE OF SPECIES

The species selected which are suitable to the soil type, climatic conditions- prevalence of the locality & indigenous characters with observation to existing natural vegetation, fulfilling the requirements of the local villagers. A list of species selected is enlisted below-

COMMON NAME

Tank

Sawa

Dipa

Asan

Dahan

Kurra

Neer

Karaga

Bamboo

Handa

Arli

Behda

Acacia

Chakunda

Khai

SCIENTIFIC NAME

Tectona grandis

Dalbergia sisoo

Pithecolobium saman

Terminalia tomentosa

Anacardium occidentale

Halimolobos

Acacia saligna

Bougainvillea

Dendrocalamus strictus

Terminalia alata

Erythraea

Tamarindus indica

Acacia saligna

Casuarina

Acacia saligna

6. PLANTING TECHNIQUES

Out of the above species the majority of plantation for fuel yielding species such as Chakunda, Khai, Dahan shall be planted up to 60% of the total no. of plants, the timber species like Tank, Sawa, Dipa & Asan up to 30%, bamboo-5% and fruit bearing NTFP species like Neer, Karaga, Asan, Handa, Behda etc. shall be planted up to 5% of the total number of plants.

7. PLANTATION METHOD

The planting of species shall be planted in such a manner that the long term fruit, timber yielding species/bamboo shall be intercropped with short term fuel wood yielding species. The species should be planted alternate to each other & no repetition of species in close of pits shall be done.

8. PLANTATION METHODOLOGY

For the purpose of raising the seedling in a temporary nursery shall be set up nearest to the planting site where availability of water and communication is ensured. Nursery of 440 plants should be planted 0th year. Pit size of 45cm X 45cm X 45cm will be dug and planting should be done immediately on the set of monsoon.

9. WEEDING

1st weeding operation and weeding shall be taken up followed with application of fertilizer at the time of soil working.

2nd weeding should be repeated in the month of October along with half moon trenching around each plot. Weeding and soil working will be repeated during 2nd year and 3rd year weeding and soil working remaining will be done.

10. WATCH AND WARD

For effective protection of area watch and ward shall be provided during project period & post project period.

11. FENCING

For protection of plantation & improving environmental condition of the locality Bamboo wire fencing both inner side and outer periphery of safety zone shall be done by user agency prior to raising.

12. EXECUTING AGENCY

The Divisional Forest Officer, Angul Division shall execute the project.

13. MONITORING & EVALUATION

Divisional Forest Officer, Angul Division, Angul shall monitor & evaluate the scheme every year.

14. PROJECT COST

Rs. 13,59,382.00 to be paid by the user Agency to MVO Angul Division. (Rupees Thirteen Lakh Fifty Nine Thousand Three Hundred Eighty Two Only)



Authorized Signatory
S. K. PRADEEP
Executive Director (P&T),
Project & Technical Department
National Aquaculture University, Ltd
Bhubaneswar-751007


Forest Range Officer
Chandrasekhara Range


Joint Conservator of Forests
Angul Division


Counter signed
Divisional Forest Officer
Angul, Division

Angul Forest Division

COST SHEETS FOR AIDED NATURAL REGENERATION

(A) 20 PLANTS PER HACTARE (ANR Plantation) 18 Months Old seedlings

For the year maintenance						
Wage rate as Rs. 111						
Sl. No.	Item of Work	Probable Period of Execution	Person days	Labour (Rs)	Material (Rs)	Total (Rs)
Previous year balance work Nursery raising						
1	Nursery cost (18 months old seedling) per ha 20.05/- seedling (Rs. 1.11 to be released) for 200 seedlings (200x20)	Nov-March	2.1	117.21	112.60	2298.20
	S. Total		2.1	117.21	112.60	2298.20
2	Monitoring & Supervision charges 5% of the cost					114.91
	G Total					2413.11
09 Year (advance work)						
3	Survey, Demarcation & Pillar Putting, GPS tracking with mapping	Nov-Dec	2	622	0	622
4	Site Preparation	Nov-Dec	2	622	0	622
5	Intercultural Operation including clearing of weed, under cutting, high stump cutting, weeding of plants etc.	Jan-Feb	5	1555	0	1555
6	Nursery cost (18 months old seedling) per ha 20.05 seedling (Rs. 20.14 to be released) for 200 seedlings (200x20)	Apr-March	14.2	9915.2	2084.4	7100.8
7	Contingency and Unforeseen Expenditures		0	0	150	150
	S. Total		25.2	7315.2	2084.4	10530.60
8	Monitoring & Supervision charges 5% of the cost					526.53
	G Total					10534.23
1st Year/Planting Year						
9	Nursery cost (18 months old seedling) balance Rs. 42 for 200 seedling	Apr-June	2.5	581.5	72.4	653.9
10	Planting 45 cm X 45 cm X 45 cm	May-June	15	5160	0	5160
11	Carriage and planting. Casualty replacement and application of insecticide, manure etc.	July-Aug	5	1555	0	1555

12	Complete Weeding, Soil working and Mulching	Aug/Sept	8	1785	0	1785
13	Cost of Yantocompact (200 gms) plant (i) Rs. 20/- per kg = Rs. 200.00 and Granular Insecticide 5 gm/ per plant (ii) Rs. 10/- per KG = 50.00	Aug/Sept	8	0	800	800
14	Cost of Chemical Fertilizer (a) Urea 30 gm/ plant in two subsequent doses (i) Rs. 10/- per Kg = Rs. 300.00 (ii) KPK 50 gm/ plant in 20/- per kg = Rs. 200.00 in 2nd dose	Feb/May	8	0	504	504
15	Cultural Operations including destruction of weed, choker, earthing, high density setting, staking of shoot etc.	Sept/Oct	15	4650	0	4650
16	Soil Conservation Measures in the form of staggered trenches of 2m L x 1.5m D for 2.5 M/ha (area) is equivalent	Sept/Oct	20	6250	0	6250
17	Fire line Training and Inspection Path	Feb/May	8	914	0	914
18	Watch and Ward		15	6250	0	6250
19	Contingency and Unforeseen Expenditure		0	0	385	385
	A. Total		82.90	27858.89	1380.00	29418.89
20	Monitoring & Supervision charges 2% of the cost					1176.965
	C. Total					31066.855
Jan Year Maintenance						
21	Chemical Replacement (KPK) 400 gm/ha and 200 gm/ha weeding @ 2000/-	July/Aug	1	200	200	400
22	Weeding (complete weeding) and cultural operations	Sept/Oct	2	600	0	600
23	Soil working and mulching	Sept/Oct	2	600	0	600
24	Cost of Yantocompact (200 gms) plant (i) Rs. 20/- per kg = Rs. 400.00 and Granular Insecticide 5 gm/ per plant (ii) Rs. 10/- per KG = Rs. 50.00	Sept/Oct	0	0	800	800
25	Soil Conservation Measures (Reconstruction of Staggered Trench)	Sept/Oct	5	2400	0	2400

26	Fire Line Training and Inspection Path (2m wide fire line over 400m long)	Feb/Mar- a	1	311	0	311
27	Watch & Ward	Apr/Mar- a	20	6220	0	6220
28	Contingency and unforeseen expenditure		0	0	181	181
	S. Total		21	6531	181	6712
29	Monitoring & Supervision charges 2% of the cost					136.2
	G Total					6848.2
3rd Year Maintenance						
30	Wooding (complete wooding) and cultural operations	Aug/Sep	1	311	0	311
31	Soil Working	Aug/Sep	1	311	0	311
32	Fire Line Training and Inspection Path (2m wide fire line over 400m long)	Feb/Mar- a	1	311	0	311
33	Watch and Ward	April/Mar- ch	20	6220	0	6220
	Contingency and unforeseen expenditure		0	0	26	26
	S. Total		23	7152	26	7178
34	Monitoring & Supervision charges 2% of the cost					143.52
	G Total					7321.52
4th Year Maintenance						
35	Fire Line Training (2m wide fire line over 400m long) & cultural operations	Feb/Mar- a	1	311	0	311
36	Watch & ward	April/Mar- ch	20	6220	0	6220
	S. Total		21	6531	0	6531
37	Monitoring & Supervision charges 2% of the cost					130.58
	G Total					6661.58
5th Year Maintenance						
38	Fire Line Training (2m wide fire line over 400m long) & cultural operations	Feb/Mar- a	1	311	0	311
39	Watch & ward	April/Mar- ch	20	6220	0	6220
	S. Total		21	6531	0	6531
40	Monitoring & Supervision charges 2% of the cost					130.58
	G Total					6661.58
6th Year Maintenance						
41	Fire Line Training (2m wide fire line over 400m long) & cultural operations	Feb/Mar- a	1	311	0	311
42	Watch & ward	April/Mar- ch	20	6220	0	6220
	S. Total		21	6531	0	6531

47	Monitoring & Supervision charges 2% of the cost G Total					329.58
1th Year Maintenance						
46	Fire Line Tracing (200 m) for fire line over 400m long & cultural operations	Feb/March	1	311	0	311
48	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6531	0	6531
49	Monitoring & Supervision charges 2% of the cost G Total					130.55
2th Year Maintenance						
47	Fire Line Tracing (200 m) for fire line over 400m long & cultural operations	Feb/March	1	311	0	311
48	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6531	0	6531
49	Monitoring & Supervision charges 2% of the cost G Total					130.55
3th Year Maintenance						
50	Fire Line Tracing (200 m) for fire line over 400m long & cultural operations	Feb/March	1	311	0	311
51	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6531	0	6531
52	Monitoring & Supervision charges 2% of the cost G Total					130.55
4th Year Maintenance						
53	Fire Line Tracing (200 m) for fire line over 400m long & cultural operations	Feb/March	1	311	0	311
54	Watch & ward	April/March	20	6220	0	6220
	S. Total		21	6531	0	6531
55	Monitoring & Supervision charges 2% of the cost G Total					130.55

* Nursery Cost data has been taken from cost norms for urban plantation for 1000 saplings

(Full seedling plantation of 18 months @ 6)

** Watch & ward has been entered 20 months @ 1 for better result

Abstract

Year	Person Days	Labour	Material & Contingencies	Monitoring & Supervision	Total Rs.
Proposed Year	57	1792.7	311.6	104.35	2198.65
1 st Year	111	3215.2	3817.4	501.63	10534.23
2 nd Year	111	2735.9	1593.4	1476.96	10116.35
3 rd Year	21	1057.0	1350	616.2	12943.2
4 th Year	21	671	0	361.65	7721.65
5 th Year	21	671	0	336.55	6857.55
6 th Year	21	671	0	336.55	6857.55
7 th Year	21	671	0	336.55	6857.55
8 th Year	21	671	0	336.55	6857.55
9 th Year	21	671	0	336.55	6857.55
10 th Year	21	671	0	336.55	6857.55
Total	323.8	10094.6	6661.4	5258.51	113405

Cost of ANR Plantation Over 3.946 Ha

Rs.113405/- or Rs.916 ha⁻¹ or Rs. 4,43,550.13/- or 4,43,550.13/-

(Rupee Four Lacks Forty Three Thousand Two Hundred Fifty Only)


Authorized Signatory
S. K. PATEL
 Executive Director (P&T),
 Project & Technical Department,
 National Afforestation Corporation Ltd.,
 Bhamburda, 751001


 Joint Demonstrator of Forest,
 Proj. Division


Counter signed
Joint Forest Officer
 Proj. Division


Forest Range Officer
 Chhendipada Range

Estimate for Agave (Sisal) plantation over 1 ha, On the mound of staggered trenches spacing Int. X 1 m in double rows leaving later space of 3m plantation population-5000 suckers/ha

1st Year Operation				
Sl. No.	Item of Work	Quantity/ quantity per Ha.	Rate in Rs.	Total in Rs.
1	Digging of pit size 45 cm X 45 cm X 45 cm.	120 M ³	211	25320
2	Nursery cost Rs 4.70 per plant	5000	4.90 per plant	24500
3	Carriage and planting, or quality replacement including clearing of suckers	14 M ³	311	10574
4	Weeding, hoeing and application of fertilizer	25 M ³	311	7775
5	Cost of Fertilizer			
	a. Urea 70gm per plant	350kg	6/- per kg	2100
	b. NPK-50 gm / plant	250kg	24/- per kg	6000
	c. Granular insecticide (Thiomite, Phorate etc) 85 gms / plant	25kg	80/- per kg	2000
	TOTAL			90269
6	Monitoring & Supervision charges 5% of the total cost			4513.45
	Grand Total			94783.45
2nd Year Operation				
1	Quality replacement			
	a. Cost of suckers	500	4.90	2450
	b. Digging	5	311	1555
	c. Carriage of suckers and planting	10	311	3110
2	Weeding, hoeing and application of fertilizer	25	311	7775
3	Cost of Fertilizer			
	a. Urea 70gm per plant	350kg	6/- per kg	2100
	b. NPK-50 gm / plant	250kg	24/- per kg	6000
	c. Granular insecticide (Thiomite, Phorate etc) 85 gm / plant	25kg	80/- per kg	2000
4	Fire control measure	4	311	1244
	TOTAL			26100
5	Monitoring & supervision charges 5% of the total cost			1315

	GRAND TOTAL			27615
3rd Year Operation				
1	Weeding, hoeing and application of fertilizer	25	311	7757
2	Cost of Fertilizer			
	a. Urea 70gm per plant	250kg	8/-per kg	2100
	b. NPK-50 gm / plant	250kg	24/-per kg	6000
1	Fire control measure	11	311.00	3421
	TOTAL			19298
1	Monitoring & supervision charges 5% of the total cost			964.9
	GRAND TOTAL			20262.9
4th Year Operation				
1	Weeding, hoeing and application of fertilizer	25MD	311.00	7775
2	Cost of Fertilizer			
	a. Urea 70gm per plant	250kg	6/-per kg	2100
	b. NPK-50 gm / plant	250kg	24/-per kg	6000
1	Fire control measure	11	311.00	3421
	TOTAL			19296
1	Monitoring & supervision charges 5% of the total cost			964.8
	GRAND TOTAL			20260.8
5th Year Operation				
1	Fire control measure	12	311.00	3732
	TOTAL			3732
2	Monitoring & supervision charges 5% of the total cost			186.6
	GRAND TOTAL			3918.6
6th Year Operation				
1	Fire control measure	11	311.00	3732
	TOTAL			3732
2	Monitoring & supervision charges 5% of the total cost			186.6
	GRAND TOTAL			3918.6
7th Year Operation				
1	Fire control measure	12	311.00	3732
	TOTAL			3732
2	Monitoring & supervision charges 5% of the total cost			186.6
	GRAND TOTAL			3918.6

ABSTRACT		
Sl. No.	Year	Total cost in Rs.
1	1st Year Operation	40,000.00
2	2nd year Operation	37,875
3	3rd year Operation	25,280.80
4	4th year Operation	21,280.80
5	5th year Operation	1,918.60
6	6th year Operation	1,918.60
7	7th year Operation	1,918.60
TOTAL		174,674.85

The cost of 5000 plants with 7 years maintenance is Rs. 174,674.85 or 174,675/- Say,

The cost of one plant with 7 years maintenance is Rs. 34,935 or Rs. 35/-

The total cost of agro plants for 5,946 ha = 174,675/- X 3,946 = 689,267.55/-

or,

689,268/-

(Rupees Six Lakh Eighty Nine Thousand Two Hundred Sixty Eight only)



Authorized Signatory

G. R. PATIL

Executive Director (PS-1)
 Proj. N.S. Technical Department
 National Aquaculture Company Ltd
 Shikhar Chowk-751001



Asst. Conservator of Forests
 Angul Division



Countersigned
 Divisional Forest Officer
 Angul Division

Forest Range Officer
 Chhendipada Range

TOTAL COST OF THE SCHEME

Sl. no.	Item of work	Total Cost in Rs.
1.	Cost of ANB plantation with 250 plants	4,47,550.00
2.	Cost of Agave plantator	6,89,768.00
3.	Sub total	11,37,318.00
6.	Escalation 25%	2,26,563.60
7.	Grand Total	13,59,881.60
		Rs
		13,59,882.00

(Rupees Thirteen Lakh Fifty Nine Thousand Three Hundred Eighty Two Only)


Authorized Signatory
B. K. PATEL
Executive Director (PST)-I
Project & Technical Department
National Aluminium Company Ltd
Chennai-600 081


Asst. Conservator of Forests
Angal Division


Countersigned
Divisional Forest Officer
Divisional Forest Officer
Angal Forest Division
Angal Division


Forest Range Officer
Chitradurga Range

Approved Rs 13,59,882/-


Regional Chief Conservator
of Forests, Angal Circle,

LAND SCHEDULE OF SAFETY ZONE INDICATING THE FOREST & NON-FOREST LAND IMPACTED IN UTTERLE COAL BLOCK OF MVA, RAJOL LTD

VILLAGE NAME-GOMNATHPUR JUNGLE

Sl. No.	PLOT No.	SAFETY ZONE AREA IN Ha.	
		FOREST AREA	NON-FOREST AREA
8	1717	0.147	0.009
9	1718	0.004	0.009
10	1719	0.004	0.009
11	1720	0.075	0.009
12	1721	0.117	0.009
13	1722	0.004	0.009
14	1723	0.004	0.009
15	1724	0.004	0.009
16	1725	0.004	0.009
17	1726	0.004	0.009
18	1727	0.004	0.009
19	1728	0.004	0.009
20	1729	0.004	0.009
21	1730	0.004	0.009
22	1731	0.004	0.009
23	1732	0.004	0.009
24	1733	0.004	0.009
25	1734	0.004	0.009
26	1735	0.004	0.009
27	1736	0.004	0.009
28	1737	0.004	0.009
29	1738	0.004	0.009
30	1739	0.004	0.009
31	1740	0.004	0.009
32	1741	0.004	0.009
33	1742	0.004	0.009
34	1743	0.004	0.009
35	1744	0.004	0.009
36	1745	0.004	0.009
37	1746	0.004	0.009
38	1747	0.004	0.009
39	1748	0.004	0.009
40	1749	0.004	0.009
41	1750	0.004	0.009
42	1751	0.004	0.009
43	1752	0.004	0.009
44	1753	0.004	0.009
45	1754	0.004	0.009
46	1755	0.004	0.009
47	1756	0.004	0.009
48	1757	0.004	0.009
49	1758	0.004	0.009
50	1759	0.004	0.009
51	1760	0.004	0.009
52	1761	0.004	0.009
53	1762	0.004	0.009
54	1763	0.004	0.009
55	1764	0.004	0.009
56	1765	0.004	0.009
57	1766	0.004	0.009
58	1767	0.004	0.009
59	1768	0.004	0.009
60	1769	0.004	0.009
61	1770	0.004	0.009
62	1771	0.004	0.009
63	1772	0.004	0.009
64	1773	0.004	0.009
65	1774	0.004	0.009
66	1775	0.004	0.009
67	1776	0.004	0.009
68	1777	0.004	0.009
69	1778	0.004	0.009
70	1779	0.004	0.009
71	1780	0.004	0.009
72	1781	0.004	0.009
73	1782	0.004	0.009
74	1783	0.004	0.009
75	1784	0.004	0.009
76	1785	0.004	0.009
77	1786	0.004	0.009
78	1787	0.004	0.009
79	1788	0.004	0.009
80	1789	0.004	0.009
81	1790	0.004	0.009
82	1791	0.004	0.009
83	1792	0.004	0.009
84	1793	0.004	0.009
85	1794	0.004	0.009
86	1795	0.004	0.009
87	1796	0.004	0.009
88	1797	0.004	0.009
89	1798	0.004	0.009
90	1799	0.004	0.009
91	1800	0.004	0.009
92	1801	0.004	0.009
93	1802	0.004	0.009
94	1803	0.004	0.009
95	1804	0.004	0.009
96	1805	0.004	0.009
97	1806	0.004	0.009
98	1807	0.004	0.009
99	1808	0.004	0.009
100	1809	0.004	0.009
101	1810	0.004	0.009
102	1811	0.004	0.009
103	1812	0.004	0.009
104	1813	0.004	0.009
105	1814	0.004	0.009
106	1815	0.004	0.009
107	1816	0.004	0.009
108	1817	0.004	0.009
109	1818	0.004	0.009
110	1819	0.004	0.009
111	1820	0.004	0.009
112	1821	0.004	0.009
113	1822	0.004	0.009
114	1823	0.004	0.009
115	1824	0.004	0.009
116	1825	0.004	0.009
117	1826	0.004	0.009
118	1827	0.004	0.009
119	1828	0.004	0.009
120	1829	0.004	0.009
121	1830	0.004	0.009
122	1831	0.004	0.009
123	1832	0.004	0.009
124	1833	0.004	0.009
125	1834	0.004	0.009
126	1835	0.004	0.009
127	1836	0.004	0.009
128	1837	0.004	0.009
129	1838	0.004	0.009
130	1839	0.004	0.009
131	1840	0.004	0.009
132	1841	0.004	0.009
133	1842	0.004	0.009
134	1843	0.004	0.009
135	1844	0.004	0.009
136	1845	0.004	0.009
137	1846	0.004	0.009
138	1847	0.004	0.009
139	1848	0.004	0.009
140	1849	0.004	0.009
141	1850	0.004	0.009
142	1851	0.004	0.009
143	1852	0.004	0.009
144	1853	0.004	0.009
145	1854	0.004	0.009
146	1855	0.004	0.009
147	1856	0.004	0.009
148	1857	0.004	0.009
149	1858	0.004	0.009
150	1859	0.004	0.009
151	1860	0.004	0.009
152	1861	0.004	0.009
153	1862	0.004	0.009
154	1863	0.004	0.009
155	1864	0.004	0.009
156	1865	0.004	0.009
157	1866	0.004	0.009
158	1867	0.004	0.009
159	1868	0.004	0.009
160	1869	0.004	0.009
161	1870	0.004	0.009
162	1871	0.004	0.009
163	1872	0.004	0.009
164	1873	0.004	0.009
165	1874	0.004	0.009
166	1875	0.004	0.009
167	1876	0.004	0.009
168	1877	0.004	0.009
169	1878	0.004	0.009
170	1879	0.004	0.009
171	1880	0.004	0.009
172	1881	0.004	0.009
173	1882	0.004	0.009
174	1883	0.004	0.009
175	1884	0.004	0.009
176	1885	0.004	0.009
177	1886	0.004	0.009
178	1887	0.004	0.009
179	1888	0.004	0.009
180	1889	0.004	0.009
181	1890	0.004	0.009
182	1891	0.004	0.009
183	1892	0.004	0.009
184	1893	0.004	0.009
185	1894	0.004	0.009
186	1895	0.004	0.009
187	1896	0.004	0.009
188	1897	0.004	0.009
189	1898	0.004	0.009
190	1899	0.004	0.009
191	1900	0.004	0.009
192	1901	0.004	0.009
193	1902	0.004	0.009
194	1903	0.004	0.009
195	1904	0.004	0.009
196	1905	0.004	0.009
197	1906	0.004	0.009
198	1907	0.004	0.009
199	1908	0.004	0.009
200	1909	0.004	0.009
201	1910	0.004	0.009
202	1911	0.004	0.009
203	1912	0.004	0.009
204	1913	0.004	0.009
205	1914	0.004	0.009
206	1915	0.004	0.009
207	1916	0.004	0.009
208	1917	0.004	0.009
209	1918	0.004	0.009
210	1919	0.004	0.009
211	1920	0.004	0.009
212	1921	0.004	0.009
213	1922	0.004	0.009
214	1923	0.004	0.009
215	1924	0.004	0.009
216	1925	0.004	0.009
217	1926	0.004	0.009
218	1927	0.004	0.009
219	1928	0.004	0.009
220	1929	0.004	0.009
221	1930	0.004	0.009
222	1931	0.004	0.009
223	1932	0.004	0.009
224	1933	0.004	0.009
225	1934	0.004	0.009
226	1935	0.004	0.009
227	1936	0.004	0.009
228	1937	0.004	0.009
229	1938	0.004	0.009
230	1939	0.004	0.009
231	1940	0.004	0.009
232	1941	0.004	0.009
233	1942	0.004	0.009
234	1943	0.004	0.009
235	1944	0.004	0.009
236	1945	0.004	0.009
237	1946	0.004	0.009
238	1947	0.004	0.009
239	1948	0.004	0.009
240	1949	0.004	0.009
241	1950	0.004	0.009
242	1951	0.004	0.009
243	1952	0.004	0.009
244	1953	0.004	0.009
245	1954	0.004	0.009
246	1955	0.004	0.009
247	1956	0.004	0.009
248	1957	0.004	0.009
249	1958	0.004	0.009
250	1959	0.004	0.009
251	1960	0.004	0.009
252	1961	0.004	0.009
253	1962	0.004	0.009
254	1963	0.004	0.009
255	1964	0.004	0.009
256	1965	0.004	0.009
257	1966	0.004	0.009
258	1967	0.004	0.009
259	1968	0.004	0.009
260	1969	0.004	0.009
261	1970	0.004	0.009
262	1971	0.004	0.009
263	1972	0.004	0.009
264	1973	0.004	0.009
265	1974	0.004	0.009
266	1975	0.004	0.009
267	1976	0.004	0.009
268	1977	0.004	0.009
269	1978	0.004	0.009
270	1979	0.004	0.009
271	1980	0.004	0.009
272	1981	0.004	0.009
273	1982	0.004	0.009
274	1983	0.004	0.009
275	1984	0.004	0.009
276	1985	0.004	0.009
277	1986	0.004	0.009
278	1987	0.004	0.009
279	1988	0.004	0.009
280	1989	0.004	0.009
281	1990	0.004	0.009
282	1991	0.004	0.009
283	1992	0.004	0.009
284	1993	0.004	0.009
285	1994	0.004	0.009
286	1995	0.004	0.009
287	1996	0.004	0.009
288	1997	0.004	0.009
289	1998	0.004	0.009
290	1999	0.004	0.009
291	2000	0.004	0.009
292	2001	0.004	0.009
293	2002	0.004	0.009
294	2003	0.004	0.009
295	2004	0.004	0.009
296	2005	0.004	0.009
297	2006	0.004	0.009
298	2007	0.004	0.009

Sl. No.	PLOT No	SAFETYZONE AREA IN Ha	
		FOREST AREA	NON-FOREST AREA
35	2444	0.000	0.024
37	2449	0.000	0.084
44	2425	0.000	0.420
48	2408	0.000	0.543
44	2475	0.000	0.347
45	2477	0.000	0.342
48	2433	0.000	0.012
50	2458	0.000	2.043
50	2456	0.000	2.014
54	2470	0.000	1.264
54	2471	0.000	1.263
54	248	0.000	2.313
52	248	0.000	1.024
60	251	0.000	0.084
61	11484	0.000	0.806
62	11484	0.000	0.754
63	11494	0.000	1.566
64	11494	0.000	1.322
65	11495	0.000	0.087
68	11496	0.000	1.225
72	2460	0.000	6.124
73	2450	0.000	0.043
78	2400	0.000	0.024
41	2410	0.000	0.074
42	2411	0.000	0.054
43	2412	0.000	0.113
44	2414	0.000	0.200
47	2486	0.000	2.276
48	2432	0.000	0.040
51	2437	0.000	0.021
52	2440	0.000	0.021
53	2441	0.000	0.006
54	2442	0.000	0.003
55	2443	0.000	0.004
56	2444	0.000	0.006
57	2445	0.000	0.001
58	2446	0.000	0.013
59	2448	0.000	0.014
61	2446	0.000	0.008
62	2428	0.000	0.014
63	2425	0.000	0.047

Forest Range Officer
Chhindwara Range

Asst. Conservator of Forests
Angul Division

Authorized Signatory

S. K. PATEL
S. P. Office, District IP&T/H
P.O. 16, Technical Department
Geographical Information Company Ltd
Mumbai-400001

Divisional Forest Officer
Angul Division

Yashwantrao
Chhindwara

Sl No.	PLOT No.	CAPITATING AREA IN Ha.	
		FOREST AREA	NON-FOREST AREA
65	1803	0.000	0.120
66	1805	0.000	0.000
67	1806	0.000	0.051
68	1810	0.000	0.151
69	1820	0.000	0.000
70	750	0.000	0.326
71	751	0.000	1.523
72	753	0.000	0.007
73	753	0.000	0.183
74	754	0.000	0.169
75	755	0.000	0.171
76	756	0.000	0.009
67	17997	0.000	1.584
TOTAL		0.000	18.777

VILLAGE-FOUNDER/ARREAR/VOID

Sl No.	PLOT No.	CAPITATING AREA IN Ha.	
		FOREST AREA	NON-FOREST AREA
88	37	0.107	0.000
89	38	0.047	0.000
113	113	0.004	0.000
115	117	0.007	0.000
117	160	0.128	0.000
118	182	0.115	0.000
119	183	0.064	0.000
119	184	0.073	0.000
121	185	0.058	0.000
122	186	0.049	0.000
123	187	0.063	0.000
124	188	0.054	0.000
125	200	0.015	0.000
126	310	0.050	0.000
127	315	0.046	0.000
128	338	0.021	0.000
130	340	0.147	0.000
132	343	0.009	0.000
133	345	0.153	0.000
89	44	0.000	0.149
90	45	0.000	0.014
91	46	0.000	0.050
91	47	0.000	0.115
92	57	0.009	0.011

Asst. Commissioner of Forests
 DFO Divisional Forest Officer
 Angul Division

Divisional Forest Officer
 Angul Division

Chandrasekhar
 Chandrasekhar

Anthrudaj Sengupta
 S. K. PATIL
 Executive Director (P&T)
 Forest & Technical Department
 National Academy of Forest Sciences (N-AFSC)
 Chandrasekhar / 3/1/2017

Forest Range Officer
 Chandrasekhar Range

Sl. No.	PLOT No.	SAFETYZONE AREA IN Ha.	
		FOREST AREA	NON-FOREST AREA
94	58	0.000	0.181
97	59	0.000	0.014
98	64	0.000	0.137
98	64	0.000	0.000
114	125	0.000	0.052
117	131	0.000	0.000
99	63	0.000	0.018
100	65	0.000	0.104
101	56	0.000	0.101
101	57	0.000	0.001
101	66	0.000	0.087
104	66	0.000	0.000
105	130	0.000	0.000
106	131	0.000	0.007
107	103	0.000	0.000
108	133	0.000	0.007
109	134	0.000	0.007
110	135	0.000	0.000
111	120	0.000	0.000
113	121	0.000	0.007
128	125	0.000	0.051
131	141	0.000	0.000
134	136	0.000	0.011
TOTAL		0.000	1.409

VILLAGE NAWA-BANDICHTO ALLIANS ODORAN LAMPURIA

Sl. No.	PLOT No.	SAFETYZONE AREA IN Ha.	
		FOREST AREA	NON-FOREST AREA
135	146	0.000	0.000
136	146	0.000	0.000
137	146	0.000	0.000
148	139	0.000	0.000
149	121	0.000	0.000
154	145	0.000	0.000
156	146	0.000	0.000
156	147	0.000	0.000
157	145	0.000	0.000
158	136	0.000	0.000
159	1471	0.000	0.000
160	1472	0.000	0.000
160	1474	0.000	0.000
162	1474	0.000	0.000

[Signature]
 Divisional Forest Officer
 Angul, Division

[Signature]
 Technical
 Chandipada
 ASST. Conservator of Forests
 Angul, Division

[Signature]
 Authorized Signatory
 S. K. Patra
 S. Jyoti, District PATTI
 P.O. - 13, Technical Department
 Forest Administration Complex, U.I.
 Bhubaneswar-751001

[Signature]
 Forest Range Officer
 Chandipada Range

Sl. No.	Pitt No.	SAFETY ZONE AREA IN Ha.	
		FOREST AREA	NON-FOREST AREA
186	2021	0.002	0.000
187	2187	0.002	0.000
187	2196	0.013	0.000
188	2197	0.001	0.000
189	2198	3.188	0.000
190	2228	0.004	0.000
191	2805	0.005	0.000
192	2806	0.007	0.000
191	2808	0.011	0.000
192	2807	0.000	0.000
193	2871	0.004	0.000
197	2808	0.018	0.000
198	2807	0.003	0.000
199	2808	0.007	0.000
201	2808	0.005	0.000
205	3114	0.189	0.000
206	3117	0.082	0.000
208	4173	0.007	0.000
210	4188	0.000	0.000
215	4217	0.001	0.000
240	4370	0.049	0.000
251	4341	0.004	0.000
154	444	0.000	0.000
178	1586	0.000	0.004
180	1854	0.000	0.001
190	2877	0.000	0.000
192	2820	0.000	0.420
193	2820	0.000	0.070
198	2851	0.000	0.000
201	2878	0.000	0.000
209	3204	0.000	0.000
246	374	0.000	0.000
246	274	0.000	0.004
247	271	0.000	0.000
248	271	0.000	0.000
249	272	0.000	0.004
249	275	0.000	0.000
249	227	0.000	0.001
252	228	0.000	0.000
164	257	0.000	0.000
164	254	0.000	0.000

Divisional Forest Officer
Angul Division

Forest Range Officer
Chandloada Range

Asst. Commissioner of Forests
Angul Division

Authorized Signatory

S. K. PATEL

Executive Director (P&T)
Project & Technical Directorate
National Aquaculture Corporation
Bhubaneswar-751001

Approved
[Signature]

Sl. No.	Plot No.	ADDITIONAL AREA IN Ha.	
		FOREST AREA	NON-FOREST AREA
150	131	0.003	0.003
151	137	0.003	0.003
152	139	0.003	0.011
155	1473	0.003	0.003
161	1483	0.003	0.003
166	1483	0.003	0.012
167	1484	0.003	0.006
168	1484	0.003	0.003
169	1484	0.003	0.004
170	1564	0.003	0.003
171	1565	0.003	0.014
171	1573	0.003	0.006
171	1573	0.003	0.001
174	1575	0.003	0.007
175	1577	0.003	0.008
176	1578	0.003	0.008
177	1582	0.003	0.009
178	1609	0.003	0.009
181	1612	0.003	0.009
183	1635	0.003	0.012
183	1635	0.003	0.009
184	1637	0.003	0.012
188	1638	0.003	0.006
188	1679	0.003	0.023
193	1640	0.003	0.025
198	1651	0.003	0.006
198	2141	0.003	0.004
199	2142	0.003	0.001
199	2146	0.003	0.019
199	2147	0.003	0.001
199	2132	0.003	0.018
199	2136	0.003	0.036
209	1849	0.003	0.009
209	1850	0.003	0.011
209	1851	0.003	0.014
213	1855	0.003	0.075
214	1860	0.003	0.019
215	1861	0.003	0.015
218	1868	0.003	0.006
219	1896	0.003	0.005


 Divisional Forest Officer
 Angul, Division


 Commandant


 Forest Officer
 Angul Division


 Authorized Signatory
 S. K. PATEL
 Executive Director, P&T
 Proj. J & Technical Department
 National Bureau of Aquaculture
 (Bhubaneswar-751001)


 Forest Range Officer
 Chhambhuda Range

Sl No	MPT No	SAFETYZONE AREA BY HA.	
		FOREST AREA	NON-FOREST AREA
220	2607	0.000	0.005
221	2608	0.000	0.005
222	2618	0.000	0.005
228	2620	0.000	0.000
228	2621	0.000	0.000
230	2626	0.000	0.000
234	2627	0.000	0.000
234	2628	0.000	0.000
235	2629	0.000	0.000
237	2636	0.000	0.014
238	2638	0.000	0.006
240	2660	0.000	0.000
241	2663	0.000	0.000
242	2675	0.000	0.000
243	2676	0.000	0.000
244	2677	0.000	0.000
245	2678	0.000	0.000
246	2681	0.000	0.000
247	2682	0.000	0.000
248	2683	0.000	0.000
249	2690	0.000	0.000
250	2691	0.000	0.000
251	2692	0.000	0.000
254	2696	0.000	0.000
255	2699	0.000	0.000
TOTAL		1.712	2.446
GRAND TOTAL		3.948	38.800


Authorized Signatory
 Executive Director (P&T)
 Policy & Technical Department
 National Forestry Corporation of
 Sri Lanka (NFC)


 Forest Range Officer
 Channipada Range


 Asst. Conservator of Forests
 Angul Division


 Forest Range Officer
 Channipada Range


 Divisional Forest Officer
 Angul Division

UNDERTAKING

XIII 8

ANNEXURE-A-XV

MoEF & CC File No 5-07/2020-FC dtl. 12.03.2021

Condition No. A (15)

Safety Zone Management: Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry's guidelines:

- (i) User agency shall ensure demarcation of safety zone (7.5 meter strip all along the inner boundary of the mining lease area), and its fencing & protection and regeneration by creating adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the State Forest Department;
- (ii) Boundary of the safety zone of the mining lease, adjacent to habitation/roads, should be properly fenced by the user agency;
- (iii) Safety zone shall be maintained as green belt around mining lease and to ensure dense canopy in the area, regeneration shall be taken up in this area by the user agency at project cost under the supervision of the State Forest Department; and
- (iv) The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms.

Compliance to Condition No. A (15)

In compliance to this condition an scheme has been approved by RCCF Angul with total financial outlay of Rs 18,89,382/- (Copy of the approved scheme enclosed). NALCO do hereby undertake to implement the approved scheme for Safety Zone Management at the project cost.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division


S. N. PATEL
Executive Director (PAT),
Forest & Technical Department,
National Aluminium Company Ltd
B-1, Corporate Office

Authorized Signatory

नेशनल एल्यूमिनियम कंपनी लिमिटेड
(नाम नालको का (अम)
नियम कर्पोरेट

National Aluminium Company Limited

IN Government of India Enterprise
CORPORATE OFFICE

पता: नालको, बhubaneswar, गुजरात-751 001, भारत

NALCO Bhubaneswar, Odisha, INDIA

फोन: फोन: (0674) 250000, फोन: (0674) 250001, 250002, 250003, 250004, 250005, 250006, 250007

ईमेल: (0674) 2501790, 2501791, 2501792, 2501793 & 2501794

वेबसाइट: www.nalco.co.in

नालको NALCO

UNDERTAKING

ANNEXURE-A ^{XIV}~~XIII~~

MeEF & CC File No.8-47/2020-FC dtl, 13.03.2021

Condition No. A (16)

The cost of felling of trees shall be deposited by the Host Agency with the State Forest Department;

Compliance to Condition No. A (16)

In compliance to this condition NALCO do hereby undertake that the cost of felling of trees shall be deposited by NALCO as per the demand raised and received from the State Forest Department.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division


Authorized Signatory

S. K. PATEL
Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd
Bhubaneswar-751031

नेशनल एल्युमिनियम कंपनी लिमिटेड

(एनएलसी लिमिटेड)

विद्युत विभाग

नेशनल एल्युमिनियम कंपनी लिमिटेड, नया दिल्ली, मुंबई-400 001, भारत

एनएलसी लिमिटेड, नया दिल्ली, मुंबई-400 001, भारत

Corporate Fax: (91) 011-2611292, 2606928, 2606929, 2606930 & 2606931

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

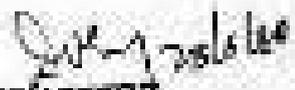
NALCO Bhadrak, Bhubaneswar, Orissa-751031, India

Website: www.nalco.com

CERTIFICATE

1. It is certified that, the complete process for diversion and settlement of rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 has been carried out for the entire forest area of 69,179 Hectars proposed for diversion for Uthul & Coal Mines Project, Nales Angul. The concerned record of all consultations and meetings held are annexed.
2. It is certified that, the proposals for such diversion have been placed before each of the Gram Sabhas of forest dwellers who are eligible under the Forest Rights Act. Details of projects and its implications have been explained to them in vernacular/local language.
3. It is certified that, discussions and decisions on such proposals had taken place only when there was a quorum of minimum 50% of members of Gram Sabhas present.
4. It is certified that, the rights of primitive tribal groups and pre-agricultural communities have been specifically safeguarded as per Section 5 (1) (c) of the Forest Rights Act.
5. It is certified that, the diversion of forest land for facilities managed by Government as required under section 3(2) of the Forest Rights Act (if any) have been completed and that the Gramsabhas have consented to it.


 Ashutosh Kumar
ASUL


COLLECTOR
ANGUL


 Director
 Directorate of Forests
 Government of Odisha
 Bhubaneswar


 Director
ANGUL DIVISION

201111 12/21/11

ANNEXURE XVIII

OFFICE OF THE DISTRICT MAGISTRATE & COLLECTOR, ANAPUR

349

NO. 228/ANAPUR. 20/6/10

From: Sr. District Officer, Anapur
District Welfare Officer, Anapur

To: The General Manager,
M.G. & L. Railway,
Anapur

Handwritten signature and date: 26/12/10

Subject: (Provision of English text for non-English speaking students) The District Welfare Officer, Anapur, is enclosing compliance of the Sr. District Officer, Anapur, to the District Welfare Officer, Anapur, dated 20/6/10.

Date: 26/12/2010

Sr.

With reference to the subject and letter cited above, I am pleased to forward to the English text of the Regulation of Government of Madhya Pradesh and Chhattisgarh, 1956 under Child Welfare Department with the certificate duly signed by the District Welfare Officer, Anapur, and District Chairman, District Council Committee, under provision of Section 18 of the M.G. & L. Railway (Additional) Act, 1956, Government of Madhya Pradesh, for your information and necessary action.

Yours faithfully,
Handwritten signature
District Welfare Officer,
Anapur

PROCEEDINGS OF THE DISTRICT LEVEL COMMITTEE MEETING ON SCHEDULED TRIBES AND OTHER TRADITIONAL FOREST DWELLERS (RECOGNITION OF FOREST RIGHTS) ACT, 2006 & RULES, 2007 HELD ON 27.05.2010 AT 9.30 P.M. IN ZILLA PANCHSAD CONFERENCE HALL, ANGUL.

The meeting was presided over by Sri D.V. Sawans, I.A.S., District Magistrate & Collector, Angul.

The members present in the meeting are as follows:-

- 1. Sri. Dubey, District D.A. Secy. ADM, Angul
- 2. S.S. Mishra, D.P.S. (S&B), D.P.O. (T), Angul
- 3. S.K. Jena, D.P.O. Athmalak
- 4. L.A. Tripathy, C.A. S-1 (I), Sub-Collector, Athmalak
- 5. S. Panda, C.A. S-1 (V), Sub-Collector, Angul
- 6. B.C. Pradhan, TMS-1 (T), Sub-Collector, Polasara
- 7. H.C. Mishra, OAS-I (A) Sr. District Officer, Tahleer
- 8. A. Nayak, Zilla Panchayat Member, Athmalak
- 9. D. Nayak, Zilla Panchayat Member, Polasara

The Collector welcomed all the members present in the meeting and expressed them regarding final approval of the claims and records of Forest Rights prepared by the Sub-Divisional level Committee, Angul.

Agenda-1. Diversion of forest land for non-forest purposes under the Forest Conservation Act, 1980 with relation to ST & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006.

The D.W.O, Angul informed the Committee that, as per decision taken in last District level Forest Day (or) Committee Meeting held on 28.12.2009, the following proposals received from different corporations for diversion of forest land were placed in the RFI-C Meeting & approved and as per Government's sanction, there is no land belonging to ST people are coming under the forest land, applied by the Corporations.

Contd. 2

Sr. No.	Name of the contractor	Name of the G.P.s	Name of the Village	Area Acq. Hrs
1	Jindal Steel & Power Company Ltd., Angul	Balasore	Chilasan	Ac. 6.33
			Chakrapala	Ac. 43.28
			Khandasahi	Ac. 6.97
			Kanara	Ac. 16.78
			Wajpathar	Ac. 4.22
			Paranga	Ac. 0.21
			Kokhara	Ac. 3.21
	Total	Ac. 80.33 or 12,120 Hrs		
2	Utkal & Coal Mines Project, Bina, Angul	Banspada	Manikchak	101,000 Hrs
			Handyhan, Urahi	47,300 Hrs
			-13- Road Road	0.39 Hrs
			Godwinpur, Jungle	18,715 Hrs
			Total	167,115 Hrs
3	Mantri Power Company Ltd., Angul	Nafra	Manikchak	Ac. 45.73

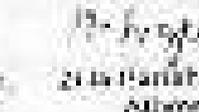
After careful consideration, it was decided that, in accordance to D.O.No. 17500 dt. 24.10.2009, of Civil Engineer & Chief Dev. Commissioner, Cuttack, Odisha, the facilities for clearance of forest land for project purposes shall be issued in favour of above mentioned companies by the Collector & Chairman, District Level Committee, Angul.

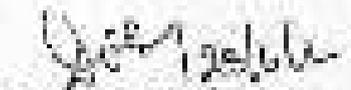
The D.M.O. Angul was requested to prepare the Certificate accordingly.

(Action- D.M.O. Angul)

The meeting ended with vote of thanks to the Chair.

 A.C.M. Angul
  D.P.D. Angul
  D.F.O. Athmalik,
  Sub-Collector,
  Sub-Collector,
 Angul

 Sub-Collector,
  Sub-Collector,
  District Forest Officer,
  District Forest Officer,
  District Forest Officer,
 Athmalik


 Collector, Angul
COLLECTOR
ANGUL.

Case No. 4/2010

PROCEEDING OF THE SUB-DIVISIONAL LEVEL COMMITTEE
 ANGUL HELD ON DT. 16.04.2010 AT 9 A.M IN THE OFFICE
CHAMBER OF THE SUB-COLLECTOR, ANGUL.

The members of the Sub-Divisional Level Committee meeting on dt. 16.04.10 at 9 AM in the Chamber of the Sub-Collector, Angul. The committee considered the proposal submitted by the village panchayat on dt. 13.3.2010 regarding Land of Bhabhi Jagannath Prasad for enclosure and reservation of rights of landless poor, Dalit and Scheduled Caste under the Abolition of Feudal and Feudal Privileges (Rights) Act, 1952.

A - Prof. Bhabhi Prasad, (P.O. Bhabhinagar, Bhabhinagar, Jagannath Prasad) chairman and secretary in light of Section 10 of the Act and Section 10 of the Abolition of Feudal and Feudal Privileges (Rights) Act, 1952.

Chairman of the Sub-Divisional Level Committee is present on dt. 16.04.2010. In the absence of the Sub-Collector, Angul, the meeting was held in the presence of the District Inspector (Land Revenue) and the District Inspector (Revenue) who were present.

Name of the village	Khasra No.	Plot No./Area	Extent of land in hectares	Remarks
<u>Bhabhinagar</u>	<u>219, 21</u>	<u>10000, 10000</u>	<u>101.8000</u>	Same of the land is about 10000 square meters
<u>(Bhabhinagar)</u>	<u>152</u>	<u>300, 300</u>	<u>0.03.200</u>	
<u>(Bhabhinagar)</u>	<u>210</u>	<u>300, 300</u>	<u>0.03.200</u>	
		<u>100, 100, 100,</u>	<u>0.03.300</u>	
		<u>100, 100, 100,</u>	<u>0.03.300</u>	
		<u>100, 100, 100,</u>	<u>0.03.300</u>	

Also, in pursuance of the provisions of the Act, the District Inspector (Land Revenue) of the District of Angul and the District Inspector (Revenue) of the District of Angul have classified the proposals of the village panchayat for enclosure and reservation of rights of landless poor, Dalit and Scheduled Caste under the Abolition of Feudal and Feudal Privileges (Rights) Act, 1952.

In view of the provisions of the Act, the District Inspector (Land Revenue) of the District of Angul is directed to issue the necessary orders for the enclosure and reservation of rights of landless poor, Dalit and Scheduled Caste under the Abolition of Feudal and Feudal Privileges (Rights) Act, 1952.

(Signature) Secretary

(Signature)
 District Inspector (Land Revenue)
 Angul

(Signature)
 District Inspector (Revenue)
 Angul

(Signature)
 Sub-Collector,
 Angul

(Signature)
 Member

(Signature)
 Member

(Signature)
 Member

CERTIFICATE

1. It is certified that, the complete process for diversion and settlement of rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 has been carried out for the entire forest area of 159.1799 Hectares proposed for diversion for Udaipur Coal Mines Project, Nalen Angul. The concerned record of all consultations and meetings held are annexed.

2. It is certified that, the proposals for such diversion have been placed before each of the Gram Sabhas of forest dwellers who are eligible under the Forest Rights Act. Details of projects and its implications have been explained to them in vernacular / local language.

3. It is certified that, discussions and decisions on such proposals had taken place only when there was a quorum of minimum 50% of members of Gram Sabha present.

4. It is certified that, the rights of primitive tribal groups and semi-agricultural communities have been specifically safeguarded as per Section 3(1)(iv) of the Forest Rights Act.

5. It is certified that, the conversion of forest land for facilities managed by Government, as required under section 10(1) of the Forest Rights act (if any) have been completed and that the Gram Sabhas have consented to it.


Subot Kumar
ANGUL


COLLECTOR
ANGUL

**PROCEEDING OF THE MEETING HELD FOR PALLIYANTRA OF NANDECHHOD
VILLAGE HELD AT NANDECHHODS PRIMARY SCHOOL ON 15.12.2016.**

The meeting of the Palliyantras of the village of Nandechhods was held on the 15th day of December 2016 at the primary school of Nandechhods.

The agenda items for the meeting were discussed in the presence of the Palliyantras. The meeting was presided over by the Palliyantra of the village. The meeting was held in the presence of the Palliyantras of the village and the members of the village. The meeting was held in the presence of the Palliyantras of the village and the members of the village.

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After discussion, all the Palliyantras agreed to the purpose of the meeting. After discussion, all the Palliyantras agreed to the purpose of the meeting. After discussion, all the Palliyantras agreed to the purpose of the meeting. After discussion, all the Palliyantras agreed to the purpose of the meeting.

The meeting ended with some of the Palliyantras of the village present.

Sd/-
Nandechhods
Ward Member, Nandechhods

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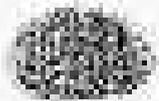
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⑫ **वर्षा ऋतु**
 वर्षा ऋतु में जल की मात्रा अधिक होती है।
 इस कारण पौधों को पानी की आवश्यकता कम होती है।

⑬ **शरद ऋतु**
 शरद ऋतु में जल की मात्रा मध्यम होती है।
 इस कारण पौधों को पानी की आवश्यकता मध्यम होती है।

⑭ **ग्रीष्म ऋतु**
 ग्रीष्म ऋतु में जल की मात्रा कम होती है।
 इस कारण पौधों को पानी की आवश्यकता अधिक होती है।

⑮ **वसन्त ऋतु**
 वसन्त ऋतु में जल की मात्रा मध्यम होती है।
 इस कारण पौधों को पानी की आवश्यकता मध्यम होती है।

⑯ **पौधों की आवश्यकता**
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⑱ **पौधों की आवश्यकता**
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⑲ **पौधों की आवश्यकता**
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 जल की मात्रा अधिक होने पर पौधों को पानी की आवश्यकता कम होती है।

UNDERTAKING

ANNEXURE-B-1

MisFF & CC File No. B-072020/FC dttd. 12.03.2011

Condition No. B (1)

Legal status of the diverted forest land shall remain unchanged;

Compliance to Condition No. B (1)

In compliance to this condition NALCO undertake that the Legal Status of the forest land shall remain unchanged.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division

Authorized Signatory

G. K. PATEL
Executive Director (P&T) I
Process & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751051

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(एकता व्यवस्था का उद्यम)
विशेष कार्यालय

नालको भवन, बजारवाली, भुवनेश्वर - 751051, भारत

फोन: फ़ोन (भुवनेश्वर) (दूरभाष) 2201282, 2201283, 2206010, 2206011, 2206012, 2206013, 2206014, 2206015, 2206016, 2206017

फ़ैक्स: फ़ैक्स (भुवनेश्वर) 2201288, 2206018, 2206019, 2206020 & 2206021

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BHUBANWAR, Nayapalli, Bhubaneswar-751051, INDIA

वेबसाइट: www.nalcoindia.com

UNDERTAKING

ANNEXURE- B-II

MinF & CC File No. E-07/2826-FC dtd. 12.03.2011

Condition No. B(3)

At the time of payment of the Net Present Value (NPV) at the present rate, the user agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;

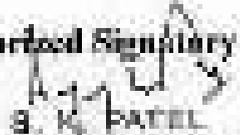
Compliance to Condition No. B(3)

In compliance to this condition, NALCO undertake to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division

Authorized Signatory

S. K. PATEL
Principal Engineer (PST)-I
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751005

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(एक सरकारी उद्योग)
प्रमुख कार्यालय

राजकीय भवन, नारायणपुरी, बhubaneswar-751 005, भारत

फोन नम्बर (भारत) 2281288, 2281289, 2282075, 2282076, 2282077, 2282078

फैक्स नम्बर (भारत) 2281286, 2281287, 2282748, 2282749 & 2282086

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

NALCO Bldg, Nayapalli, Bhubaneswar-751 005, India

वेबसाइट: <http://www.nalco.co.in>

UNDERTAKING

ANNEXURE- B-11

MaEP & CC File No. 8-07/2020-FC dttd. 12.03.2021

Condition No. B(4)

Trees should be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of DFO, Angul;

Compliance to Condition No. B(4)

In compliance to this condition, Nalco do hereby undertake that tree felling shall be done in phased manner as per the requirement in the approved Mining Plan with prior permission of DFO, Angul.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division

Authorized Signatory

Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751001

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(एनएलसी लिमिटेड का हिस्सा)
निगम कार्यालय

नालको कार्यालय, जवाहरलाल नेहरू नगर-751 001, भुवनेश्वर

फोन: Phone: (EPABX) (भुवनेश्वर) 2301828, 2301829, 2302813, 2302814, 2301830, 2301271

फैक्स: Fax: (भुवनेश्वर) 2302828, 2302829, 2302843 & 2302845

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

NALCO BHMARH, Khandagiri, Bhubaneswar-751 001, INDIA

वेबसाइट: Website: www.nalcoindia.com

UNDERTAKING

ANNEXURE- B/V

MinE & CC File No. 3-67/2020-FC dtd. 12.03.2021

Condition No. B (5)

The user agency shall explore the possibility of translocation of maximum number of trees identified to be felled and shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department.

Compliance to Condition No. B (5)

In compliance to this condition, Nalco do hereby undertake that all possibility shall be explored for translocation of maximum number of trees identified to be felled and any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department.

Place: Bhutanagar

Date:


Divisional Forest Officer
Legal Division

Authorized Signatory

Eminent Director (P&T)-I
Area - 25 Technical Department
National Aluminium Company Ltd.
Bhutanagar-751001

नेशनल एल्युमिनियम कंपनी लिमिटेड
(ए नेशनल एल्युमिनियम कंपनी लिमिटेड)
निवाड कार्यालय

निवाड कार्यालय, निवाडवाडी, भुवनेश्वर-751001, भारत

फोन: भारत (0674) 251001 (भुवनेश्वर) 251002 (भुवनेश्वर) 251003 (भुवनेश्वर) 251004 (भुवनेश्वर) 251005 (भुवनेश्वर) 251006 (भुवनेश्वर) 251007 (भुवनेश्वर)

फैक्स: भारत (0674) 251008 (भुवनेश्वर) 251009 (भुवनेश्वर) 251010 (भुवनेश्वर) 251011 (भुवनेश्वर)

National Aluminium Company Limited

(A Subsidiary of Veda Enterprises)

CORPORATE OFFICE

NALCO BHARAT, Bhutanagar, Bhuvanagar-751 001, INDIA

UNDERTAKING

ANNEXURE-B(v)

MoEF & CC File No. S-07/2020-FC dtd. 13.03.2021

Condition No. B(6)

The User Agency shall undertake mining in a phased manner after taking due care of reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the concern Adtl. Principal Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.

Compliance to Condition No. B (6)

In compliance to this condition, Nalco do hereby undertake that mining shall be done in a phased manner after taking due care of reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by NALCO from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry.

Nalco do hereby further undertake that If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the concern Adtl. Principal Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities are satisfactorily executed.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul, Division


S. K. PATEL
Executive Director F&T
Prop. & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751001

Authorized Signatory

नेशनल एल्युमिनियम कंपनी लिमिटेड
(प्रायतः भारत में स्थित)
निगम कार्यालय

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

पता: नालको, बhubaneswar, गुजरात - 751 001, भारत

NALCO BHUBANWAR, Bhubaneswar, Odisha-751 001, INDIA

वेब साइट: (WWW) (800) 230028 230029 230032 230078 230079 230083 230084

फोन नं.: (800) 230029, 230030, 230040, 230044 & 230045

वेबसाइट: www.nalcoindia.com

UNDERTAKING

ANNEXURE - B (vi)

MoEF & CC File No. 8-07/2020-FC dttd. 12.03.2021

Condition No. B (7)

The User Agency shall comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner;

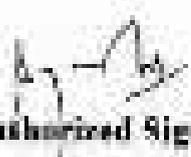
Compliance to Condition No. B (7)

In compliance to this condition, Nalco do hereby undertake that NALCO shall comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner;

Place: Bhubaneswar

Date:


Divisional Forest Officer
Range Division


Authorized Signatory

S. K. PATEL
Executive Director (P&T)-I
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751005

नेशनल एल्युमिनियम कंपनी लिमिटेड
(नाल कॉर्पोरेशन ऑफ इंडिया)
निगम कार्यालय

नालको भवन, बाराबासी, भुवनेश्वर- 751 005, ओडिशा

फोन नं.: 0674-2381288, 2380895, 2380718, 2380840 & 2380244

फैक्स नं.: 0674-2381288, 2380895, 2380718, 2380840 & 2380244

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BHAVAN, Barabasi, Bhubaneswar- 751 005, INDIA

फोन नं.: 0674-2381288, 2380895, 2380718, 2380840 & 2380244

फैक्स नं.: 0674-2381288, 2380895, 2380718, 2380840 & 2380244

UNDERTAKING

ANNEXURE- B(VII)

MoEF & CC File No. 8-07/2010-FC dtd. 12.03.2021

Condition No. B (8)

Talcher coalfield area is one of the largest in the country. Already a large number of operational leases/coal blocks, and many other allocations/approvals are underway in the area. Their cumulative effect on the overall forest and wildlife cover in the area could be significant. Further, overall increase in ambient air temperature and forest-fire susceptibility in coal mining areas has been generally observed around the world. Such cumulative impact could be better reduced/mitigated if synergistic actions is taken by different coal block operators. Therefore, a multidisciplinary committee may be formed by the Ministry to make a visit to the Talcher coalfield area and suggest integrated action on infrastructure and mining development in forest and wildlife friendly manner. The committee may also suggest site specific mitigation measures. The Visit of the committee shall be facilitated by the State Government. The Committee shall submit its report in next two months. It is clarified that submission of the report by the committee shall not be a pre-condition for compliance of the in-principle approval of the instant proposal. However the User Agency shall give an undertaking that any specific condition/measure suggested by the committee for the instant proposal, and approved by this Ministry, shall be complied by them during the course of the lease operation.

Compliance to Condition No. B (8)

In compliance to this condition, Nalco do hereby undertake that any specific condition/measure suggested by the committee for the instant proposal, and approved by this Ministry, shall be complied during the course of the lease operation.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul, Division

S. K. PATEL
Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751031


Authorized Signatory

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(भारत सरकार का उद्योग)
निवेश कार्यालय

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

पंजीकृत कार्यालय, पचासवाली, बृजनीकनर-751031, भारत
Toll Free: (800) 800 0000 (भारत) 0674268, 2200888, 2200813, 2200815, 2201940, 2201265
फैक्स नं. (800) 800 0000 (भारत) 0674268, 2200848, 2200849 & 2200850

HALDIGHAN, Nayabada, Bhubaneswar-751031, India
फैक्स नं. भारत: 0674268, 2200848, 2200849 & 2200850
ईमेल नं. भारत: info@nalco.com

UNDERTAKING

ANNEXURE- B- 

MoEF & CC File No. 8-07/2020-FC dttd. 12.03.2021

Condition No. B (9)

Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended and Rules framed there-under.

Compliance to Condition No. B (9)

In compliance to this condition, Nalco do hereby undertake that the period of diversion of the said forest land shall be co-terminus with the period of the mining lease granted under the Mines and Minerals (Development & Regulation) Act, 1957 or Rules framed there under.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angal, Division


Authorized Signatory
S. K. PATEL
CORPORATE DIRECTOR (PST)-I
Plant-13, Technical Department
National Aluminium Company Ltd
Bhubaneswar-751001

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(बॉल एंटरप्राइज का उद्योग)
निजम कार्यालय

कालखोरा घाट, बलसोरा, भुवनेश्वर-751 001, भारत
Mtn. Phn: (EPABX) (807) 2201558, 2201559, 2202812, 2202813, 2202814, 2201815, 2201816
E-mail: (807) 2201558, 2201559, 2202812, 2202813 & 2201815

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

NALCO BHARAT, Nayapada, Bhubaneswar-751 001, INDIA
Website: www.nalco.com



GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT AND FORESTS
12/11/2019

Secretary
Ministry of Environment, Forest and Climate Change
New Delhi-110003
India. 11/11/2019
Date of Receipt: 12/11/2019

Mr. J. K. Singh
Group Director, Mangrove Cell
M/s. National Aquaculture Company Ltd. (NACLCO)
NACLCO Baramba, Hampden
Baramba, Karnataka

MEMORANDUM

1. Mr. J. K. Singh, Group Director, Mangrove Cell, NACLCO, Baramba, Karnataka, has submitted a request for the release of 10000 sqm of land for the purpose of setting up a mangrove plantation in the area of Baramba, Karnataka.

2. The request is being placed on file for the attention of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, for the purpose of releasing the land for the purpose of setting up a mangrove plantation in the area of Baramba, Karnataka.

3. The request is being placed on file for the attention of the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi, for the purpose of releasing the land for the purpose of setting up a mangrove plantation in the area of Baramba, Karnataka.

[Signature]
Secretary

- 1. Secretary, Ministry of Land, Urban Affairs, New Delhi.
- 2. Project, Project Director, NACLCO, Baramba, Karnataka, New Delhi.
- 3. Member, Department of Environment & Forests, Government of Karnataka, Bangalore.

[Signature]
FOR SECRETARY
12/11/2019

[Signature]
Secretary
Ministry of Environment, Forest and Climate Change
New Delhi-110003
India

1. The Ministry of Environment & Forests hereby issues a development licence for the above-mentioned Mining Operation Coal Project of MTA National Aluminium Company Ltd. for production of coal at 3 MTPA (with capacity including a total coal stock of 700,000 tons) in order to promote the growth of the environmental impact assessment, MTA and other related industries in the coal sector. The licence shall be issued in compliance with the conditions mentioned below.

2. The Ministry of Environment & Forests hereby issues a development licence for the above-mentioned Mining Operation Coal Project of MTA National Aluminium Company Ltd. for production of coal at 3 MTPA (with capacity including a total coal stock of 700,000 tons) in order to promote the growth of the environmental impact assessment, MTA and other related industries in the coal sector. The licence shall be issued in compliance with the conditions mentioned below.

A. Specific Conditions

- 1) Mining shall not be carried out in hazardous and non-forestry designated regions.
- 2) Topsoil shall be stored properly with proper slope of maximum angle (from horizontal) of 1:2. The soil shall not be kept active and shall be used within a year of production for reclamation and development of green belt.
- 3) Coal shall be stored in the two specified reserved COA (depth of minimum of 10000 ha and 11575 ha each) and shall not exceed a maximum height of 8M. The ultimate slope of the dump shall not exceed 30°. The location of the dump shall be determined taking into account the aspects of economic importance, monitoring and management of existing ecological disruption, soil, vegetation and the water bodies located in the vicinity. Compliance status shall be indicated in the Ministry of Environment & Forests and its Regional office located at Chhokanbarua in Assam.
- 4) The proponent shall obtain prior approval of the Food & Drug Administration of India for the design and MTA for direction in two (two) cases. Drinking water for the coalfields shall be taken from the existing water supply system. The water supply system shall be located based on the ground level of the water supply system. The MTA shall be enclosed with plantation.
- 5) An integrated plan for Coal Transportation (including envelope) for a total length of 2.8 km (including distance to the water body) shall be prepared by proponent in consultation with the neighbouring states and the state government. Approval shall be obtained from the concerned state government and the Indian Council of Agricultural Research.
- 6) Coal dumps and other open pits of 10000 ha shall be constructed in such a way that the maximum height (from top) and volume of dump shall be such that the water table shall not be affected by causing the maximum water table to rise above the ground level. The dump shall be regularly checked and maintained.



MTA
MTA
 General Manager, Coal Project
 Mining & Metallurgical Engineering
 National Aluminium Company Ltd.
 Assam

- (b) No course or the calendar plan including quantity of material used and methods used for use.
- (c) Final analysis of quality monitoring methods shall be recorded in the case name of each lot in the laboratory for monitoring analysis of quality. Analysis of the data shall be checked against the meteorological data, topographical features and characteristics and especially weather reports in consultation with the State Pollution Control Board. Monitoring of heavy metals shall be in accordance with the State Pollution Control Board. Monitoring of heavy metals shall be in accordance with the State Pollution Control Board. Monitoring of heavy metals shall be in accordance with the State Pollution Control Board.
- (d) Data on analysis of quality and heavy metals shall be recorded in the case name of each lot in the laboratory for monitoring analysis of quality. Analysis of the data shall be checked against the meteorological data, topographical features and characteristics and especially weather reports in consultation with the State Pollution Control Board. Monitoring of heavy metals shall be in accordance with the State Pollution Control Board. Monitoring of heavy metals shall be in accordance with the State Pollution Control Board.
- (e) Adequate provisions shall be taken for control of noise levels below 85 dB in the work environment, measures required by blasting and drilling operations, operation of HBM, etc. shall be provided when applicable.
- (f) Industrial ventilation, dusting and wetting from the mine shall be properly maintained and treated so as to conform to the standards including for heavy metals before discharge prescribed under GCR 420 (2) dated 15th May 1982 and 11th November 1982 or as amended from time to time. All dust shall stop flow or be treated before discharge of working effluents.
- (g) Waterline systems shall be kept under control and regularly maintained. Waterline used for transportation of the mineral shall be covered with vegetation and regularly treated.
- (h) Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data get analyzed through a laboratory recognized under CP Rules, 1984.
- (i) Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.
Occupational health surveillance programme of the workers shall be conducted periodically to detect any conditions due to exposure to dust and to take suitable remedial measures, if any.
- (j) All operations involving handling of materials shall be carried out in a manner that shall be suitable for the control of a dusts. Workers who will report directly to the head of the company.
- (k) The areas occupied by environmental protection measures shall be kept in good maintenance and shall not be allowed for other purposes. Any other operations shall be reported to the Director and its Regional Office in the concerned area.
- (l) The State Pollution Control Board shall be notified immediately with the details of the activities carried out for the purpose of the project. The details of the activities shall be reported to the State Pollution Control Board and a copy of the details shall be submitted with the State Pollution Control Board and may also be used as the reference in the case of any violation of the provisions of the Act and Rules thereunder.

Signature
 Director
 State Pollution Control Board
 Government of Karnataka
 Bangalore

1001 A copy of the environmental clearance letter shall be prepared in accordance with the provisions of the Environmental Protection Act, 1986 and the Environmental Protection (Control of Pollution) Act, 1986 and shall be submitted to the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi, for its approval.

1002 A copy of the clearance letter shall be displayed on the website of the company and also on the website of the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.

1003 The details of the letter shall be updated on the company's website. The compliance status of the stipulated EC conditions shall also be updated on the website. The details of the compliance shall also be updated on the website of the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi. The monitoring data of water quality, air quality, noise, vibration, etc. shall also be updated on the website of the company and also on the website of the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.

1004 The project proponent shall submit a quarterly report on the status of compliance of the stipulated environmental conditions to the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.

1005 The Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi shall monitor the compliance of the stipulated conditions. The Project proponent shall also submit a copy of the compliance report to the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.

1006 The environmental statement for each financial year ending 31st March in every year shall be submitted to the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi. The statement shall also be updated on the company's website along with the status of compliance of EC conditions and shall be open to the inspection of the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.

1007 The Ministry of Environment and Forests, Government of India, New Delhi shall monitor the compliance of the stipulated conditions.

1008 The project proponent shall also submit a copy of the compliance report to the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.

1009 The project proponent shall also submit a copy of the compliance report to the Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.

[Signature]
Regional Officer
New Delhi

- Copy to:
1. Ministry of Environment and Forests, Government of India, New Delhi.
 2. Regional Office of the Ministry of Environment and Forests, Government of India, New Delhi.
 3. Project proponent, [Address], New Delhi.

MHA
Ministry of Health and Family Welfare
Government of India
New Delhi

- 1. Ministry, Department of Civil Supplies & Marketing, Government of India, New Delhi, 110 002 India.
- 2. Chief Commissioner of Forests, Regional Office (S2), Ministry of Forests & Wildlife, P.O. No. 11, Chandernagore, District, West Bengal - 751001.
- 3. Regional Chief Conservator of Forests (P2) and Chief Wildlife Warden, Government of Odisha, Bhubaneswar - 751002.
- 4. Chairman, Odisha State In-Panda Council, Forest Division, P.O. No. 11, Chandernagore, Dist. West Bengal - 751001.
- 5. Chairman, Central In-Panda Council, P.O. No. 11, Chandernagore, Dist. West Bengal - 751001.
- 6. Member-Secretary, Central In-Panda Council, Ministry of Forests & Wildlife, Government of India, New Delhi, 110 002 India.
- 7. Member-Secretary, Central In-Panda Council, Ministry of Forests & Wildlife, Government of Odisha, Bhubaneswar - 751002.
- 8. Member-Secretary, Central In-Panda Council, Ministry of Forests & Wildlife, Government of Odisha, Bhubaneswar - 751002.

[Handwritten signature]

[Handwritten signature]

S. K. PATEL
 Project Manager (Conservation)
 Project & Technical Co-ordinator
 Wildlife Institute of India
 Dehra Dun, U.P. 248 001

UNDERTAKING

ANNEXURE - B-IX

M&EF & CC File No. 3-47/2024-FC dtd. 12.03.2021

Condition No. B (16)

The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;

Compliance to Condition No. B (16)

In compliance to this condition, Nalco has obtained the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, vide M&EF & CC Order No. J-11018/JL/2007-LA-II (M) dated 10.12.2009. (Copy enclosed)

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul, Division


Authorized Signatory

S. K. PATEL
Executive Director (F&M)
Eng. & Tech. Deptt.
National Aluminium Company Ltd.
Bhubaneswar-751005

नेशनल अल्युमिनियम कंपनी लिमिटेड
(एनएलसी लिमिटेड)
निगम कार्यालय

बंगलुरु भवन, नया बंगलुरु, पुणे/बंगलुरु - 751 001, भारत

पिन कोड: 751005 (पिन) 222100, 222105, 222111, 222116, 222121, 222126, 222131, 222136

दूरभाष: (पुणे) 222126, 222131, 222136, 222141, 222146 & 222151

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO Bldg. Nayapalli, Bhubaneswar-751 001, INDIA

Website: www.nalcoindia.com

in compliance
with
Condition No. 12 (j) of
Stage-I Forest Clearance Granted
via Letter No.8-07/2020-FC, Dated 12.03.2021
of Govt. of India, Ministry of Environment, Forests & CC,
New Delhi,
for
Division of 156.179 Ha Out of 169.179 Ha of Forest Land
(including Safety Zone)
Within 523.7325F of Ukhal 'E' Coal Mining Lease
of
M/s National Aluminium Company Ltd. (NALCO)
in
Chhendipada Tehsil, Angul Sub-Division in Angul Dist.
Odisha.

MITIGATIVE MEASURES TO MINIMIZE SOIL
EROSION AND CHOKING OF STREAMS

For
Scheme



Annexure-B

XI

ଖଣ୍ଡଗିରି
ଖଣ୍ଡଗିରି
ଖଣ୍ଡଗିରି

MITIGATIVE MEASURES TO MINIMIZE SOIL EROSION AND CHOKING OF STREAMS

1. INTRODUCTION

Coal of high BTU had situated in the Double Coal Mine in District Coal Field to the West of the West of the East Block of the East Block Coal Mine over an area of 4.10 sq km between Latitude 26° 57' 57" N and Longitude 86° 59' 49" E. Administratively it is under the jurisdiction of Chandigarh District. The area is of Revenue Forest and which is required to be directed under Forest Conservation Act 1980. The remaining area 152.0381 Ha is now a forest land and 222.4825 Ha is Private Land.

The area approved for grant of mining lease is 521.7325 Ha. The total forest land is 159.1779 Ha out of which 165.2519 Ha is to be directed for Non Forest mining and 939.4846 Ha shall be used as safety zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only.

The Single Forest division (No. 210) of P.W.D. (1980) was started by MHR & EC vide their letter No. 07/200-DC DILLI dated 20.01.2001 wherein it has been explained as per condition no. 12 (f) for preparation and implementation of a plan containing appropriate mitigative measures to minimize soil erosion and choking of streams.

2. LOCATION

The mining lease area has been covered in the Survey of India top sheet No. 21 D/17M (RT 1-50/50) (2.40 sq km) and special top sheet No. 12 of RT 1-10/50 (10km x 1 km) and also within Angul District of Odisha. The mine spans over an area of 5.10 sq km between Latitude 26° 58' 27" and 26° 58' 58" N and Longitude 86° 59' 49" and 86° 59' 49" E. Administratively it is under the jurisdiction of Chandigarh District. Angul district Mining lease area is approximately 22 km by a block named near

The nearest railway station is Ajitpur on Jaipur-Sambhar railway line of East Coast Railway at a distance of 22 km from mines. This railway line connects Jaipur to Sambhar. The nearest airport is Bikaner located at a distance of 120 km. The NH 100 is in the immediate vicinity of Ajitpur.

LOCATION MAP

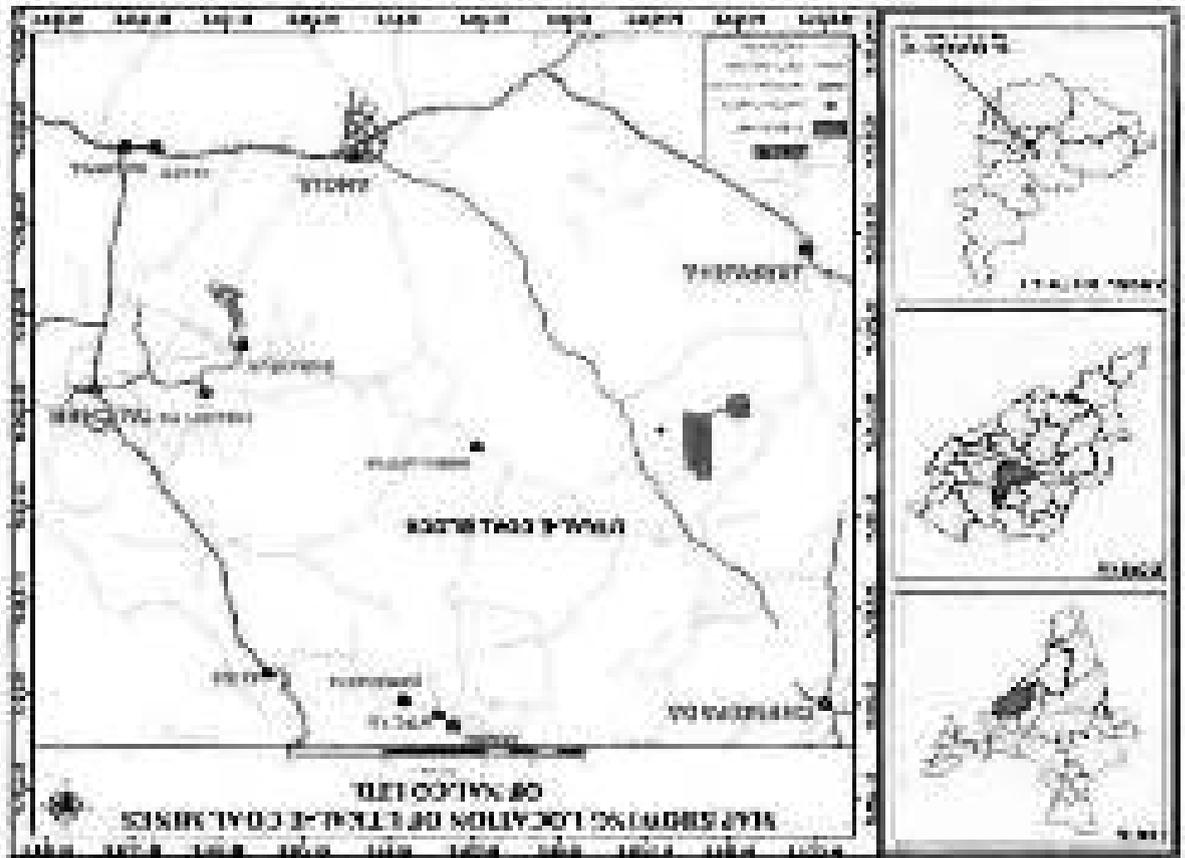


Fig. 1: Location Map of Eastern Coalfields Limited, Rajasthan

Map of the Project

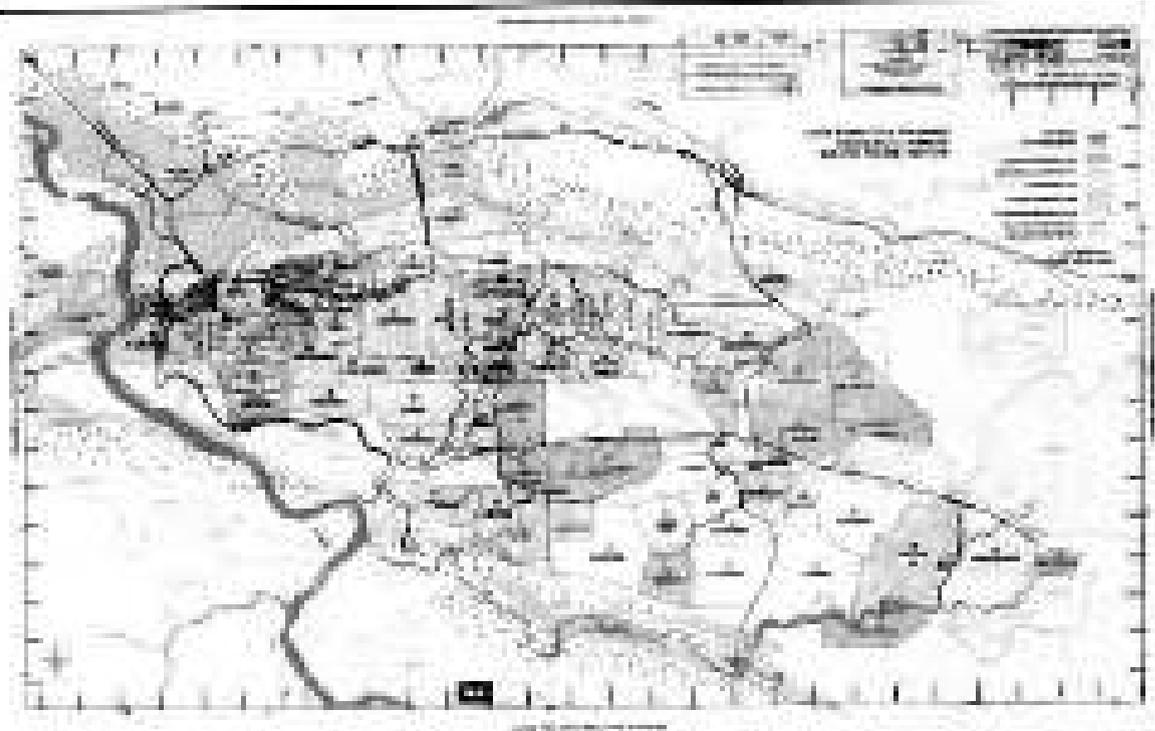


FIG.2: Mining Area Map of E. Coal Block, NALCO

3. TOPOGRAPHY

The Central and Southern part of the Coal Block is generally flat land. Northern part is moderately undulated. Overall ground slope is dipping towards North. Slope that is the main drainage of surrounding area, which is a tributary of Brahmani river. The elevation elevation of the low land is 180 m above sea and lower 150 m.

4. LAND USE PATTERN

Sl. No.	Pattern	Area in (Hec)	
		Village Forest	Non-Forest
1	Mooring	42.1139	161.9186
2	Mooring	101.17	198.113
3	Top Soil Stack	1.87	0
4	Road & Corridor	2.04	3.133
5	Other, H.S. & Other Infrastructures	13	3.248
		Grand Total	398.165

The area proposed for diversion includes estates as detailed below:

9. EXISTING VEGETATION

Vegetation along the river remains a low tree cover during the summer months. Along the northern boundary of the land there occurs the local drainage in an over treatment boundary of the local area provides the main drainage. Higher trees will be found along the eastern boundary to approximately north east direction along the stream.

8. DRAINAGE

The climate of this area is typical with hot and humid summer and mild winter and minimum 10°C during winter. This and continues to middle of winter. Maximum temperature occurs in 4°C during summer. Higher ground during winter season is common. Maximum water in form of rain occurs in the area is typical with hot and humid summer and mild winter.

7. CLIMATE

The soil type occurring in this area is mostly sandy loam having good soil depth with off varying from 6 to 8.

6. SOIL TYPE

The soil type occurring in this area is mostly sandy loam having good soil depth with off varying from 6 to 8. The soil is classified in the Sceptal approval.

Area of land for Safety Zone ... 1000000
 Area of land to be worked for mining and allied purposes ... 1000000

5. DETAILS OF FOREST LAND WITHIN THE LEASE AREA

	Plantation	Forest	Other	Total
1. Safety Zone Area border along the lease boundary	1000	1000	0	2000
2. Safety Zone Area border along the lease boundary	1000	1000	0	2000
3. Safety Zone Area border along the lease boundary	1000	1000	0	2000
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99. Safety Zone Area border along the lease boundary	1000	1000	0	2000
100. Safety Zone Area border along the lease boundary	1000	1000	0	2000

Besides, the height of the over bank dump will be around 50 m. During rainy season there will be heavy de-silt, and eroded soil will come along with run-off water in the garden area, which will be finally deposited in the center pit. Further the runoff water from the coal stock pile and coal mining faces will come along with the eroded soil & coal particles which will choke the stream.

Further, the height of the over bank dump will be around 50 m. During rainy season there will be heavy de-silt, and eroded soil will come along with run-off water in the garden area, which will be finally deposited in the center pit. Further the runoff water from the coal stock pile and coal mining faces will come along with the eroded soil & coal particles which will choke the stream.

Further, the height of the over bank dump will be around 50 m. During rainy season there will be heavy de-silt, and eroded soil will come along with run-off water in the garden area, which will be finally deposited in the center pit. Further the runoff water from the coal stock pile and coal mining faces will come along with the eroded soil & coal particles which will choke the stream.

10. Factors responsible for Soil Erosion and Choking of Streams:

Local Name	BOHICAL NOME	Local Name	BOHICAL NOME
Karun	karun	Karun	karun
Jach Pute	karun	Jach Pute	karun
Chamber	karun	Chamber	karun
Barund	karun	Barund	karun
Jarun	karun	Jarun	karun
Dhal	karun	Dhal	karun
Karun	karun	Karun	karun
Madhum	karun	Madhum	karun
Sims	karun	Sims	karun
Sarun	karun	Sarun	karun
Mang	karun	Mang	karun
Asan	karun	Asan	karun
Sungul	karun	Sungul	karun
Sarun	karun	Sarun	karun
Karun	karun	Karun	karun
Karun	karun	Karun	karun

Sl.	Local Name	Scientific name
1	Amli	Embrya officinalis
2	Kamra	Passiflora foetida

The list of given proposal for plantation is as follows

The cost sheet of Block Plantation has been provided in Annexure-1

It may be also given seed cost.

It will have a series of trenches. So it is proposed to make Block Plantation in all the
 on 1. Canal seed sowing - 20 ha) on the surface of sandy measures. The over burden
 plantation & this work soon broad-cut over an area of 10 hectares plantation - 20
 central blading of the soil due to the soil system. Here, it is proposed to undertake
 than 10, and there is much provision from soil getting further worked by drier and the
 Soil erosion is moderate in this locality since the forest canopy is having density of low

ii) Fertilizer and Green seed sowing

a. Biological measures

MEASURES PROPOSED

mainly in the upper reaches whereas the chemical measures in the lower reaches.
 structural works to prevent erosion of surface soil. The vegetative method is to be adopted
 To achieve the above objective, it has been proposed to take up both biological and

12. PROPOSED METHODOLOGY

erms

- Proper management of overburden materials so as to prevent siltation in the down
- Minimization of obstruction to natural water courses
- Proper management of over burden dump to prevent siltation in the stream
- Prevention of obstruction of discharge of water in the streams
- Prevention of erosion of surface soil
- Measures to minimize soil erosion and siltation of stream
- To fulfil condition no. 15 (i) of article 200 (a) issued by MOEF & CC vide letter no. 8-672026-02 Dt. 13.03.2021 which envisage undertaking mitigative

The objectives of the proposed scheme are as follows -

11. OBJECTIVE OF THE SCHEME

4) Weeding, soil working & manuring: For establishment and better growth of the planted seedlings, weeding, soil working and manuring are necessary. It is provided to carry out two weeding, soil working and manuring during first year and one weeding and soil working during second and third year. During the first year and second year first weeding and manuring shall be carried

shall be provided from Forest Dept's Nursery.

improve. During second year when closely replacement will be done for each seedling. Carefully if any noticed will be replaced with the excess seedling prepared for the final design. All-organic fertilizer should also be applied to each pit while planting. Fertility of the soil condition. After analysis for Nitrogen per plant should be given as nitrogen and should be completed by the end of July. Sprays shall be placed in per spacing of 2.5m x 2.5m. Fertilizer should be taken up after first regular shower of The seedling will be planted in the diagonal pits of size 45 cm x 45 cm x 45 cm with

5) Aerial Fanning

2.5m x 2.5m will be dug maintaining a spacing of 2.5m x 2.5m.

6) Alignment and pinning: Alignment and pinning will be taken up in the month of January. Pins of size 45cm

approximately spaced.

7) Seedlings of so called should be purchased from the Forest Dept. Nursery located at Chhindwara. For this we will estimate 10000, 10000 and 10000 different types of seedlings

8) Procurement of seedlings:

Different operations these will be taken up. The duration are as follows:

1	Year	Preparation site
2	Month	Establishment work
3	Month	Regular weeding
4	Month	Soil working
5	Month	Manuring
6	Month	Regular weeding
7	Month	Manuring
8	Half	Final manuring
9	Year	Close planting
10	Year	Regular weeding

out during August-September and the second one during Sept-October. First weeding shall be an area weeding and the second will be of amp weeding. The weeding of third year will be an area weeding which will be carried out during August - Sept. The weeding and spraying will be done in third year in a row of three and remaining of each plant will be done.

iii) Application of insecticides:

The plantation site after planting should be weeded and any cause of insects which usually eat and damage the tender leaves and stems of the plants. In order to such insects such application of the insecticides will be taken up in regular doses at the time of planting. Spraying of insecticides, if required, shall be done preferably in a sunny day before sunrise.

The schedule of operation for preparation of site, site-planting, planting, post-planting and insecticide treatment:

OPERATIONS- 0th year - 1 st year		PERIOD OF COMPLETION	
i	Advance preparation of site	Nov-December	
ii	Alignment & Spacing of pits	January- February	
iii	Digging of pits	February - March	
iv	Carriage and planting	July - August	
v	Carefully replacement	August	
vi	1 st weeding and weeding treatment	Sept - Sept	
vii	Soil & water conservation measure	September - October	
viii	2 nd weeding and weeding treatment	September - October	
ix	Final site weeding	February - March	
x	Water & Weeding	July to March	

• Post-planting operations in 2nd year:

- i. Carefully replacement.
- ii. 1st weeding, soil weeding & mulching.
- iii. Final site weeding.

The slope of embankment should be within the permissible range considering the things considering the volume of DG material also not considered for dumping. It is prepared in correct form & ratios over a length of 25cm on the prepared

ii) Grading of the dump slope

degrees and length of the slope, reducing runoff and accordingly reducing soil erosion. The objective behind grading embankment structures is to reduce the negative measures. The objective behind grading embankment structures is to reduce the negative measures are adopted. Structural measures, therefore, serve as supplementary to down the erosion. Some structural measures are required to be taken before vegetative graded land reclamation. In these lands, vegetative measures are not adequate to keep them, as the present on land will be increasing, it is necessary to bring over highly. Vegetative means of erosion control are the most feasible and economical measures.

Structural Measures

ii.

Graded over the (Assurance II)

concrete, Kevonogre (iron, Sharda masonry and Concrete structure) will be seen come up mixed with soil during excavation. In such case species like (Heteropogon) over border dump. The over border dump will be seen in the surface and growth may down below. Grass seeds mixed with soil will be seen from over the surface of the of the over border need to be provided to prevent soil erosion and checking of animals. The over border will be subsequently back filled during reclamation. Till then the surface

Various Seed sowing

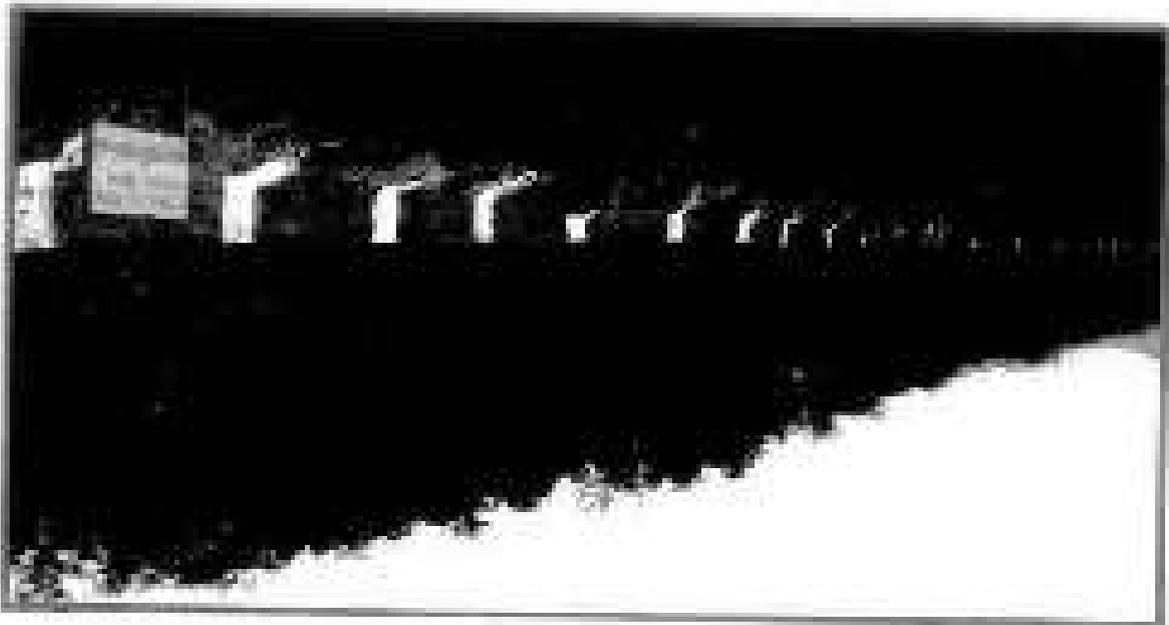
- 1st year to 10th year:
 - a. The first sowing
 - b. Wash & Wind
- 11th year
 - 1. Weeding and watering and application of manure
 - 2. Five line sowing
 - 3. Water & wind
- Throughout the year
 - 1. Feb - March
 - 2. Throughout the year
- Throughout the year
 - 1. Aug- September
 - 2. February - March
 - 3. Throughout the year



A shallow trench 150 m wide x 1.2 m deep will be dug for storage of sand. It is to be located for drying surface water before it is released to the natural water course. Details of proposed trench from 2000 to E. x 200m wide x 1.5m depth shall be concerned during the approved with known as shown in the map. The cost estimate of trench has been provided in Annexure V.

III. Time for Completion of Earthen drain

The estimated time of working will be



(v) Plan for Construction of Settling Tanks

It is a process that involves separation of solid material from slurry. This process is called sedimentation. When waste water is treated, a large quantity of materials is thrown out of the liquid by physical means. First, the water will contain some solids which need to be removed. A settling tank is proposed to be used to prevent the surface water. It has been proposed to construct one settling tank. Details of proposed settling tank is shown in the map. The construction of settling tank has been provided in Attachment - VI

Location

The de-silting works of the settling tank will be taken up in regular intervals to prevent sedimentation and choking of stream. This de-silting of settling tank will provide space and time to hold the sedimentation tank mostly allowing settling and clear water to flow down. The de-silting work will be periodically undertaken once in a year before & after monsoon. The implementation of the plan will be site specific in nature depending upon the severity of the sedimentation and choking of stream.

(vi) Plan for Construction of Check Dam

During monsoon there is heavy runoff of water as a result runoff water from up slope/upper elevation to lower elevation. Hence, provision is to be made to reduce the flow velocity of runoff & settle the silt/sediments from down overhauled channels, head marks inside the intake and area cleared of vegetation. The check dams will be constructed near proposed dump area. Details of proposed Check Dam is furnished below and location of the said silt-trap/structure has been shown in the map. The construction of Check Dam has been provided in Attachment - VII.

For accurate implementation of the above mitigation measures, intensive inspection
 and control guidance from concerned technical wing is required. Sufficient fund
 and resource charges for technical control shall be provided by the host agency for
 proper execution of above programmes. Development of a project cost plan for
 15% of the total project cost has been submitted to the
 Government of Karnataka.

INSPECTION, MONITORING AND EVALUATION

Check Dam to control soil erosion at site (a)



13. ESTIMATING ASSISTANCE

Personnel Management Commission/VALTI/being the user Agency will ensure the support in the Project Cost. To estimate this, the user Agency shall estimate its own resources and capabilities only along with required financial inputs. In order to maintain the quality of the work, in-house supervisory inputs (personnel) shall be provided. The entire work shall be carried out in coordination with the office of DCE, Agra (Form: DCE/01).

14. SPECIALIZED CELL

Name of Executive	Educational Qualification	Present Designation	Experience
T. Parul	B.Tech (MCA)	General Manager (S)	Project Management
J. Mittal	B.Tech (Mech)	Deputy Gen. Manager	Project Management
Dr. A. Hota	B.Tech (Mech), M.Tech	Deputy Gen. Manager (Mech)	First Class Engineer Thermal (Gen)
R. Pruthi	B.Tech (Mech), Diploma (Mech)	Asst. Gen. Manager (Gen)	Electrical Engg.
N.C. Bhatia	B.A.	Gen. Manager (Gen)	HRD, Admin. Engg.
R. Khatia	B.Tech (Mech), M.Tech (Mech)	Manager (Mech)	Senior Engineer
S. K. Saha	Diploma (Gen)	Manager (Gen)	Gen. Engg.
T. C. Jha	B.Tech (Mech)	Deputy Manager (Mech)	Second Class Engineer Thermal (Mech)

15. SETTLEMENT OF FUNDS

The total cost of the implementation of various activities will be Rs. 1133611.00. The above expenditure will be given over the basic plan. Therefore, budgetary provision will be kept accordingly by the user Agency (VALTI).

TABLE VIII - THE BUDGET

Rs. 11,000,000

Sr. No.	Description of the Work	Estimated Amount in Rs.
	Biological Research	5,00,00,000
01	Research in water bodies in the Rs. 25,00,000	5,00,00,000
02	Research in water bodies in the surface of water bodies in the Rs. 25,00,000	1,25,00,000
	General Measures	5,75,21,40,000
03	Cost for collection of 1,00,000 dry tree well ground (approx) 25,00,00,000	25,00,00,000
	Total	8,10,21,40,000
11	Education 20%	1,62,02,80,000
	Total	9,72,24,20,000
12	Inspection, Monitoring and Evaluation 5%	48,61,21,000
	Grand Total	10,20,85,41,000
	of	11,00,00,000

[Figures from Column Twelve Table Thirty Three, Tables and Columns only]

Annual Statement (Company Ltd. (P.L.C.)) do hereby undertake to ensure the firm of work mentioned in this statement is a general manner during the time period of the project.

Authorised Signatory
 S. K. Paul
 Director General
 National Centre for
 Environmental Education
 and Public Awareness
 National Centre for
 Environmental Education
 and Public Awareness
 National Centre for
 Environmental Education
 and Public Awareness
 National Centre for
 Environmental Education
 and Public Awareness

Joint Commissioner of Forests
 Joint Division

Development Director
 Joint Division

National Centre for Environmental Education and Public Awareness

Approved by the Government

MONTHLY MEASURES

Annex - II

Annex - I

Cost Norms for Back Planting of the plants (18 months old seedlings)

Wage rate Rs.11.00/-per day

Sl NO	Type of work	PRELIMINARY (ADVANCE WORK) NEEDED FOR PLANTING			
		1	2	3	4
		Period of work (days)	Labour (Hrs)	Material (Hrs)	Tool (Hrs)

1	Survey (18 months old seedlings) 2000-2005	44	17000	2000	10000
2	Planting & Supervision (18 months old seedlings) 2000-2005	44	17000	2000	10000
	Total	88	34000	4000	20000
	of the total cost				
	Total	88	34000	4000	20000

180 days (Advance work) pre-planting operation

1	Survey, (Preparation and other post-planting)	Now Day	1	400	0	0
2	Site preparation	Now Day	12	3000	0	0
3	Alignment and marking of lines	Now Day	2	600	0	0
4	Digging of pits (100 cm x 100 cm)	Now Day	118	4700	0	0
5	Manure (1000 kg) and other seedling material	Now Day	11100	0	0	0
	Total		133	8700	0	0
	of the total cost					
	Total		252	9100	0	0
7	Planting & Supervision (18 months old seedlings) 2000-2005	Now Day	44	17000	2000	10000
	Total		296	35700	2000	10000
	of the total cost					
	Total		548	45400	2000	10000
	GRAND TOTAL		548	45400	2000	10000

1st Year Planning Form

1	Manually enter 12 months old working balance of 10000-500	Apr-June	12	8842	819.20	7337.20
2	Working for an average of 200 hours @ 50 p/h	July-Aug	10	11818	2000	20718
3	Working for an average of 200 hours @ 50 p/h	Sept-Oct	21	6551	0	6551
4	Working for an average of 200 hours @ 50 p/h	Nov/Dec	0	0	3222	3222
5	Working for an average of 200 hours @ 50 p/h	Jan/Feb	7	2177	0	2177
6	Working for an average of 200 hours @ 50 p/h	Mar/Apr	5	1555	0	1555
7	Working for an average of 200 hours @ 50 p/h	May/June	5	1555	0	1555
8	Working for an average of 200 hours @ 50 p/h	July/Aug	7	2177	0	2177
9	Working for an average of 200 hours @ 50 p/h	Sept/Oct	15	3165	0	3165
10	Working for an average of 200 hours @ 50 p/h	Nov/Dec	3	633	0	633
11	Working for an average of 200 hours @ 50 p/h	Jan/Feb	7	2177	0	2177
12	Working for an average of 200 hours @ 50 p/h	Mar/Apr	126	22206	0	22206

Forest Range Officer
 Christopher R. Rupp

Assistant Signatory
 K. R. Rupp
 Forest Range Officer
 1000 N. 10th Street
 Helena, MT 59601

Commissioner
 Michael R. Rupp
 Forest Range Officer
 1000 N. 10th Street
 Helena, MT 59601

(Rupps Two-Liter Study, Treatment and Fencing Effects only)

Treat	Years	Days	Barber (\$K)	Shelton (\$K)	Manning & Supervision (change % of one year)	Total Cost (\$K)
1999-2000	11	10	1000.00	2500.00	81.00	1472.00
2000-2001	12	10	1000.00	2500.00	400.16	3900.16
2001-2002	13	10	1000.00	2500.00	249.11	3749.11
2002-2003	14	10	1000.00	2500.00	150.00	3550.00
2003-2004	15	10	1000.00	2500.00	0.00	3500.00
2004-2005	16	10	1000.00	2500.00	0.00	3500.00
2005-2006	17	10	1000.00	2500.00	0.00	3500.00
2006-2007	18	10	1000.00	2500.00	0.00	3500.00
2007-2008	19	10	1000.00	2500.00	0.00	3500.00
2008-2009	20	10	1000.00	2500.00	0.00	3500.00
2009-2010	21	10	1000.00	2500.00	0.00	3500.00
2010-2011	22	10	1000.00	2500.00	0.00	3500.00
2011-2012	23	10	1000.00	2500.00	0.00	3500.00
2012-2013	24	10	1000.00	2500.00	0.00	3500.00
2013-2014	25	10	1000.00	2500.00	0.00	3500.00
2014-2015	26	10	1000.00	2500.00	0.00	3500.00
2015-2016	27	10	1000.00	2500.00	0.00	3500.00
2016-2017	28	10	1000.00	2500.00	0.00	3500.00
2017-2018	29	10	1000.00	2500.00	0.00	3500.00
2018-2019	30	10	1000.00	2500.00	0.00	3500.00
2019-2020	31	10	1000.00	2500.00	0.00	3500.00
2020-2021	32	10	1000.00	2500.00	0.00	3500.00
2021-2022	33	10	1000.00	2500.00	0.00	3500.00
2022-2023	34	10	1000.00	2500.00	0.00	3500.00
2023-2024	35	10	1000.00	2500.00	0.00	3500.00
2024-2025	36	10	1000.00	2500.00	0.00	3500.00
2025-2026	37	10	1000.00	2500.00	0.00	3500.00
2026-2027	38	10	1000.00	2500.00	0.00	3500.00
2027-2028	39	10	1000.00	2500.00	0.00	3500.00
2028-2029	40	10	1000.00	2500.00	0.00	3500.00
2029-2030	41	10	1000.00	2500.00	0.00	3500.00
2030-2031	42	10	1000.00	2500.00	0.00	3500.00
2031-2032	43	10	1000.00	2500.00	0.00	3500.00
2032-2033	44	10	1000.00	2500.00	0.00	3500.00
2033-2034	45	10	1000.00	2500.00	0.00	3500.00
2034-2035	46	10	1000.00	2500.00	0.00	3500.00
2035-2036	47	10	1000.00	2500.00	0.00	3500.00
2036-2037	48	10	1000.00	2500.00	0.00	3500.00
2037-2038	49	10	1000.00	2500.00	0.00	3500.00
2038-2039	50	10	1000.00	2500.00	0.00	3500.00
2039-2040	51	10	1000.00	2500.00	0.00	3500.00
2040-2041	52	10	1000.00	2500.00	0.00	3500.00
2041-2042	53	10	1000.00	2500.00	0.00	3500.00
2042-2043	54	10	1000.00	2500.00	0.00	3500.00
2043-2044	55	10	1000.00	2500.00	0.00	3500.00
2044-2045	56	10	1000.00	2500.00	0.00	3500.00
2045-2046	57	10	1000.00	2500.00	0.00	3500.00
2046-2047	58	10	1000.00	2500.00	0.00	3500.00
2047-2048	59	10	1000.00	2500.00	0.00	3500.00
2048-2049	60	10	1000.00	2500.00	0.00	3500.00
2049-2050	61	10	1000.00	2500.00	0.00	3500.00
2050-2051	62	10	1000.00	2500.00	0.00	3500.00
2051-2052	63	10	1000.00	2500.00	0.00	3500.00
2052-2053	64	10	1000.00	2500.00	0.00	3500.00
2053-2054	65	10	1000.00	2500.00	0.00	3500.00
2054-2055	66	10	1000.00	2500.00	0.00	3500.00
2055-2056	67	10	1000.00	2500.00	0.00	3500.00
2056-2057	68	10	1000.00	2500.00	0.00	3500.00
2057-2058	69	10	1000.00	2500.00	0.00	3500.00
2058-2059	70	10	1000.00	2500.00	0.00	3500.00
2059-2060	71	10	1000.00	2500.00	0.00	3500.00
2060-2061	72	10	1000.00	2500.00	0.00	3500.00
2061-2062	73	10	1000.00	2500.00	0.00	3500.00
2062-2063	74	10	1000.00	2500.00	0.00	3500.00
2063-2064	75	10	1000.00	2500.00	0.00	3500.00
2064-2065	76	10	1000.00	2500.00	0.00	3500.00
2065-2066	77	10	1000.00	2500.00	0.00	3500.00
2066-2067	78	10	1000.00	2500.00	0.00	3500.00
2067-2068	79	10	1000.00	2500.00	0.00	3500.00
2068-2069	80	10	1000.00	2500.00	0.00	3500.00
2069-2070	81	10	1000.00	2500.00	0.00	3500.00
2070-2071	82	10	1000.00	2500.00	0.00	3500.00
2071-2072	83	10	1000.00	2500.00	0.00	3500.00
2072-2073	84	10	1000.00	2500.00	0.00	3500.00
2073-2074	85	10	1000.00	2500.00	0.00	3500.00
2074-2075	86	10	1000.00	2500.00	0.00	3500.00
2075-2076	87	10	1000.00	2500.00	0.00	3500.00
2076-2077	88	10	1000.00	2500.00	0.00	3500.00
2077-2078	89	10	1000.00	2500.00	0.00	3500.00
2078-2079	90	10	1000.00	2500.00	0.00	3500.00
2079-2080	91	10	1000.00	2500.00	0.00	3500.00
2080-2081	92	10	1000.00	2500.00	0.00	3500.00
2081-2082	93	10	1000.00	2500.00	0.00	3500.00
2082-2083	94	10	1000.00	2500.00	0.00	3500.00
2083-2084	95	10	1000.00	2500.00	0.00	3500.00
2084-2085	96	10	1000.00	2500.00	0.00	3500.00
2085-2086	97	10	1000.00	2500.00	0.00	3500.00
2086-2087	98	10	1000.00	2500.00	0.00	3500.00
2087-2088	99	10	1000.00	2500.00	0.00	3500.00
2088-2089	100	10	1000.00	2500.00	0.00	3500.00
2089-2090	101	10	1000.00	2500.00	0.00	3500.00
2090-2091	102	10	1000.00	2500.00	0.00	3500.00
2091-2092	103	10	1000.00	2500.00	0.00	3500.00
2092-2093	104	10	1000.00	2500.00	0.00	3500.00
2093-2094	105	10	1000.00	2500.00	0.00	3500.00
2094-2095	106	10	1000.00	2500.00	0.00	3500.00
2095-2096	107	10	1000.00	2500.00	0.00	3500.00
2096-2097	108	10	1000.00	2500.00	0.00	3500.00
2097-2098	109	10	1000.00	2500.00	0.00	3500.00
2098-2099	110	10	1000.00	2500.00	0.00	3500.00
2099-2100	111	10	1000.00	2500.00	0.00	3500.00
2100-2101	112	10	1000.00	2500.00	0.00	3500.00
2101-2102	113	10	1000.00	2500.00	0.00	3500.00
2102-2103	114	10	1000.00	2500.00	0.00	3500.00
2103-2104	115	10	1000.00	2500.00	0.00	3500.00
2104-2105	116	10	1000.00	2500.00	0.00	3500.00
2105-2106	117	10	1000.00	2500.00	0.00	3500.00
2106-2107	118	10	1000.00	2500.00	0.00	3500.00
2107-2108	119	10	1000.00	2500.00	0.00	3500.00
2108-2109	120	10	1000.00	2500.00	0.00	3500.00
2109-2110	121	10	1000.00	2500.00	0.00	3500.00
2110-2111	122	10	1000.00	2500.00	0.00	3500.00
2111-2112	123	10	1000.00	2500.00	0.00	3500.00
2112-2113	124	10	1000.00	2500.00	0.00	3500.00
2113-2114	125	10	1000.00	2500.00	0.00	3500.00
2114-2115	126	10	1000.00	2500.00	0.00	3500.00
2115-2116	127	10	1000.00	2500.00	0.00	3500.00
2116-2117	128	10	1000.00	2500.00	0.00	3500.00
2117-2118	129	10	1000.00	2500.00	0.00	3500.00
2118-2119	130	10	1000.00	2500.00	0.00	3500.00
2119-2120	131	10	1000.00	2500.00	0.00	3500.00
2120-2121	132	10	1000.00	2500.00	0.00	3500.00
2121-2122	133	10	1000.00	2500.00	0.00	3500.00
2122-2123	134	10	1000.00	2500.00	0.00	3500.00
2123-2124	135	10	1000.00	2500.00	0.00	3500.00
2124-2125	136	10	1000.00	2500.00	0.00	3500.00
2125-2126	137	10	1000.00	2500.00	0.00	3500.00
2126-2127	138	10	1000.00	2500.00	0.00	3500.00
2127-2128	139	10	1000.00	2500.00	0.00	3500.00
2128-2129	140	10	1000.00	2500.00	0.00	3500.00
2129-2130	141	10	1000.00	2500.00	0.00	3500.00
2130-2131	142	10	1000.00	2500.00	0.00	3500.00
2131-2132	143	10	1000.00	2500.00	0.00	3500.00
2132-2133	144	10	1000.00	2500.00	0.00	3500.00
2133-2134	145	10	1000.00	2500.00	0.00	3500.00
2134-2135	146	10	1000.00	2500.00	0.00	3500.00
2135-2136	147	10	1000.00	2500.00	0.00	3500.00
2136-2137						

Detail Estimate of Excav of base level Boulder with concrete-Seed Forming over the surface of Boulder soil

Sl. No.	Description of Items	No	Length	Width	Height	Qty	Unit	Wage rate by Skill/Day	
								Rate	Amount
1	Earth work to excav soil in gravelly soil within 50 m ² lateral and 1.20 m vertical BM including rough dressing of concrete grade to Minimum 500 mm to 750 mm & laying 150 mm over existing datum in depth and as per the direction of the Engineer-in-charge.	1	1000	0.7	1.2	0.756	100	18000	1350000
2	Filling in foundation soil with sand, gravel and cement	1	1000	1.2	0.075	0.090	500	11000	1650000
3	Concrete concrete M10 (grade: 1:1.5:3) (Foundation) with embedded below grade concrete aggregate of size above designated raised in concrete returns including concrete vigour and supply of all materials, mechanical and labourer including the cost of concrete and structure with required clearance of 10% per direction of Engineer-in-charge.	1	1000	0.6	0.075	0.045	45	32000	1440000
4	M10 (M10) for foundation base; existing strength not less than 75 Kgs/cm ² or 100 Kgs/cm ² because 25 percent increase normal (50) in foundation and shall per cum.	1	1000	0.5	0.3	0.150	150	35000	5250000
5	BK&C WORK for S.S. having ordinary strength not less than 25 Kgs/cm ² with dimensional tolerance +8 percent in current meter (20) in foundation and shall per cum.	1	1000	0.25	1	0.250	250	12000	3000000

6	Concrete for 20' x 20' grade with crushed broken granite base. Aggregate of size 20mm downgraded to 14 below and mixed plant including cost of all materials, machinery and labor and transportation of mixed concrete.	1	1000	1.25	0.1	1250	25	31250	125000
7	Concrete for square 24' x 24' grade with washed broken granite coarse aggregate of size 20mm downgraded to 14 in backing and mixed plant including cost of all materials, machinery and labor and transportation of mixed concrete.	1	1000	0.35	0.225	350	4.75	14000	35000
Total:									124650.0
									124650.0
									124650.0
									124650.0

(Prepare Tenders for Lumps Sum Thousand Nine Hundred Thirty eight Only)

Forest Range Officer
Chitradurga Range

Authorized Signatory

Chief Executive Officer
Forest Range Officer
Chitradurga Range
Forest Department
Chitradurga

Asst. Commissioner of Forests
Chitradurga

Deputy Forest Officer
Chitradurga Range
Forest Department
Chitradurga

UNDERTAKING

ANNEXURE- B-XII

MoEF & CC File No. 8-072020-FC dttd. 12.03.2021

Condition No. B (12.1)

Mitigative measures to minimize soil erosion and choking of streams shall be implemented within a period of three year with effect from the issue of Stage-II clearance in accordance with the approved plan in consultation with the State Forest Department.

Compliance to Condition No. B (12.1)

In compliance to this condition an scheme has been approved by RCCF Angul with total financial outlay of Rs 1,12,31,611/- (Copy of the approved scheme enclosed). NALCO do hereby undertake to take mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three year with effect from the issue of Stage-II clearance in accordance with the approved plan in consultation with the State Forest Department at project cost.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division


Authorized Signatory

S. K. PATEL
Executive Director (P&T) (I)
Plant. I & Technical Department
National Aluminium Company Ltd.
Bhubaneswar 751005

बिनामल एल्युमिनियम कम्पनी लिमिटेड
(बिनामल एल्युमिनियम कम्पनी लिमिटेड)
बिनामल कर्पोरेट

बिनामल एल्युमिनियम कम्पनी लिमिटेड - 751 005, भुवनेश्वर

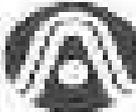
751 005, बिनामल एल्युमिनियम कम्पनी लिमिटेड, बिनामल कर्पोरेट, बिनामल

Phone Nos: 12071 212180, 2300200, 2300174, 2300090 & 2300090

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

NALCO BHAYAN, Nayapada, Bhubaneswar-751 005, INDIA

Website: www.nalcoindia.com

नालको  **NALCO**

**Scheme
For**

**SCHEME FOR PLANTING OF ADEQUATE DROUGHT
HARDY PLANT SPECIES AND SOWING OF SEEDS IN
THE APPROPRIATE AREA WITHING THE MINING
LEASE TO ARREST SOIL EROSION**

In compliance

with

Condition No. 12 (II) of

Stage-I Forest Clearance Granted

Vide Letter No. 8-07/2020-FC, Dated. 12.03.2021

of Govt. of India, Ministry of Environment, Forests & CC.

New Delhi.

for

Diversion of 156.1779 Ha Out of 169.1779 Ha of Forest Land

(including Safety Zone)

Within 523.7325 Ha Ukal 'E' Coal Mining Lease

of

M/S National Aluminium Company Ltd. (NALCO)

In

Chhendipada Tahsil, of Angul Sub-Divn in Angul Dist.

Odisha.

SCHEME FOR PLANTING OF DROUGHT HARDY PLANT SPECIES AND SOWING OF SEEDS WITHIN MINING LEASE TO ARREST SOIL EROSION

1. INTRODUCTION:

Govt. of India of Coal had allotted Utkal-D & Utkal-E Coal Blocks in Talcher Coal field to SAIL, RAILCO vide allotment Order No. F.No. 10324/2015/NA, dated 01.05.2016. The Block is located in the South-Central part of Talcher Coal field in between Utkal-F Coal Block in the West & Utkal-D Coal Block in the East. Utkal-F Coal Mine spans over an area of 4.60 sq.km between Latitude $20^{\circ}56'57''$ to $20^{\circ}58'58''$ North and longitudes $84^{\circ}55'49''$ to $84^{\circ}56'31''$ East. Administratively it is under the jurisdiction of Chhendipada Taluk, Angul district. Utkal-F Coal Mine comprises an area of 321,7525 Ha, out of which 169,1779 Ha. area is of Reserve Forest land which is required to be directed under Forest Conservation Act 1980. The remaining area 152,5746 Ha. is Govt. Non forest land and 222,4965 Ha. is Private Land.

The area approved for grant of mining lease is 321,7525 ha. The total forest land is 169,1779 Ha. out of which 165,2119 ha. to be directed for Non-Forest mining use and 3,946 Ha. shall be used as Safety Zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only.

The Strips-I Forest clearance as 2 (ii) of FC Act 1980 was granted by MoEF & CC vide their letter No.8.07/2020-FC Dt.12th March 2021 wherein it has been stipulated as per condition no. 12 (ii) Planting of adequate drought hardy species and sowing of seeds in the appropriate area of the mining lease to arrest soil erosion.

2. LOCATION

The mining lease area has been covered in the Survey of India topo sheet No.73 D/13 or RP 1:50,000 (2 cm to 1 km) and special top sheet No. L2 on RP 1:10,000 (10cm to 1 km) and falls within Angul District of Odisha. The mine spans over an area of 4.60 sq.km between Latitude $20^{\circ}56'57''$ and $20^{\circ}58'58''$ N and Longitude $84^{\circ}55'49''$ and $84^{\circ}56'31''$ E. Administratively it is under the jurisdiction of Chhendipada Taluk, Angul district. Mining lease area is approachable from Angul crossing a distance of 22 km by a Block operational up to Chhendipada.

The nearest railway station is Angul on Bhubaneswar-Sambalpur railway line of East Coast Railway at a distance of 33 km from Mine. This railway line connects Puri to Sambalpur. The nearest airport is Bhubaneswar at a distance of 130 KM. The Mine area is in Chitrakopada Range of Angul Forest division.

LOCATION MAP

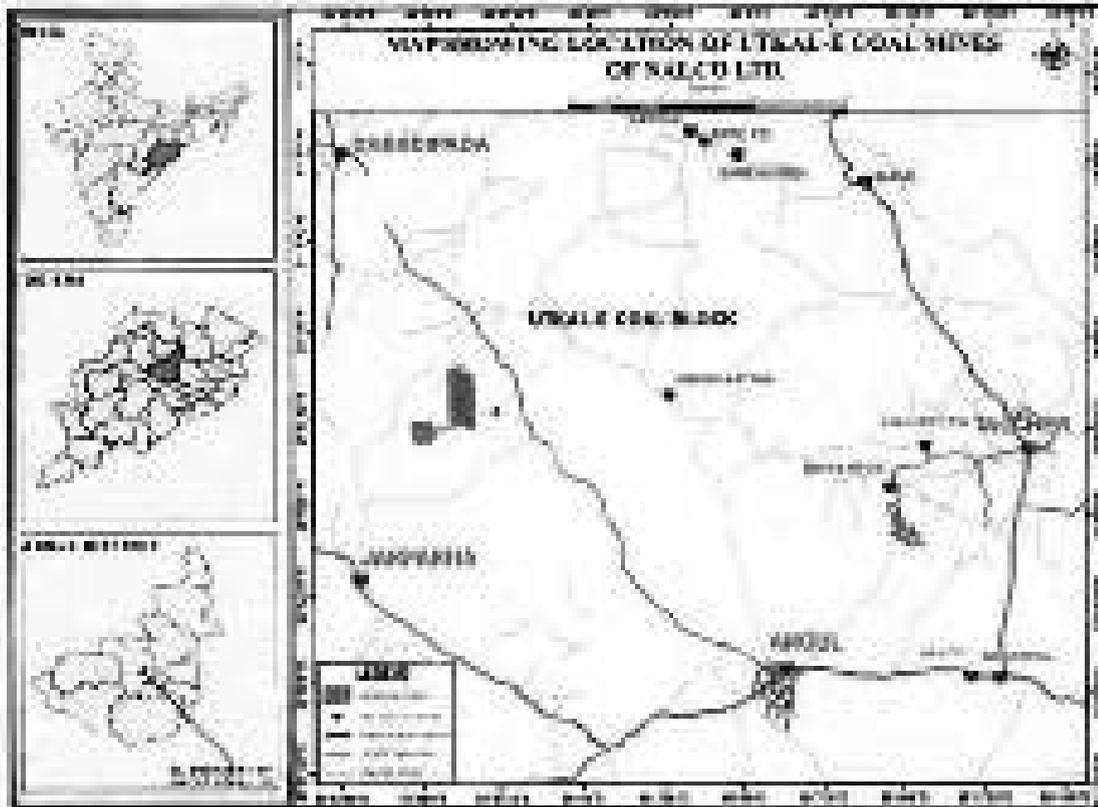


Fig.1: Location Map of Utkal W Coal Block, NALCO

Map of the Project

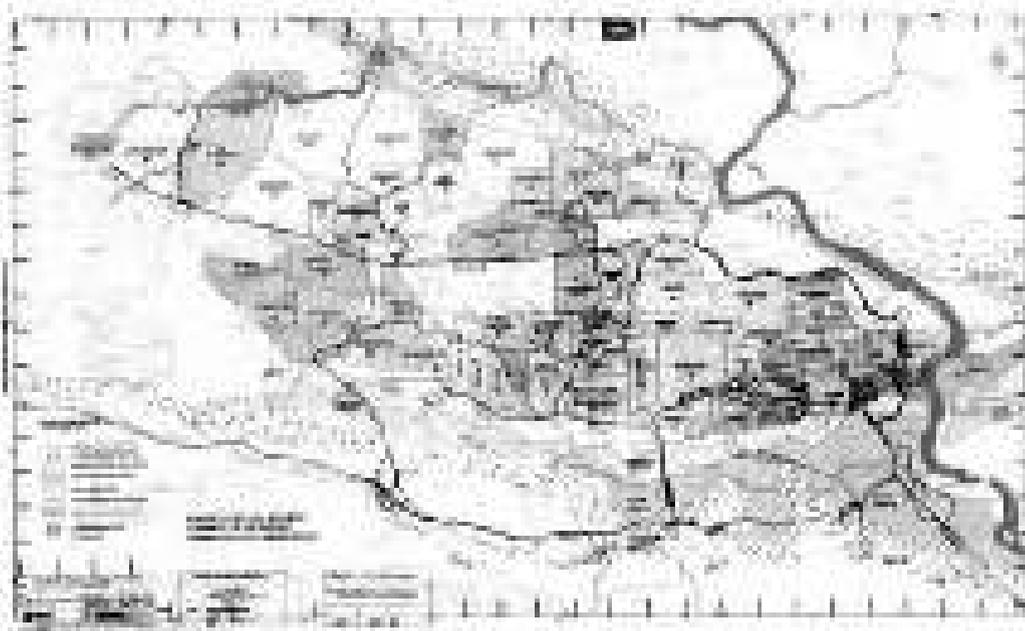


Fig.3: Mining Lease Map of Uthar 'K' Coal Block, NALCO

3. TOPOGRAPHY

The Central and Southern part of the Coal Block is generally flat land. Northern part is moderately undulating. Overall ground slope is dipping towards North. Singra Jhar is the main drainage of surrounding area, which is a tributary of Brahmani river. The maximum elevation of the lease area is 180 m above msl and lowest 135 m.

4. LAND USE PATTERN

SL No.	Pattern	Area in (Ha.)		
		Village Forest	Non-Forest	Grand Total
1	Mining	42,2219	164,0486	206,2705
2	Dairying	101.93	148.117	250.047
3	Top Soil Strips	1.87	0	1.87
4	Road & Corridor	2.164	3.156	5.320
5	Office, R.S. & Other infrastructure	13	8,289	18,249
6	Harbour & Embankment	4.12	9.58	13.7
7	7.5 Safety Zone Area barrier along the lease boundary	2,759	6,443	9,202
8	Singra Jhar & its 50m Safety Zone barrier	1,297	9,494	10,791

4	Magnitude & its safety Zone area	0	8.465	8.465
	Total Safety Zone area	5.546	24.407	29.953
	Grand Total	189.1779	354.5546	523.7325

5. DETAILS OF FOREST LAND WITHIN THE LEASE AREA

Forest land to be worked for mining and allied purpose ... 189.2219 Ha.

Area set aside for Safety Zone ... $\frac{3.9460}{189.1779}$ Ha

Govt of India, MoEF & CC has approved diversion of forest land of 189.1779 Ha, out of 189.1779 Ha, as mentioned in the Stage-I approval.

6. SOIL TYPE

The soil type occurring in this area is mostly sandy loam having good soil depth with pH varying from 6 to 8.

7. CLIMATE

The climate of this area is tropical with hot and humid summer and short spell of winter. Occasional thunder storm during pre-monsoon season is common. Monsoon sets in from late June and continues to middle of October. Maximum temperature varies to 41^oC during summer and minimum 10^oC during winter.

8. DRAINAGE

River Baharani flowing in approximately north-south direction along the eastern boundary of the lease area provides the main drainage. Singla Jhara nala flowing west to east along northern boundary of this Coal Block carries the local drainage in to river Baharani. Singla Jhara maintains a base flow even during dry summer months.

9. Plan of Plantation during the lease period

Planing of plantation has been prepared keeping the following points in background:-

- To meet the stipulation made by MoEF in Condition No.12 (ii)
 - To prevent spread of fugitive dust generated due to mining and allied activities.
 - To minimize noise generated by the mine.
 - To reduce soil erosion.

- To increase the green cover.
- To attract the birds, which are addressed as friends of nature.
- To provide recreational value to colony inhabitants.

Attention will be made for plantation of drought resistant species such as Naarti (*Acacia senegal*), Karamja (*Prosopis juliflora*), Awan (*Terminalia catappa*), Kusum (*Schinus molle*), Arjun (*Terminalia arjuna*), Bela (*Albizia leonensis*), Keel (*Bridelia retusa*), Surati (*Cassia Surati*), Spottedia (*Sporobolus compressus*), Barhi (*Heteropogon elongatus*).



Picturesque view of planting operation

10. Methodology:

It is proposed to plant the seedlings in pits (45 cm³) at about 2.5 m spacing along contours. The dug up earth should be heaped on the Northern aspect. The pits shall be filled with a mixture of organic manure and good quality soil at a proportion of 1:3. The saplings shall be planted just on the inner of mounds, so as to ensure adequate survival. The species selected for plantation must be indigenous with fast growing and ability to survive in Xerophytic condition.

The site is leveled and with good soil depth and not prone to any biotic interference due to deployment of water & wind for 10 years. The plantation will be in block mode i.e. 1600 plants/ha.

Schedule for planting of adequate drought hardy species

BLOCK MODEL

Different operations to be taken up for plantation are as follows:

i) Procurement of Seedlings:

Seedlings of as detailed above shall be purchased from the Forest Dept. Nursery located in Uthirapada, for this we will estimate large sufficient quantity.

ii) Alignment and pitting.

Alignment and pitting will be taken up in the month of January-March. Pit of size 45cm X 45cm X 45cm will be dug maintaining spacing of 2.5m X 2.5m.

iii) Actual Planting

The seedling will be planted in the dugout pits of size 45cm X 45cm X 45cm with spacing of 2.5m X 2.5m. Plantation should be taken up after first regular shower of monsoon and should be completed by the end of July. Species shall be planted as per suitability of the soil condition. NPK fertilizer @ 30gms per plant should be given as basal dressing. Anti-termitic insecticide should also be applied to each pit while planting. Casualty if any noticed will be replaced with the excess seedling raised for the purpose. During second year also casualty replacement will be done for which seedling shall be raised.

iv) Weeding, Soil working & Manuring :

For establishment and better growth of the planted seedlings, weeding, soil working and manuring are necessary. It is prescribed to carry out two weeding, soil working and manuring during first year and one weeding and soil working during second and third year. During the first year and second year first weeding and manuring shall be carried out during August-September and the second one during Sept. -October. First weeding shall be an area weeding and the second will be of strip weeding. The weeding of third year will be an area weeding which will be carried out during August - Sept. After each weeding, soil working will be done around each plant at radius of 0.5m and manuring of each plant will be done.

v) Application of Insecticides;

The plantation site after planting good healthy seedling may cause infest of insects, which usually eat and damage the tender leaves and stems of the plants. In general of

such insects attack application of the insecticides will be taken up in required doses at desired intervals. Spraying of insecticides shall be done preferably in a sunny day before sunrise.

The Schedule of operation for preparation of site, pre-planting, planting, post-planting are prescribed herewith.

OPERATIONS	PERIOD OF COMPLETION
i. Advance preparation of site.	November-December
ii. Alignment & Staking of pits.	January-February
iii. Digging of pits	February-March
iv. Carriage and planting.	July-August
v. Casualty replacement	August
vi. 1 st weeding, soil working, manuring	August-September
vii. Soil & water conservation measures	September-October
viii. 2 nd weeding, soil working, manuring	September-October
ix. Fire line tracing	February-March
X. Watch & Ward	July to March

vii Post planting operation in 1st year.

- a. Casualty replacement : July - August
- b. 1st weeding, soil working & manuring : August - Sept.
- c. Fire line tracing : February - March
- d. Watch & Ward : Throughout the year

viii 1st year.

- a. Weeding, soil working and application of manure : Aug - September
- b. Fire line tracing : February - March
- c. Watch & Ward : Throughout the year.

viii) 4th year to 10th year

a. Pre-levelling

Feb - March

b. Wash & West

Throughout the year

11. Grass seed sowing

According to the site where draught heavy vehicles will be parked, one more lit. of area will be sown with Grass seeds to prevent soil erosion.

Seeding of grass: The effective way of investing active erosion is through seeding of grass pellets. Pellets can be made by mixing clay with fine sand mixture to 4:1 ratio. Enriched with water and seeds and made to size of 2 cm dia and sun dried. Species of grass to be used are *Bambusa nana*, *Themis triandra*, *Andropogon monibach*, *Aplada nutans* etc. In suitable pockets along ridges and depressions. Pellets will be put at regular intervals and pressed below the ground with a stick.

12. SPECIALIZED CELL

Name of Executive	Educational Qualification	Present Designation	Expertise
L. Puttiah	B.Tech (Met.)	General Manager (S)	Project Management
J. Manu	B.E. (Mech.)	Deputy. Gen. Manager	Project Management
Dr. A. Redi	B.Tech (Mining), M.Tech (Environment)	Deputy. Gen. Manager (Mines)	First Class Mines Manager Certificate (Coal)
M. Pradhan	B. Tech. (Elect)	Asst. Gen. Manager (Elect)	Electrical Engg.
M.C. Babara	B.A.	Sr. Manager (Sec.)	HRD, Adweek Lead
R. Krishna	B. Tech (Mining), M. Tech (Mines)	Manager (Mines)	Mining Engineer
S.K. Sethy	Diploma (Civil)	Manager (Civil)	Civil Engg.
T. C. Jindal	B. Tech (Mining)	Deputy Manager (Mines)	Second Class Mines Manager Certificate

1A. REQUIREMENT OF FUNDS

The total cost of the implementation of planting of adequate drought hardy species and sowing of seeds in the appropriate area within the existing lease area is ascertained as follows (Ru. 6,61,702/- (Rupees Six Lakhs Sixty One Thousand Seven Hundred and Two Only).

Sl No.	Description of the work	Unit	Rate	Fund required in Rs.
01	Block Plantation	02 Ha	22028.00	1,20,136.00
02	Grass seed sowing (Pallet method)	01 Ha	17,362.00	1,73,62.00
	Total			1,93,758.00
	Excision 5%			1,10,281.80
Grand Total				6,61,701.80
				Or
				6,61,702/-

(Rupees Six Lakhs Sixty One Thousand Seven Hundred and Two Only.)


Authorized Signatory
 S. K. Patra
 Director, District Forest Office
 Regional Forest Officer
 Regional Forest Office
 Regional Forest Office
 Regional Forest Office


Asst. Commissioner of Forests
 Angul Division


Divisional Forest Officer
 District Forest Office
 District Forest Office
 District Forest Office


Forest Range Officer
 Chhindwara Range

Approved for Rs. 6,61,702/-


Regional Chief Conservator of Forests, Angul Circle.

Annexure-1

Cost Norms for Block Plantation of 1000 plants/ha (18 month old seedling)

Wage rate: Rs.211.00/-per day

S/No	Item of Work	Feasible period of Execution	Person days	Labour (Rs)	Material (Rs)	Total (Rs)
1	2	3	4	5	6	7
PREVIOUS YEAR (ADVANCE WORK) NURSERY RAISING						
1	Nursery Cost (18 month Old Seedlings) @ Rs. 14.54/- per (Rs. 8.68 to be returned) for 1700 seedlings (1680+20)	Nov-March	44	13684	2855.80	16640.80
	Total		44	13684	2855.80	16640.80
2	Monitoring & Supervision charge 5 % of the total cost					832.04
	Grand Total		44	13684	2855.80	17472.84
1st Year (Advance work) pre-planting operations						
1	Survey, Demarcation and pillar posting	Nov/Dec	2	622	0	622
2	Site preparation	Nov/Dec	12	3732	0	3732
3	Alignment and tracking of pits	Jan/ Feb	2	622	0	622
4	Digging of pits (45 cm cube)	Feb/Mar	175	41925	0	41925
5	Nursery cost (18 months old seedling) per @ Rs.34.14/- seedling (per @ Rs. 22.14 for 1700 seedlings) (1680+20)	April-March	110.67	34791.37	7638.80	42430.16
	Total		262.67	81690.37	7638.80	89329.16
7	Monitoring & Supervision charge 5 % of the total cost					4452.71
8	GRAND TOTAL		262.67	81690.37	7638.80	89856.16
1st Year Planting Year						
1	Nursery cost (18 months old seedling) Labour @ Rs.4.00/-	Apr-June	22	6842	505.20	7347.20

	seedling (1600+160)					
2.	Fencing for an average of 250 m/meter to Rs. 16,50/- per meter for bamboo fence and bamboo thorn fencing	May/June	35	11818	2500	20378
3.	Carriage and planting cost of seedling replacement and application of insecticides, Manure etc	Jul / Aug	27	6831		8531
4.	Cost of insecticide and fertilizer a) NPK (1-50) granular as basal dose = 80 kg @ Rs. 240/- per kg = Rs. 19200 b) Urea (47) granular in two subsequent doses @ Rs. 60/- per kg = Rs. 8710 c) Granular insecticide (Thiomat, Fenitro etc) @ 5 kg/ha @ Rs. 80/- per kg = Rs. 4000	Jul / Aug	0	0	3292	3292
5.	1 st weeding (complete weeding)	Aug / Sept	7	2177		2177
6.	Manuring Urea 30 gm	Aug / Sept	5	1555		1555
7.	2 nd weeding (complete weeding)	Sept / Oct	5	1555		1555
8.	Soil weeding (50 cm. Radius around plants) & manuring Urea 30 gm per plant	Sept / Oct	7	2177		2177
9.	Soil conservation measure in the form of staggered trenches of size 2m x 0.5m x 0.5m @ 10nos per ha	Sept / Oct	10	3110		3110
10.	Fire line tracing and inspection path	Feb/Mar	3	933		933
11.	Watch & Wind Sub Total	Aug/Mar	7	2177		2177
			125	38875	12787.20	51562.20
12.	Monitoring & Supervision charge 5% of the total cost					2578.11
	Grand Total		125	38875	12787.20	54140.31
2nd Year Maintenance						
1.	Repaired maintenance of	May/June	10	8230	5000	13230

	Bamboo fence including material and labour					
2.	Utility replacement (10%) with rotary tool	Jul/Aug	4	1244	13714	6818.0
3.	Weeding (Complete weeding)	Sept/Oct	6	1866		1866
4.	Cost of fertilizer (NPK @ 70 gm/plant) @ Rs 24/- per kg & Insecticide @ 500/plant for 142 plants @10000 @ Rs 10/- per kg	Sept/Oct	0	0	2752	2752
5.	Soil working (50cm Radius around plants)	Oct/Nov	7	2177		2177
6.	Application of fertilizer & insecticide	Sept/Dec	4	1244		1244
7.	Fire line tracing and inspection path	Feb/Mar	3	933		933
8.	Watch & Ward	Apr/May	15	4665		4665
	Sub Total		69	18349	13486.4	21755.4
9.	Monitoring & Supervision charge 5% of the total cost					1089.77
	Grand Total		69	18349	13486.4	21864.17
3rd Year Maintenance						
1.	Repair and maintenance of Bamboo fence including material cost	May/June	20	6220	1000	7220
2.	Weeding and application of fertilizer	Aug/Sept	7	2177	0	2177
3.	Cost of fertilizer (NPK @ 50gm/plant) @ Rs 24/- per kg		0	0	1920	1920
3.	Soil working (50 cm Radius around plants) & application of fertilizer	Oct/Nov	7	2177	0	2177
4.	Fire line tracing (2m wide fire line over 400m length) & labour operation	Feb/Mar	3	933	0	933
4.	Watch & Ward	Apr/May	15	4665	0	4665
	Sub Total		52	16172	2920	19092
5.	Monitoring & Supervision charge 5% of the total cost					954.6
	Grand Total		52	16172	2920	20046.6

4th Year Maintenance						
1.	Fire line tracing (2m wide fire line cover 400m length) & cultural operation	Feb / Mar	3	933	0	933
2.	Watch & Ward	Apr / Mar	15	4665	0	4665
	Sub Total		18	5598	0	5598
3.	Monitoring & Supervision charge 5% of the total cost					279.9
	Grand Total		18	5598	0	5877.9
5th Year Maintenance						
1.	Fire line tracing (2m wide fire line cover 400m length) & cultural operation	Feb / Mar	3	933	0	933
2.	Watch & Ward	Apr / Mar	15	4665	0	4665
	Sub Total		18	5598	0	5598
3.	Monitoring & Supervision charge 5% of the total cost					279.9
	Grand Total		18	5598	0	5877.9
6th Year Maintenance						
1.	Fire line tracing (2m wide fire line cover 400m length) & cultural operation	Feb / Mar	3	933	0	933
2.	Watch & Ward	Apr / Mar	15	4665	0	4665
	Sub Total		18	5598	0	5598
3.	Monitoring & Supervision charge 5% of the total cost					279.9
	Grand Total		18	5598	0	5877.9
7th Year Maintenance						
1.	Fire line tracing (2m wide fire line cover 400m length) & cultural operation	Feb / Mar	3	933	0	933
2.	Watch & Ward	Apr / Mar	15	4665	0	4665
	Sub Total		18	5598	0	5598
3.	Monitoring & Supervision charge 5% of the total cost					279.9
	Grand Total		18	5598	0	5877.9

8th Year Maintenance

1.	Fire line towing (2in wide fire line cover 400m length) & cultural operation	Feb / Mar	3	933	0	933
2.	Watch & Ward	Apr / Mar	15	4665	0	4665
	Sub Total		18	5598	0	5598
3.	Monitoring & Supervision charge 5 % of the total cost					279.9
	Grand Total		18	5598	0	5877.9

9th Year Maintenance

1.	Fire line towing (2in wide fire line cover 400m length) & cultural operation	Feb / Mar	3	933	0	933
2.	Watch & Ward	Apr / Mar	15	4665	0	4665
	Sub Total		18	5598	0	5598
3.	Monitoring & Supervision charge 5 % of the total cost					279.9
	Grand Total		18	5598	0	5877.9

10th Year Maintenance

1.	Fire line towing (2in wide fire line cover 400m length) & cultural operation	Feb / Mar	3	933	0	933
2.	Watch & Ward	Apr / Mar	15	4665	0	4665
	Sub Total		18	5598	0	5598
3.	Monitoring & Supervision charge 5 % of the total cost					279.9
	Grand Total		18	5598	0	5877.9

Abstract

Year	Person Days	Labour (Rs)	Material (Rs.)	Monitoring & Supervision charge 5% of the total cost	Total Cost (Rs)
Previous year	44	1164.00	2448.00	812.84	4424.84
1st Year	282.67	8190.37	2698.80	4494.66	15383.83
2nd Year	125	3885.00	12707.30	2478.11	54970.11
3rd Year	95	3144.00	13406.40	2873.77	37924.17
4th Year	52	1772.00	2121.00	954.83	29067.83
5th Year	18	508.00	0.00	279.80	5877.80
6th Year	18	508.00	0.00	279.80	5877.80
7th Year	18	508.00	0.00	279.80	5877.80
8th Year	18	508.00	0.00	279.80	5877.80
9th Year	18	508.00	0.00	279.80	5877.80
10th Year	18	508.00	0.00	279.80	5877.80
TOTAL	575.07	178411.27	19689.16	10645.05	2,68,027.68 Or 2,68,028

(Rupees Two Lakhs Sixty Thousand Twenty Eight Only)


Authorized Signatory
S. K. PATEL
 Executive Director (A11)
 Project & Technical Department
 National Research Council
 Maharashtra-422001


Chief Engineer
Divisional Forest Officer
Development Forest Officer
Angul Division
Joint Conservator of Forests
Angul Division


Forest Range Officer
Chandikada Range

COST OF GHANS SEED SOWING (pallet method)

Wage Rate Rs. 111.00/-

Sl No.	Name of work	No. of Man	Quantity of materials	Rate Rs.	Amount Rs.
1.	Site preparation, sowing of seeds	2		311	1555
2.	Ploughing land by country plough	5 country plough		578	2890
3.	Addition of FYM to the field		3 Truck loads	1067	3201
4.	Cost of Seeds		2 Kg	667	1334
5.	Cost of Pallet preparation with 6:1 soil + FYM mixture	11		311	3421
6.	Cost of soil and FYM for the above		2.3 Cum of soil, 0.04 Cum FYM	134 1067	294.8 42.68
7.	Dibbling of pallets at 1.5 x 1.5m	4		311	1244
8.	Weeding unwanted growth	5		311	1555
	TOTAL				16747.46
	2nd Year				
1.	Site preparation, sowing of seeds	2		311	622
2.	Ploughing land by country plough	5 country plough		570	2850
3.	Addition of FYM to the field		1 Truck loads	1067	1067
4.	Cost of Seeds		1 Kg	667	667
5.	Cost of Pallet preparation with 6:1 soil + FYM mixture	3		311	933
6.	Cost of Soil and FYM for the above		1.1 Cum of soil, 0.02 Cum FYM	134 1067	147.4 21.34
7.	Dibbling of pallets at 1.5 x 1.5m	5		311	1555
8.	Weeding unwanted growth	4		311	1244
	TOTAL				8985.74
	Sub Total				26,135.22
	Contingent 21 %				5527.69
	Grand Total				31,662.91
					Or

Rs. 1,363.00

(Rupees Thirty Five Thousand Three hundred Sixty Two only)



Authorized Signatory
Executive Director (P&T)
In-charge, J & Technical Department
National Milk Producers' Cooperative Union Ltd
Shikhar Nagar, Gandhinagar



Forest Range Officer
Chandrapada Range



Divisional Forest Officer
Angul Division

Controlled
Divisional Forest Officer
~~Divisional Forest Officer~~
Angul Division

UNDERTAKING

XIII

ANNEXURE- B-XIII

MoEF & CC File No. 8-07/2020-FC dtd. 12.03.2021

Condition No. B (12.ii)

Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion in accordance with the approval scheme;

Compliance to Condition No. B (12.ii)

In compliance to this condition an scheme has been approved by RCCT Angul with total financial outlay of Rs 561, 302. (Copy of the approval scheme enclosed). NALCO do hereby undertake to do Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion at project cost as per the approved scheme.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division


Authorized Signatory

S. K. PATEL
Executive Director (P&T)
Procurement & Technical Department
National Aluminium Company Ltd
Bhubaneswar-751001

नेशनल अल्युमिनियम कंपनी लिमिटेड
(एनएलसी लिमिटेड)
बिनाम बhubaneswar

राजकीय क्षेत्र, बhubaneswar, भुवनेश्वर - 751 001, भारत

टीन : फोन नंबर्स (0674) 2311000, 2311001, 2311002, 2311003, 2311004, 2311005, 2311006, 2311007

फैक्स नंबर्स : (0674) 2311200, 2308500, 2308740, 2308940 & 2309040

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BHARAT, Nayapalli Bhubaneswar-751001, INDIA

वेबसाइट : www.nalcoindia.com

नालको  **NALCO**

Scheme

For

CONSTRUCTION OF CHECK DAMS, RETENTION WALL, TOE WALL TO ARREST SLIDING DOWN OF THE EXCAVATED MATERIAL ALONG THE CONTOUR .

In compliance

with

Condition No. B-12 (H) of

Stage-I Forest Clearance Grantal rule

Vide Letter No.6/07/2020-FC, Dated 01.03.2021

of Govt. of India, Ministry of Environment, Forests & CC,

New Delhi.

for

Diversion of 108.179 Ha. of Forest Land

(including of safety area)

Within 525.7335 Hectar 'C' Coal Mining Lease

of

M/S National Aluminium Company Ltd. (NALCO)

in

Chhendipada Taluk, Sub-Divn. - Angal, Dist. Angal

Gdara.

CONSTRUCTION OF CHECK DAMS, RETENTION WALL, TOE WALL TO ARREST SLIDING DOWN OF THE EXCAVATED MATERIAL ALONG THE CONTOUR.

1. INTRODUCTION

Govt. of India of Coal has allotted Uthai-B & Uthai-D Coal Blocks in Talcher Coal field to M/s. NALCO vide allotment Order No. F.No. 1003A/2015/NA, dated 02.05.2016. The block is located in the South-Central part of Talcher Coal field in between Uthai-F Coal Block in the West & Uthai-D Coal Block in the East. Uthai-B Coal Mine spans over an area of 4.60 sq.km between Latitude $20^{\circ} 56' 57''$ to $20^{\circ} 58' 56''$ North and longitudes $84^{\circ} 56' 49''$ to $84^{\circ} 58' 31''$ East. Administratively it is under the jurisdiction of Chhendipada Taluk, Angul district. Uthai-B Coal Mine comprises an area of 523.7325 Ha. out of which 169.1774 Ha. area is of Revenue Forest land which is required to be diverted under Forest Conservation Act 1980. The remaining area 354.5551 Ha. is Govt. Non-Forest land and 252.4965 Ha. is Private Land.

The area approved for grant of mining lease is 523.7325 ha. The total forest land is 169.1774 Ha. out of which 165.2119 is to be diverted for Non-Forest mining use and 3.966 Ha. shall be used as Safety Zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only.

The Stage-I Forest clearance (s/101) of FC Act 1980 was granted by MoEF & CC vide their letter No F-01/2020-FC/101/120, March 2021 wherein it has been stipulated as per condition no. 12.(ii) for Construction of Check Dam, Retention Toe Walls to arrest sliding down of the excavated material along contour in accordance with the approved Scheme.

2. LOCATION

The mining lease area has been covered in the Survey of India topo sheet No73-IX-13 on RF 1:50,000 (2 cm to 1 km) and special top sheet No. 12 on RF 1:10,000 (10cm to 1 km) and falls within Angul District of Odisha. The mine spans over an area of 4.60 sq.km between Latitude $20^{\circ} 56' 57''$ and $20^{\circ} 58' 56''$ N and Longitude $84^{\circ} 56' 49''$ and $84^{\circ} 58' 31''$ E. Administratively it is under the jurisdiction of Chhendipada Taluk, Angul District. Mining lease area is approachable from Angul covering a distance of 22 km by a block ropeway and up to Chhendipada.

The nearest railway station is Angul on Talcher-Sambalpur railway line of East Coast Railway at a distance of 22 km from Mines. This railway line connects Pat to Sambalpur. The

nearest airport is Bhubaneswar at a distance of 172.3 K.M. The ML area is in Chandiapa Range of Angul Forest division.

LOCATION MAP

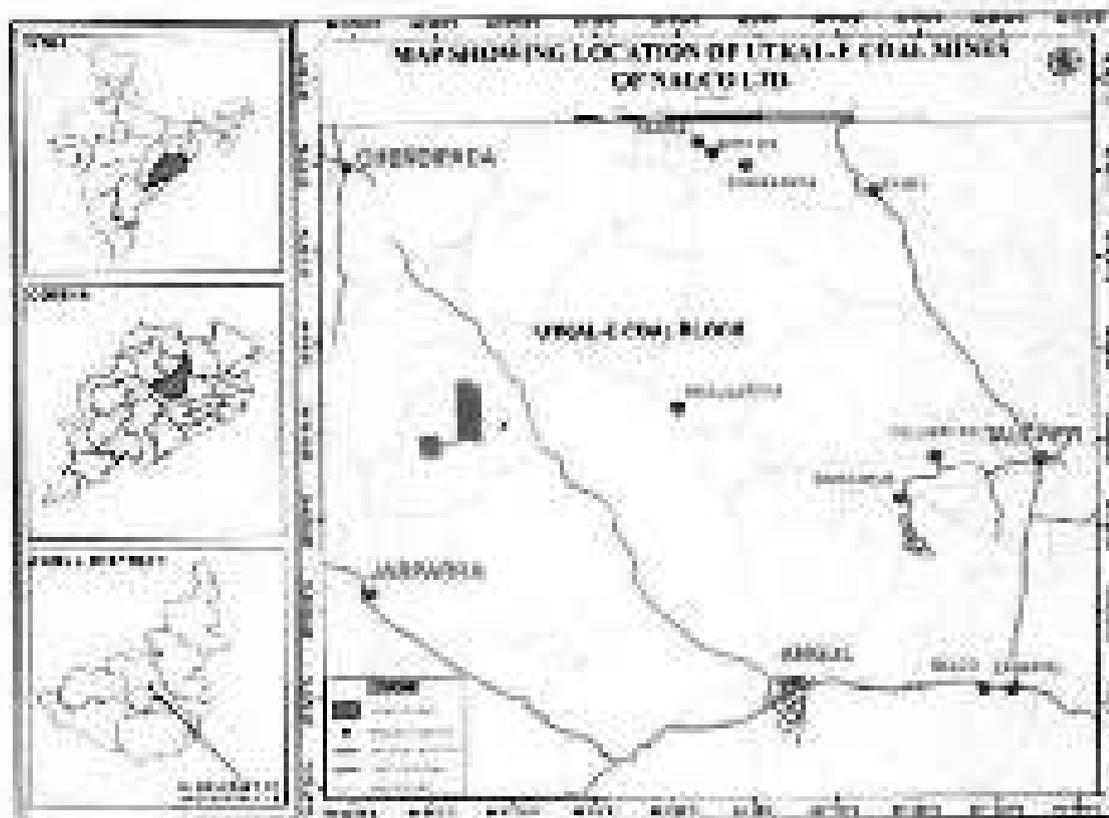


Fig.1: Location Map of Utkal 'F' Coal Block, NALCO

3. TOPOGRAPHY

The Central and Southern part of this Coal Block is generally flat land. Northern part is moderately undulated. Overall ground slope is dipping towards North. Singbhera Dam is the main drainage of surrounding area, which is a tributary of Brahmani river. The maximum elevation of the lease area is 148 m above sea level (ASL) (15 m).

Map of the Project

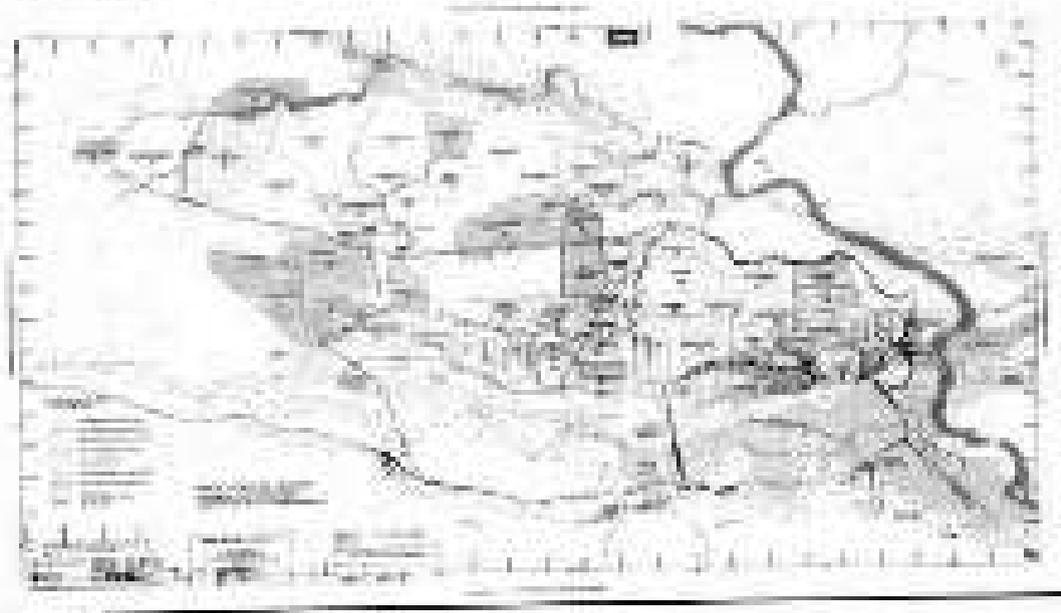


Fig.2: Mining Lease Map of Uthakoti Coal Block, NABCO

4. LAND USE PATTERNS

Sl. No.	Pattern	Area in (Hac)		
		Yalge Forest	Non-Forest	Grand Total
1	Mining	42,2379	164,0486	206,2865
2	Dumping	101.57	148.117	249.687
3	Top Soil Stock	1.87	0	1.87
4	Road & Corridor	3,044	3,153	6,197
5	Office, H.S. & Other Infrastructure	13	5,290	18,344
6	Barrier & Embankment	4.32	9.58	13.9
7	1.5 Safety Zone Area barrier along the lease boundary	2,270	6,443	8,713
8	Single-track or 50m Safety Zone barrier	1,203	9,469	10,672
9	Magazine & its safety zone area	0	4,465	4,465
	Total Safety Zone area	3,946	20,417	28,363
	Grand Total	169,1119	354,8546	523,9665

5. DETAILS OF FOREST LAND WITHIN THE LEASE AREA

Forest land to be reserved for mining and allied purpose: 185,215 Ha

Area set aside for Safety Zone: 5,846 Ha
388,175 Ha

6. SOIL TYPE

The soil type occurring in this area is mostly sandy loam having good soil depth with pH varying from 6 to 8.

7. CLIMATE

The climate of this area is tropical with hot and humid summer and short spell of winter. Occasional thunder storm during pre-monsoon season is common. Monsoon sets in from late June and continues to middle of October. Maximum temperature varies to 42°c during summer and minimum 14°c during winter.

8. DRAINAGE

River Brahmani flowing in approximately north-south direction along the eastern boundary of the lease area provides the main drainage. Singhadaltore creek flowing west to east along northern boundary of the Coal Block carries the local drainage in to river Brahmani. Singhadaltore maintains a low flow even during dry summer months.

9. EXISTING VEGETATION

The area proposed for diversion includes species as detailed below:

Local Name	Botanical Name
Kaman	<i>Albizia cordata</i>
Jack Fruit	<i>Artocarpus heterophyllus</i>
Gambhar	<i>Cassia grandis</i>
Tamarind	<i>Tamarindus indica</i>
Jarrah	<i>Acacia mangium</i>
Sabul	<i>Acacia robusta</i>
Kuan	<i>Mitrasacme</i>

Mithunim	Atikathar chachha
Sih	Atikathar chachha
Sisoo	Dudhgaon chachha
Mango	Atikathar chachha
Asan	Dudhgaon chachha
Sonabari	Atikathar chachha
Sauri	Dudhgaon chachha
Kanar	Dudhgaon chachha

INDICATIVE OF THE SCHEME:

In this scheme, considering the topography and contours of the basin area, emphasis has been given to arrest silt and debris along the contour by constructing check Dam, Retention Wall, Tree Walls. Locations are judiciously selected within the watershed and plans prepared.

The Salient features of the drainage management plan scheme are as follows:

1. The overall drainage planning has been done in such a manner that it maintains the overall slope direction so that run off distribution is not affected.
2. Gullied drains have been planned on all areas of eroded lands (depending on contours). The gullied drain shall be routed through settling tanks to settle out suspended solids and then the water pass through Check Dam. The drain water will be recharged to natural water courses.
3. Grass and bushes in drains hold back solid particles during the flow of water in the drain. Small stone barriers across the gullied drain will check water current and arrest solids. This should be cleared up periodically.
4. Settling tanks and gullied drains shall be cleared regularly, especially during monsoon.
5. Outside the gullied drains on the drainage lines shall be reinforced with grass cover of non-browsable species like *Integrifolium* (Bhogata), *Microsporum* (Bhogata), *Clitoria* (Khatola), and *Dryobalanites* (Palkhata) etc.

11. PROPOSED PLAN

To achieve the above objectives, it has been proposed to take up both biological and structural works for soil and water conservation. In this scheme, considering the topography and contours of the base area, emphasis has been given to arrest sliding down of excavated materials along the contour by constructing check dams, retaining/wall at specified locations within the mining lease. Locations have been properly selected within the leasehold.

12. METHODOLOGY

The Central and Southern part of this Coal Block is generally flat land. Northern part is moderately undulating. Overall ground slope is dipping towards North. Maximum elevation is 115m above msl and minimum 115 m.

a) Salient features of the drainage management Plan:

Due to this geological feature of the base, the external dump will be higher than the adjoining ground level. The materials from the slopes of these dumps are likely to flow during heavy rains and disturb the topography of its adjoining land, till it is completely stabilized by biological means. In order to curb this situation, retaining walls of minimum two & half meter height has been planned all along the peripheral contour of the external dump to arrest the possibility of material running down on the hill slopes. Waste dumping has been planned in a manner such that backfilling can be executed with a view to reclaim the mined out pit as much as possible and at the same time minimizing height of external dumping. Backfilling will be done from the external dump and top soil will be spread on the compacted material and water sprinkling on the soil will be carried on. Grasses will be planted on the soil for initial stabilization of the over burden dump. Subsequently crops of selected species will be planted finally to stabilize the mined out area.

Hence the Gulland drain serves the dual purpose of protection against retreating boulders on the slopes and drainage of water coming down from the Old Dump.

Detail of proposal dump as per approved mining plan during 1st five year is furnished below:-

Sl. No.	Dump Name	Dimension	Capacity	GPS Co-ordinates
01	External Dump-I	137.09 Ha.	66.48 cum	Furnished below
02	External Dump-II	115.75 Ha.	51.79 cum	Furnished below
Total		252.84 Ha.	118.28 cum	

External Dump-I

Sl. No.	Longitude	Latitude
1	84°55'42.57558"	20°58'07.15844"
2	84°55'44.77325"	20°58'06.05408"
3	84°55'47.32343"	20°58'04.77266"
4	84°55'51.46048"	20°58'03.71214"
5	84°55'54.82405"	20°58'01.95913"
6	84°55'57.00165"	20°57'58.95659"
7	84°55'59.16781"	20°57'58.37307"
8	84°56'01.59345"	20°57'57.09144"
9	84°56'03.61030"	20°57'56.94766"
10	84°56'05.95079"	20°57'54.65812"
11	84°56'08.20508"	20°57'54.08279"
12	84°56'11.11316"	20°57'50.95917"
13	84°56'18.74415"	20°57'51.04750"
14	84°56'24.13475"	20°57'50.21325"
15	84°56'27.38043"	20°57'49.20151"
16	84°56'27.91065"	20°57'49.42021"

17	84°58'29.02549"	20°57'41.39221"
18	84°58'29.19553"	20°57'38.09624"
19	84°58'29.51298"	20°57'34.34953"
20	84°58'29.46553"	20°57'31.74951"
21	84°58'29.93581"	20°57'28.82158"
22	84°58'27.89291"	20°57'24.35123"
23	84°58'23.95407"	20°57'14.31577"
24	84°58'19.10477"	20°57'15.13046"
25	84°58'12.87126"	20°57'19.83426"
26	84°58'01.40505"	20°57'23.64537"
27	84°55'49.75965"	20°57'17.13681"
28	84°55'44.15972"	20°57'15.98191"
29	84°55'44.33295"	20°57'18.61607"
30	84°55'44.31504"	20°57'21.00367"
31	84°55'43.93591"	20°57'33.36314"
32	84°55'43.48352"	20°57'45.72158"
33	84°55'43.01485"	20°57'55.04528"
34	84°55'42.87468"	20°58'04.82126"

External Dump-II

Sl. No.	Longitude	Latitude
1	84°55'29.95593"	20°57'28.56890"
2	84°55'27.05658"	20°57'25.62935"
3	84°55'26.59534"	20°57'20.08164"
4	84°55'18.40920"	20°57'13.12674"
5	84°55'20.71778"	20°57'11.53934"
6	84°55'21.74862"	20°57'58.91312"

7	84°55'13.77700"	20°57'07.38935"
8	84°55'09.54478"	20°57'02.48202"
9	84°55'14.90973"	20°57'02.43375"
10	84°55'16.38843"	20°56'58.21538"
11	84°54'52.18787"	20°56'49.81970"
12	84°54'56.42142"	20°56'48.69559"
13	84°54'44.92940"	20°56'48.62531"
14	84°54'44.92761"	20°56'51.44829"
15	84°54'41.48285"	20°56'50.09414"
16	84°54'41.81176"	20°56'51.78689"
17	84°54'57.51177"	20°56'51.82819"
18	84°54'56.61603"	20°56'54.21462"
19	84°54'38.90073"	20°56'53.35143"
20	84°54'34.44332"	20°56'53.54016"
21	84°54'34.79437"	20°57'08.08281"
22	84°54'34.11604"	20°57'13.04525"
23	84°54'33.22367"	20°57'15.02848"
24	84°54'32.10887"	20°57'13.18847"
25	84°54'32.56283"	20°57'22.19579"
26	84°54'34.17132"	20°57'24.75244"
27	84°54'31.97644"	20°57'26.96371"
28	84°54'33.91632"	20°57'35.83825"
29	84°54'30.10702"	20°57'26.46214"
30	84°54'42.34977"	20°57'36.27818"
31	84°54'46.67210"	20°57'23.97325"
32	84°54'48.74189"	20°57'28.16229"
33	84°54'53.81216"	20°57'27.94613"
34	84°54'58.94611"	20°57'37.76144"
35	84°55'02.21841"	20°57'28.49060"

b) The drainage pattern of overburden dump:

The runoff water will flow through the dump surface along the head which will be developed at the edge of the dump. The dump surface needs to be terraced so that runoff can flow smoothly to meet the garland drain through the sweep hole made in the retaining wall. Finally, the water will flow to the settling pit which has been proposed at the end of the garland drain. After settling down, over flow water will go to settling pond. In addition, part of runoff water of the stack yard that will be released, will also be channelled up to the garland drain. The rain water from proposed storage yard and dumps will be drain down to the garland drain of proposed dumps which will help to moist the solid waste. The channelled water from the proposed garland drain, and runoff water will accumulate in the proposed check Dam and after further settling of whatever silt will exist, the drain water will go to the nearest stream.

c) Slope of the proposed Dump:

Overall slope of the dump in the planned period will be kept at an angle of 45° . A total of 255/329 million m³ waste will be generated during conceptual period. Out of the total conceptual waste about 10% i.e. 25500000 m³ waste will be utilized for road maintenance and balance 90% wastes will be utilized for dumping. An area of 126.52 ha has been estimated for O.B. Dumping. The slope of the conceptual dump will be maintained at an angle of 25° . During conceptual period the height of the dump will be 30m. The fences of each dump will have 30m height.

MEASURES TO BE ADOPTED

1) Plan for Construction of Check Dam

During monsoon, there is heavy onrush of water as a result, runoff area from up slope higher elevation to lower elevation. Hence, attention is to be paid to reduce the flow velocity of runoff & settle the sediments. Down slope overhead drains, that runs inside the mine and areas cleared of vegetation. Two check dams will be constructed near proposed dump area. Details of proposed Check Dam is furnished below and location of the said with coordinates has been shown in the map. The cross section of Check Dam has provided Annexure -4.



Fig.3: Check Dam to control Soil erosion & silt Run.

ii) Plan for construction of Retaining Wall.

A retaining wall is a structure designed and constructed to resist the lateral pressure of soil when there is a change in ground elevation but exceeds the angle of repose of the soil. The Retaining walls are proposed for construction over 3000 m x 1.5 m bottom 1.2 height. Also there is a provision for maintenance of the retaining wall during the lease period. The cost norm of Retaining Wall has been provided Annexure -II.



Fig.4: Perspective view of Retaining wall

iii) Plan for Construction of Gullied Drain

A shallow trench (3.0 m wide x 1.5 m deep) will be dug for drainage of runoff accumulated for draining surface water before it is released to the natural water course. Details of proposed Gullied drain 3,000 m L x 3.0m wide x 1.5m depth shall be constructed during the lease period with location as shown in the map. The cost norm of Gullied Drain has been provided Annexure -III.



Fig 5 Gasland Ditch around Waste Dump

iv) Plan for Construction of Settling Tanks

It is a process that involves separation of solid material from slurry. This process is called sedimentation. When waste water is treated, a large quantity of material is filtered out of the liquid by physical barriers. Even then, the water will contain some solids which need to be removed. A settling tank is proposed to be used to protect the surface water. It has been proposed to construct three settling tanks. Details of proposed settling Tank is shown in the map. The cost form of settling Tank has been provided.

The desilting works of the settling tank will be taken up at regular intervals to prevent sedimentation and clogging of streams. This desilting of settling tank will provide space and have to hold the sediment before runoff thereby allowing settling and clear water to flow down. This desilting work will be preferably undertaken once in a year before & after monsoon. The implementation of the plan will be site specific in future depending upon the severity of the sedimentation and clogging of stream. The cost form of settling Tanks/Prick has been provided Annexure - IV

13. INSPECTION, MONITORING AND EVALUATION

For successful implementation of the above proposed program, intensive inspection and technical guidance from concerned technical wing is required. Sufficient facilities/expense charges for the executing agency and technical reports shall be provided by the user agency for proper execution of these programs.

14. EXECUTING AGENCY

In all the cases, the works shall be executed by NALCO having specialized departments headed by qualified persons with authorized man and machinery on and where required. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in house supervisors through competent personnel shall be provided. The entire work shall be carried out through close coordination with the Forest Department.

15. SPECIALIZED CELL

Name of Executive	Educational Qualification	Present Designation	Expertise
T. Patraik	B.Tech (Met.)	General Manager (S)	Project Management
J. Mohr	B.E. (Mech.)	Deputy Gen. Manager	Project Management
D. A. Raul	B.Tech (Mining), M.Tech (Environment)	Deputy Gen. Manager (Mines)	First Class Mines Manager Certificate (Coal)
B. Pradhan	B. Tech. (Elect.)	Asst. Gen. Manager (Elec.)	Electrical Engg.
N.C. Behera	B.A.	Sr. Manager (Sec.)	HRD, Admin & Land
R. Kishor	B. Tech (Mining)	Manager (Mines)	Mining Engineer
S. K. Sethy	M. Tech (Mineral Diploma (Civil))	Manager (Civil)	Civil Engg.
T. C. Jindal	B. Tech (Mining)	Deputy Manager (Mines)	Second Class Mines Manager Certificate

14. REQUIREMENT OF FUNDS

The financial provision for construction of 4 Jack Dams, Retention Tank Walls to meet sliding down of the excavated material will be 2056843/- (Rs. Two Crore Three Lakh Fifty Four Thousand and Eight Hundred & Forty Seven Only).


Authorized Signatory
S. K. PATEL
Chief Engineer (P&T)
P.W. & S. Section Department
Central Aqueduct Compound
Mumbai-400 007

CounterSigned


Divisional Forest Officer
Central Aqueduct Compound
Mumbai-400 007


Forest Range Officer
Chhendipada Range


Asst. Conservator of Forests
Arjun Division

**COST FOR CONSTRUCTION OF CHECK DAMS, RETENTION/TOE WALL,
GABRIEL DRAIN & SETTLING TANK**

Sl. No.	Description of the Work	Band required in Rs.
01	Check Dam 2 x 1.53,914.00	307828.00
02	Retaining Wall 1,000 M	1,25,21,709.00
03	Gabriel drain 3,000 m	14,09,472.00
04	Settling Tank 1 No	09,280.00
05	Desilting work for Gabriel drain intermittently and settling pond on L.S.	5,00,000.00
06	Repair to retaining wall on L.S.	5,00,000.00
	Total	1,47,49,889.00
07	Escalation 20%	29,49,978.80
	Total	1,76,99,867.80
08	Inspection, Monitoring and evaluation @ 15%	26,54,980.00
	Grand Total	2,03,54,847.80

(Rs. Two Crore Three Lakh Fifty Four Thousand and Eight Hundred & Forty Seven Only)

S. K. Patel

**Authorized Signatory
S. K. PATEL**

Executive Director (P&T)
Project & Technical Development
National Aluminium Company Ltd
Bhubaneswar-751005

Counter signed

[Signature]
Joint Commissioner of Forests
Angul Division

[Signature]
Divisional Forest Officer
Angul Division

Forest Range Officer
Chhendipada Range

Approved for no. 20554/2011

[Signature]
Regional Chief Commissioner
of Forests, Angul Circle.

ESTIMATE FOR CONSTRUCTION OF CHECK DAM

Annexure-I

Wage rate Rs./11/Day

Sl No.	Description of Item	No	Length	Width	Height	Qty	Rate	Amount in Rs.
1	2	3	4	5	6	7	8	9
1								
	Base	1	4	5.5	0.5	11		
	Wing Wall	4	7	0.5	0.5	2		
	Apron	2	1	5	0.2	6		
	Cut of wall	2	4	0.45	0.4	1.8		
						20.8	167.83	3491.48
2	Roaming and rolling work with light H.R.B.					20.8	14.22	295.8
3	Plain concrete (1:4:8)							
4	Base	1	3	5.5	0.075	1.65		
5	Wing Wall	4	11	0.5	0.08	0.7		
6	Apron	2	3	5	0.08	2.75		
7	Cut of wall	2	7	0.45	0.08	0.27		
						4.47	1746.5	15948.9
8	Concrete (1:2:4)							
9	Below Ground Level							
10	Base	1	3	5.5	0.4	6.6		
11	Wing Wall	4	7	0.5	0.4	1.6		
12	Apron	2	1	5	0.1	3		
13	Cut of wall	2	3	0.45	0.5	1.25		

						12.55		
14	Above Ground Level							
15	Base	1	1	(7.00 - 5.00)/2	1	10.5		
16	Wing Wall	4	2	0.1	1	3.2		
					Total	17.7		
				Grand Total		26.75	4445.7	111108.375
						Total		1,38,571.52 Or, 1,38,571.5
				<u>138571.5</u>	311			1,51,913.50 Or, 1,51,914.00
				240				

No of Check Dams is 2 Not

Total cost is Rs 1,51,914/- X 2 = Rs 303828/-

(Rs. Three Lakhs Seventy Eight Thousand and Twenty Eight Only)

Authorized Signatory

S. R. PATIL
Executive Director (P&T)
H/O: 14, Technical Department
Maha Abhaneri, Gandhinagar, Ch.
M. Dist. - 422 001

Forest Range Officer
Chhendipada Range

Asst. Commissioner of Forest
Angul Division

Counter signed

Divisional Forest Officer
Angul Division

Detail Estimate of Retaining wall

Assurance - II
Wage rate: Rs 311/Day

ESTIMATE FOR CONSTRUCTION OF RETAINING WALL									
Sl. No.	JOB DESCRIPTION	NO	LENGTH	WIDTH	HEIGHT	UNITS	QUANTITY	DATE Rs.	AMOUNT
1	Earth work to hard soil or gravelly soil within 50m initial haul and 1.5m initial lift including rough dressing and breaking of soil to maximum 30cm. Then soil laying in layers not exceeding 15cm. in depth and in per the direction of the slope to be change.	1	2000	0.7	0.7	CUM	1078	16.7.11	216681.7
2	Filling in foundation and plinth with sand washed and burnt red.	1	1000	0.7	0.075	CUM	187.3	325.11	60899.325
3	Current concrete M-10 grade (C.M. 1:4:8 for foundation) with crushed broken granite coarse aggregate of size 45mm, de-watered, mixed in concrete in same including concrete admix and royalty of all materials, maintenance and labour and laying in hand work and usual structure with required lifts and de-lifts as per direction of Engineer-in-charge.	1	3000	0.6	0.075	CUM	135	3746.3	505713.3
4	REINFORC. WORK for foundation having crushing strength not less than 15 Kg/cm ² with dimensioned reinforcement as per detail in concrete measure of 6" in foundation and plinth per cum.	1	3000	0.5	0.3	CUM	450	3400.4	1530180
		1	3000	0.575	0.3	CUM	1073	1913.4	2052405

5	BRICK WORK for S.S. paving including straight and bow line 75 Kg and 2.50 of mechanical mixture 45 percent in cement mortar (1:5) in foundation and plinth per cum.	1	1000	2.35	2.35	21.36	1865	3392.4	8735759
6	Concrete for plinth (M-20) grade with crushed broken granite coarse aggregate of size 20mm, dry graded river sand in building and mosaic plaster using one of all materials, machines and labour and transportation of mixed concrete.	1	5000	5.25	0.1	0.04	79	4486.7	8572524
7	Concrete for coping (M-20) grade with crushed broken granite coarse aggregate of size 20mm, dry graded river sand in building and mosaic plaster using one of all materials, machines and labour and transportation of mixed concrete.	1	5000	0.35	0.005	0.04	25.25	4496.7	11883375
Total:									10822403.94
									Rs
									10822403.94
									12051709.41
									1,20,51,709.41

(Rupees One Crore Twenty Lakh Twenty One Thousand Seven Hundred & Ninety)


Authorized Signatory
 S. K. RAJEEV
 Executive, District (PCC) &
 Project & Technical Department,
 National Museum Complex, 110
 Dr. B. C. Roy Road, New Delhi


 Asst. Commissioner of Forest
 Anand District


 District In-charge
 Anand District


 Forest Range Officer
 Chhoti Khera Range

DETAIL ESTIMATE OF CONSTRUCTION OF GABRIEL AND DRAIN

Wages Rate- Rs.100/Day

Sl No.	Description of item	No	Length	Width	Height	Qty	Unit	Rate	Amount
1	Clearing of Jungles & bushes	1	3000	7	-	21000	Sq.ft	1.7	35,700.00
2	Earth work to be carried to embankment roads with in 40mtr of all land & 1.5mtr normal fill, including rough dressing & breaking clothes Maximum 500 mtr to 7000 cm & laying layers not exceeding 0.30 mtr depth as per specifications.	1	3000	7	0.75	6750	Cum	16.78	1,12,717.50
3	Back filling and capping earth work with light H.R.B. in embankments to height not exceeding 1.20mtr in depth as directed by the Engineer-in-charge.	1	3000	7	0.75	6750	Cum	14.22	97,053.00
4	Tough Stone Dry Packing with local Boulder only (Boulder charges local Boulder will be supplied by the Company through concerned material).	2	3	7	1.5	36	Cum	1271.1	45,759.60
Total									3,08,229.10
Or,									12,68,928.00
Or,									14,00,477.00
Or,									14,85,472.00

12/08/2015 31.1.00
2011

(Signature)

Force Range Officer
Chhindrapada Range
Technical Director (S)
Forest Range Officer
Chhindrapada Range
Hindal Aluminium Company Ltd
Bhilai, Sagar-751005

(Signature)
Asst. Commissioner of Forests
Bhilai Division

(Signature)
Commissioner
Bhilai Range Officer
Bhilai Division

ESTIMATE FOR CONSTRUCTION OF SETTLING TANK

Amounts -/-

Sl. No.	Description of items	No.	Length	Width	Height	Qty.	Unit	Wage rate Rs 211.00/day	
								Rate	Amount
1	Earth work in hard soil in environment, work within 20 mtr. radius lead & 1.50 mtr. initial lift including 20% allowance & breaking clods to maximum 500 cm to 700 mm & laying layers not exceeding 0.25 mtr. each as per specification.	1	4.27	3.80	1.50	18.0	Cum	1478	26606
2	Spesification approved by department along with proper comparative with H.R.R. Excavation	1	4.00	3.00	1.40	18.0	Cum	1478	26606
3	Rough Stone Dry Packing with local boulder only (boulder charges & local boulder will be supplied by our Company).	1	4.00	3.00	0.25	4.80	Cum	12011	57654
4	Transportation charges for 500 km lead by truck load from quarry to work site with all cost of labour, fuel & profit of complete in all respect as per specification and instruction of		As same as item No-3			4.80	Cum	874	4174
Rate per cum for Settling tank.									8785.34
Cost of 87 mtr. Settling tank									57965.34
Total Rs 211.00									104876.74
									Or.
									10,48,76.74


 Authorized Signature
 S. K. PATIL
 District Engineer
 District Technical Institute
 Ghatol, Maharashtra
 Chanderkhada Range
 Dist. Warananagar-431031


 Forest Range Officer
 Chanderkhada Range
 Dist. Warananagar

Checked
 District Forest Officer
 District Technical Institute
 Ghatol, Maharashtra

UNDERTAKING

3-814 (1)
ANNEXURE- B-11557

MoEF & CC File No. 8-07/2020-FC dtd. 12.03.2021

Condition No. B (12.iii)

Construction of check dams, retention/bce walls to arrest sliding down of the excavated material along the contour in accordance with the approved scheme;

Compliance to Condition No. B (12.iii)

In compliance to this condition an scheme has been approved by RCCE Angal with total financial outlay of Rs 2,03,54,847/- (Copy of the approved scheme enclosed). NALCO do hereby undertake to do Construction of check dams, retention/bce walls to arrest sliding down of the excavated material along the contour at project cost, as per the approved scheme.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angal, Division


Authorized Signatory

S. K. PATEL
Executive Director (P&T)
Area - I & Technical Department
National Aluminium Company Ltd
Bhubaneswar, Odisha

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(भारत सरकार का उद्योग)
निगम कार्यालय

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

नालको बंगल, नयापल्लडी, भुवनेश्वर- 751 001, भारत

NALCO BHUBAN, Nayapalli, Bhubaneswar-751 001, INDIA

फोन: धारण: (0674) (0674) 230888, 232088, 230813, 230818, 231904, 234303

फैक्स: (0674) 230828, 230880, 230840, 230845 & 230848

वेबसाइट: www.nalcoindia.com

ORDER

Shri. ...
in
M/S. National Aluminium Company Ltd. (NALCO)

at
M/S. ...
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STABILIZE THE OVERBANKED DUMPS BY
APPROPRIATE GRADING/BENCHING IN ACCORDANCE
WITH THE APPROVED SCHEME SO AS TO ENSURE
THAT AT ANY GIVEN PLACE IS LESS THAN 28'

...



ANNEXURE - 3 XV

STABILIZE THE OVERBURDEN DUMPS BY APPROPRIATE SCHEMES SO AS TO ENSURE THAT AT ANY GIVEN PLACE IS LESS THAN 2%

1. INTRODUCTION

Coal of Block of Coal had mined under D & D Block in Taluk Coal field is not available with the Coal field in between Block F Coal field in the Block in the South-East part of Taluk Coal field in between Block F Coal field in the Block in Block D Coal field in the Block. Block F Coal field area of 4.60 sq km between Block D 27°15'N and Longitude 84°54'0" and 27°17' E approximately is under the jurisdiction of Geological Survey of India. Block F Coal field is covered under Survey of India Toposheet No. 25N13 with 1:50,000 scale and 1 km and special area 12 sq km at 1:10,000 scale and 1 km and 1 km with Survey of India Block of Block F Coal field which is required to be drilled under Forest Conservation Act 1980. The contour map 1:25,000 scale in Block F Coal field has 22 contours. The Block F Coal field is approved for zone of mining area in 2011/2012. The area Block F Coal field is 169.179 Ha out of which 165.231 Ha is to be placed in Block F Coal field and 3.948 Ha shall be used as Safety Zone area. The Forest land is required as a part of the proposed coal development for mining purposes.

The Block F Forest clearance no. of 11/1980 was issued by MOEF, GO with the date 04/07/2025. It is 12.03.2001 where it has been stipulated in the condition no. 12 (f) to stabilize overburden dumps by appropriate grading/sloping in accordance with the approved scheme, so as to ensure that angle of repose at any given place is less than 2%.

The mining lease area has been covered in the Survey of India topographic Map No. 23 D/13 on 25° 15'00" (20 m to 1 km) and special quadrangle No. 12 on 25° 10'00" (100 m to 1 km) and falls within Angul District of Odisha. The mine area lies on an area of 4 km square between latitude 20° 28' 37" N and Longitude 84° 29' 00" and 84° 29' 15" E. Administratively it is under the jurisdiction of Chhatrapur Taluk, Angul district. Mining lease area is approximately 22 km by a black topped road up to Chhatrapur.

The nearest railway station is Angul on Talcher-Bhubaneswar railway line of East Coast Railway at a distance of 22 km from mine. This railway line crosses from Chhatrapur. The nearest airport is Bhubaneswar at a distance of 175 km. The mine area is in Chhatrapur Range of Angul forest division.

LOCATION MAP

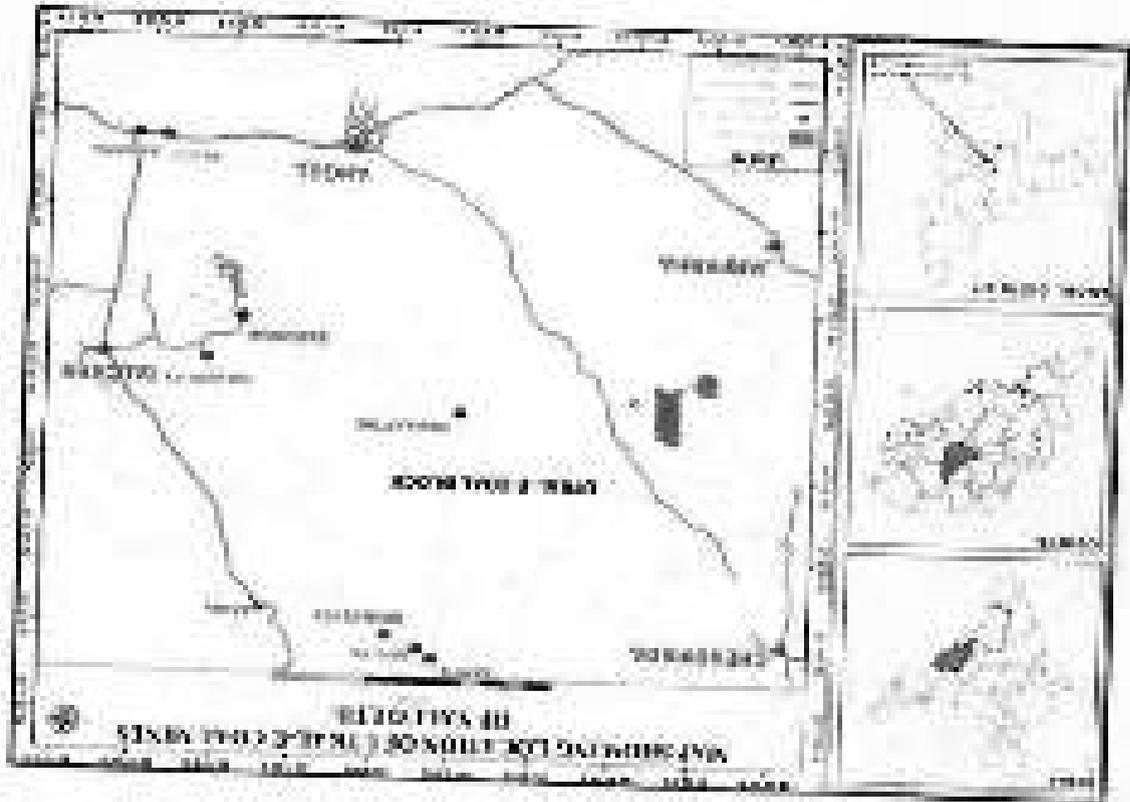


Fig: Location Map of Mine in Angul District, Odisha

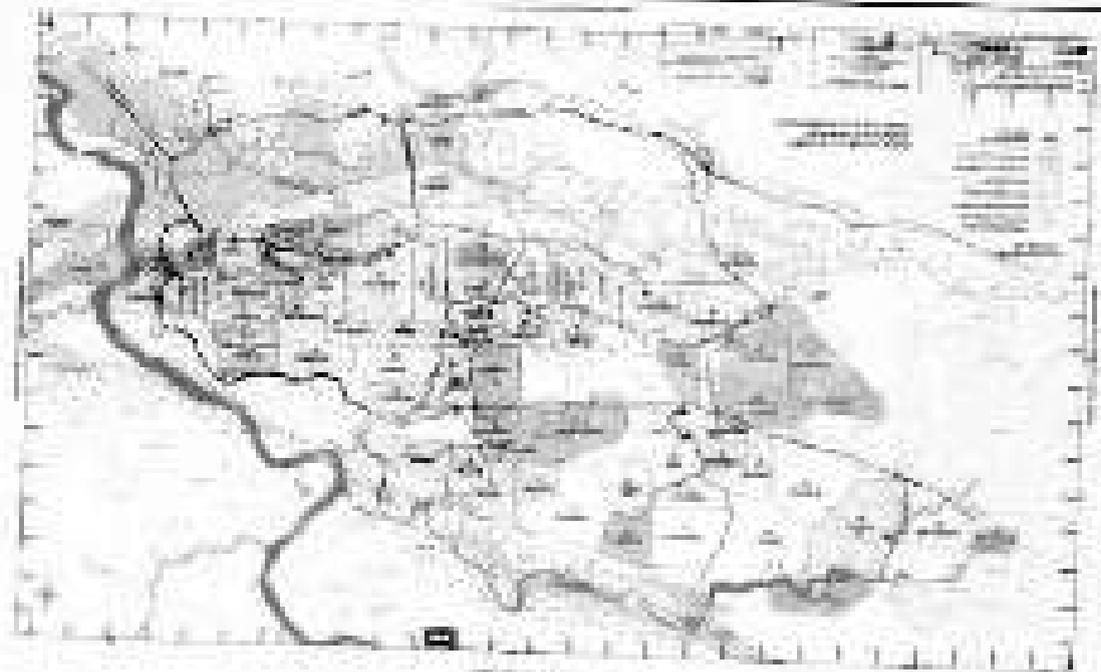


Fig. 2: Mining Lease Map of Central & Southern Part of Coalfield

2.1. INTRODUCTION

The Central and Southern part of the Coalfield is generally the least productive part of the coalfield. The coal seam in this part is thinning towards North. The thickness of the coal seam is generally 1.5 to 2.0 m. The coal seam is thinning towards North. The thickness of the coal seam is generally 1.5 to 2.0 m.

4. LAND USE PATTERNS

Sl. No.	Pattern	Area in (ha.)		
		Village Forest	Non-Forest	Grand Total
1	Shrub	42.2029	104.1486	216.3515
2	Grassland	101.77	143.117	244.887
3	Tea plantation	1.87	0	1.87
4	Road & drainage	2.041	2.153	4.194
5	Orchard, B.S. & other horticulture	13	5.204	18.204
6	Barren & Embankment	4.52	9.58	14.1
7	W.S. Shrub Zone Area further along the lower boundary	2.728	0.443	3.171
8	Shrub Area & W.S. Shrub Zone Area further	1.207	4.201	5.408
9	Shrub Area & Shrub Zone area further	0	8.416	8.416
	Total Shrub Zone area	1.915	21.007	22.922
	Grand Total	169.1116	364.5546	533.6662

5. DETAILS OF FOREST LAND WITHIN THE LEASE AREA

Forest land is earmarked for planting and allied purpose ... 165.2110 Ha

Area set aside for Shrub Zone ... 3.9991 Ha

00.1774 Ha

6. SOIL TYPE

The soil type occurring in the area is mostly sandy loam having good soil depth with pH varying from 4 to 5.

7. CLIMATE

The climate of the area is tropical with hot and humid summer and short spell of winter. The rainfall during some three post-monsoon seasons is common. Minimum rain is from June and continues to middle of October. Maximum temperature occurs in 17° during winter and minimum 10° during winter.

11. THE OBJECTIVES OF THE PROPOSED PLAN

The objectives of the proposed plan are as follows:

- (i) To fulfil the obligation, i.e., condition no. B-12 (iv) imposed in the Special approval granted vide letter No. K-07/2020-14 dated 13.03.2021 of Board of CCI to prepare plan for habitat overboard drains by appropriate landscaping in accordance with the approved scheme, so as to ensure that angle of repose is not less than 25°
- (ii) To start proper Management and scheduling of overboard runoffs so as to overcome erosion during
- (iii) To provide methodology and equipment the proposed works in the board member to prevent slope failure due to providing stable top dump slopes
- (iv) To submit detailed and feasible design by consultant
- (v) To remove surplus of ground soil from the land, the dump areas which lead to erosion in the future.

12. MEASURES ALREADY ADOPTED

There is no biological and structural measures etc., in a food safety zone and an other suitable zone seen like page 90 (C)

13. PROPOSED RESTORATION PLAN

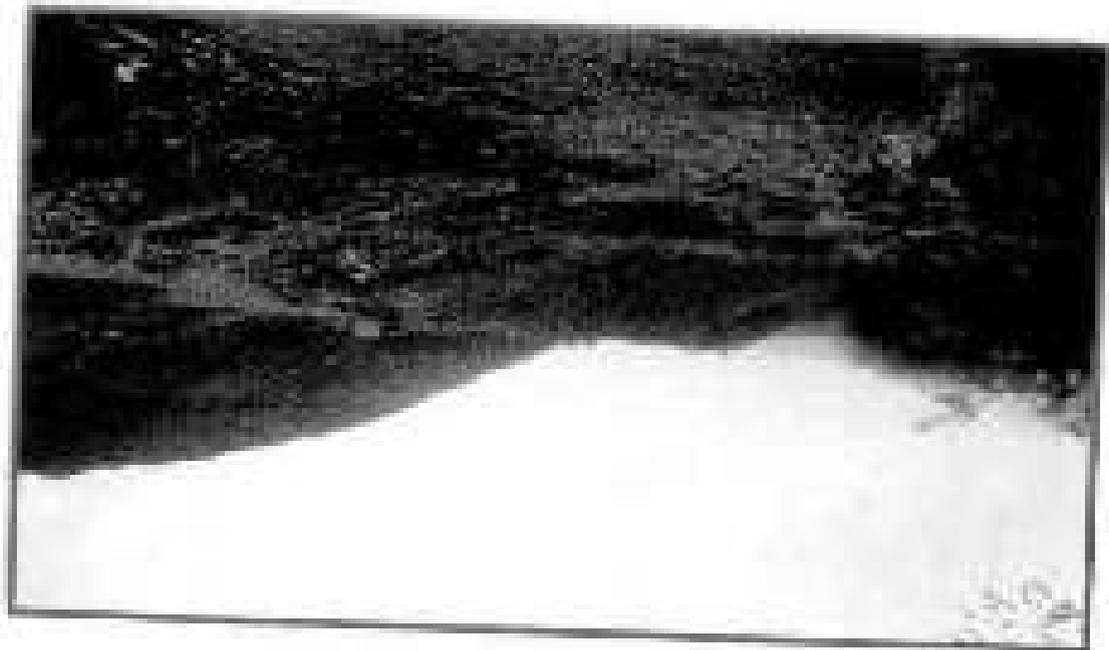
The present on land will be restored, it is necessary to bring even highly eroded land and undulation. In these land, vegetative measures are not adequate to keep down the erosion. Some structural measures are required to be taken before vegetative measures are adopted.

The objective behind existing structural structures is to reduce the degree and length of the erosion of the soil, and to prevent the soil from being washed away.

North	121.4030 M
South	117.057 M
East	201.534 M
West	202.127 M
Total	2002.478 M or 2.002 M

Measurement of Proposed Dumps

Figure 4. Cross-section of CR Dumps



It is proposed to construct seven (7) dumps over a length of 11.78 m on the proposed dump. Establishing the volume of CR materials & the size is essential for designing the slope of individual dumps should be within the permitted range considering the angle of repose of the soil and space available. There by maintaining the angle of repose at less than 20°. The dumping will be done through the narrow passages by deploying the opening thing operation. All these operations will be carried out after sufficient deposition of CR. When the CR will be deposited for 10 years the remaining will compacted. The remaining of the CR (weight) has been provided in attachment 4.

TERRACE OF CR DUMP SLOPE

Formwork will be made as an interval of every 30 M. Height of the column at the construction period will be 90 M. So, there will be 3 formwork.

Total Volume: $375,000 \text{ m}^3$ (with $n = 0.94$)

Radius: $r = 570 \text{ m}$

Consider the width of concrete: 30 m

The radius at $r_1 = 950.50 = 950 \text{ m}$

At the radius at $r_2 = 920.50 = 920 \text{ m}$

Then the length of concrete $(L_1) = 2\pi r_1 = 3783.0$

And Area of surface $(L_1) = 2781 \text{ m} \times 30 \text{ m} = 83430 \text{ m}^2$. The Area of 20 HA.

Similarly

Length of concrete $(L_2) = 2\pi r_2 = 3605 \text{ m}$

And Area of concrete $(L_2) = 5595 \text{ m} \times 30 \text{ m} = 167850 \text{ m}^2$ or 20 HA.

Total length of concrete $(L) = L_1 + L_2 = 11388 \text{ m}$

14. INSPECTION, MAINTAINING AND EVALUATION

For successful implementation of the above works under the present system, intensive inspection and technical support from concerned agencies with a regular technical correspondence through the technical reports shall be provided by the concerned agency. An estimation of these programmes, including provision of 15% of the total project cost for their execution.

15. EXECUTIVE AGENCY

The work of the present Scheme shall be carried by the Post Office having special departments headed by district officers and several men and machines. The factors are the use of machinery and equipment including with regard to technical matters. In order to maintain the quality of work, the necessary supervision should be provided. The entire work shall be carried out in co-operation with the Post Office.

16. SPECIALIZED CELL

Specialist	Executive	Operational	Qualification	Present	Designation
1. Mr. A. K. Singh	1. Mr. A. K. Singh	B.Tech (Mech)	Senior Manager (S)	Project Management	Project Management
2. Mr. B. K. Singh	2. Mr. B. K. Singh	B.Tech (Mech)	Deputy Gen. Manager	Project Management	Project Management
Dr. A. K. Singh	Dr. A. K. Singh	B.Tech (Mech), M.Tech	Deputy Gen. Manager	Technical Staff	Technical Staff
3. Mr. C. K. Singh	3. Mr. C. K. Singh	B.Tech (Elect)	Asst. Gen. Manager (Elect)	Technical Staff	Technical Staff
4. Mr. D. K. Singh	4. Mr. D. K. Singh	B.A.	Asst. Manager (Gen)	HRD, Admin Staff	HRD, Admin Staff
5. Mr. E. K. Singh	5. Mr. E. K. Singh	B.Tech (Mech)	Manager (Mech)	Shop Assistant	Shop Assistant
6. Mr. F. K. Singh	6. Mr. F. K. Singh	M.Tech (Mech)	Manager (Gen)	Chief Engineer	Chief Engineer
7. Mr. G. K. Singh	7. Mr. G. K. Singh	B.Tech (Mech)	Senior Manager (Gen)	Senior Chief Clerk	Senior Chief Clerk

ANNEXURE-1

TERMINATING BY THE IMPROPER

Repayment of HEDM on the O/S dump days for terminating

Contract - DWT Baidya Chandra, 194112

Make offer every fortnight - 2.5% monthly interest on the loan

width & height of the house - 30 m x 20 m

and the organization of HEDM - Rs.1294.00/m² or Rs.1294.00 x 600.00 = Rs.776,400 per

month interest

total cost is Rs.10.8 million interest - Rs.520.55 x 11.75% = Rs.611,118

Therefore, remaining to be done every month is Rs.11,375 HEDM or Rs.604,218.

Therefore, Baidya Chandra Party One Thousand Seven Hundred & Eighty-four only.

Repayment of HEDM (Company Ltd (PVT)) is hereby awarded to award the loan of

cost.

Approved Signature
 S. K. SINGH
 Director, National Development
 Project & Technical Department
 Government of India

Joint Director of Forest
 Government of India
 Chandrapur Range

Chandrapur
 District Forest Officer
 Chandrapur Range
 Government of India

UNDERTAKING

ANNEXURE- B- ~~XXXXXX~~ 

MoEF & CC File No. 8-05/2020-FC dttd. 13/03/2021

Condition No. B (12.iv)

Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28° ;

Compliance to Condition No. B (12.iv)

In compliance to this condition an scheme has already been approved by RCCF Angul for a total financial outlay of Rs 60.41,716/- (Copy of the approval scheme enclosed). NALCO do hereby undertake to Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approval scheme, so as to ensure that angles of repose at any given place is less than 28° as per the approved scheme at project cost.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division


Authorized Signatory

B. K. PATEL
Executive Director (PATN)
Area - 13 Technical Department
National Aluminium Company Ltd.
Bilaspur-751054

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(एक सार्वजनिक उद्योग)
बिना बंधनपूर्वक

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

नालको कार्यालय, बभुआ, भुवनेश्वर-751054, भारत

NALCO BHUBAN, Nayagarh, Bhubaneswar-751054, INDIA

TELEPHONE: (674881) (6749) 251265, 251266, 251267, 251268, 251269, 251270, 251271, 251272

फैक्स: (6749) 251228, 251229, 251230, 251231, 251232 & 251233

वेबसाइट: www.nalco.co.in

1/10/2022



For

**STRICT ADHERENCE TO THE PRESCRIBED TOP
SOIL MANAGEMENT.**

In compliance

with

Condition No. 12 of the

Stage-I Forest Clearance Granted with

Wild Letter No. 4-472824-FC, Dated 11.01.2011

of Govt. of India, Ministry of Environment, Forests & C.C.,

New Delhi

for

Reclamation of 118,179 Ha of Forest Land

(including of safety zone)

Within 503.725 Hectar 'C' Coal Mining Lease

of

M/S National Aluminium Company Ltd. (NALCO)

in

Chhendipada Taluk, Sub-Div. - Angul, Dist. Angul

Odisha.

SCHEME FOR STRICT ADHERENCE TO THE PRESCRIBED TOP SOIL MANAGEMENT

1. INTRODUCTION

Govt. of India (Coal) had allotted Utkal-D & Utkal-E Coal Block in Talcher Coal field to M/s. NALCO vide allotment Order No. F.No. 14134/2015/MA, dated 02.10.2016. The Block is located in the South-Central part of Talcher Coal field in between Utkal-F Coal Block in the West & Utkal-D Coal Block in the East. Utkal-E Coal Mine spans over an area of 4.60 sq.km between Latitude $20^{\circ}50'57''$ and $20^{\circ}58'58''$ N and Longitude $84^{\circ}55'49''$ and $84^{\circ}56'37''$ E. Administratively it is under the jurisdiction of Chhendipada Taluk, Angul district. Utkal-E Coal Mine is covered under Survey of India Toposheet No. 73-D07 on RF 1:20,000 (7 km to 1 km) and special toposheet No. 12 on RF 1:10,000 (10km to 1 km) and falls within Angul District of Odisha. Utkal-E Coal Mine comprises an area of 531.7525 Ha. out of which 166.1779 Ha. area is of Revenue Forest land which is required to be diverted under Forest Conservation Act 1980. The remaining area 122.0581 Ha. is 1963 Non-Forest land and 222.4965 Ha. is Private Land.

The area approved for grant of mining lease is 525.7125 Ha. The total forest land is 166.1779 Ha. out of which 165.2319 Ha. is to be diverted for Non-Forest mining use and 0.946 Ha. shall be used as Safety Zone area. The Forest Land is required as a part of the proposed coal mining project for mining purpose only.

The Stage-I Forest clearance as of FC Act 1980 was granted by MoEF & CC vide their letter No. 843/2021-FC Dt. 12.03.2021 where in it has been stipulated as per condition no.12 (a) to strict adherence to the prescribed Top Soil Management.

2. LOCATION

The mining lease area has been covered in the Survey of India toposheet No.73-D07 on RF 1:20,000 (7 km to 1 km) and special toposheet No. 12 on RF 1:10,000 (10km to 1 km) and falls within Angul District of Odisha. The Mine spans over an area of 4.60 sq.km between Latitude $20^{\circ}50'57''$ and $20^{\circ}58'58''$ N and Longitude $84^{\circ}55'49''$ and $84^{\circ}56'37''$ E. Administratively it is

under the jurisdiction of Chhindupada Taluk, Angul district. Mining lease area is approachable from Angul covering a distance of 22 km by a block topped road up to Chhindupada.

The nearest railway station is Angul on Tachar-Sambalpur railway line of East Coast Railway at a distance of 22 km from Mine. This railway line connects Puri to Sambalpur. The nearest airport is Bhubaneswar at a distance of 172.0 K.M. The ML area is in Chhindupada Range of Angul Baran division.

LOCATION MAP

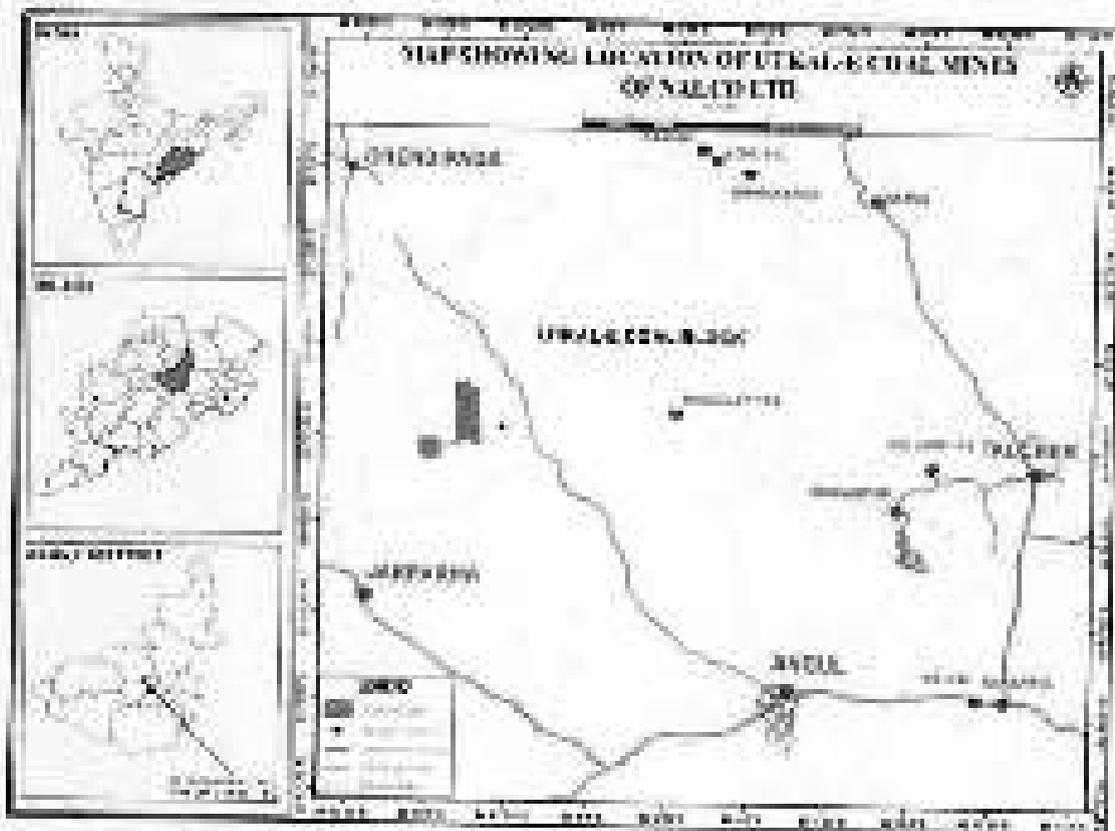


Fig.1: Location Map of Utkal 'E' Coal Block, NALCO

Map of the Project

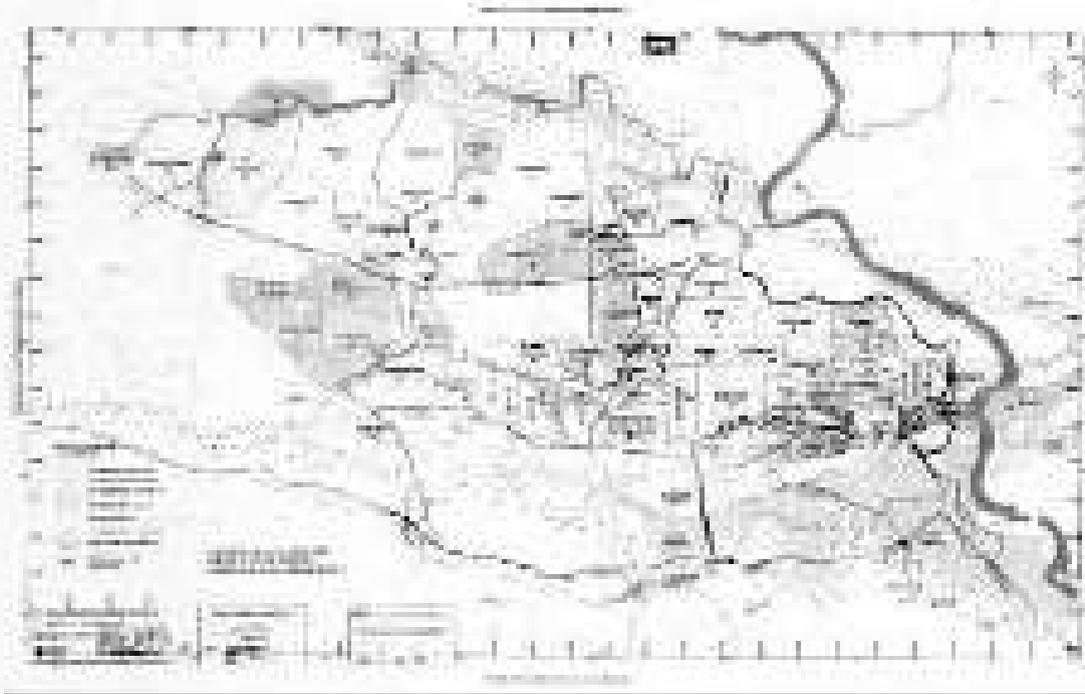


Fig.2: Mining Lease Map of Ural 'K' Coal Block, NALCO

3. TOPOGRAPHY

The Central and Southern part of this Coal Block is generally flat land. Northern part is moderately undulated. Overall ground slope is dipping towards North. Singla Dhar is the main drainage of surrounding area which is a tributary of Baberani river. The maximum elevation of the lease area is 180m above sea level, lowest 135 m.

4. LANDUSE PATTERN

Sl. No.	Pattern	Area in (Ha.)		
		Village Forest	Non-Forest	Grand Total
1	Mining	42.2379	164.0456	206.2835
2	Dumping	101.77	148.117	249.887

3	Tap Soil Stack	1.87	0	1.87
4	Road & Corridor	2.844	3.153	5.997
5	Office, H.S. & Other Infrastructure	11	5,249	18,249
6	Barrier & Embankment	4.32	4.58	13.9
7	7.5 Safety Zone Area barrier along the lease boundary	2,254	6,443	9,182
8	Singda Jhor & Its 500 Safety Zone barrier	1,207	9,494	10,701
9	Magnesium & its safety Zone area	8	8,465	8,465
	Total Safety Zone area	3,946	24,487	28,353
	Grand Total	169,177.9	294,554.8	523,732.8

5. DETAILS OF FOREST LAND WITHIN THE LEASE AREA

Forest land to be reserved for mining and allied purposes ... 165,231.9 Ha

Area set aside for Safety Zone ... 3,946 Ha
169,177.9 Ha

6. SOIL TYPE

The soil type occurring in this area is mostly sandy loam having good soil depth with pH varying from 6 to 8.

7. CLIMATE

The climate of this area is tropical with hot and humid summer and short spell of winter. Occasional thunder storm during pre-monsoon season is common. Monsoon sets in from late June and continues to middle of October. Maximum temperature comes to 47°c during summer and minimum 10°c during winter.

8. DRAINAGE

River Brahmani flowing in approximately north south direction along the eastern boundary of the lease area provides the main drainage. Singda Jhor sub flowing west to east along northern boundary of this Coal Block carries the local drainage in to river Brahmani. Singda Jhor maintains a base flow even during dry summer months.

9. EXISTING VEGETATION

The area proposed for diversion include's species as detailed below:

Local Name	Botanical Name
Kuram	<i>Adina cordifolia</i>
Jack Fruit	<i>Artocarpus heterophyllus</i>
Garlic	<i>Cratogeomys arborea</i>
Tomarita	<i>Tournefortia bicolor</i>
Jarun	<i>Bignoniaceae cuneata</i>
Bahal	<i>Apocynum venetum</i>
Kuram	<i>Adina cordifolia</i>
Mahurita	<i>Albizia leucacantha</i>
Sira	<i>Artocarpus heterophyllus</i>
Sisoo	<i>Dalbergia latifolia</i>
Mango	<i>Mangifera indica</i>
Acacia	<i>Tournefortia bicolor</i>
Sarejhal	<i>Acacia acuminata</i>
Sunai	<i>Cassia grandis</i>
Sunay	<i>Prosopis juliflora</i>

10. PLAN FOR TOP SOIL MANAGEMENT

Average 1.5m thick top soil is available. The excavated top soil over 500 700 cum shall be saved separately before concrete content of mining activities in the proposed area and stacked separately at the earmarked area in 1m height top soil dump. Top soil will be preserved by planting grass on slopes and top of the dump. All the overburden waste dumps will have a maximum height of 30m and slope of 28°. At the end of mining, all the dumps will be biologically solidified. Top soil will be preserved as per top soil management method detailed below.

This Topsoil Management Plan has made provision for soil stripping and stacking procedures to minimize top soil degradation and to ensure maximum availability of suitable soil for future reclamation within M.L. zone of 1:1000 TL. Prior to mining, top soil is to be stripped in areas likely to be disturbed by mining operation and stored. A comprehensive top soil

management plan has been prepared keeping in view the Conservation and regeneration of plants and afforestation in and around the area where top soil is to be stored.

11. OBJECTIVES

The objectives of Top soil management to be executed are as follows.

- i) To meet the stipulation of Section 10 (c) of Surface Forest lease accorded vide letter No. 4-10/2020-11 dated (10.05.2021) of MoEF & CC, GOI, New Delhi in "Strict Adherence to the Prescribed top Soil Management".
- ii) To identify top soil resources, and to follow stripping guidelines for optimum recovery.
- iii) To identify stockpile locations and dimensions.
- iv) To manage and conserve the top soil reserves by implementing biological measures.
- v) To provide sufficient viable top soil for reclamation work of dumps, back filled areas and degraded lands.

12. PLAN FOR MANAGEMENT OF TOP SOIL TO BE GENERATED FROM MINING

The top soil of ML area is sandy which is present in relatively thin layers (i.e. 0.2m). Whatever top soil is available will be evaluated during the development of technical profiles within the mining lease. Precautionary measures will be taken so that this valuable resource is not wasted. This evaluated top-soil will be utilized for reclamation works in the mine as per this plan. The top soil will be stored temporarily until it is being used for dump reclamation. The details of top soil to be generated during life of the lease period will be as follows:

This Top soil Management Plan has provision for soil stripping and stockpiling procedures to minimize top soil degradation and maximize availability of viable soil for future reclamation.

13. FUTURE TOP SOIL GENERATION FROM MINING ACTIVITIES

Soil studies have shown that the average thickness of topsoil will be around 0.5m. The quantity of topsoil to be stripped in a phased manner from the site, which will be used during life

of the lease area for reclamation of the existing O&G strips, backfilled and other barren/degraded areas.

Prior to stripping, the area will be cleared by removing the weed growth. The proposed procedure for soil handling is given below which includes soil handling measures in order to optimize retention of soil characteristics (in terms of nutrients and micro-organisms) conducive to grass development.

14. METHODOLOGY

In accordance with the above objectives of providing sufficient stable soil for rehabilitation and to optimize soil recovery, the following strategies have to be followed:

- i) Top soil stock piles has been identified within the quarry area.
- ii) Stripping off the top soil by dozer or by small shovel/dumper combination rather than scrapers to minimize structural degradation.
- iii) Construction of stock piles with a "rough" surface condition to reduce erosion hazard.
- iv) Improvement of drainage and promotion of re-vegetation.
- v) Stabilization of Top soil surface by biological measures i.e. by sowing seeds of grass with other leguminosae (Fabaceae) species.
- vi) To utilize stripped top soil as soon as possible for rehabilitation in a planned manner in accordance with the reclamation plan as prescribed in the Mining Plan approved.

15. PLAN FOR MANAGEMENT OF EXCAVATED TOP SOIL

To minimize the detrimental effects of long-term storage of topsoil in stockpiles, the following procedure will be followed prior to stripping activities.

Appropriate delineation of areas for storage of top soil. A small area has been planned & accordingly the area will be demarcated for storage of top soil. According to Land Use Pattern in the approved Mining plan 1.87 ha area has been earmarked for storage of top soil. Hence as per the stipulation of the Stage-I approved order, this area will be utilized for storage of Top soil within the lease area.

The total lease area is to be worked in 30 years. As in every 5 years whatever area will be mined will be back filled by O&G. The surface area mined at for mining is 1659 m x 1174 m

= 19,74,566 sqm over a length of 30 years i.e. mining lease period. Therefore, in every five years 19,74,566 sqm / 5 = 3,94,913 Sqm. The depth of top soil is 0.5 m. So, 3,94,913 x 0.5 = 1,97,456 cum top soil will be collected and heaped.

Tie Wall up to a height of 1.0 m, will be erected around the top soil heaped. The cost norm of Tie wall construction has been provided in Annexure-2.

The topsoil stripping will be completed by using bulldozers andippers of smaller capacity in case of good quantity. In areas where the topsoil is relatively thin, the same will be removed in such a way so as to prevent mixing of topsoil and sub-soil.

Stockpiles will have erosion control by constructing loose boulder wall with correct sand.

Permanent measures include establishment of vegetation, grass seed sowing with Leguminosae (*Leucaena*) (The Green grass (*Panicum polyanthum*), Black grass (*Panicum strigosum*), Kikar grass (*Desmodium intybus*) and broadcasting of seeds of local shrubs + grasses will be done to mitigate soil erosion and dust emissions. The total area for sowing of grass seeds comes to 0.55 Ha. The cost norm of Grass seeding has been provided in Annexure-3.

16. PLAN FOR CONSERVATION OF TOPSOIL IN BARRKEN LANDS

The forest land of the region is prone to soil erosion as the entire landscape will be affected due to mining & wellbore activities in the vicinity. Soil erosion problem varies from area to area within the lease, depending on the topography, soil types, vegetation, and management interventions of the catchment. Hence, it is very important to control erosion of top soil from the area, which will result in enhancement of in-situ nutrient conservation by enrichment of water table profile for more availability of water so that the top soil is conserved for supporting the growth of trees.

17. TOP SOIL CONSERVATION PLAN

Area from which top soil will be collected during 1 st five years	Top soil to be deposited over
3,94,913 sqm	0.55 Ha.

The Top soil will be collected and stored preferably near the proposed sites to avoid damage. As the mining operation progresses, the top soil will be collected and stored. When the area earmarked for 1st five years is complete, the backfilled process can progress over which the top soil will be covered and mining in the areas identified for 2nd five years can commence. Surface of the top soil will be sown with grass seeds so that a mat of grass turf is made over the surface of the top soil and this will prevent erosion of the top soil by rain water under weathering conditions like bare of wind.

18. INSPECTION, MONITORING AND EVALUATION

For successful implementation of the above scheme, intensive inspection and technical guidance from Forest officials & concerned technical wing of NALCO will be sought. Budgetary provision for 15% of the total project cost has been earmarked.

19. EXECUTING AGENCY

In all the cases, the works shall be executed by NALCO having specialized departments headed by qualified persons with equipped man and machinery as and where required. To facilitate this, the user agency shall establish its own executing and supervisory cells along with required infrastructural facilities. In order to maintain the quality of work, in house supervision through competent personnel shall be provided. The entire work shall be carried out through close co-ordination with the Forest Department.

20. SPECIALIZED CELL

Name of Executive	Educational Qualification	Present Designation	Expertise
T. Parthak	B.Tech (Met.)	General Manager (S)	Project Management
J. Mitt	B.E. (Metall)	Deputy Asst. Manager	Project Management
Dr. A. Rou	B.Tech (Mining), M.Tech (Environment)	Deputy Gen. Manager (Mines)	First Class Mines Manager Certificate (Coal)
B. Pradha	B. Tech. (Elect.)	Asst. Gen. Manager (Elec.)	Electrical Engg.

N.C. Bohara	B.A.	Sr. Manager (Secy)	HRD, Admit. Level
H. Krishna	B. Tech (Mining)	Manager (Miner)	Mining Engineer
	M. Tech (Mining)		
S. K. Saha	Diploma (Civil)	Manager (Civil)	Civil Engg.
T. C. Jindal	B. Tech (Mining)	Deputy Manager (Miner)	Second Class Miner Manager Certificate

II. REQUIREMENT OF FUNDS

The total cost of implementation of measures for Top Soil Management will be Rs. 59,61,119/00 (Rupees Fifty Nine Lakhs Sixty One Thousand One Hundred Twenty-nine) only. This budget will be subject to increase in amount considering the increase in material cost and labour charges.

Authorized Signatures


S. H. PATEL
 Executive Director (M&T)
 M&T & Technical Department
 Ministry of Environment, Government of India


 Comptroller
 Divisional Forest Officer
 Aragal Forest Division
 Divisional Forest Officer
 Aragal Division


 Forest Range Officer
 Chhendipada Range


 Asst. Conservator of Forests
 Aragal Division

TOTAL COST OF TOP SOIL CONSERVATION & MANAGEMENT

Year Rate Rs. 51,08,129/-

Sl. No.	Description of the work	Funds Required (In Rs.)
1	Unbroken Virginia from where top soil can be collected = 20.0 Ha A. Stipping cost - 0.5 ha/hr. @ Rs. 3379.00/- Therefore for 20 Ha. Cost/0.5Ha = 40 hrs. + 2 hours morning, = 42 hrs. @ Rs. 3379.00/- = Rs. 1,41,918.00 B. Loading & Transportation cost from site to top soil stockpile cost to be = 1859 m ³ (20 x 1179 m ³ Stock) = 19,74,666 x 0.25 m ³ = 9,73,833 m ³ @ = 1,62,206 m ³ (average factor 1.6) = 23,051 m ³ @ Rs. 18,5834/- = Rs. 10,43,628/- C. Cost of loading with 625 manpower @ Rs 211.00 i.e. Rs. 1,34,375.00	13,79,921.00
2	Cost of sowing of grass seed over 20 ha @ Rs. 21,440.00/- per ha.	4,28,800.00
3	Cost of erection of 1000 m dry brick wall around top soil stock pile	25,10,958.00
	TOTAL:	43,19,679.00
	Provision for 20%	8,63,931.80
	TOTAL:	51,83,610.80
4	Inspection, Monitoring & Evaluation 15% of the total project cost.	7,77,536.62
	GRAND TOTAL:	59,61,147.42 Or 59,61,129.00

(Rupees Fifty Nine Lakhs Sixty One Thousand One Hundred Twenty Nine) only.

Authorized Signatory

S. K. PATEL
S. K. PATEL

Executive Director (PST)
Project & Technical Directorate
National Aluminium Company Ltd
Bhubaneswar-751 021

Forest Officer
Chandrapada Range

[Signature]
Overlooked
Divisional Forest Officer
Angul Forest Division
Divisional Forest Officer
Angul, Division

[Signature]
Asst. Conservator of Forests

[Signature]
Approved

Annexure I

COST OF GRASS SEED SOWING FOR ILS

Wage Rate Rs. 311.00/Day

No. No.	Purpose	No of Labour/ Quantity of material	Rate (Rs.)	Amount (Rs.)
1	Spreading of good earth and FYM including cartage	21 Nos	311.00	6531
2	Adding FYM and good earth	2 TL FYM	1,000/TL FYM	2000
		2 TL good earth	1,000/TL Good earth	2000
3	Cost of grass seed 50kg/acre		100kg	2500
4	Breakdown sowing	20 nos	311.00	6220
Total				21,440

(Rupees Twenty One Thousand Four Hundred Forty Rupees)

Authorized Signatory


S. K. PATEL 30/17
Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751 031


Certified

Divisional Forest Officer
Angul Forest Station
Divisional Forest Officer
Angul, Division


Forest Range Officer
Chandipur R2079


Asst. Conservator of Forests
Angul Division

Annexure - 1

Detail Estimate of The wall of loose leaf Baffle with cement-sand Painting over the surface of Baffle wall

Wage rate Rs.211.00/Day

Sl. No.	Description of item	Qty	Length	Width	Height	Uts	Half	Rate	Amount
1	Earth work to form wall of sturdy soil with 50mm nominal lead & 1.5% min initial lift including rough dressing & breaking steps to Maximum 500 mm to 750 mm & laying layers not exceeding 0.30 m in depth and as per the direction of the Engineer-in-charge.	1	1000	10.7	0.7	CUM	490	167.4	82224.0
2	Filling in foundation and plinth with soil obtained and returned	1	1000	0.7	0.075	CUM	53.5	321.1	17183.25
3	Cement concrete 10-10 grade (PCC) 1:1.5 for foundation with crushed broken granite coarse aggregate of size 40mm, retrograde mixed in concrete measure including as a convenience and royalty of all materials, machinery and labour and bying in head works and canal structures with required lifts and the lifts as per direction of Engineer-in-charge.	1	1000	0.5	0.075	CUM	35	3760.2	132157.5
4	3000 CUM WORK for foundation forming crushing brought out less than 75 Kgs/cum with dimensional accuracy all percent in cement mortar 1:20 in foundation and plinth per cum.	1	1000	0.375	0.3	CUM	191	3592.4	686150
5	DRIVEN BOLTS for Scaffolding working	1	1000	0.25	1	CUM	300	3592.4	1077720

6	Concrete for plain M-20 grade with crushed broken granite coarse aggregate of size 20mm downgraded or lost in batching and reworked including cost of all materials, manumetics and labour and transportation of mixed concrete.	1	1000	0.25	0.1	CUM	25	446.7	1,241.71
7	Concrete for coping M-20 grade with crushed broken granite coarse aggregate of size 20mm downgraded or lost in batching and reworked including cost of all materials, manumetics and labour and transportation of mixed concrete.	1	1000	0.55	0.229	CUM	1.79	1146.7	3910.15
Total:									11,646.543
									15,10,9377
									Or,
									15,10,9390

(Rupees Twenty Five Lakhs Ten Thousand Nine Hundred Thirty Eight only)

Authorized Signatory

S. H. PATIL

Executive Director (R&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751001

Forest Range Officer
Chhendipada Range

Asst. Conservator of Forests
Angul Division

Countersign
Divisional Forest Officer
Angul Division

नालको NALCO

UNDERTAKING

ANNEXURE B-3(15)

XVI(1)

MoEF & CC File No. 8-07/2020-FC dttd. 12.03.2021

Condition No. B (12.1)

No damage shall be caused to the top-soil and the user agency will follow the top soil management plan.

Compliance to Condition No. B (12.1)

In compliance to this condition an scheme has already been approved by RCCF Angul for a total financial outlay of Rs 50,61,129/- (Copy of the approved scheme enclosed). NALCO do hereby undertake that no damage shall be caused to the top-soil and the NALCO will follow the top soil management plan at project cost as per the approved scheme.

Place: Bhubaneswar

Date:


Authorized Signatory

S. K. PATEL
Executive Director (P&T)-I
Project & Technical Department
National Aluminium Company Ltd
Bhubaneswar-751001


Divisional Forest Officer
Angul Division

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(भारत सरकार की उद्यम)

विद्युत आयोग

राजकीय भवन, ब-बंगलाली, भुवनेश्वर-751 001, भारत

फोन - फ़ैक्स (CORMC) (8074) 2261818, 2261819, 2260813, 2260814, 2261815, 2261816, 2261817

टेलीग्राम - (8074) 2261818, 2260813, 2261815, 2260814 & 2261817

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

MAI CO SHARAH, Nayapalli, Bhubaneswar-751 001, INDIA

WEBSITE: www.nalcoaluminium.com

UNDERTAKING


ANNEXURE - 14-NALCO/2021

MoEF & CC File No. 8-07/2020-FC dtd. 13.03.2021

Condition No. B (13)

The boundary of the diverted forest land, mining lease and safety zone, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinate;

Compliance to Condition No. B (13)

In compliance to this condition this is to state that the boundary of the diverted forest land, mining lease and safety zone area, as applicable, has been demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates.

Place: Dhanuadwar

Date:


Divisional Forest Officer
Ansil, Division


Authorized Signatory

S. K. PATEL
Executive Director (P&T)
Area 13, Technical Department,
National Aluminium Company Ltd.
Dhanuadwar-751001

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(भारत सरकार का उद्यम)
रिंग मार्गद्वारा

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

राजधानी भवन, नया दिल्ली, पुणे/कोलकाता-751001, भारत

NALCO Bhawan, New Delhi, Mumbai/Kolkata-751001, India

फोन नम्बर: 011-23212001 (P&T), 23212002, 23212003, 23212004, 23212005, 23212006, 23212007

फैक्स नम्बर: 011-23212008, 23208002, 23207003, 23206004 & 23205005

वेबसाइट: www.nalco.co.in

UNDERTAKING

XVII

Annexure- B-XIV

MoEF & CC File No. S-97/2020-FC dttd. 12.03.2021

Condition No. (14)

The layout plan of the mining plan/proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal;

Compliance to Condition No. (14)

In compliance to this condition, Nalco do hereby undertake that the layout plan of the mining plan/proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal.

Place: Bhubaneswar

Date


Divisional Forest Officer
Angul Division

Authorized Signatory


S. K. PATEL
Executive Director (P&T)-I
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751011

नेशनल एल्युमिनियम कम्पनी लिमिटेड

(सात प्रस्ताव वा प्रस्ताव)

नियम कार्यालय

नालको भवन, भुवनेश्वरी, भुवनेश्वर- 751 001, भारत

ता. फोन (भारत) (देश) ०६७४९ २०११९१ २०१११३ २०१११४ २०१११५ २०१११६ २०१११७ २०१११८

फैक्स: ०६७४ २०११२९ २०११३० २०११३१ २०११३२ २०११३३ २०११३४ २०११३५

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BHASKAR, Nayagarh, Bhubaneswar-751 001, INDIA

वेबसाइट: www.nalcoindia.com

UNDERTAKING

XIX
Annexure- B-~~XX~~

MuEF &CC File No. 8-07/2020-FC dtd. 12.03.2021

Condition No. (15)

The Forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;

Compliance to Condition No. (15)

In compliance to this condition, Nalco do hereby undertake that the forest land proposal to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government.

Place: Bhubaneswar

Date:


Authorized Signatory


Divisional Forest Officer
Angul, Division

S. K. PATEL
Executive Director (P&T)
Project & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751031

नेशनल एल्युमिनियम कंपनी लिमिटेड
(एक निजी कंपनी का स्वरूप)
सिंहार कार्यालय

नालको भवन, नवपावनी, भुवनेश्वर-751 031, भारत

CO. Phone: (66440) 2501180, 2501181, 2501182, 2501183, 2501184, 2501185, 2501186

Telex: 90140, 90141, 90142, 90143, 90144, 90145, 90146, 90147, 90148, 90149

National Aluminium Company Limited

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NALCO BHARATI, Nayagaon, Bhubaneswar-751 031, INDIA

Website: www.nalcoindia.com

UNDERTAKING

XX

Annexure- B-XVI

MeEF & CC File No. 8-47/2024-FC dttd. 12.03.2024

Condition No. (16)

No damage to the flora and fauna of the adjoining area shall be caused;

Compliance to Condition No. (16)

In compliance to this condition, Nalco do hereby undertake that No damage shall be caused to the flora and fauna of the adjoining area;

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul, Division


Authorized Signatory
S. K. PATEL
Executive Director (P&T)-I
Project & Technical Department
National Aluminium Company Ltd
87, Loosabara-751031

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(एक राज्य का उद्योग)
निगम कार्यालय

नालको भवन, भवानीली, भुवनेश्वर-751031, ओडिसा

फोन: फ़ोन (ERP/CC) (24x7) 2380548, 2380549, 2380551, 2380552, 2380553, 2380554, 2380555

फ़ैक्स: फ़ोन 2380556, 2380557, 2380558, 2380559 & 2380560

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BHAVAN, Bhubaneswar, Bhubaneswar-751 031, INDIA

वेबसाइट: वेबसाइट: www.nalcoindia.com

UNDERTAKING

XXI

Annexure- D-551

MuEF & CC File No. 8-07/2021-FC dtd. 12.03.2021

Condition No. (17)

The User Agency shall submit the annual self-compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly;

Compliance to Condition No. (17)

In compliance to this condition, Nalco do hereby undertake that Nalco shall submit the annual self-compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to the Ministry by the end of March every year regularly.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Aegal Division


Authorized Signatory

S. K. PATEL
Executive Director (PST)-I
Pw-1 & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751001

नेशनल एल्यूमिनियम कंपनी लिमिटेड
(ए गवर्नमेंट ऑफ इंडिया कंपनी)
लिमिटेड कार्यालय

National Aluminium Company Limited

(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BHAVAN, Nayapalli, Bhubaneswar-751001, INDIA

राज्याची कार्यालय, भुवनेश्वर, झारखण्ड - 751 001, भारत

फोन: 0674412301234, 2308588, 2309143, 2320838 & 2320246

फॅक्स: 0674412301234, 2308588, 2309143, 2320838 & 2320246

वेबसाईट: www.nalcoindia.com

UNDERTAKING

XII

Annexure- B- ~~XXXXXX~~

MoEF & CC File No. 8-05/2020-FC dttd. 12.03.2021

Condition No. (18)

Any other condition that the concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of conservation, protection and development of forests & wildlife; and

Compliance in Condition No. (18)

In compliance to this condition Nalco do hereby undertake that Nalco shall comply any other condition that concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of conservation, protection and development of forests & wildlife.

Place: Bhubaneswar

Date:


District Forest Officer
Angul Division


Authorized Signatory

S. K. PATEL
Executive Director (P&TH)
Engg. & Technical Department
National Aluminium Company Ltd.
Bhubaneswar-751001

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(ए गवर्नमेंट ऑफ इंडिया एंटरप्राइज)
नियम कंपनीलया

National Aluminium Company Limited
(A Government of India Enterprise)
CORPORATE OFFICE

नालको भवन, बhubaneswar, गुजरातराज्य - 751 001, भारत

NALCO BHAVAN, Bhubaneswar, Gujarat-751 001, India

फोन: 0674-2501268, 2501269, 2501270, 2501271, 2501272, 2501273, 2501274, 2501275

फैक्स: 0674-2501268, 2501269, 2501270, 2501271 & 2501272

वेबसाइट: www.nalco.co.in

UNDERTAKING


Annexure- B-KX

MoEF & C.C. File No. 8-037020-FC dtd. 12.03.2021

Condition No. (19)

The User Agency shall comply all the provisions of the all Acts, Rules, Regulations, Guidelines, Hon'ble Court Order (s) and NGT Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project.

Compliance to Condition No. (19)

In compliance to this condition, Nalco do hereby undertake that the Nalco shall comply all the provisions of the all Acts, Rules, Regulations, Guidelines, Hon'ble Court Order(s) and NGT Order (s) pertaining to this project, if any for the time being in force, as applicable to the project.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Angul Division


Authorized Signatory

B. K. PATEL
Executive Director (R&T)
Chief of R. Technical Department
National Aluminium Company Ltd
24, Bhubaneswar-751 001

नेशनल एल्युमिनियम कंपनी लिमिटेड
(भारत सरकार की कंपनी)
निगम कार्यालय

National Aluminium Company Limited

IA - Government of India (Integrated)
CORPORATE OFFICE

NALCO BHAVAN, Nayapalli, Bhubaneswar-751 001, INDIA

आसपास के कार्यालय, नयापल्ली, भुवनेश्वर - 751 001, भारत

फोन नम्बर: (भारत) 0674 2511200, 2511201, 2511202, 2511203, 2511204, 2511205, 2511206, 2511207

फैक्स नम्बर: (भारत) 2511208, 2511209, 2511210, 2511211, 2511212 & 2511213

वेबसाइट: भारत में: www.nalco.co.in

UNDERTAKING

Annexure - B-XXIV

MuEF & CC File No. 8-07/2020-FC dtd. 12.03.2021

Condition No. (20)

Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in Para 1.21 of chapter I of the Handbook of comprehensive guidelines of Forest (Conservation) Act, 1980 as issued by this Ministry's letter No. 5-2/2017-FC dated 28.03.2019.

Compliance to Condition No. (20)

In compliance to this condition, Nalco do hereby undertake that NALCO shall not violate any of the conditions mentioned in MuEF & CC File No. 8-07/2020-FC Dtd. 12.03.2021 of Forest (Conservation) Act, 1980 and if violated action shall be taken as prescribed in para 1.21 of chapter I of the handbook of comprehensive guidelines of forest (Conservation) Act, 1980 as issued by Ministry's letter No. 5-2/2017-FC dated 28.03.2019.

Place: Bhubaneswar

Date:


Divisional Forest Officer
Forest Division


Authorized Signatory

S. K. PATEL

Executive Director (R&T),
R&T & Technical Department
National Aluminium Company Ltd

नेशनल एल्युमिनियम कम्पनी लिमिटेड
(एनएलसी लिमिटेड का हिस्सा)
नियम कार्यालय

National Aluminium Company Limited
(A Government of India Enterprise)

CORPORATE OFFICE

NALCO BANGALORE, Bangalore, Bhubaneswar-751 005, India

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