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**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA
ORIGINAL APPLICATION NO. 05 OF 2024 / EZ**

Madhusudan Palai ...Applicant

VERSUS

State of Odisha & Others ...Respondents

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2.	Photocopy of the letter No.1221 dtd.19.09.2024. (ANNEXURE – R7/4 Colly)	

SPCB Odisha, R.No.7 & 8

Kolkata

Through

Date:

Sri Dipanjan Ghosh,
Advocates for the Respondent No.7 & 8
(State Pollution Control Board, Odisha)
e-mail: dpnjrghsh0@gmail.com
Phone No.:9903080977

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA
ORIGINAL APPLICATION NO. 05 OF 2024 / EZ**

IN THE MATTER OF:

Madhusudan Palai

...Applicant

VERSUS

State of Odisha & Others

...Respondents

**ADDITIONAL AFFIDAVIT ON BEHALF OF
STATE POLLUTION CONTROL BOARD,
ODISHA, R.NO. 7 & 8.**

I, Dr. Kailasam Murugesan, IFS, son of late Paramasivam Kailasam aged around 56 years, at present working as Member Secretary, State Pollution Control Board, having my office at Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, P.O. Nayapalli, Bhubaneswar, Dist – Khurda, Odisha-751012, do hereby solemnly affirm and state as under:

1. That I am the Member Secretary of the Respondent No.7 Board and, as such, am well-acquainted with the facts



and circumstances with the case and competent to swear this affidavit.

2. That in compliance to the direction dtd.05.03.2024 of this Hon'ble Tribunal the R-7 Board has filed affidavit dtd.12.08.2024 wherein at para-8 of the said affidavit the following averments has been made.

That in response to the aforesaid request, the Deputy Director of Mines, Khordha Circle, Khordha vide his letter No.163 dtd.26.02.2024 has intimated the Nodal Officer-cum- Regional Officer, Bhubaneswar (R.No.8) that in order to comply with the order dtd.22.01.2024 of the Hon'ble Tribunal, suggestion has been made to move the Hon'ble NGT for allowing three months time to complete the whole process and submit the report on the grounds stated in the letter dtd.26.02.2024. A copy of letter No.163 dtd.26.02.2024 is annexed to this affidavit and marked as ANNEXURE – R7/3.



3. That this Hon'ble Tribunal has also taken note of the affidavit filed by the Board along with a report of the committee vide their order dtd.19.04.2024. Further, in the order dtd.28.05.2024, this Hon'ble Tribunal has directed



the R-10 i.e. Director of Mines & Geology to file the report with reference to para-8 of the affidavit dtd.12.03.2024 of the R-7 Board, the relevant para of which has been extracted at para-2 of the present affidavit.

4. That in the meantime, the Dy. Director of Mines, Khurdha Circle, Khurda vide his letter No.1221 dtd.09.09.2024 has submitted the report on Bariko Laterite Quarry of Tangi Tahasil of Khurda district in connection with the aforesaid OA to the Nodal Officer-cum- Regional Officer of the R-7 Board annexing the copy of the report submitted by the Mining Officer, Khurda and DDM, Khurda with a finding that "based on the field study conducted by ORSAC team and their report, approved mining plan and case records of Tangi Tahasil, it is found that no excess excavation occurred over Bariko Laterite Quarry during this period". Copy of the letter No.1221 dtd.19.09.2024 referred above along with its annexures is annexed to this affidavit and marked as **ANNEXURE – R7/4 Colly** for kind perusal of the Hon'ble Tribunal.



MANJULA KUMAR PRADHAN
NOTARY PUBLIC
BHUBANESWAR
REGD.NO.ON-11/2009
PH-9437627119 (M)

- 5. That the Respondent No.7 Board craves the leave of this Hon'ble Tribunal to file further affidavit if necessary for effective adjudication of this case.
- 6. That the annexure annexed to the present affidavit is true and correct copy of its original.
- 7. That the contents of the above paragraphs are true and correct to the best of my knowledge, as derived from the official records, and that nothing material has been concealed therefrom.

Member Secretary
State Pollution Control Board
Odisha, Bhubaneswar
[Signature]
DEPONENT
State Pollution Control Board
Odisha, Bhubaneswar
Member Secretary

VERIFICATION:

I, the above named deponent, do hereby verify that the contents of the above affidavit are true and correct to the best of my knowledge, as derived from official records, and that nothing material has been concealed therefrom.

Verified at Bhubaneswar on this the 4th day of November, 2024.

Member Secretary
State Pollution Control Board
Odisha, Bhubaneswar
[Signature]
DEPONENT
State Pollution Control Board
Odisha, Bhubaneswar
Member Secretary

SWORN BEFORE ME

MANJULA KUMAR PRADHAN
NOTARY PUBLIC
BHUBANESWAR
REGD.NO.ON-11/2009
PH-9437627119 (M)



[Signature]

ANNEXURE-R7/4 Colly

By-Email



OFFICE OF THE DEPUTY DIRECTOR OF MINES
KHORDHA CIRCLE, KHORDHA
BDA Colony, Pallahat, Near New Bus Stand, District
Khordha-752056
 (E-Mail: ddgmines.khordha@gmail.com)

Letter No.....1221...../Mines, Khordha. Date.19.09.2024

From: D K Sahoo, Deputy Director Mines (I/c)
 Khordha Circle, Dist-Khordha

To

The Nodal Officer-cum-Regional Officer
 SPC Board, Bhubaneswar

Sub: Submission of Report on Bariko Laterite Quarry of Tangi Tahasil of
 Khordha District in connection with NGT-reg

Ref No: Letter No.493 /RO-Misc-382/ dt 13.02.2024

Sir,

In inviting a reference to the subject cited above, I am submitting
 herewith the assessment report of Bariko Laterite Quarry of Tangi Tahasil,
 Khordha District in connection with NGT application No 05/2024/EZ.

This is for your kind information and necessary action.

Yours faithfully

DKS
 19/9/24

Deputy Director Of Mines (I/C),
 Khordha Circle, Khordha

Memo No.....1222...../Mines. Khordha, Date...19.09.2024

Copy submitted to Collector and District Magistrate, District Khordha
 for favour of kind information and necessary action.

DKS
 19/9/24

Deputy Director Of Mines (I/C),
 Khordha Circle, Khordha

Memo No...1223...../Mines, Khordha. Date: 19.09.2024

Copy submitted to the Director of Mines and Geology, Odisha, Bhubaneswar /Director of Minor Minerals, Odisha Bhubaneswar for favour of kind information and necessary action.

MSJ
19/9/24

Deputy Director Of Mines (I/C),
Khordha Circle, Khordha

Report on Bariko Laterite Quarry in connection with NGT Application No: 05/2024/EZ

In accordance with the order dated on dt.22.01.2024, from the Hon'ble NGT, Eastern Zone Bench, Kolkata, the Committee conducted a site visit on dt.19.02.2024. They subsequently submitted a Joint Committee report addressing the allegations made in the original application, O.A. No. 05/2024/EZ, filed by Madhusudan Palai against the State of Odisha and others

In the Joint Committee report, it is suggested that Deputy Director Mines, Khordha & Mining officer, Khordha shall submit the assessment of quantum of minor minerals illegally excavated by the lessee from Bariko Laterite stone quarry as per OMMC Rules and stipulated conditions by SEIAA and SPCB, Odisha. Deputy Director Mines and Mining Officer, Khordha will scientifically calculate the volume of minor minerals excavated along with imputation of penalty, Environment compensation and remedial measures as per the existing order/ guidelines to submit the compliance before hon'ble NGT.

Salient Features of the quarry:

- i. The Bariko Laterite stone quarry lease holder has been allotted over an area 2.173 Ac/0.880 Ha, Khata No- 270, Plot No 673, Mauza- Bariko, Tangi Tahasil, Khordha district.
- ii. Lease agreement was made on dt. 28.01.2021
- iii. 'Y' form issued in favour of lessee on dt 04.03.2021.
- iv. EC obtained in favour of Tahasildar on dt 17.12.2020 which was transferred in the name of lessee on dt 02.06.2022
- v. CTE & CTO was issued on dt 03.12.2022 & dt.05.01.2023 respectively.
- vi. The case record was transferred from Tahasildar Tangi to Mining Officer, Khordha on dt.06.10.2023

Observations: Based on the findings and recommendations of the Joint Committee report, the Deputy Director of Mines, Khordha & Mining Officer, Khordha undertook the following actions during the specified period:

- i. The date of excavation was determined based on the issuance of the 'Y' form, dated on dt 04.03.2021.
- ii. The Chief Executive, ORSAC was requested to assess the quantum of excavation during the period from dt. 01.03.2021 to 15.02.2024 with the help of stereo pair satellite image vide Letter No 209/Mine. Khordha/dt 06.03.2024.
- iii. ORSAC informed that stereo pair satellite images were not available for the required period, as indicated in Letter No. 1766/dt. 19.04.2024.
- iv. The Chief Executive of ORSAC was subsequently requested to assess the quantum of excavation, as detailed in Letter No 445/Mine. Khordha/dt 18.04.2024.
- v. After consulting various sources, ORSAC informed that only Maxar stereo data (50) cm during 21 Dec 2020 & 1st Dec 2023 is available in respect to Bariko Laterite area vide Letter No 2190/14.05.2024. The invoice for this data amounts to Rs.13,97,002/- (Rupees thirteen lakh ninety-seven thousand two) only.
- vi. ORSAC received HRIS image of Bariko-Laterite stone quarry on dt 29.07.2024 through limited tender process from IN SPACe empaneled vendors of ISRO.
- vii. A team of officer & staff of ORSAC carried out RL Survey around Bariko - Laterite quarry during 01.08.2024 to 09.08.2024.
- viii. Based on ortho image, RL Value and preparation of DEM value from NRIS stereo image, a scientific team prepared the report and finally, ORSAC submitted assessment report on Bariko-Laterite stone quarry as stated in Letter No. 3329/dt.30.08.2024.

- ix. ORSAC reported that a quantum of 6107.622 cum of material has been excavated from Bariko Laterite quarry during the period from dt.21.12.2020 to dt.01.12.2023.
- x. In the approved mining plan, a total of 15000 cum of material is mentioned as mineable resource which includes 7500 cum of usable rock mass and 7500 is unusable rock mass.
- xi. The 15,000 cubic meters represents the cumulative total over five years, amounting to 3,000 cubic meters per annum, and includes both usable and unusable rock mass."
- xii. The image procured cover the period from dt.21.12 2020& dt.1.12.2023. However, considering the period from the date of agreement of the quarry on dt. 28.01.2021 to the date 01.12.2023, the excavation period of quarry is considered to be 2 years & 10 months.
- xiii. According to the approved mining plan, during the period of 2 years and 10 months, the amount of excavation might be 8,500 to 9,000 cubic meters, including both usable and unusable rock mass.
- xiv. ORSAC reported that a total of 6107.622 cum was the extracted volume during the assessment period.
- xv. From the tehsil case record and the i4MS portal, it is found that a total of 4394 cum laterite have been transported by the lessee during the period of lease.
- xvi. The rest of 1713 cum may be considered as over burden which is about 28 % of the total extracted volume of 6107.622.

Findings: Based on the field study conducted by the ORSAC team & their report, approved mining plan and case records of Tangi Tahasil, it is found that no excess excavation occurred over Boriko Laterite quarry during this period.

Enclosure: i) Assessment report of quantum of minor mineral submitted by ORSAC Along with DGPS pillar coordinates, and seven nos of Maps. (hard & soft copy).

ii) Xerox copy of approved mining plan.

Jagan
19.09.24

Mining Officer, Khordha
Mining Officer (I/c)
O/o. Deputy Director Mines
Khordha Circle, Khordha

Submitted

M. S. S.
19.09.24

DDM, Khordha
Deputy Director Mines (I/c)
O/o. Deputy Director Mines
Khordha Circle, Khordha

**ODISHA SPACE APPLICATIONS CENTRE (ORSAC)**

Department of Science & Technology, Govt. of Odisha

ORSAC/MDDS/1128/2023 No. : 3329 Date : 30/8/2024.

To

The Deputy Director Mines (I/C)
Khurda, Mining Circle
Dist :Khurda

Sub: Assessment of the quantum of Miner Minerals excavated from Bariko - Laterite Stone Quarry with respect to NGT CA No. 05/2024/EZ – MadhusudanPalai.

Ref: Letter No. 763/Mines/ Khurda 24.06.2024 and ORSAC estimate Letter No. MDDS/1128/2023, P-20/ 25-22 dated 18. 06. 2024.

Sir

In inviting a reference in the subject mentioned above and the letter cited under reference, please find the assessment of extracted volume of material from the lease area Area 2.183Ac & 0.88 Ha of the Bariko laterite Stone Quarry under Tangi Tahasil, Dist-Khordha, in shape of soft and hard copy in connection with NGT OA No. 05/2024/EZ.

- Encl: 1. Assessment Report with corner point coordinates
2. Photogrammetry Block and RMSE Error of the year 2020
3. Photogrammetry Block and RMSE Error of the year 2023
4. Digital Elevation maps 2020 & 2023
5. Ortho Satellite image Map on dt. 21.12.2020
6. Ortho Satellite image Map on dt. 01.12.2023
7. Extracted Volume Map

Yours Faithfully

Scientist-E, ORSAC

ASSESSMENT REPORT OF BARIKO LATERITE STONE QUARRY

The study is carried out using High Resolution Satellite imagery (HRSI WV -1) of 0.5 m stereo imagery (PAN - 1, MX-4 Bands) procured from M/s Adepto Geo Informatics Pvt. Ltd. and empanelled foreign Satellite vendor of Indian National Space promotion and authorization Centre (INSPACE) Indian Space Research Organization, Department of Space (ISRO/DOS) Govt. of India.

DGPS Survey of the Quarry Boundary has been under taken as per the mining plan in presence of Mining Officer, Khurdha. Then Benchmark (BM) has been transferred from KALUPADA GHAT RAILWAY STATION on 01.08.2024 to 09.08.2024 and Quarry Boundary Survey also done in that period. The photogrammetry principle is used to generate Digital Elevation Model (DEM) and Ortho Satellite Image for pits in Bariko Laterite Stone Quarry Under Tangi Tahasil, Dist-Khordha, taking high Resolution Satellite Imagery (HRSI) of 0.5 Stereo imagery (PAN - 1 and MX-4 Bands) for period of 21.12.2020 and 01.12.2023.

The Leica photogrammetric software use to generate DEM and ortho Image for the study area. The excavated volume is calculated using DEM of 2020 as the base year and 2023 of study year DEM, using Arc GIS Software taking the pixel of the minimum mappable unit for making a comparable measurement in the field. The volume accuracy come to 6107.622 mc(m³).

ASSESSMENT REPORT

EXTRACTED VOLUME OF THE BARIKO LATERITE QUARRY FOR THE PERIOD OF 2020 - 2023		
BASE YEAR	STUDY YEAR	EXTRACTED VOLUME IN Meter Cube(M ³) (Study Year - Base Year)
2020	2023	6107.622

Subharnita Mohanty
Sr. Project Scientist

Quarry
Scientist D
Shri M. K. Sanabada
Scientist, ORSAC
Bhubaneswar

DGPS SURVEY PILLAR COORDINATES OF THE MINING LEASE AREA

DGPS SURVEYED PILLAR CO-ORDINATES BARIKO LSQ				
PILLR NO.	EASTING	NORTHING	LATITUDE	LONGITUDE
1	327879.878	2204444.588	19°55'43.68446"	85°21'19.75361"
2	327913.307	2204439.309	19°55'43.52342"	85°21'20.90489"
3	327910.377	2204414.787	19°55'42.72506"	85°21'20.81237"
4	327937.23	2204409.467	19°55'42.56059"	85°21'21.73751"
5	327931.11	2204354.314	19°55'40.76515"	85°21'21.54563"
6	327978.478	2204337.519	19°55'40.23405"	85°21'23.18003"
7	327960.364	2204268.47	19°55'37.98289"	85°21'22.58041"
8	327951.132	2204272.037	19°55'38.09596"	85°21'22.26175"
9	327944.286	2204254.719	19°55'37.53060"	85°21'22.03218"
10	327910.295	2204263.797	19°55'37.81500"	85°21'20.86034"
11	327923.213	2204290.644	19°55'38.69216"	85°21'21.29550"
12	327908.053	2204299.433	19°55'38.97313"	85°21'20.77126"
13	327912.156	2204311.405	19°55'39.36374"	85°21'20.90831"
14	327902.44	2204316.452	19°55'39.52478"	85°21'20.57253"
15	327904.95	2204328.65	19°55'39.92225"	85°21'20.65476"
16	327902.08	2204330.575	19°55'39.98392"	85°21'20.55539"
17	327905.778	2204341.918	19°55'40.35398"	85°21'20.67874"
18	327897.435	2204344.739	19°55'40.44306"	85°21'20.39092"
19	327904.063	2204380.499	19°55'41.60805"	85°21'20.60679"
20	327880.93	2204389.26	19°55'41.88559"	85°21'19.80843"
21	327884.65	2204402.816	19°55'42.32760"	85°21'19.93178"
22	327872.903	2204403.985	19°55'42.36186"	85°21'19.52747"

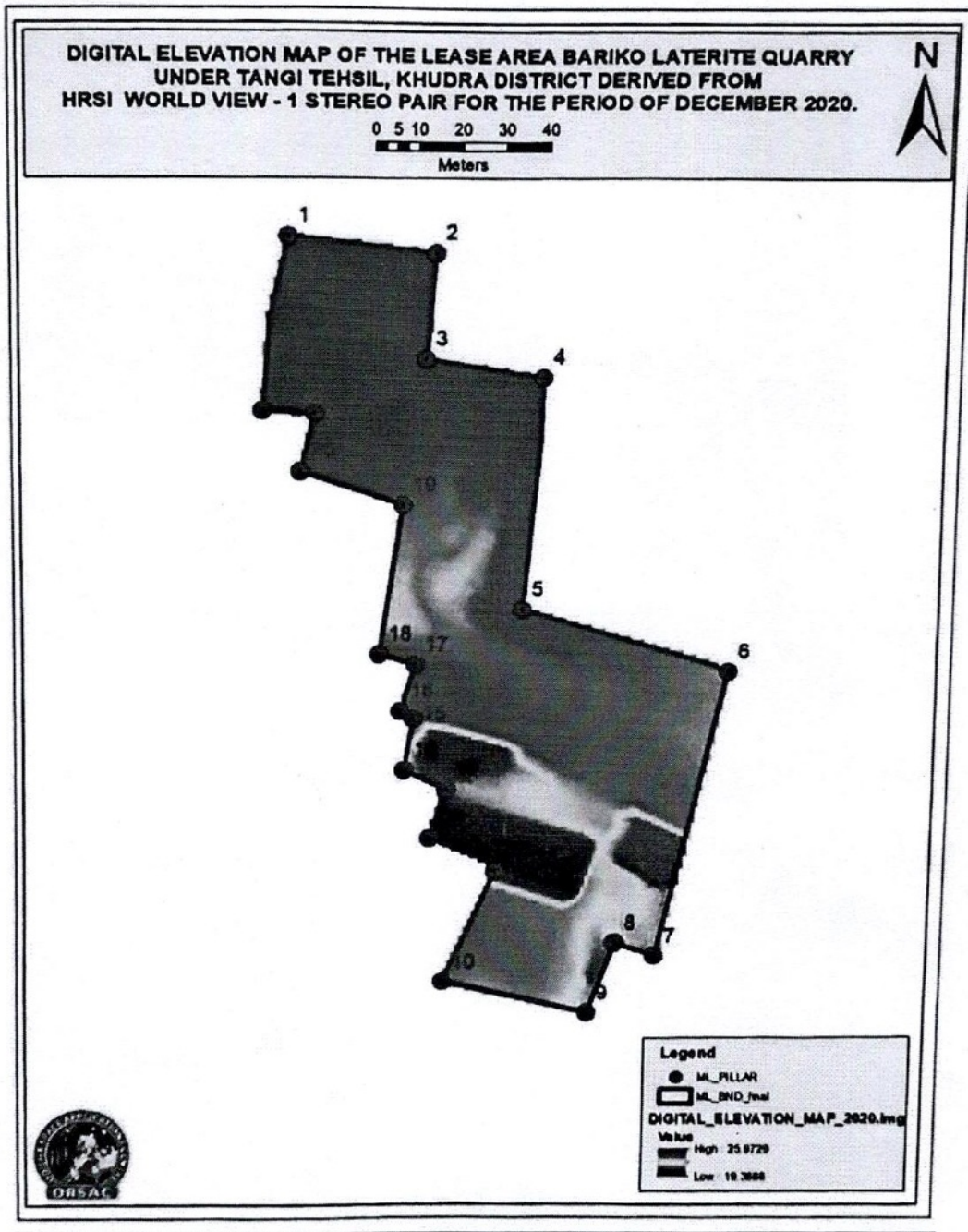
ODISHA SPACE APPLICATIONS CENTRE
BHUBANESWAR

MAP NO. 4309 / 1

DATE. 30/08/2024


AUTHORISED SIGNATORY


DIGITAL ELEVATION MAP OF THE YEAR 2020



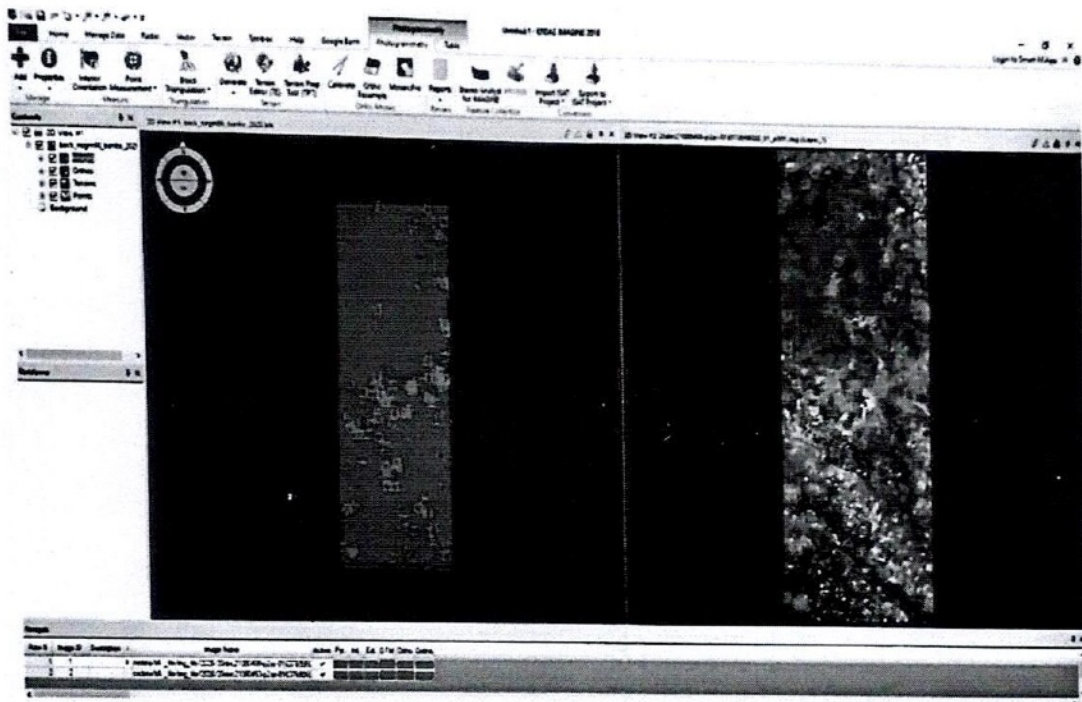
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BHUBANESWAR

MAP NO. 4309 / 12

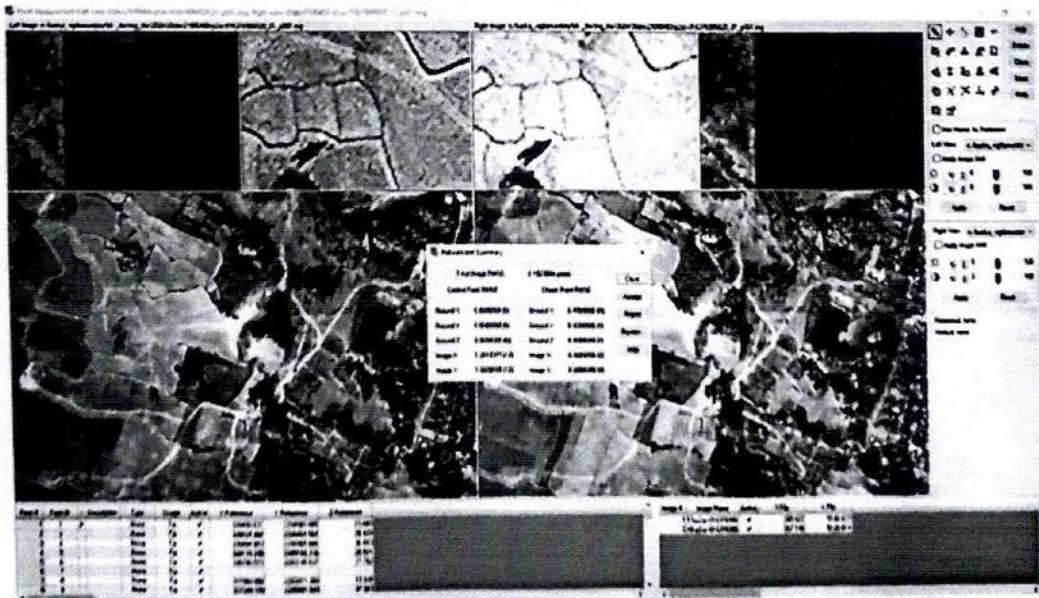
DATE. 30/08/2024


AUTHORISED SIGNATORY

PHOTOGRAMMETRY BLOCK OF THE 2020

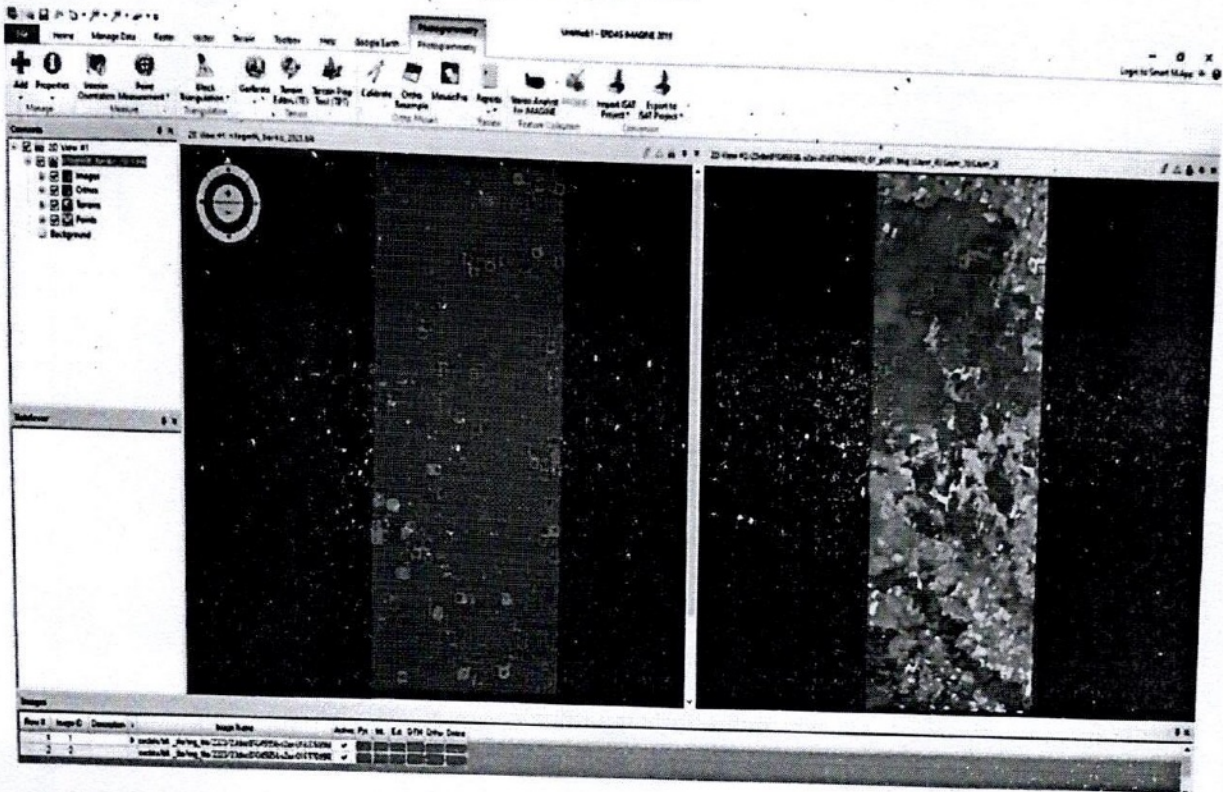


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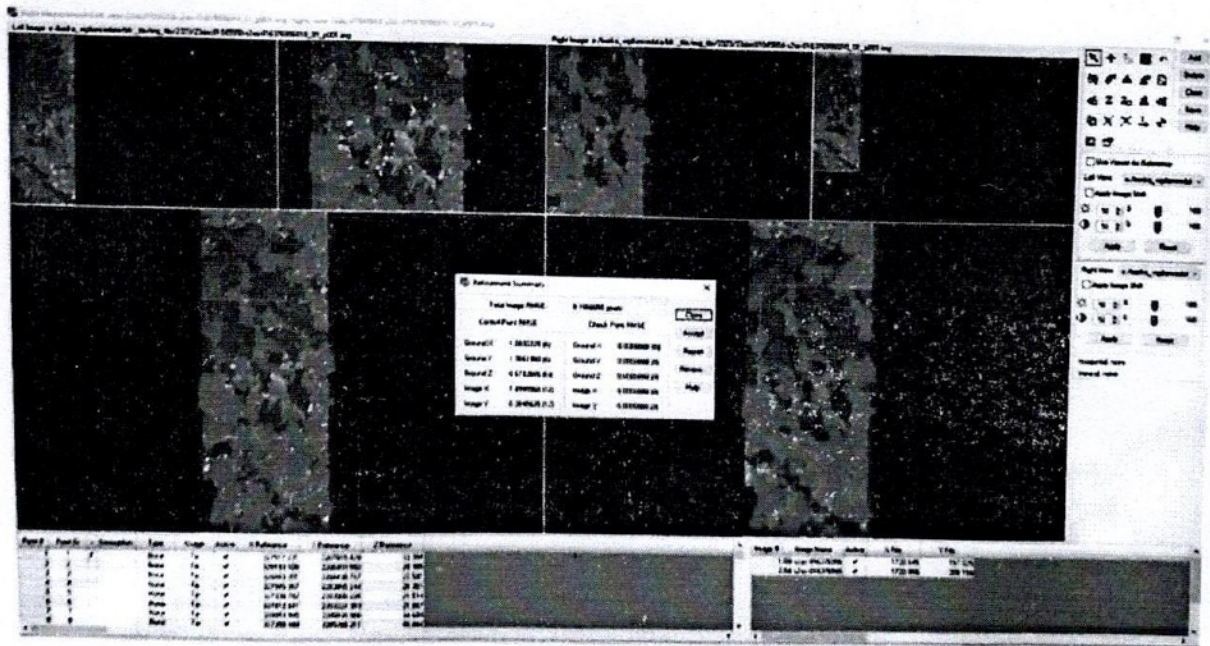


ODISHA SPACE APPLICATIONS CENTRE
 BHUBANESWAR
 MAP NO. 4309, /3
 DATE 30/08/2024
 AUTHORIZED SIGNATORY

PHOTOGRAMMETRY BLOCK OF THE 2023



RMSE ERROR OF PHOTOGRAMMETRY BLOCK OF THE YEAR 2023



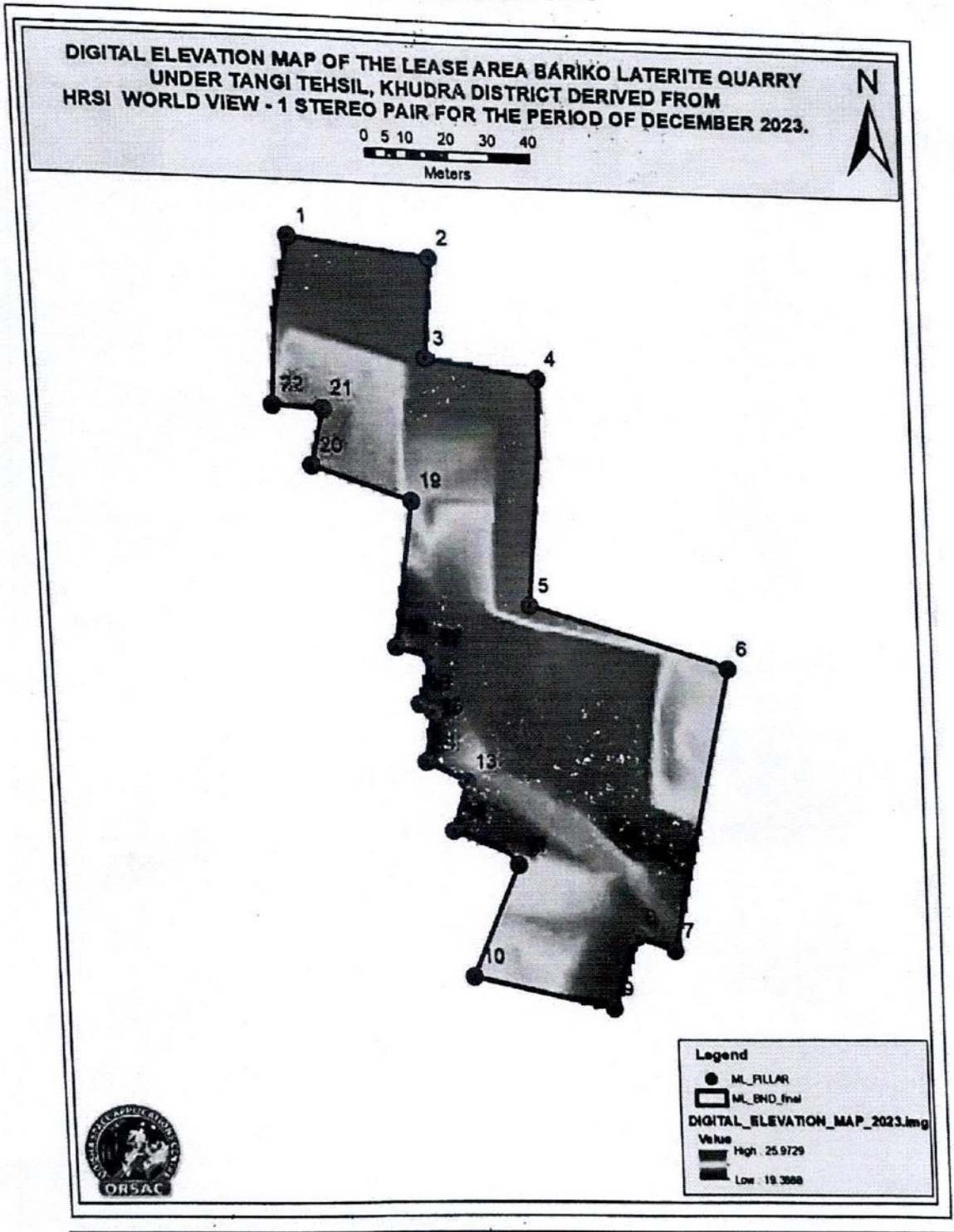
ODISHA SPACE APPLICATIONS CENTRE
BHUBANESWAR

MAP NO. 4309 / 4

DATE. 30/08/2024

(Signature)
AUTHORISED SIGNATORY

DIGITAL ELEVATION MAP OF THE YEAR 2023



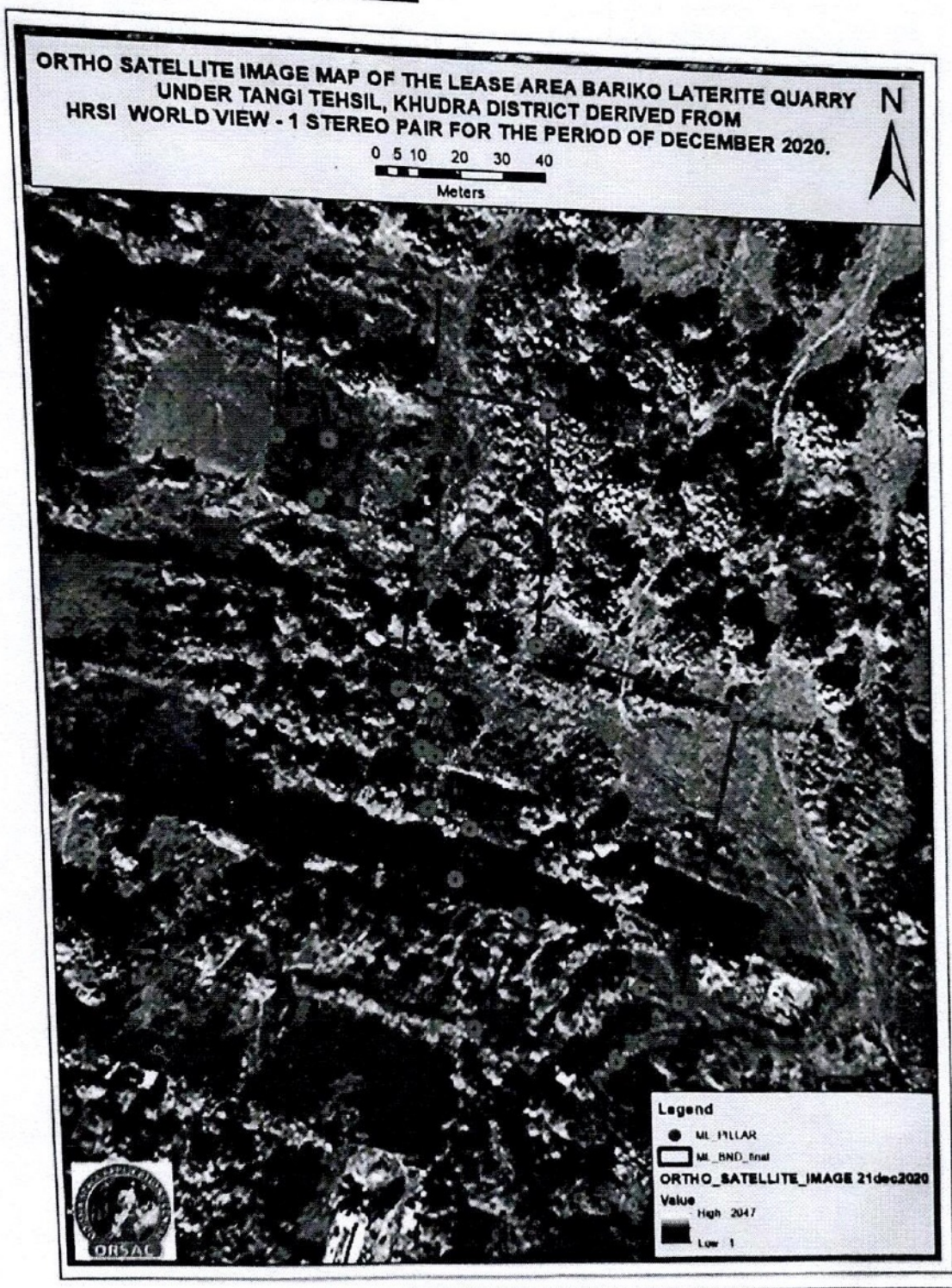
ODISHA SPACE APPLICATIONS CENTRE
BHUBANESWAR

MAP NO. 4309,/5

DATE 20/08/2024

[Signature]
AUTHORISED SIGNATORY

ORTHO MAP OF THE YEAR 2020



ODISHA SPACE APPLICATIONS CENTRE
BHUBANESWAR

MAP NO. 4309, 16

DATE 30/08/2024

[Signature]
AUTHORISED SIGNATORY

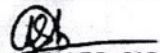
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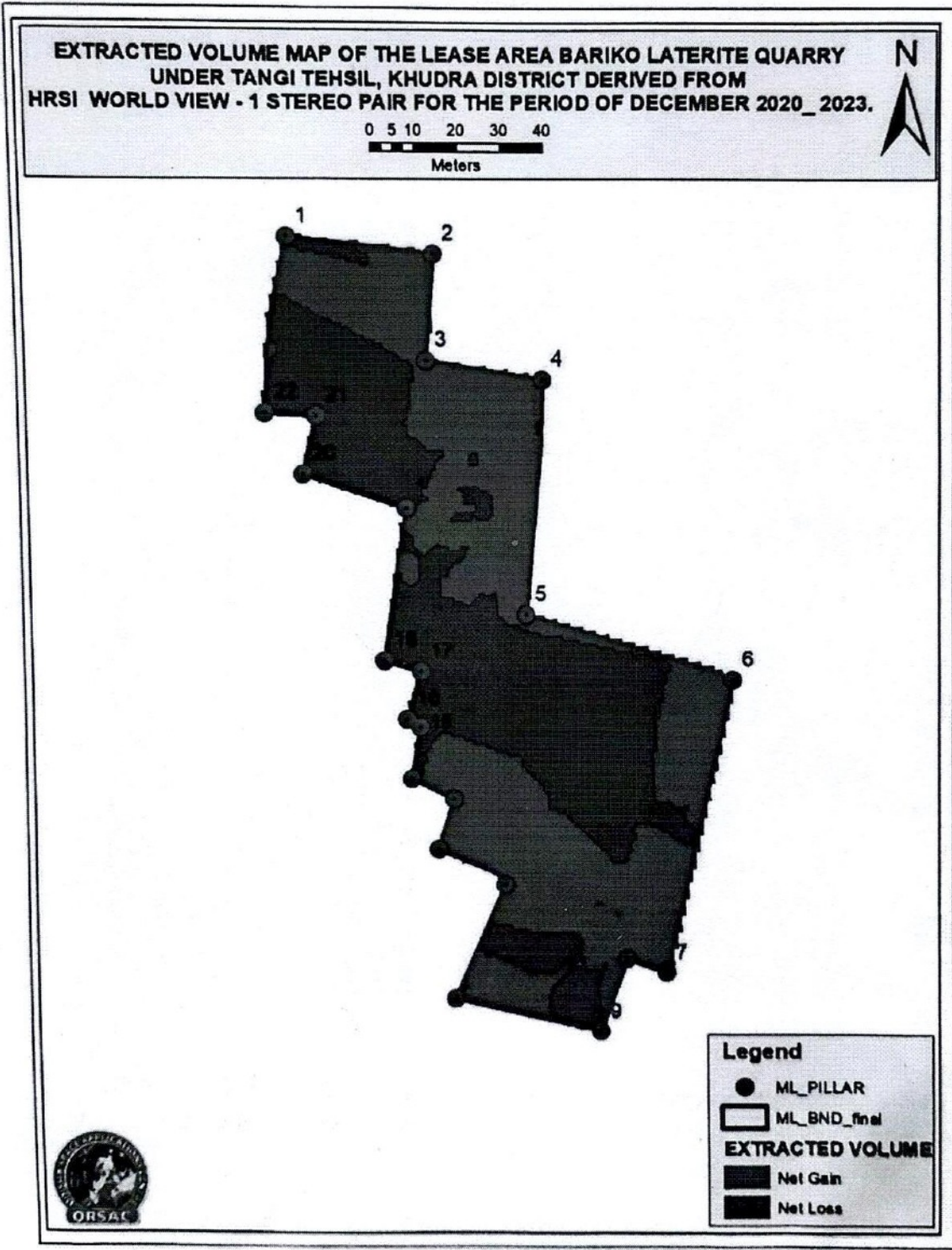
ODISHA SPACE APPLICATIONS CENTRE
BHUBANESWAR

MAP NO. 4309 / 7

DATE 30/08/2024


AUTHORISED SIGNATORY

EXTRACTED VOLUME MAP OF THE YEAR 2020 – 2023



ODISHA SPACE APPLICATIONS CENTRE
BHUBANESWAR

MAP NO. 4309, / 8

DATE 30/08/2024

[Signature]
AUTHORISED SIGNATORY



PHOTOGRAPH TAKEN DURING COLLECTION OF GROUND CONTROL POINTS AT KALUPADA GHAT RAILWAY STATION, TANGI TAHASIL.

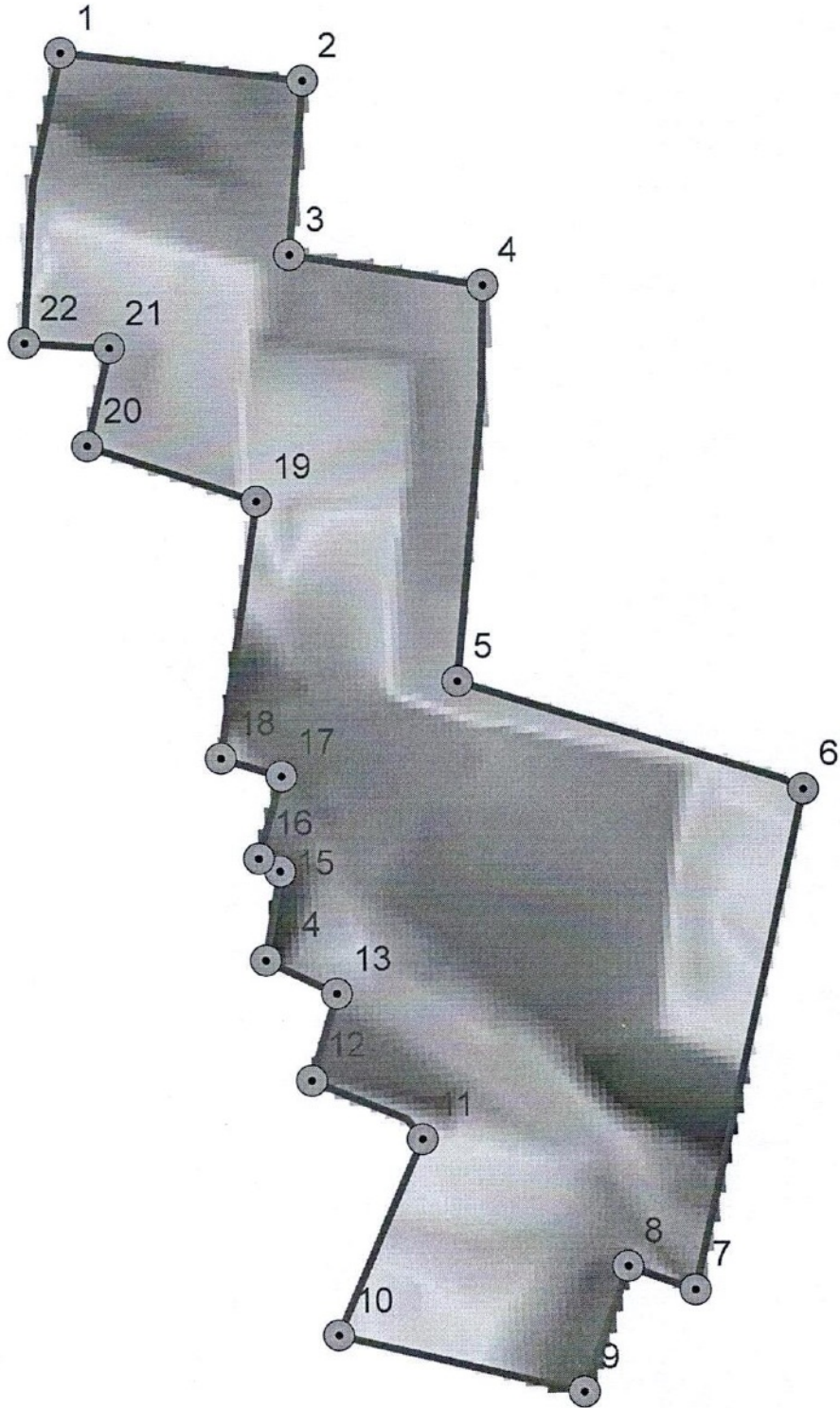
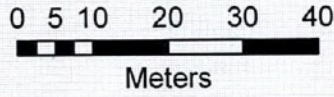
ODISHA SPACE APPLICATIONS CENTRE
BHUBANESWAR

MAP NO. 4309, /9

DATE 30/08/2024


AUTHORISED SIGNATORY

DIGITAL ELEVATION MAP OF THE LEASE AREA BARIKO LATERITE QUARRY UNDER TANGI TEHSIL, KHUDRA DISTRICT DERIVED FROM IRSI WORLD VIEW - 1 STEREO PAIR FOR THE PERIOD OF DECEMBER 2023.



Legend

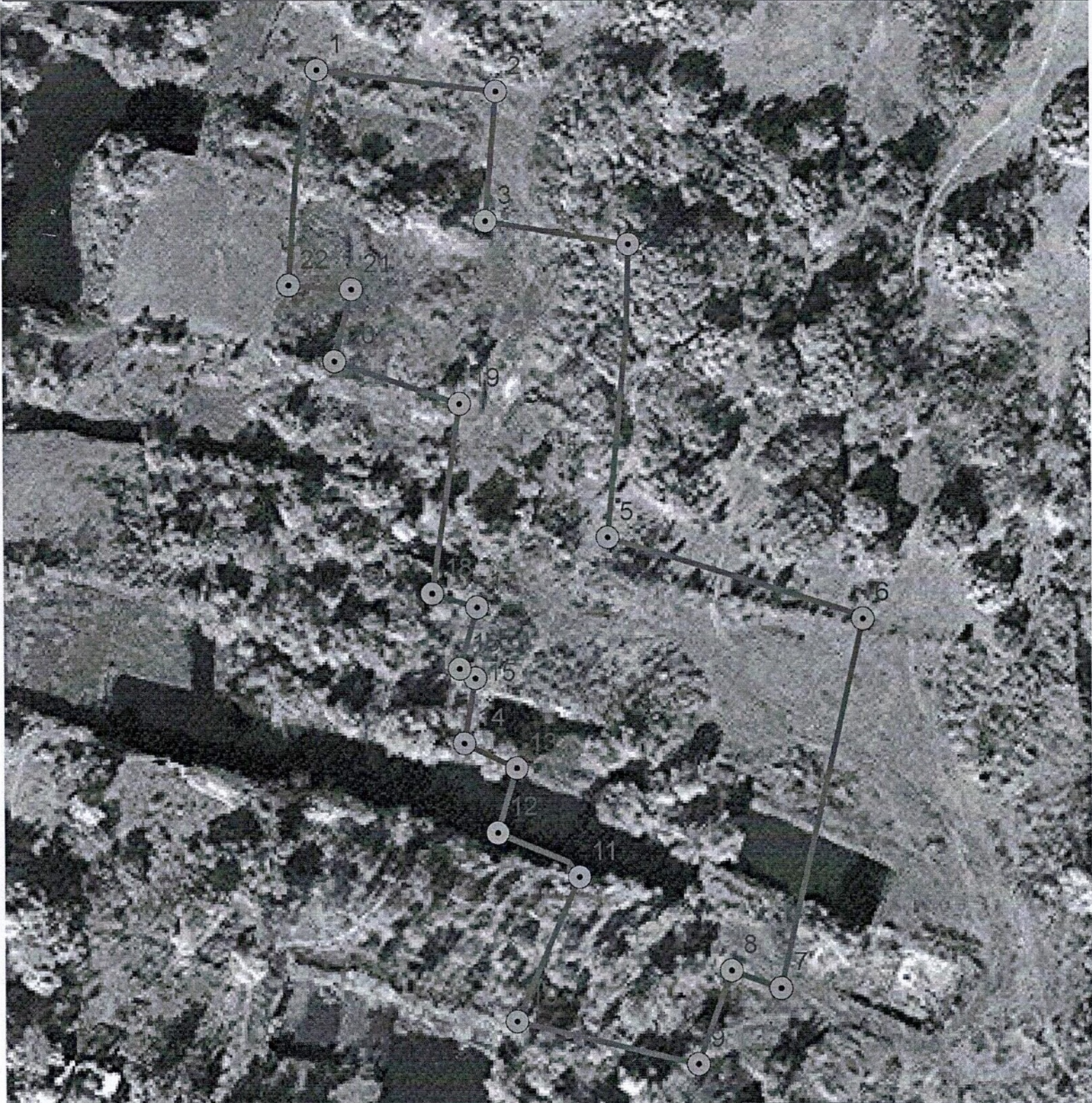
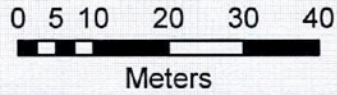
- ML_PILLAR
- ML_BND_final

DIGITAL_ELEVATION_MAP_2023.in
Value







ORTHO SATELLITE IMAGE MAP OF THE LEASE AREA BARIKO LATERITE QUARRY UNDER TANGI TEHSIL, KHUDRA DISTRICT DERIVED FROM IRSI WORLD VIEW - 1 STEREO PAIR FOR THE PERIOD OF DECEMBER 2020.



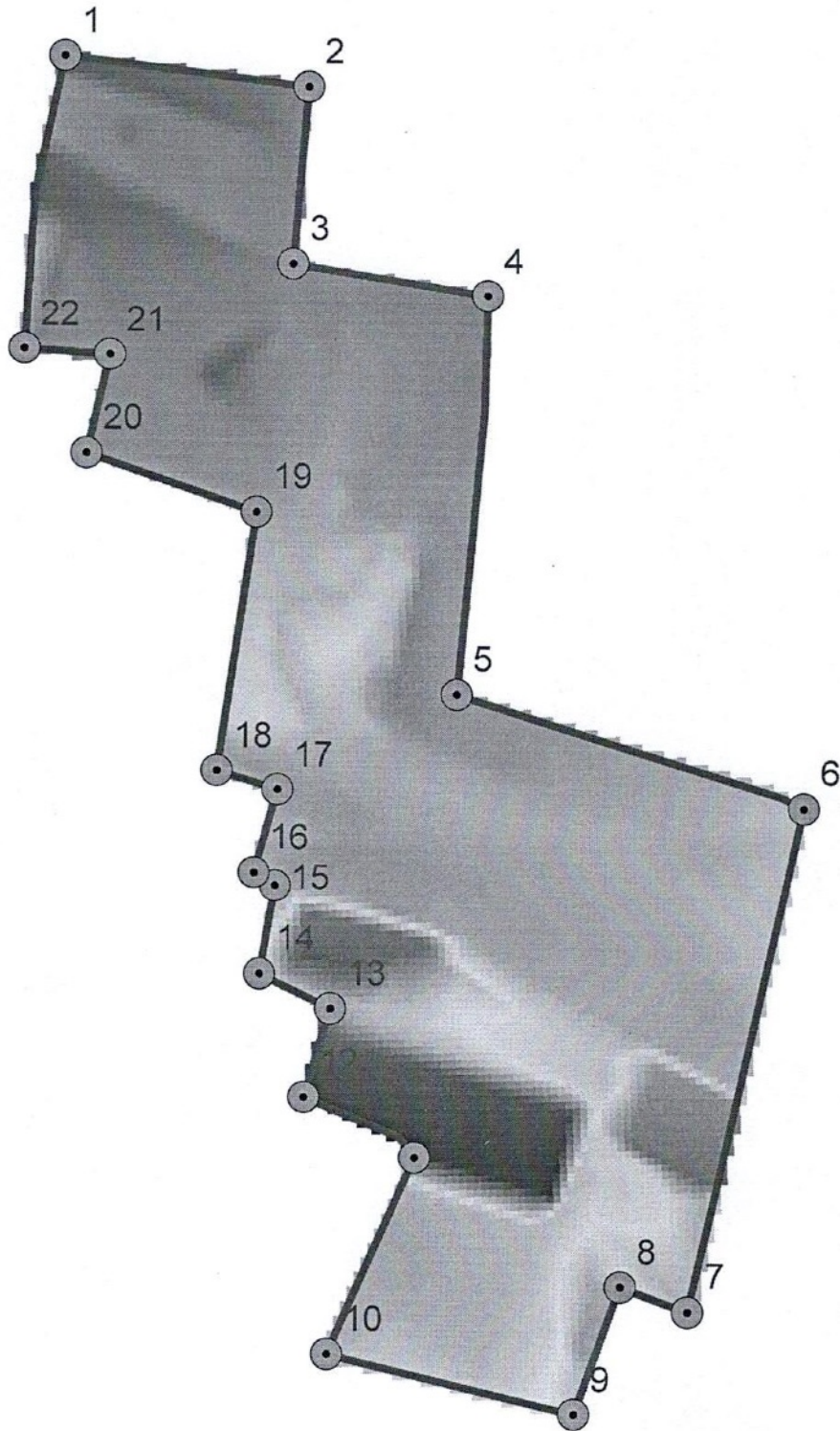
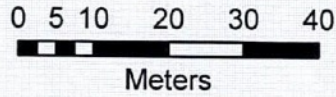
Legend

-  ML_PILLAR
-  ML_BND_final

ORTHO_SATELLITE_IMAGE 21dec2020



DIGITAL ELEVATION MAP OF THE LEASE AREA BARIKO LATERITE QUARRY UNDER TANGI TEHSIL, KHUDRA DISTRICT DERIVED FROM IKOSI WORLD VIEW - 1 STEREO PAIR FOR THE PERIOD OF DECEMBER 2020.



Legend

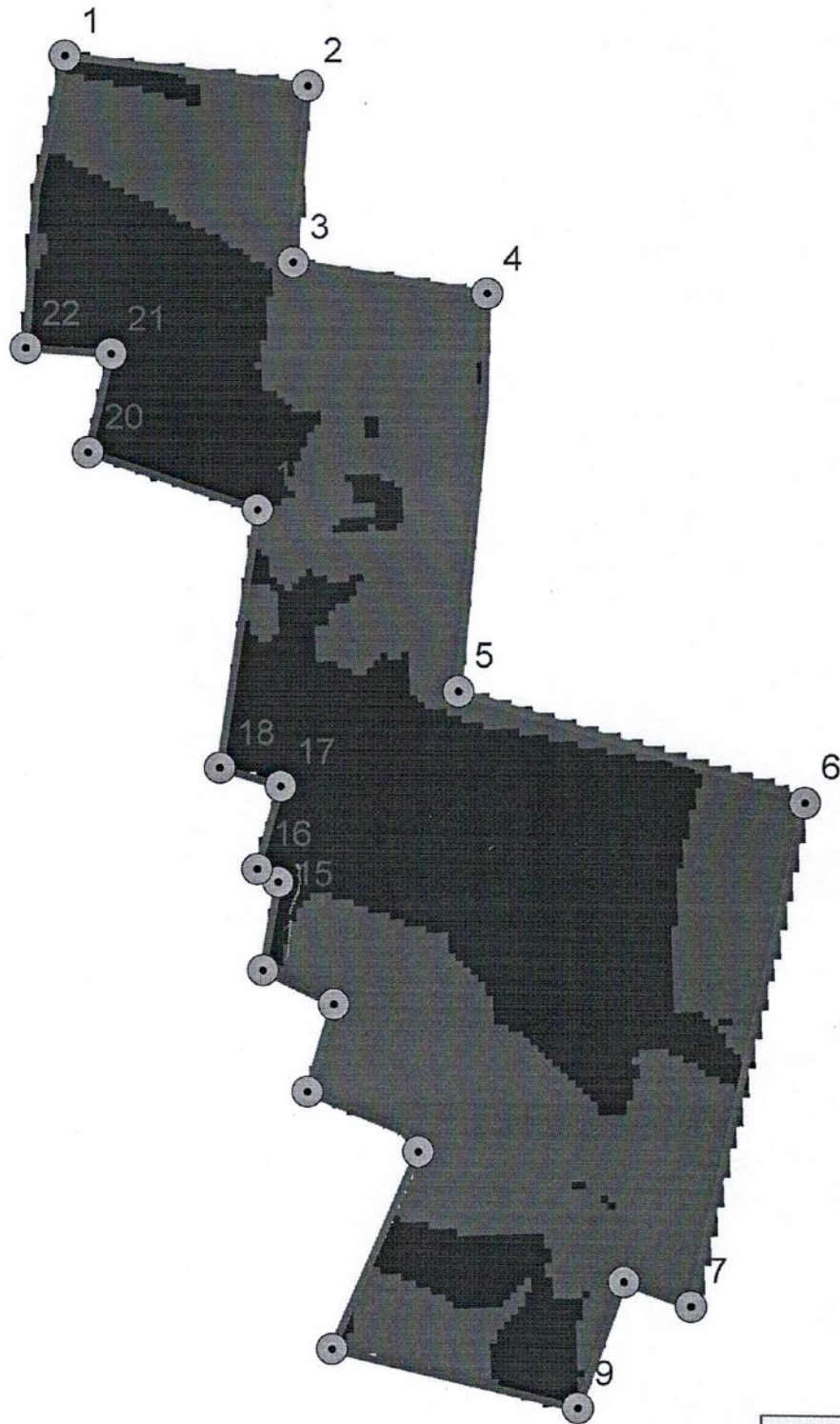
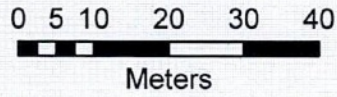
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**EXTRACTED VOLUME MAP OF THE LEASE AREA BARIKO LATERITE QUARRY
UNDER TANGI TEHSIL, KHUDRA DISTRICT DERIVED FROM
HRS WORLD VIEW - 1 STEREO PAIR FOR THE PERIOD OF DECEMBER 2020_ 2023.**



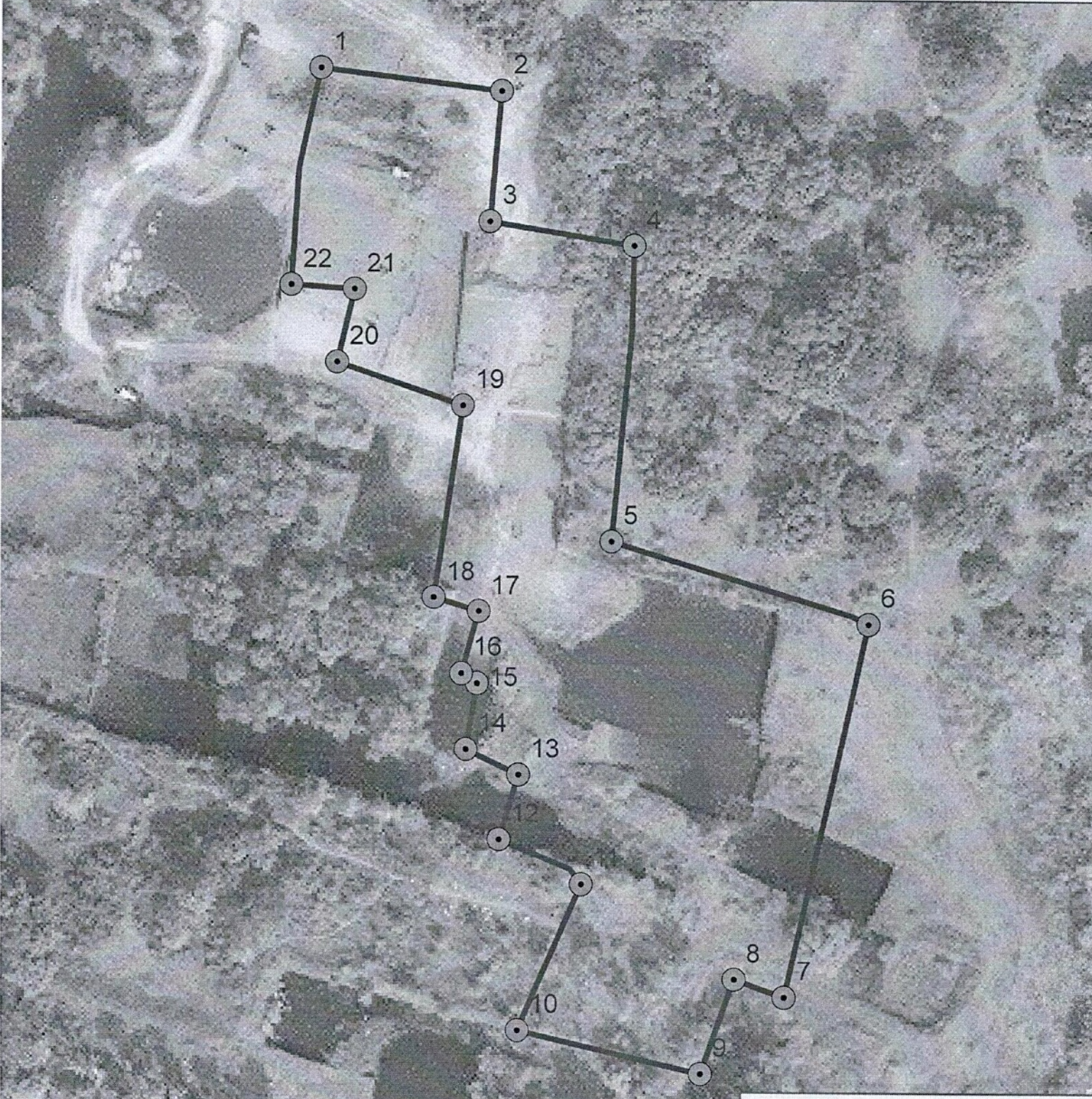
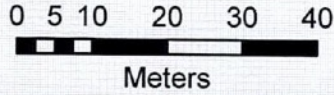
Legend

- ML_PILLAR
- ML_BND_final
- EXTRACTED VOLUM**







ORTHO SATELLITE IMAGE MAP OF THE LEASE AREA BARIKO LATERITE QUARRY UNDER TANGI TEHSIL, KHUDRA DISTRICT DERIVED FROM HRSI WORLD VIEW - 1 STEREO PAIR FOR THE PERIOD OF DECEMBER 2023.



Legend

-  ML_PILLAR
-  ML_BND_final
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MINING PLAN



(Prepared under Rule 28 (4) of the Odisha Minor Mineral
Concession Rules, 2016)

OF

BARIKO LATERITE STONE QUARRY
OVER 2.173 ACRES OR 0.88HECT IN VILLAGE BARIKO UNDER
TANGI TAHASIL OF KHORDHA DISTRICT, ODISHA


LEASE PERIOD-5 YEARS

PLAN PERIOD-5 YEARS

On behalf of
TAHASILDAR, TANGI TAHASIL
Dist-Khordha

APPROVED

PREPARED BY
SAIDATTA DAS
RQP/OD/074/2017
MOB-7978772448


16/4/2017
Deputy Director Geology
Directorate of Geology
Bhubaneswar

GEO ENVIRONMENTAL SERVICES, BBSR





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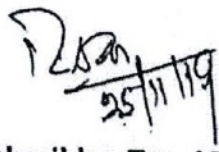
Consent Letter

The Mining Plan of Bariko Laterite Stone Quarry over 2.173Acres/0.88 Hectares from village Bariko under Tangi Tahasil of Khordha district, Odisha has been prepared by **Mr. Saidatta Das, RQP/OD/074/2017**. I request the authorized officer O/o, The Directorate of Geology, Bhubaneswar to make further correspondences on his following address:

Mr. Saidatta Das
 4th floor Flat No-405
 Nageswar Residency, Kalarahanga, Patia
 Bhubaneswar
 Cell No:+91-7978772448
 Email:saidattadas143@gmail.com
 Regn. No.-RQP/OD/074/2017

I hereby undertake that the mining plan prepared by **Mr. Saidatta Das** in accordance with OMMC Rule 2016 shall be acceptable to me and binding on me in all respect.

Place:Tangi
 Date :


 Tahasildar, Tangi Tahasil

A



Certificate from RQP

Certified that the provisions of Odisha Minor Minerals Concession Rules, 2016 have been observed in the mining plan in respect of **Bariko Laterite Stone Quarry** over an area of **2.173Acres/0.88 Hectares** from village **Bariko** under **Tangi** Tahasil of **Khordha** district Odisha, prepared under Rule 28(4) of OMMC Rules 2016 of **Tahasildar, Tangi Tahasil** and wherever specific permission is required, the lessee will approach the concerned statutory authorities.

Certified that the information furnished in the mining plan is correct to the best of my knowledge and belief.

Mr. Saidatta-Das

RQP/OD/074/2017

Geo Environmental Services, BBSR

B



Certificate from Revenue Inspector

Certified that the lease area is demarcated and shown in the field by me in respect of **Bariko Laterite Stone Quarry** over an area of **2.173 Acres/0.88 Hectares** from village **Bariko** under **Tangi Tahasil** of **Khordha** district, Odisha of the Applicant **Tahasildar, Tangi Tahasil** for quarrying and mining the area.

The detail of the land schedule is given in the below table:-

Village	Khata No	Plot No	Area (In Acres)	Kissam
Bariko	270	673	2.173	Pathara Chatana

Certified that the information furnished by me is correct to the best of my knowledge.

hcr
27-8-19

REVENUE INSPECTOR

R.I. SECTOR

C



LIST OF ANNEXURES

- I. Copy of letter of Tahasildar to prepare mining plan
- II. Copy of RQP Certificate

LIST OF PLATES

LIST OF PLATES		
Plate No.	Description	Scale
I	Key Plan	1 : 50,000
II	Lease plan	16" = 1 mile
III	Surface Plan	1 : 1,000
IV	Geological Plan	1 : 1,000
V	Development Plan	1 : 1,000
VI	Environmental Management Plan	1 : 1,000
VII	Progressive Mine Closure Plan	1 : 1,000

D



**MINING PLAN FOR WINNING OF LATERITE STONE UNDER BARIKO VILLAGE, TANGI
TAHASIL OF KHORDHA DISTRICT, ODISHA**

Introduction:

The area over 2.173Ac.(0.88Ha) under reference is located in village Bariko under Tangi Tahasil in Khordha district of Odisha. The quarry lease has been proposed to be granted to Tahasildar, Tangi Tahasil for minor mineral for the year five years.

The area under reference is featured in the Survey of India Topo-sheet no. 74E/5 and bounded between the latitudes of 19° 55' 43.336" N to 19° 55' 37.168" N and longitudes of 85° 21' 22.715" E to 85° 21' 19.117" E.

The representative of the competent authority, i.e. the Revenue Inspector of the concerned area surveyed the area in the field (map enclosed in Annexure-III), the co-ordinates and levels of the area was recorded with hand held GPS (GARMIN eTrex 10) at the time of inspection for boundary description of the area. The co-ordinates of boundary corner points are shown in the Surface Plan (Plate No.3) and in boundary description in the prescribed minor mineral mining plan format-O.

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Deputy Director Geology
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Bhubaneswar

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Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173Acres /0.88 Hectares in Vill- BARIKO

FORM - O

*S(Under Rule 28 (4) of the Odisha Minor Mineral Concession Rules, 2016)
(As per MoEF Notification, 2006 and its amendments-Category - B2)*

As per the provisions/guidelines of MCDR, 1988- Category: B)



1. **Name & Address of the Lessee** :On Behalf of
Tahasildar, Tangi Tahasil
Khordha, Odisha

2. **Particulars of the Area (Acreage, Boundary Description & Land Schedule), Attach Location map and surface plans showing the existing features of the area with contours at 2m interval):**

This area comprises of 2.173Acres/0.88Hectares acreage. Boundary description & land schedule has been mentioned below. Location map & surface plan has been attached as Plate no -1 & 3 respectively.

BOUNDARY DESCRIPTION:

The pillar co-ordinates given below are calculated by geo-referencing based on the field survey by hand held GPS as shown by the representative of the competent authority.

GPS Boundary Co-ordinates		
Sl No	Longitude	Latitude
1	85°21'19.340"E	19°55'43.336"N
2	85°21'20.419"E	19°55'43.181"N
3	85°21'20.402"E	19°55'42.342"N
4	85°21'21.276"E	19°55'42.188"N
5	85°21'21.070"E	19°55'40.406"N
6	85°21'22.715"E	19°55'39.789"N
7	85°21'22.167"E	19°55'37.545"N
8	85°21'21.824"E	19°55'37.699"N
9	85°21'21.550"E	19°55'37.166"N
10	85°21'20.471"E	19°55'37.459"N
11	85°21'20.865"E	19°55'38.316"N
12	85°21'20.351"E	19°55'38.659"N
13	85°21'20.488"E	19°55'38.950"N
14	85°21'20.196"E	19°55'39.190"N
15	85°21'20.231"E	19°55'39.532"N
16	85°21'20.179"E	19°55'39.618"N
17	85°21'20.299"E	19°55'39.978"N
18	85°21'19.974"E	19°55'40.166"N
19	85°21'20.231"E	19°55'41.194"N
20	85°21'19.425"E	19°55'41.574"N
21	85°21'19.511"E	19°55'41.982"N
22	85°21'19.117"E	19°55'42.102"N

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2

Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173Acres /0.88 Hectares in Vill- BARIKO

LAND SCHEDULE:


As per the lease plan the Land schedule is as follows:


Village	Khata No	Plot No	Area (In Acres)	
Bariko	270	673	2.173	Pathara



3. **Status of the Lessee: (Private Individual/ : Others, On behalf of Private Company/ Public Sector/ Undertaking/ Tahasildar, Tangi Tahasil Joint Sector Undertaking/ Others)**
4. **Period of the concession** : 5 years
5. **Mineral intended to be won** : Laterite
6. **Name, Address & Registration No. of RQP Preparing the mining plan with validity of Recognition.** : Mr. Saidatta Das
S/o Sri Pravat Kumar Das
House No-405, Nageswore Residency,
Kalarahanga, Patia , BBSR, 751024
saidattadas143@gmail.com
Mobile -+91-7978772448
Regn. No. - RQP/ OD/074/2017
7. **Order No. & date of Competent Authority granting the concession: (Copy of the order to be attached)** : Letter No-3655 & date-25.11.19
of Tahasildar, Tangi
(Copy enclosed in Annexure I)
8. **If, forest area, whether forest clearance obtained (Attached copy of forest Clearance)** : No Forest land involved in the
lease hold area
9. **Reserves (Estimation to be based on the exploration, if any, carried out in the area or on the local parameters)** : Estimation carried out in the area
on local parameters.

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Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173 Acres /0.88 Hectares in Vill- BARIKO



GEOLOGY:

Laterites rich in iron and aluminum are formed in hot and wet tropical areas. Usually all laterites are rusty-red because of iron oxides. They develop by intensive and long lasting weathering of the underlying parent rock. Tropical weathering (laterization) is a prolonged process of chemical weathering which produces a wide variety in the thickness, grade, chemistry and ore mineralogy. The majority of the land area containing laterites is between the tropics of Cancer and Capricorn.

The initial products of weathering are essentially kaolinized rocks called saprolites. A period of active laterization extended from about the mid-Tertiary to the mid-Quaternary periods (35 to 1.5 million years ago).

Laterites are formed from the leaching of parent sedimentary rocks (sandstones, clays, limestones); metamorphic rocks (schists, gneisses, migmatites); igneous rocks (granites, basalts, gabbros, peridotites); and mineralized proto-ores; which leaves the more insoluble ions, predominantly iron and aluminum. The mechanism of leaching involves acid dissolving the host mineral lattice, followed by hydrolysis and precipitation of insoluble oxides and sulfates of iron, aluminum and silica under the high temperature conditions of a humid sub-tropical monsoon climate. An essential feature for the formation of laterite is the repetition of wet and dry seasons. Rocks are leached by percolating rain water during the wet season; the resulting solution containing the leached ions is brought to the surface by capillary during the dry season. These ions form soluble salt compounds which dry on the surface; these salts are washed away during the next wet season. Laterite formation is favored in low topographical reliefs of gentle crests and plateaus which prevents erosion of the surface cover. The reaction zone where rocks are in contact with water—from the lowest to highest water table levels—is progressively depleted of the easily leached ions of sodium, potassium, calcium and magnesium.

The mineralogical and chemical compositions of laterites are dependent on their parent rocks. Laterites consist mainly of quartz, zircon, and oxides of titanium, iron, tin, aluminum and manganese, which remain during the course of weathering. Quartz is the most abundant relic mineral from the parent rock. Laterites vary significantly according to their location, climate and depth.

Reserve (Method of estimation of reserve)

The reserve of laterite in the leasehold area been calculated by Surface area method. The total surface area of the rock multiplied with the depth, to get the volume in cubic meter.

$$R = A \times S$$

Where, R = Reserve in cum, A = Surface area in Sq.m & S = Depth in m & R.F. = Reserve Factor.

During field travers it is observed that exposed body outside the nearby quarry it can consider Upper layer contain 2m of Latritic which is unusable material, 1m weathered laterite & 3m considered as Laterite Stone and also observed 50 % of material is waste (destroyed during cutting).

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Detail Reserve calculations are given below.

TABLE-1(Geological Reserve)

SURFACE AREA IN (sq.m)	DEPTH in (m)	VOL.OF ROCK MASS (m ³)	VOL.OF UNUSABLE WASTE MASS (m ³)	VOL.OF USABLE ROCK MASS (m ³)
A	B	C=A x B	D= C x0.5	E =C x 0.5
8273	3	24819	12409	12409

Total Geological reserve; 12409Cu.m

TABLE-2(Geological Reserve For Waste)

SURFACE AREA IN (sq.m)	DEPTH in (m)	VOL.OF ROCK MASS (m ³)
A	B	C=A x B
8273	3	24819

The mineable reserve has been estimated in similar manner as geological reserve and excluding 7.5m safety zone barrier all along the lease boundary.

TABLE-2(Mineable Reserve)


SURFACE AREA IN (sq.m)	DEPTH in (m)	VOL.OF ROCK MASS (m ³)	VOL.OF UNUSABLE WASTE MASS (m ³)	VOL.OF USABLE ROCK MASS (m ³)
A	B	C=A x B	D= C x0.5	E =C x 0.5
5000	3	15000	7500	7500

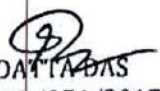
Total Mineable reserve; 7500Cu.m

TABLE-4(Mineable Reserve For Waste)

SURFACE AREA IN (sq.m)	DEPTH in (m)	VOL.OF ROCK MASS (m ³)
A	B	C=A x B
5000	3	15000

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Mining:**(a) Whether manual or semi-mechanized or mechanized**

In the applied quarry lease area, the Laterite stone shall be excavated by semi-mechanized open cast mining methods. Handling of laterite stone will be done both manually and by machineries i.e. excavators. Cutting of laterite stone will be done by power cutter. The excavated laterite stone will be loaded into tippers/hyva by loaders and dispatched to project site.

(b) If semi-mechanized or mechanized, number, type and capacity of machines to be used :

As mentioned earlier the mining will be operated in semi-mechanized manner. The excavated mineral will be transported through tippers or tractors from the quarry.

The number, type and capacity of machines to be used are described in the table below;

TABLE- 5 (Machineries used)

Type of Machines	Capacity	No. of Machines
Tipper/Truck	4/2.5 Cu.m.	1
Power Cutter		1
Tractor		1

(c) Whether drilling and blasting will be made use of, If yes, state monthly quantity of explosives to be consumed :

No drilling and blasting will be required.

APPROVED**(d) Benching pattern (Height x Width) :**

As per the statutory regulations the width of the bench must be more than the height or equal to the height of the bench. Maximum height of bench proposed is 3m. Accordingly the width of bench is kept 3m.

(e) Face lay out (attach development plan) :

During the plan period the development has been proposed in the complete part of the lease area. [Ref; Plate no. 6]

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Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173 Acres /0.88 Hectares in Vill- BARIKO

(f) Quarry Floor level (RL) at the end of each year & at the end of period of the concession:

The proposed excavation floor level at the end of the plan period will be



YEAR	QUARRY FLOOR LEVEL
1 st Year	25.7mRL
2 nd Year	25.7mRL
3 rd Year	25.7mRL
4 th Year	25.7mRL
5 th Year	25.7mRL

(g) Quantity of mineral to be won (Annual Level of Production) :

Upper layer contain 2m of lateritic soil which is unusable material i.e. overburden, which is produced at the time of laterite production. It is used for approach & haul road construction.

The production details have been described in the table shown below;

TABLE- 6

YEAR	Surface Area(m ²)	Depth in (m)	VOL.OF EXCAVATED ROCK MASS (m ³)	VOL.OF UNUSABLE WASTE MASS (m ³)	VOL.OF USABLE ROCK MASS (m ³)
A	B	C	D=BX C	E= D x0.5	F =D x 0.5
1 st Year	1000	3	3000	1500	1500
2 nd Year	1000	3	3000	1500	1500
3 rd Year	1000	3	3000	1500	1500
4 th Year	1000	3	3000	1500	1500
5 th Year	1000	3	3000	1500	1500
TOTAL			15000	7500	7500

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Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173Acres /0.88 Hectares in Vill- BARIKO

TABLE- 7(Calculation for Lateritic Soil)

YEAR	Surface Area(m ²)	Depth in (m)	VOL.OF EXCAVATED ROCK MASS (m ³)
A	B	C	D=BX C
1 st Year	1000	2	2000
2 nd Year	1000	2	2000
3 rd Year	1000	2	2000
4 th Year	1000	2	2000
5 th Year	1000	2	2000
TOTAL			10000

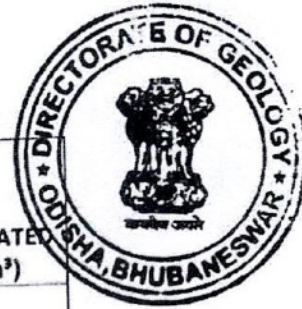


TABLE- 8(Calculation for weathered zone overburden)


YEAR	Surface Area(m ²)	Depth in (m)	VOL.OF EXCAVATED ROCK MASS (m ³)
A	B	C	D=BX C
1 st Year	1000	1	1000
2 nd Year	1000	1	1000
3 rd Year	1000	1	1000
4 th Year	1000	1	1000
5 th Year	1000	1	1000
TOTAL			5000

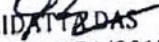
(h) Quantity of overburden to be removed (Show location of such disposal in development plan) : **APPROVED**

5000cum volume of over burden generated during plan period which is not useable for construction purpose, so these material used for approach & haul road construction. These material will be stacked in the temporary dump shown in development plan.

(i) Whether heavy blasting to be adopted, if yes, location of nearest habitation (To be shown in the surface plan) :

Not Applicable


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Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173 Acres /0.88 Hectares in Vill- BARIKO



(j) Safety precautions to be adopted

As per the safety guidelines of DGMS, all the machineries used in mining operation shall be checked and calibrated by the competent person/authority. The manpower utilized will be provided with helmets, safety shoes, goggles, earplugs and gloves, etc. Vehicles are to be covered with tarpaulin during transportation from source to destination to avoid air pollution. Employees are to be supplied all types of safety equipment by the employer as per the safety rules and regulations based on their types of work. All accidents that includes injury or loss of life or damage to the property will must be reported to the district administrative. There are some precautionary measures for the protection of environment in and around the lease area which are described below;

- ✓ The boundary marks & pillars are to be maintained in good conditions.
- ✓ No mining operations will be carried out within the safety zone area which has been considered 7.5 m wide all along the lease boundary.
- ✓ Mining activities will be carried out with appropriate environment safeguards and shall take such steps for reclamation whenever necessary.
- ✓ The mining operation will be stopped when it touches the ground water table, and the same will be informed to the appropriate authorities. Anyhow such type of occurrence is not expected presently as per data collected.
- ✓ If hill slopes are encountered, proper maintenance and safeguards must be ensured so as to prevent erosion or landslide.

(k) Brief description on method of procurement and storage of explosives :

Not Applicable

10. Waste Disposal

7500 cum volume of waste generated during plan period, which will be dumped in the temporary dump.

(a) Location (show it in the development plan): Northern part of the lease area.

(b) Area covered : 0.007Ha

APPROVED

(c) Environmental safeguards for such Disposal :

Garland drain, retaining wall & Siltation tank constructed around the dump area.

11. Mine drainage (Give details of total make of water during dry and rainy season and its method of handling)

As the area is situated at a height from the general ground level, the runoff water will follow the natural path on the surface of the earth. So no artificial drainage system is required.

Deputy Director Geology
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Bhubaneswar

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12. Mineral processing (Give details of processing including size sorting, generation of rejects/fines etc.)

The rock body will be cut in blocks as per domestic market demand with the help of power cutter.

13. (a) No. of trees to be uprooted due to mining operation

As the applied lease area is devoid of any trees, so no trees will be uprooted in mining operation except some scrubs and bushes.

(b) Programme of Plantation

Plantation will be done in the safety zone of the applied quarry lease area. Fifty numbers saplings of Banyan, Mango, Neem, Saguan, & other local species will be planted every year.

YEARWISE PLANTATION	
YEAR	NO. OF SAPLINGS
1 st Year	30
2 nd Year	30
3 rd Year	30
4 th Year	30
5 th Year	30
TOTAL	150

14. Manpower:

(a) Supervisory (inclusive of statutory personnel's)

One qualified 2nd class manager to be appointed duly approved by DGMS followed by foreman & mining mate. One supervisor having sound knowledge and good experience which will fulfill the basic requirements of quarrying minor minerals and he must be capable to manage the annual production.

(b) Non-Supervisory (skilled, semi-skilled & un-skilled)

All the operators of these machines & driver should be skilled. All the helpers of machines & tippers should be semi-skilled. And all the labors come under un-skilled category.

TABLE- 9 (Employment potential)

Skilled	Semi- skilled	Un- skilled	Total
03	03	09	15

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(a) OMS

Maximum annual production = 1500Cu.m
 No. of working days in a year = 300 days (Average)
 Production per day = 1500/300 = 5Cum
 5CuM (Production per day) ÷ 9Nos (Un- skilled manpower) = OMS 0.5Cu.m or says as 1Cum

: 1Cu.m/Man Shift

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 Directorate of Geology
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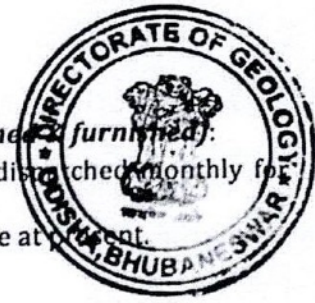
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Use of Mineral (Specification and monthly quantity to be dispatched) furnished:

(a) For domestic use : 150CuM quantity of mineral will be dispatched monthly for construction purposes.

(b) For export : There will be no export of laterite stone at present.



15. Mine Closure Plan:

(a) Describe the process/activities to be undertaken for reclamation and rehabilitation in respect of the following:

(i) Mined out land: During the present plan period the mined out land will be 0.512 ha.

The existing as well as proposed land use of the area is given as below:

Type of land use	At present in (ha)	During plan period (ha)	Total (ha)	Area selected for calculation of FA (ha)
Area of excavation	0.052	0.46	0.512	0.512
Waste Dump	NIL	NIL	NIL	NIL
Top soil storage	NIL	NIL	NIL	NIL
Mineral storage	NIL	NIL	NIL	NIL
Infrastructure	NIL	NIL	NIL	NIL
Roads	NIL	NIL	NIL	NIL
Total	0.052	0.46	0.512	0.512

(ii) Waste/reject dump : 12500cum volume of waste generated during plan period, which will be dumped in the temporary dump. Temporary dump will be constructed to temporarily stack the waste material.

(iii) Top-soil stack and its utilization : 10,000cum vol. of top soil are stored in temporary top soil storage.

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(b) Financial assurance (To be furnished as a bank guarantee in respect of the area to be put to use at the rate of Rs. _____ per hectare) :

An undertaking is furnished by the lessee to submit the financial assurance in shape of bank guarantee to the competent authority before signing lease deed.

Deputy Director Geology
Directorate of Geology
Bhubaneswar

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Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173 Acres /0.88 Hectares in Vill- BARIKO



16. Certificate:

I/We, the holder of Lease of **Bariko Laterite Stone Quarry** (type of concession) for **Laterite stone** (mineral) over **2.173 Acres/0.88 Hect.** in Vill-**Bariko** (village/forest) under **Tangi Tahasil of Khordha** District hereby solemnly affirm that the plans and programmes in this mining plan will be scrupulously implemented by me/us and I/we will be strictly held responsible for any deviation thereof. I/We also hereby certify that the provisions of Mines and Minerals (Development & Regulation) Act, 1957, and the Mines Act, 1952 and Rules and Regulations made under these Acts, along with the provisions under rule 28 (4) of Odisha Minor Mineral Concession Rules, 2016 will be strictly adhered to while implementing this mining plan and wherever specific permissions will be required, I/We will approach the concerned authorities of Directorate General of Mines Safety and the State Government as the case may be.

For, **Bariko Laterite Stone Quarry**

APPROVED

12/5/2019
25/11/19

Place: **Tangi**
Date:

[Signature]

Tahasildar, Tangi Tahasil

**Deputy Director Geology
Directorate of Geology
Bhubaneswar**

[Signature]

SAIDATTA DAS
RQP/OD/074/2017

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Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173 Acres /0.88 Hectares in Vill- BARIKO



Undertaking from lease applicant

I do hereby undertake to submit the financial assurance in form of Bank guarantee from any nationalized bank as and when decided by the competent authority for Bariko Laterite Stone Quarry.

APPROVED

25/11/19

Tahasildar, Tangi Tahasil

Place:Tangi
Date:

Deputy Director Geology
Directorate of Geology
Bhubaneswar

SAIDATTA DAS
RQP/OD/074/2017

GEO ENVIRONMENTAL SERVICES, BHUBANESWAR

Mining Plan; BARIKO LATERITE STONE QUARRY over 2.173Acres /0.88 Hectares in Vill- BARIKO

OFFICE OF THE TAHASILDAR, TANGI

No- 3655 Date- 25/11/17



To
Saidatta Das, Geologist
QP/OD/074/2017
405, Nageswar Residency
Alarahanga, Patita, Bhubaneswar.

Sub: Preparation of Mining Plan for newly created Sairat Sources to be leased out.

In inviting a reference to the subject cited supra, I am to request you to prepare the mining plan and to get it approved as per the following land schedule and submit the same as soon as possible so as to enable the under signed to lease out these sources.

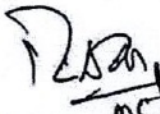
The cost of the approved mining plan so submitted shall be paid as per prescribed rate fixed by the Govt. on received after approval of mining plan.

Land Schedule

1	2	3	4	5	6	7
Name of the Sairat sources	Mouza	Khata No.	Plot No	Area in Acre	MGQ	Kisam
Gopal-Prasad Murrom Quarry	Gopal Prasad	714	605(P)	4.800	1200	Puratana Patita
Olasingh Laterite Stone Quarry(A)	Olasingh	372	337(P)	12.35	2000	Gochar
Olasingh Laterite Stone Quarry(B)	Olasingh	372	593(P)	12.35	2000	Gochar
Olasingh Laterite Stone Quarry(C)	Olasingh	372	541(P)	12.35	2000	Gochar
Olasingh Laterite Stone Quarry(D)	Olasingh	372	1006(P)	12.35	2000	Gochar
Damanabhui Laterite Stone Quarry (A)	Damanabhui	708	2161(P)	10.230	1500	Gochar
Damanabhui Laterite Stone Quarry(B)	Damanabhui	708	942(P)	12.35	1800	Gochar

Damanabhui Laterite Stone Quarry(C)	Damanabhui	705	731(P)	12.35	1800	Patita
Gayabandha Laterite Stone Quarry	Gayabandha	338	763	12.35	1800	Puratana Patita
Aranga Laterite Stone Quarry.(A)	Aranga	518	1049(P)	12.35	1800	Puratana Patita
Aranga Laterite Stone Quarry(B)	Aranga	518	1049(P)	12.35	1800	Puratana Patita
Sahadaghai Laterite Stone Quarry(A)	Sahadaghai	278	719	6.325	1500	Bagayat
Sahadaghai Laterite Stone Quarry(B)	Sahadaghai	278	720	7.312	1500	Bagayat
Sahadaghai Laterite Stone Quarry(C)	Sahadaghai	278	754	3.950	1500	Patita
Sahadaghai Laterite Stone Quarry(D)	Sahadaghai	278	755	6.425	1500	Patita
Nayakota Laterite Stone Quarry(A)	Nayakota	293	440	12.35	1800	Puratana Patita
Nayakota Laterite Stone Quarry(B)	Nayakota	293	424	5.630	1500	Puratana Patita
Jagatpur Laterite Stone Quarry	Jagatpur	392	262	2.605	1500	Pathara Tangi
Bariko Laterite Stone Quarry	Bariko	270	673	2.173	1500	Pathara Chatana

Yours faithfully


25/11/19
Tahasildar, Tangi



GOVERNMENT OF ODISHA
DEPARTMENT OF STEEL AND MINES
DIRECTORATE OF MINES

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON

(Under rule 20(2) of Odisha Minor Mineral Concession Rules, 2016)

Sri *Saidatta Das* S/o Sri Pravat Kumar Das, House No-405, Nageswore Recidency, Kalarahanga, Patia, Bhubaneswar, Odisha-751024, whose photograph and signature are affixed herein, having given satisfactory evidence of his qualification and experience, is hereby **recognised** under rule 20(2) of Odisha Minor Mineral Concession Rules, 2016 as a **qualified person** to prepare Mining Plans for Minor Minerals within the State of Odisha, India.



His/ Her Registration No. is

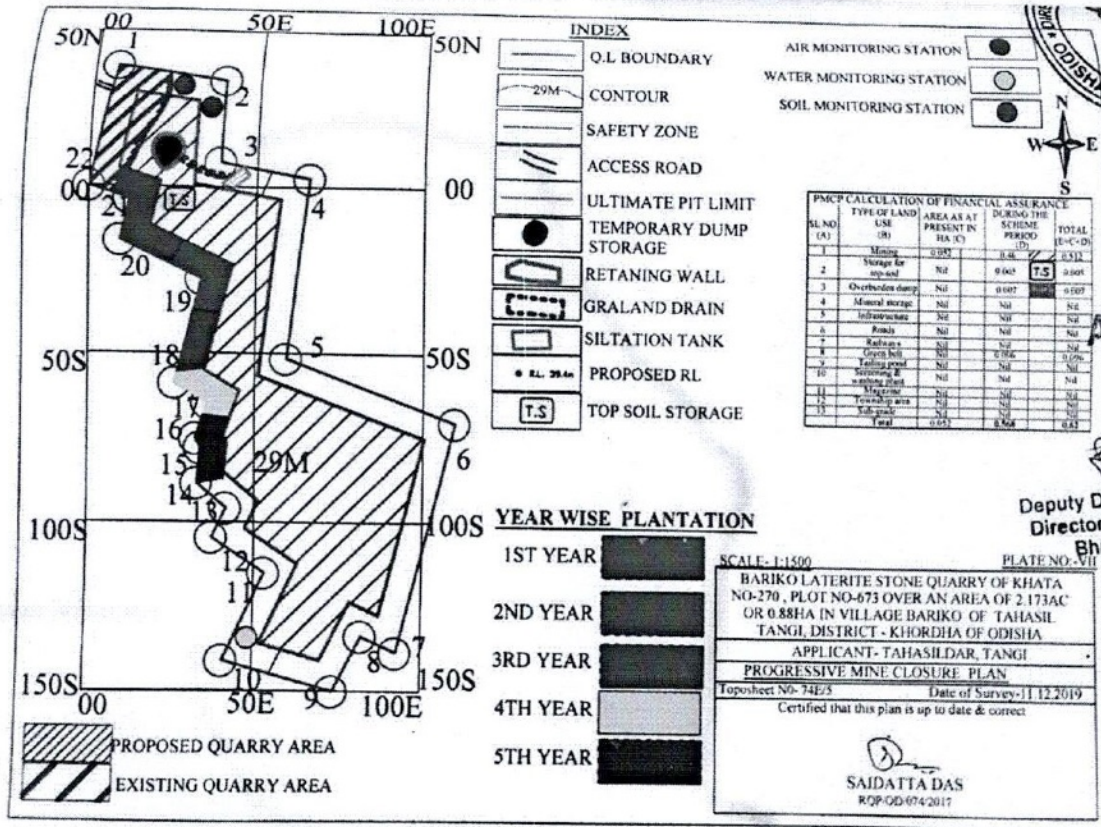
RQP/OD/074/2017

This Recognition is valid for a period of 10 years ending on **08-02-2027**. This certificate will be liable to be withdrawn/ cancelled in the event of furnishing wrong information/ documents in the Mining Plans to be submitted by him.

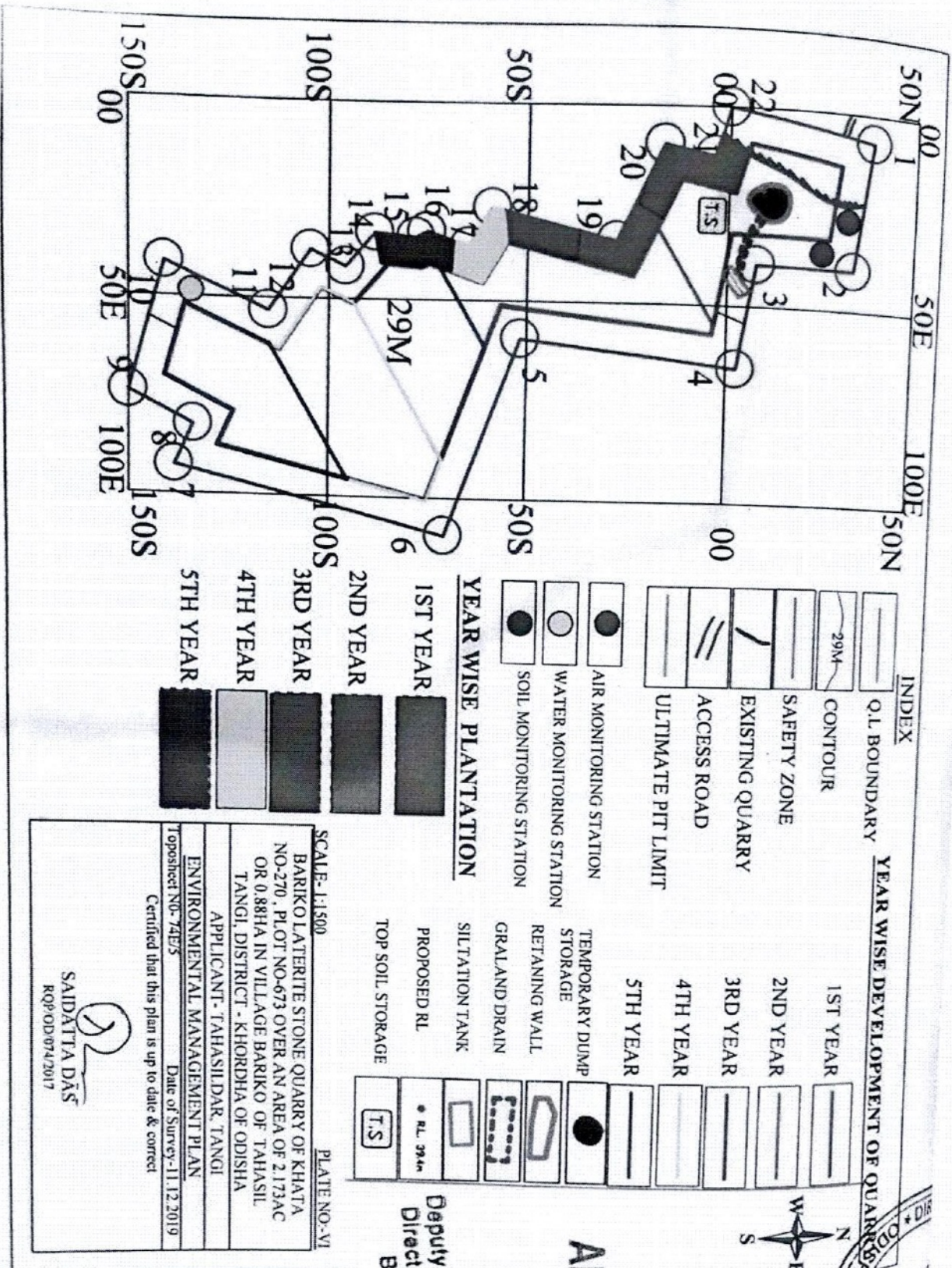
[Handwritten Signature]
9/2/2017

DIRECTOR OF MINES, ODISHA
BHUBANESWAR

Place: Bhubaneswar
Date: 09.02.2017



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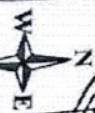
- AIR MONITORING STATION
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- SOIL MONITORING STATION

YEAR WISE PLANTATION

- 1ST YEAR
- 2ND YEAR
- 3RD YEAR
- 4TH YEAR
- 5TH YEAR

YEAR WISE DEVELOPMENT OF QUARRY

- 1ST YEAR
- 2ND YEAR
- 3RD YEAR
- 4TH YEAR
- 5TH YEAR
- TEMPORARY DUMP STORAGE
- RETAINING WALL
- GRALAND DRAIN
- SILTATION TANK
- PROPOSED RL
- TOP SOIL STORAGE

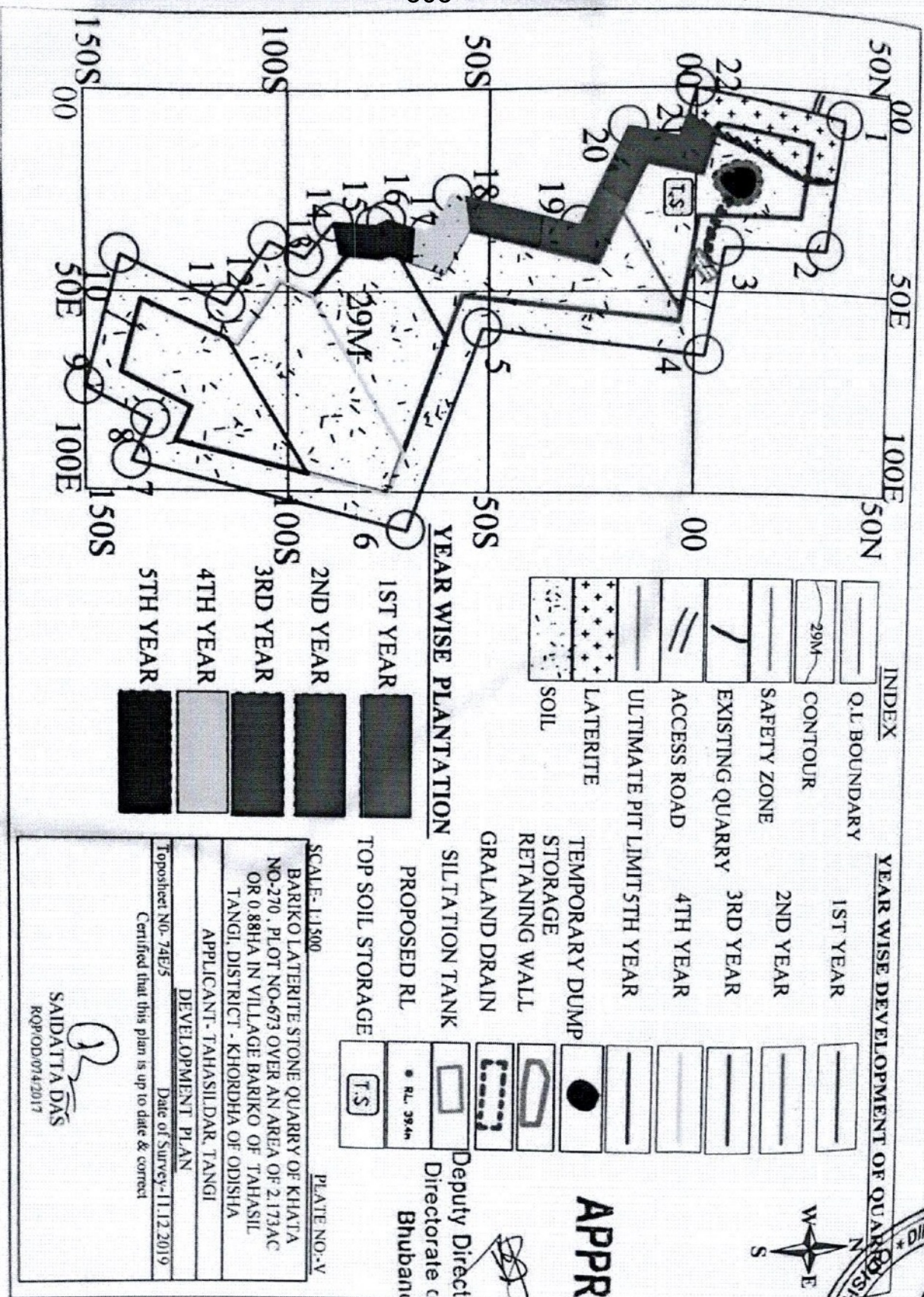


APPROVED

Deputy Director Geology
Directorate of Geology
Bhubaneswar

SCALE: 1:1500
 PLATE NO.-VI
 BARIKO LATERITE STONE QUARRY OF KHATA
 NO-270, PLOT NO-673 OVER AN AREA OF 2.173AC
 OR 0.88HA IN VILLAGE BARIKO OF TAHASIL
 TANGI, DISTRICT - KHORDHA OF ODISHA
 APPLICANT - TAHASIL DAR, TANGI
 ENVIRONMENTAL MANAGEMENT PLAN
 Toposheet No-74E75 Date of Survey-11.12.2019
 Certified that this plan is up to date & correct

SAIDATTA DAS
 RQP/OD/9/4/2017



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	2ND YEAR
	3RD YEAR
	4TH YEAR
	5TH YEAR
	TEMPORARY DUMP STORAGE RETAINING WALL
	GRALAND DRAIN
	SILTATION TANK
	PROPOSED RL
	TOP SOIL STORAGE

APPROVED

Deputy Director Geology
Directorate of Geology
Bhubaneswar



YEAR WISE PLANTATION

	1ST YEAR
	2ND YEAR
	3RD YEAR
	4TH YEAR
	5TH YEAR

SCALE-1:1500

PLATE NO.-V

BARIKO LATERITE STONE QUARRY OF KHATA NO-270, PLOT NO-673 OVER AN AREA OF 2.173AC OR 0.88HA IN VILLAGE BARIKO OF TAHASIL TANGI, DISTRICT - KHORDHA OF ODISHA

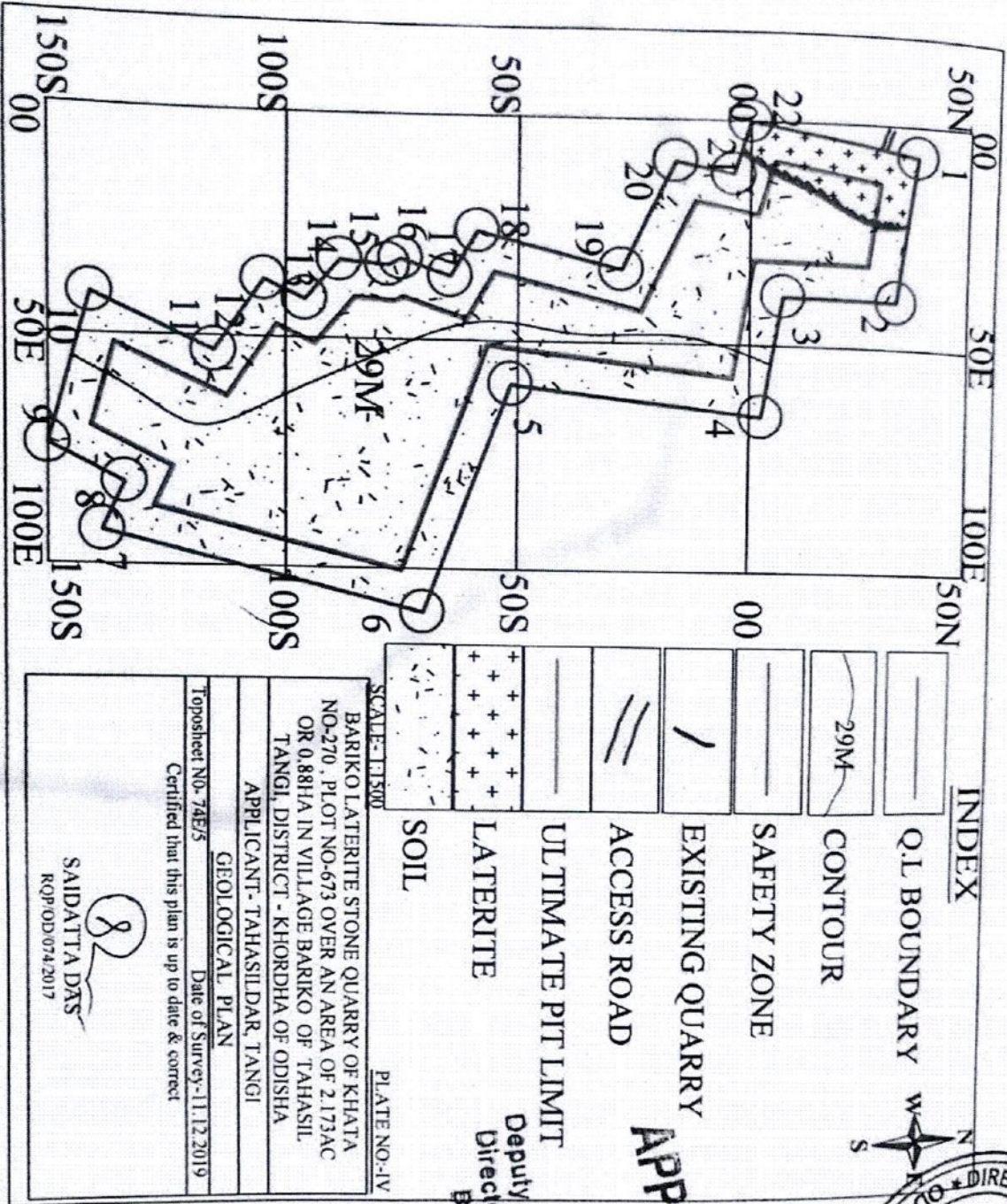
APPLICANT- TAHASILDAR, TANGI

DEVELOPMENT PLAN

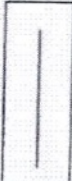
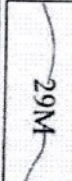


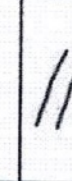
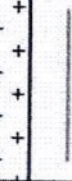
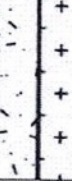
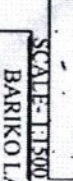
Toposheet No- 74E/5 Date of Survey-11.12.2019

Certified that this plan is up to date & correct

SAIDATTA DAS
RQP/OD/074/2017



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-  SOIL


SCALE: 1:1500

PLATE NO.-IV

BARIKO LATERITE STONE QUARRY OF KHATA
 NO-270, PLOT NO-673 OVER AN AREA OF 2.173AC
 OR 0.881HA IN VILLAGE BARIKO OF TAHASIL
 TANGI, DISTRICT - KHORDHA OF ODISHA
 APPLICANT- TAHASILDAR TANGI


Toposheet NO- 74E/5
 Date of Survey-11.12.2019

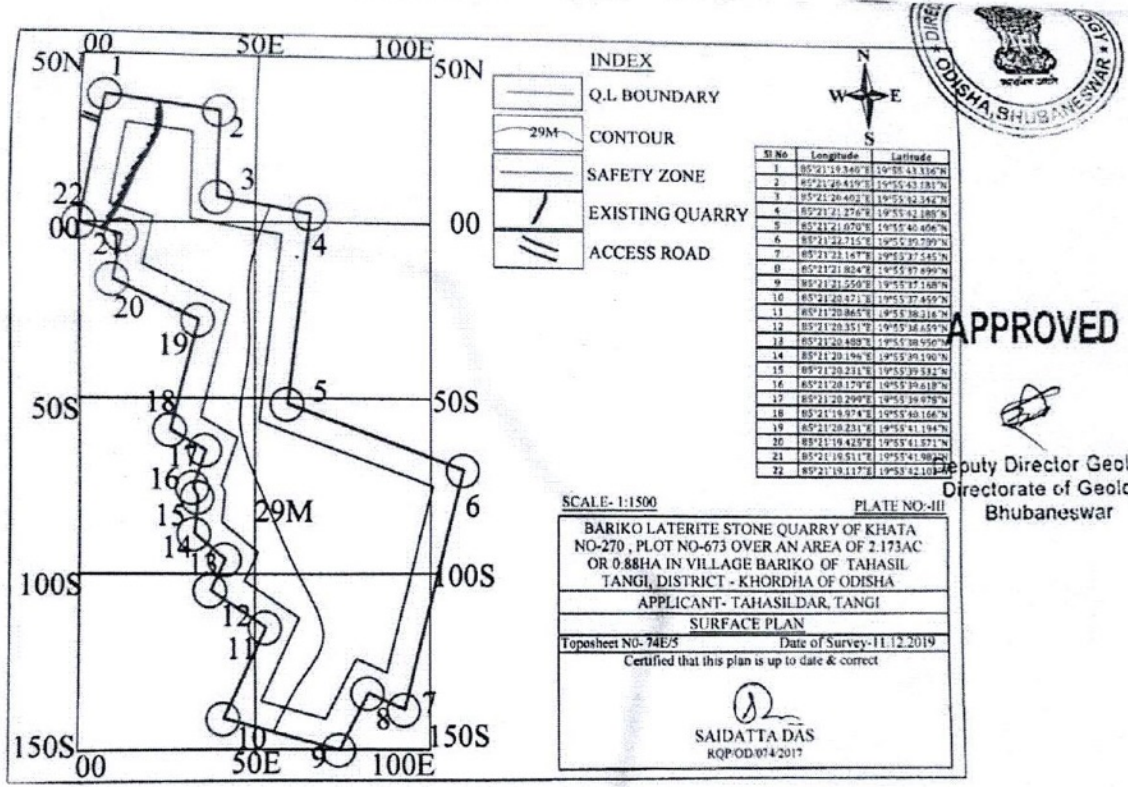
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 SAIDATTA DAS
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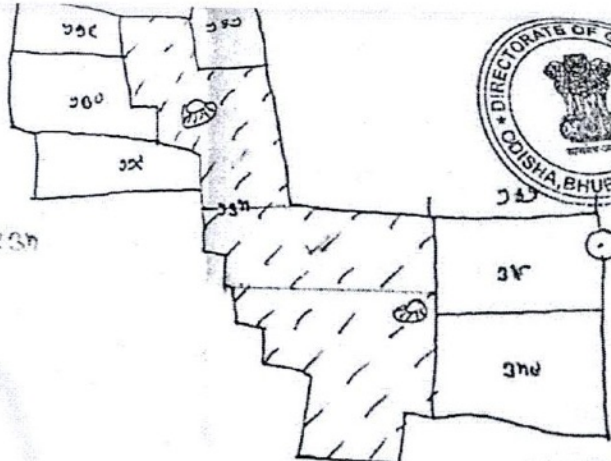
APPROVED


 Deputy Director Geology
 Directorate of Geology
 Bhubaneswar




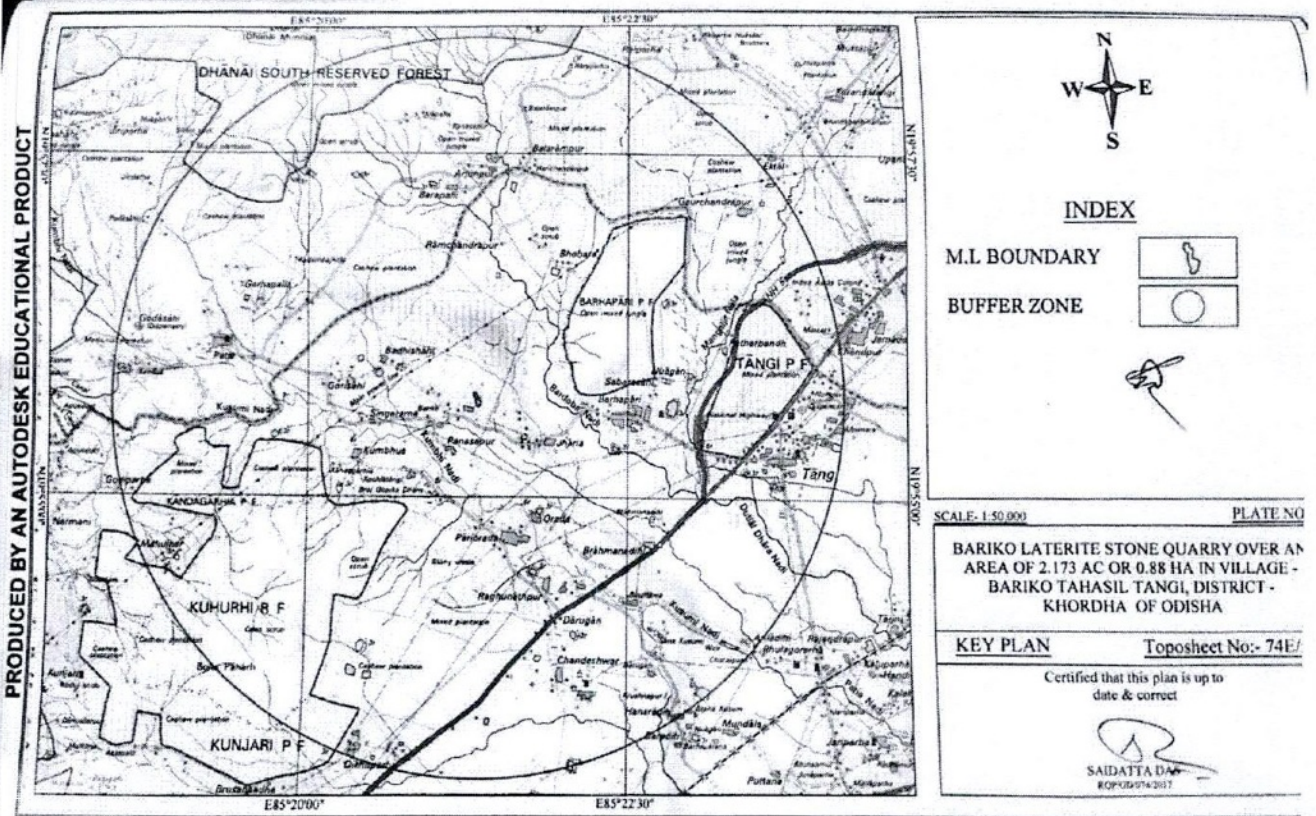
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 ଆମ - ନିକଟତମ
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APPROVED


 Deputy Director Geology
 Directorate of Geology
 Bhubaneswar
 27-8-19
 Revenue Inspector,
 Tangi



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