PRE - FEASIBILITY REPORT

FOR

Sandi Limestone Block

(ML Area: 404 ha.)

Limestone Production Capacity of 3.64 Million TPA

near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh

APPLICANT

SHREE CEMENT LIMITED

SHREE CEMENT LIMITED

BANGUR NAGAR,POST BOX NO. 33,

Beawar, District: Ajmer, Rajasthan

INDEX

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXURES

PRE- FEASIBILITY REPORT

1.0 EXECUTIVE SUMMARY

Shree Cement Limited is proposing "Sandi Limestone Block" (ML Area: 404 ha.) with limestone production capacity of 3.64 Million TPA, OB: 5.128 Million TPA, Top Soil: 0.0409 Million TPA & ROM Rejects: 0.182 Million TPA (Total Excavation: 8.991) and installation of Primary Crusher: 1200 TPH & Secondary Crusher: 400 TPH along with Wobbler near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh.

Letter of Intent (LOI) has been issued by State Government of Chhattisgarh for Sandi Limestone Block for mineral Limestone over an area of 404 ha in favour of Shree Cement Limited vide letter no. F3-09/2023/12, dated 04.10.2023. Copy enclosed as ***Annexure- 1.***

Mining Plan along with Progressive Mine Closure Plan for Sandi Limestone Block over an area of 404 ha (with Limestone Production Capacity of 3.64 Million TPA) has also been approved by the Regional Controller of Mines, IBM, Raipur, Chhattisgarh vide letter no. RPR/KHAIRAGARH-CHHUIKHADAN-GANDAI/LIMESTONE/1423/MP/2023-24, dated 14.03.2024. Copy enclosed as ***Annexure- 2.***

Table No.: 1

SALIENT FEATURES OF THE PROJECT

S. No.	Particulars	Details
A.	**Nature of the Project**	Opencast Limestone Mine (i.e. Sandi Limestone Block)
B.	**Size of the Project**	
1.	Mining Lease Area	404 ha. (53.998 ha. is Govt. Waste Land & 350.002 ha. is Private Land)
2.	Production capacity	➢ Total Excavation: 8.991 Million TPA including ➢ Limestone Production: 3.64 Million TPA ➢ Over burden: 5.128 Million TPA ➢ Top Soil: 0.0409 Million TPA ➢ ROM Rejects: 0.182 Million TPA ➢ Crusher: 1200 TPH (Primary) & 400 TPH (Secondary) along with Wobbler.
C.	**Category of the Project**	As per EIA Notification dated 14.09.2006, as amended thereof, this project falls in Category 'A' Project or Activity 1(a) – 3 for "Mining of Mineral" and Project or Activity 2(b) - 3 for "Mineral Beneficiation (Crusher with Wobbler)".
D.	**Locations Details**	
1.	Villages	Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond. Khasra Map is enclosed as ***Annexure- 3.***
2.	Taluka	Chhuikhadan
3.	District	Khairagarh-Chhuikhadan-Gandai

<table>
<tr><td>4.</td><td>State</td><td>Chhattisgarh</td></tr>
<tr><td>5.</td><td>Toposheet</td><td>Core & Buffer Zone: F44P2 (64 G/02)</td></tr>
<tr><td>6.</td><td colspan="2">Mining Lease Details</td></tr>
<tr><td>a.</td><td>Geographical corner Coordinates</td><td>Detailed boundary pillar coordinates are as follows:
<table>
<tr><th>Pillar No.</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>A.</td><td>21° 35' 23.64255" N</td><td>81° 5' 47.76405" E</td></tr>
<tr><td>B.</td><td>21° 35' 23.60219" N</td><td>81° 6' 50.37650" E</td></tr>
<tr><td>C.</td><td>21° 34' 25.06745" N</td><td>81° 6' 50.31103" E</td></tr>
<tr><td>D.</td><td>21° 34' 25.10755" N</td><td>81° 5' 19.91612" E</td></tr>
<tr><td>E.</td><td>21° 34' 25.66142" N</td><td>81° 5' 19.92534" E</td></tr>
<tr><td>F.</td><td>21° 34' 57.63100" N</td><td>81° 5' 47.74188" E</td></tr>
</table></td></tr>
<tr><td>b.</td><td>Mineable Reserves</td><td>60.25 Million Tonnes as on 30.11.2023</td></tr>
<tr><td>c.</td><td>Life of the Mine</td><td>23 years</td></tr>
<tr><td>d.</td><td>General Ground Level</td><td>315 mRL</td></tr>
<tr><td>e.</td><td>Ultimate Pit Depth</td><td>30 to 72 m (Max 246 m RL)</td></tr>
<tr><td>E.</td><td colspan="2">Cost Details</td></tr>
<tr><td>1.</td><td>Total Project Cost</td><td>Rs. 354.57 Crore</td></tr>
<tr><td>2.</td><td>Cost for Environment Protection Measures</td><td>Capital Cost: Rs. 4.53 Crores
Recurring Cost: Rs. 0.54 Crores</td></tr>
<tr><td>F.</td><td colspan="2">Requirements of The Project</td></tr>
<tr><td>1.</td><td>Water Requirement</td><td>Total water requirement: 100 KLD
Source: Ground water and mine pit water</td></tr>
<tr><td>2.</td><td>Power Requirement</td><td>2.4 MW
Source: State Grid Supply</td></tr>
<tr><td>3.</td><td>Man Power Requirement</td><td>138 Persons
Source: Preference will be given to local people based on qualification and experience</td></tr>
</table>

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

(i) Identification of project and project proponent

Shree Cement Limited is proposing "Sandi Limestone Block" (ML Area: 404 ha.) with limestone production capacity of 3.64 Million TPA, OB: 5.128 Million TPA, Top Soil: 0.0409 Million TPA & ROM Rejects: 0.182 Million TPA (Total Excavation: 8.991) and installation of Primary Crusher: 1200 TPH & Secondary Crusher: 400 TPH along with Wobbler near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai, Chhattisgarh.

About Shree Cement Limited (SCL)

Shree Cement Limited (SCL) is a Public Limited Company and environment friendly business organization incorporated under the Companies Act, 1956 on 25th October 1979. The Company's Cement and Clinker manufacturing facilities are located at Beawar, Ras & Nawalgarh in Rajasthan, Balodabazar- Bhatapara in Chhattisgarh, Sedam in Karnataka, Guntur in Andhra Pradesh and Ras Al Khaimah (RAK) in United Arab Emirates (UAE). It has split grinding units at eleven locations viz. Khushkhera, Suratgarh, Jobner in Rajasthan,

Roorkee in Uttarakhand, Aurangabad in Bihar, Bulandshahar in Uttar Pradesh, Panipat in Haryana, Hansda in Jharkhand, Cuttack in Odisha, Patas in Maharashtra and Purulia in West Bengal.

Presently, the cement production capacity of SCL group stands at 56.4 Million TPA. Total thermal power plants capacity is 1002.8 MW (including 244.5 MW WHRS, 199 MW Solar Plant and 56.3 MW Wind Plant).

(ii) Brief description of nature of the project

Shree Cement Limited is proposing "Sandi Limestone Block" (ML Area: 404 ha.) with limestone production capacity of 3.64 Million TPA, OB: 5.128 Million TPA, Top Soil: 0.0409 Million TPA & ROM Rejects: 0.182 Million TPA (Total Excavation: 8.991) and installation of Primary Crusher: 1200 TPH & Secondary Crusher: 400 TPH along with Wobbler near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh.

(iii) Need for the project and its importance to the country and region.

Shree Cement Limited is proposing "Sandi Limestone Block" (ML Area: 404 ha.) with limestone production capacity of 3.64 Million TPA, OB: 5.128 Million TPA, Top Soil: 0.0409 Million TPA & ROM Rejects: 0.182 Million TPA (Total Excavation: 8.991) and installation of Primary Crusher: 1200 TPH & Secondary Crusher: 400 TPH along with Wobbler near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh to cater the limestone requirement for our proposed integrated cement plant to be installed nearby to the mine lease area and sale to open market to other users.

IMPORTANCE TO THE COUNTRY/ REGION

With respect to the importance of the project to the nation, the cement demand for infrastructure projects such as the dedicated freight corridor, upgraded and new airports and ports, housing and roads, is likely to increase substantially. Keeping this requirement in mind, mining of limestone is necessary for the nation's growth and modernization.

(iv) Demand – Supply Gap

Limestone produced from the mine will meet the requirement/ demand of limestone for proposed Integrated Cement Plant, thus there will be no demand supply gap.

(v) Imports vs. Indigenous production

The Limestone mined out from this "Sandi Limestone Block" situated near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh will be utilized for use in proposed integrated cement plant to be installed nearby to the mine lease area and sale to open market to other users.

(vi) Export Possibility

This limestone mine will meet the raw material requirement of the companies proposed integrated cement plant to be installed in the nearby of mine lease area and/or sale to open market to other users, so there is no export possibility.

(vii) Domestic/export markets

This limestone mine will meet the raw material requirement of the companies proposed integrated cement plant to be installed in the nearby of mine lease area and/or sale to open market to other users, so there is no export possibility.

(viii) Employment Generation (Direct and Indirect) due to the project

The Total Manpower requirement in limestone production capacity will be 138 persons. Skilled, Semi-skilled & Un-skilled manpower will be sourced from the outside & local area. Preference will be given to the locals as per their eligibility, qualification & experience.

3.0 PROJECT DESCRIPTION

(i) Type of Project including interlinked and independent projects if any

Type of Project: Sandi Limestone Block with limestone production capacity of 3.64 Million TPA, OB: 5.128 Million TPA, Top Soil: 0.0409 Million TPA & ROM Rejects: 0.182 Million TPA (Total Excavation: 8.991) and installation of Primary Crusher: 1200 TPH & Secondary Crusher: 400 TPH along with Wobbler near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh.

Interlinked project: Limestone mined out will be used companies proposed integrated cement plant to be installed in the nearby of mine lease area and/or sale to open market to other users. Land is being explored for installation of Cement Plant and ToR application for prior Environmental Clearance for the proposed Integrated Cement Plant will be submitted accordingly.

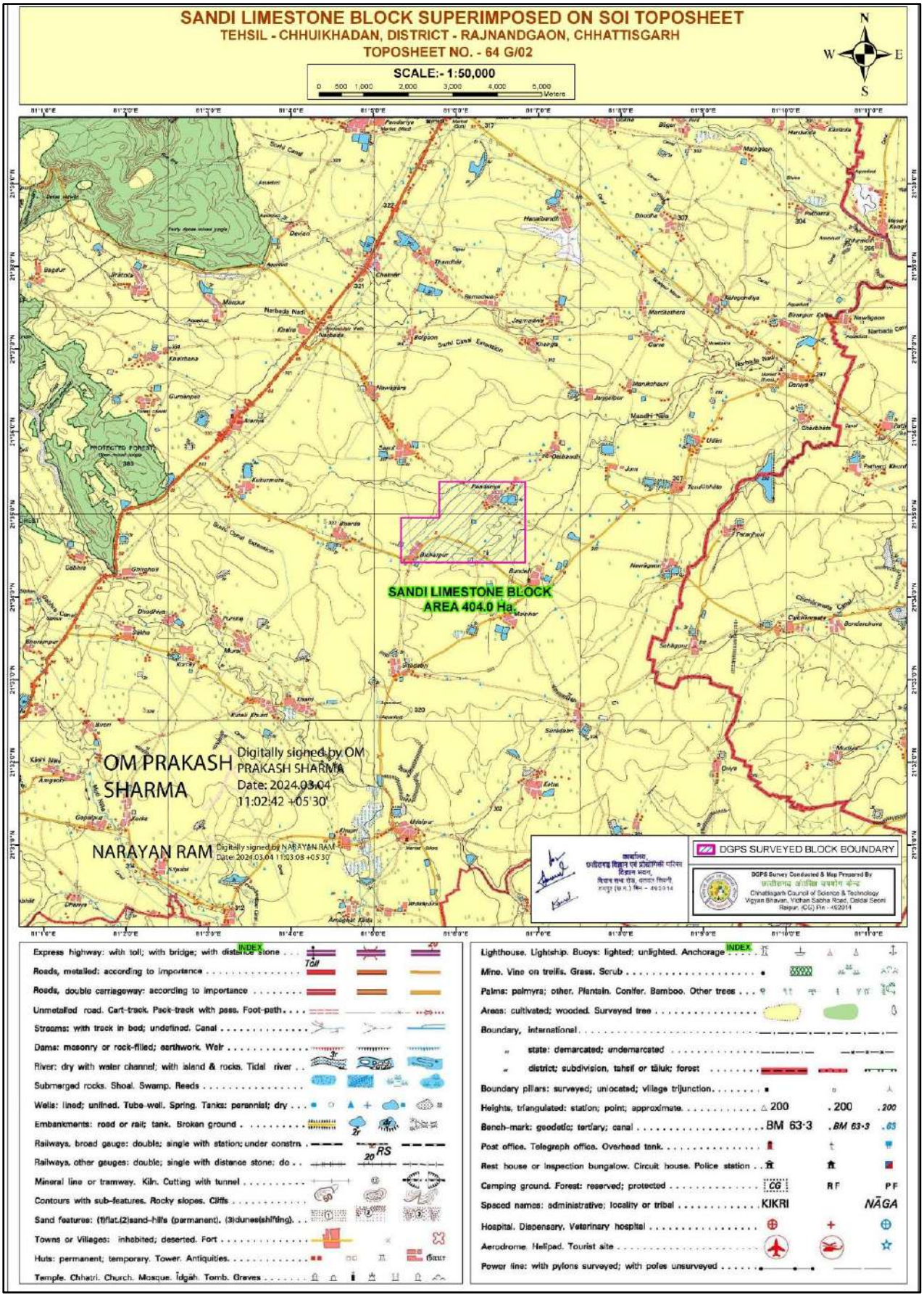
(ii) Location (Map showing general location, specific location, and project boundary & project site layout) with coordinates

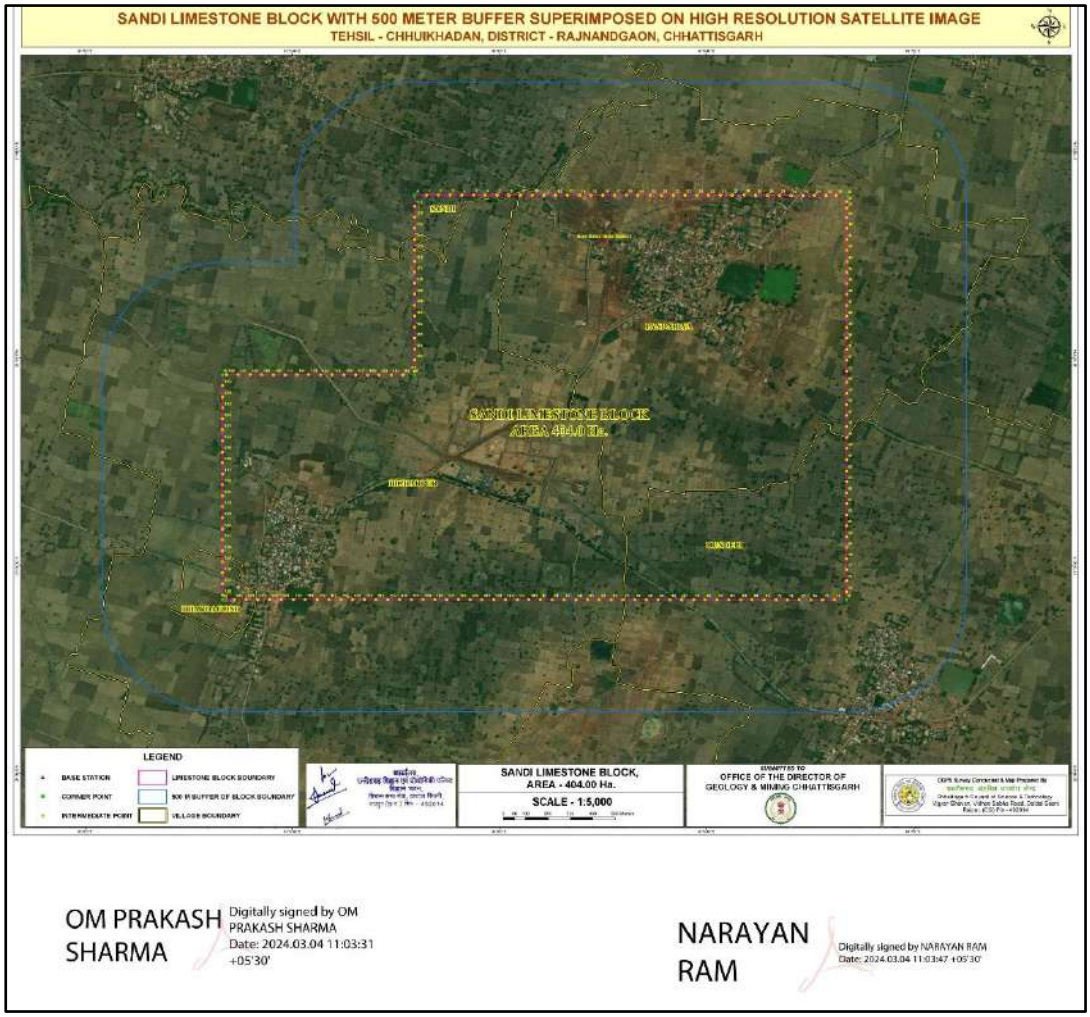
The map clearly demarcating the mine lease boundary and Latitude & Longitude co-ordinates of all the Mining Lease boundary pillars is enclosed as ***Annexure- 4***.

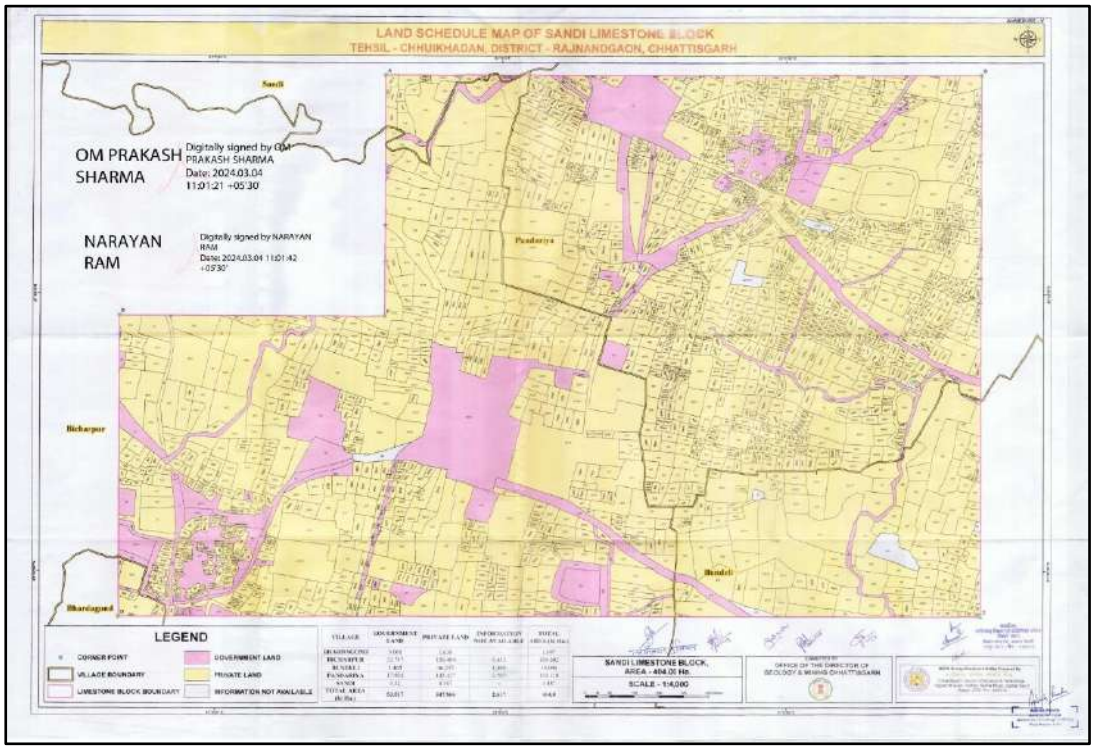
TABLE- 2: LOCATION DETAILS

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Mining Lease Area</td><td>404 ha.</td></tr>
<tr><td>2.</td><td>Villages</td><td>Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond</td></tr>
<tr><td>3.</td><td>Taluka</td><td>Chhuikhadan</td></tr>
<tr><td>4.</td><td>District</td><td>Khairagarh-Chhuikhadan-Gandai</td></tr>
<tr><td>5.</td><td>State</td><td>Chhattisgarh</td></tr>
<tr><td>6.</td><td>Mining Lease Toposheet</td><td>Core & Buffer Zone: 64 G/02</td></tr>
<tr><td>7.</td><td>Geographical Co-ordinates</td><td>Boundary Pillars Coordinates of Sandi Limestone Block:
<table>
<tr><th>Pillar No.</th><th>Latitude</th><th>Longitude</th></tr>
<tr><td>1.</td><td>21° 35' 23.64255" N</td><td>81° 5' 47.76405" E</td></tr>
<tr><td>2.</td><td>21° 35' 23.60219" N</td><td>81° 6' 50.37650" E</td></tr>
</table></td></tr>
</table>

		3.	21° 34' 25.06745" N	81° 6' 50.31103" E
		4.	21° 34' 25.10755" N	81° 5' 19.91612" E
		5.	21° 34' 25.66142" N	81° 5' 19.92534" E
		6.	21° 34' 57.63100" N	81° 5' 47.74188" E
6.	Toposheet No.	Core & Buffer Zone: 64 G/02		

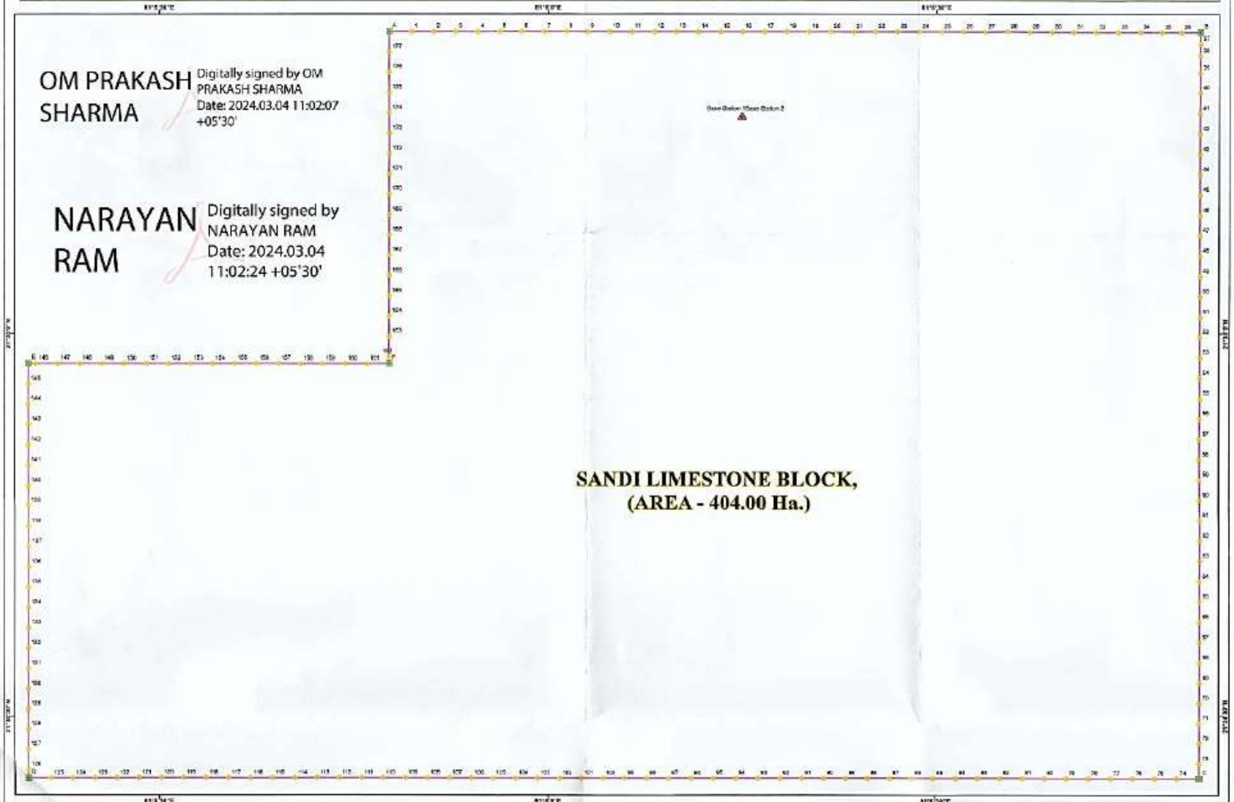

SANDI LIMESTONE BLOCK SUPERIMPOSED ON SOI TOPOSHEET
TEHSIL - CHHUIKHADAN, DISTRICT - RAJNANDGAON, CHHATTISGARH
TOPOSHEET NO. - 64 G/02
SCALE:- 1:50,000
N
S
E
W
SANDI LIMESTONE BLOCK
AREA 404.0 Ha.
OM PRAKASH SHARMA
Digitally signed by OM PRAKASH SHARMA
Date: 2024.03.04 11:02:42 +05'30'
NARAYAN RAM
Digitally signed by NARAYAN RAM
Date: 2024.03.04 11:03:08 +05'30'
DGPS SURVEYED BLOCK BOUNDARY
DGPS Survey Conducted & Map Prepared By
Chhattisgarh Council of Science & Technology
INDEX
Express highway: with toll; with bridge; with distance stone
Roads, metalled: according to importance
Roads, double carriageway: according to importance
Unmetalled road. Cart-track. Pack-track with pass. Foot-path
Streams: with track in bed; undefined. Canal
Dams: masonry or rock-filled; earthwork. Weir
River: dry with water channel; with island & rocks. Tidal river
Submerged rocks. Shoal. Swamp. Reeds
Wells: lined; unlined. Tube-well. Spring. Tanks: perennial; dry
Embankments: road or rail; tank. Broken ground
Railways, broad gauge: double; single with station; under constrn.
Railways, other gauges: double; single with distance stone; do
Mineral line or tramway. Kiln. Cutting with tunnel
Contours with sub-features. Rocky slopes. Cliffs
Sand features: (1)flat.(2)sand-hills (permanent). (3)dunes(shifting).
Towns or Villages: inhabited; deserted. Fort
Huts: permanent; temporary. Tower. Antiquities.
Temple. Chhatri. Church. Mosque. Idgah. Tomb. Graves
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage
Mine. Vine on trellis. Grass. Scrub
Palms: palmyra; other. Plantain. Conifer. Bamboo. Other trees
Areas: cultivated; wooded. Surveyed tree
Boundary, international
" state: demarcated; undemarcated
" district; subdivision, tahsil or taluk; forest
Boundary pillars: surveyed; unlocated; village triJunction
Heights, triangulated: station; point; approximate
Bench-mark: geodetic; tertiary; canal
Post office. Telegraph office. Overhead tank.
Rest house or inspection bungalow. Circuit house. Police station
Camping ground. Forest: reserved; protected
Spaced names: administrative; locality or tribal
Hospital. Dispensary. Veterinary hospital
Aerodrome. Helipad. Tourist site
Power line: with pylons surveyed; with poles unsurveyed
KIKRI
NĀGA


SANDI LIMESTONE BLOCK WITH 500 METER BUFFER SUPERIMPOSED ON HIGH RESOLUTION SATELLITE IMAGE
TEHSIL - CHHUIKHADAN, DISTRICT - RAJNANDGAON, CHHATTISGARH
SANDI LIMESTONE BLOCK
AREA 404.00 Ha.
LEGEND
BASE STATION
CORNER POINT
INTERMEDIATE POINT
LIMESTONE BLOCK BOUNDARY
500 M BUFFER OF BLOCK BOUNDARY
VILLAGE BOUNDARY
SANDI LIMESTONE BLOCK,
AREA - 404.00 Ha.
SCALE - 1:5,000
SUBMITTED TO
OFFICE OF THE DIRECTOR OF
GEOLOGY & MINING CHHATTISGARH
OM PRAKASH SHARMA
Digitally signed by OM PRAKASH SHARMA
Date: 2024.03.04 11:03:31 +05'30'
NARAYAN RAM
Digitally signed by NARAYAN RAM
Date: 2024.03.04 11:03:47 +05'30'


LAND SCHEDULE MAP OF SANDI LIMESTONE BLOCK
TEHSIL - CHHUIKHADAN, DISTRICT - RAJNANDGAON, CHHATTISGARH
OM PRAKASH SHARMA
Digitally signed by OM PRAKASH SHARMA
Date: 2024.03.04 11:01:21 +05'30'
NARAYAN RAM
Digitally signed by NARAYAN RAM
Date: 2024.03.04 11:01:42 +05'30'
Sandi
Pandariya
Bicharpur
Bundeli
Bhardagond
LEGEND
CORNER POINT
VILLAGE BOUNDARY
LIMESTONE BLOCK BOUNDARY
GOVERNMENT LAND
PRIVATE LAND
INFORMATION NOT AVAILABLE
SANDI LIMESTONE BLOCK,
AREA - 404.00 Ha.
SCALE - 1:4,000
OFFICE OF THE DIRECTOR OF GEOLOGY & MINING CHHATTISGARH

DGPS SURVEY BOUNDARY POINT AND THEIR COORDINATES OF SANDI LIMESTONE BLOCK

TEHSIL - CHHUIKHADAN, DISTRICT - RAJNANDGAON, CHHATTISGARH



S. No.	POINT ID	GEOGRAPHICAL COORDINATES		UTM COORDINATES	
		LATITUDE	LONGITUDE	EASTING	NORTHING
1	A	21° 35' 23.64255" N	81° 5' 47.76405" E	509999.66746	2387438.94548
2	B	21° 35' 23.60219" N	81° 6' 50.37650" E	511800.03919	2387438.92119
3	C	21° 34' 25.06745" N	81° 6' 50.31103" E	511799.47346	2385639.29403
4	D	21° 34' 25.10755" N	81° 5' 19.91612" E	509199.94954	2385638.83486
5	E	21° 34' 57.66142" N	81° 5' 19.92634" E	509199.07265	2386639.08669
6	F	21° 34' 57.63101" N	81° 5' 47.74188" E	509999.52601	2386639.23694
7	1	21° 35' 23.64041" N	81° 5' 49.47051" E	510048.73555	2387438.91019
8	2	21° 35' 23.65255" N	81° 5' 51.18348" E	510097.99037	2387439.31448
9	3	21° 35' 23.65511" N	81° 5' 52.87662" E	510146.67504	2387439.42561
10	4	21° 35' 23.64700" N	81° 5' 54.58571" E	510195.81903	2387438.89787
11	5	21° 35' 23.65526" N	81° 5' 56.28702" E	510244.73837	2387439.79633
12	6	21° 35' 23.65480" N	81° 5' 57.97605" E	510293.30505	2387439.50703
13	7	21° 35' 23.64107" N	81° 5' 59.70666" E	510343.06776	2387439.11681
14	8	21° 35' 23.65627" N	81° 6' 1.39993" E	510391.75595	2387439.61539
15	9	21° 35' 23.65283" N	81° 6' 3.10335" E	510440.73643	2387439.54123
16	10	21° 35' 23.64912" N	81° 6' 4.79840" E	510489.47642	2387439.45906
17	11	21° 35' 23.63390" N	81° 6' 6.49376" E	510538.22541	2387439.02270
18	12	21° 35' 23.63833" N	81° 6' 8.21442" E	510587.70167	2387439.19126
19	13	21° 35' 23.64904" N	81° 6' 9.91460" E	510636.58875	2387439.55279
20	14	21° 35' 23.62932" N	81° 6' 11.62710" E	510685.83061	2387438.97293
21	15	21° 35' 23.62736" N	81° 6' 13.32263" E	510734.58358	2387438.95117
22	16	21° 35' 23.63738" N	81° 6' 15.01752" E	510783.31934	2387439.29399
23	17	21° 35' 23.63499" N	81° 6' 16.73408" E	510832.67627	2387439.25156
24	18	21° 35' 23.64243" N	81° 6' 18.44374" E	510881.83732	2387439.51334
25	19	21° 35' 23.62958" N	81° 6' 20.14548" E	510930.76980	2387439.15147
26	20	21° 35' 23.64276" N	81° 6' 21.83991" E	510979.49139	2387439.58973
27	21	21° 35' 23.62303" N	81° 6' 23.55131" E	511028.70178	2387439.01630
28	22	21° 35' 23.64280" N	81° 6' 25.25790" E	511077.77378	2387439.65997
29	23	21° 35' 23.63956" N	81° 6' 26.96270" E	511126.79319	2387439.59242
30	24	21° 35' 23.63078" N	81° 6' 28.67102" E	511175.91483	2387439.35639
31	25	21° 35' 23.62848" N	81° 6' 30.37510" E	511224.91430	2387439.31974
32	26	21° 35' 23.62868" N	81° 6' 32.05977" E	511273.35568	2387439.35580
33	27	21° 35' 23.62533" N	81° 6' 33.77424" E	511322.65400	2387439.29139
34	28	21° 35' 23.68080" N	81° 6' 35.51476" E	511372.70037	2387440.90432
35	29	21° 35' 23.62304" N	81° 6' 37.18244" E	511420.65400	2387439.29009
36	30	21° 35' 23.62187" N	81° 6' 38.88653" E	511469.65400	2387439.28544
37	31	21° 35' 23.62073" N	81° 6' 40.59063" E	511518.65400	2387439.28878
38	32	21° 35' 23.61682" N	81° 6' 42.29946" E	511567.79021	2387439.20172
39	33	21° 35' 23.61185" N	81° 6' 44.00176" E	511616.73840	2387439.08617
40	34	21° 35' 23.60688" N	81° 6' 45.70405" E	511665.68660	2387438.96863
41	35	21° 35' 23.60190" N	81° 6' 47.40634" E	511714.63479	2387438.85108
42	36	21° 35' 23.60206" N	81° 6' 48.89142" E	511757.33699	2387438.88664
43	37	21° 35' 22.68543" N	81° 6' 50.37073" E	511799.89411	2387410.73655
44	38	21° 35' 21.76866" N	81° 6' 50.36497" E	511799.74903	2387382.55890
45	39	21° 35' 20.41257" N	81° 6' 50.35641" E	511799.53312	2387341.16557
46	40	21° 35' 18.84320" N	81° 6' 50.37538" E	511799.99925	2387292.60881
47	41	21° 35' 17.24111" N	81° 6' 50.34745" E	511799.34721	2387243.35272
48	42	21° 35' 15.64962" N	81° 6' 50.34502" E	511799.31318	2387194.42174
49	43	21° 35' 14.04620" N	81° 6' 50.34530" E	511799.35732	2387145.12618
50	44	21° 35' 12.45467" N	81° 6' 50.34273" E	511799.31912	2387096.19534
51	45	21° 35' 10.85964" N	81° 6' 50.34341" E	511799.37464	2387047.15659
52	46	21° 35' 9.25968" N	81° 6' 50.35764" E	511799.81983	2386997.96697
53	47	21° 35' 7.67393" N	81° 6' 50.33508" E	511799.20074	2386949.18217
54	48	21° 35' 6.07552" N	81° 6' 50.34707" E	511799.58750	2386900.07081
55	49	21° 35' 4.47912" N	81° 6' 50.34796" E	511799.64901	2386850.99030
56	50	21° 35' 2.89165" N	81° 6' 50.33649" E	511799.35498	2386802.18368
57	51	21° 35' 1.28000" N	81° 6' 50.35876" E	511800.03385	2386752.61350
58	52	21° 34' 59.71214" N	81° 6' 50.33597" E	511799.41151	2386704.43102
59	53	21° 34' 58.11651" N	81° 6' 50.34453" E	511799.69337	2386655.37426
60	54	21° 34' 56.51979" N	81° 6' 50.33506" E	511799.45710	2386606.28549
61	55	21° 34' 54.92188" N	81° 6' 50.35261" E	511800.00838	2386557.15888
62	56	21° 34' 53.35111" N	81° 6' 50.32986" E	511799.37924	2386508.24865
63	57	21° 34' 51.74390" N	81° 6' 50.32568" E	511799.29476	2386459.05040
64	58	21° 34' 50.14366" N	81° 6' 50.32257" E	511799.24128	2386410.25183
65	59	21° 34' 48.55715" N	81° 6' 50.33478" E	511799.62804	2386361.47535
66	60	21° 34' 46.95508" N	81° 6' 50.34488" E	511799.95473	2386312.22093
67	61	21° 34' 45.36326" N	81° 6' 50.34421" E	511799.97120	2386263.28078
68	62	21° 34' 43.75862" N	81° 6' 50.32931" E	511799.57883	2386213.88492
69	63	21° 34' 42.18566" N	81° 6' 50.34240" E	511799.90056	2386165.59658
70	64	21° 34' 40.57814" N	81° 6' 50.32190" E	511799.43719	2386116.16372
71	65	21° 34' 38.99918" N	81° 6' 50.33338" E	511799.79649	2386067.61964
72	66	21° 34' 37.40970" N	81° 6' 50.33451" E	511799.87105	2386018.75151
73	67	21° 34' 35.80148" N	81° 6' 50.33000" E	511799.77751	2385969.30749
74	68	21° 34' 34.20883" N	81° 6' 50.33285" E	511799.89540	2385920.34234
75	69	21° 34' 32.61369" N	81° 6' 50.33334" E	511799.94539	2385871.30036
76	70	21° 34' 31.02096" N	81° 6' 50.32779" E	511799.82155	2385822.33239
77	71	21° 34' 29.42579" N	81° 6' 50.32547" E	511799.79082	2385773.28959
78	72	21° 34' 27.82991" N	81° 6' 50.32760" E	511799.88799	2385724.22503
79	73	21° 34' 26.23525" N	81° 6' 50.31987" E	511799.69559	2385675.19778
80	74	21° 34' 25.07632" N	81° 6' 48.61119" E	511750.59429	2385639.58103
81	75	21° 34' 25.06264" N	81° 6' 46.91659" E	511701.68568	2385639.07491
82	76	21° 34' 25.05309" N	81° 6' 45.20609" E	511652.60908	2385638.77351
83	77	21° 34' 25.04528" N	81° 6' 43.49019" E	511603.32430	2385638.47010
84	78	21° 34' 25.05251" N	81° 6' 41.79730" E	511554.64097	2385638.65729
85	79	21° 34' 25.05977" N	81° 6' 40.09336" E	511505.64006	2385638.84571
86	80	21° 34' 25.06708" N	81° 6' 38.37969" E	511456.35909	2385639.03530
87	81	21° 34' 25.08230" N	81° 6' 36.69060" E	511407.79073	2385639.46874
88	82	21° 34' 25.07967" N	81° 6' 34.98443" E	511358.71960	2385639.35178
89	83	21° 34' 25.07997" N	81° 6' 33.28027" E	511309.71261	2385639.32887
90	84	21° 34' 25.08079" N	81° 6' 31.57119" E	511260.56228	2385639.31705
91	85	21° 34' 25.07632" N	81° 6' 29.86693" E	511211.55364	2385639.14723
92	86	21° 34' 25.08174" N	81° 6' 28.16620" E	511162.64522	2385639.27953
93	87	21° 34' 25.08160" N	81° 6' 26.46013" E	511113.58311	2385639.24188
94	88	21° 34' 25.08771" N	81° 6' 24.75290" E	511064.48739	2385639.39603
95	89	21° 34' 25.08941" N	81° 6' 23.04240" E	511015.29766	2385639.41452
96	90	21° 34' 25.08548" N	81° 6' 21.35240" E	510966.69791	2385639.26078
97	91	21° 34' 25.08609" N	81° 6' 19.64737" E	510917.66561	2385639.24481
98	92	21° 34' 25.08723" N	81° 6' 17.94345" E	510868.66537	2385639.24826
99	93	21° 34' 25.09095" N	81° 6' 16.23997" E	510819.67761	2385639.32940
100	94	21° 34' 25.09679" N	81° 6' 14.53332" E	510770.59860	2385639.47632
101	95	21° 34' 25.09178" N	81° 6' 12.83075" E	510721.63720	2385639.28964
102	96	21° 34' 25.09101" N	81° 6' 11.12481" E	510672.57877	2385639.23354
103	97	21° 34' 25.09572" N	81° 6' 9.42346" E	510623.65236	2385639.34590
104	98	21° 34' 25.09725" N	81° 6' 7.71456" E	510574.50877	2385639.36078
105	99	21° 34' 25.10372" N	81° 6' 6.00421" E	510525.32361	2385639.52754
106	100	21° 34' 25.10048" N	81° 6' 4.31142" E	510476.64329	2385639.39600
107	101	21° 34' 25.09230" N	81° 6' 2.61003" E	510427.71515	2385639.11284
108	102	21° 34' 25.08751" N	81° 6' 0.90637" E	510378.77918	2385638.93430
109	103	21° 34' 25.09882" N	81° 5' 59.20970" E	510329.99088	2385639.18894
110	104	21° 34' 25.09467" N	81° 5' 57.50798" E	510280.99387	2385639.09172
111	105	21° 34' 25.09248" N	81° 5' 55.77454" E	510231.14493	2385638.99269
112	106	21° 34' 25.10396" N	81° 5' 54.08908" E	510182.67504	2385639.31485
113	107	21° 34' 25.10858" N	81° 5' 52.38948" E	510133.79892	2385639.42613
114	108	21° 34' 25.10810" N	81° 5' 50.67946" E	510084.62333	2385639.38043
115	109	21° 34' 25.10761" N	81° 5' 48.97632" E	510035.64524	2385639.33492
116	110	21° 34' 25.10450" N	81° 5' 47.28215" E	509986.39029	2385639.20880
117	111	21° 34' 25.10500" N	81° 5' 45.57615" E	509937.88536	2385639.19436
118	112	21° 34' 25.11131" N	81° 5' 43.86640" E	509888.69726	2385639.35800
119	113	21° 34' 25.11772" N	81° 5' 42.16423" E	509839.74704	2385639.52512
120	114	21° 34' 25.10707" N	81° 5' 40.46093" E	509790.78430	2385639.16767
121	115	21° 34' 25.10683" N	81° 5' 38.74708" E	509741.47900	2385639.12993
122	116	21° 34' 25.11044" N	81° 5' 37.06014" E	509692.95701	2385639.21253
123	117	21° 34' 25.11572" N	81° 5' 35.35029" E	509643.79605	2385639.34519
124	118	21° 34' 25.12312" N	81° 5' 33.64377" E	509594.72065	2385639.54356
125	119	21° 34' 25.12955" N	81° 5' 31.90617" E	509544.75473	2385639.73170
126	120	21° 34' 25.13098" N	81° 5' 30.16877" E	509494.78862	2385639.87983
127	121	21° 34' 25.12348" N	81° 5' 28.48066" E	509444.80535	2385639.46610
128	122	21° 34' 25.11128" N	81° 5' 26.73584" E	509396.06700	2385639.06267
129	123	21° 34' 25.10655" N	81° 5' 25.03513" E	509347.15913	2385638.88885
130	124	21° 34' 25.10182" N	81° 5' 23.33443" E	509298.25125	2385638.71503
131	125	21° 34' 25.10468" N	81° 5' 21.63120" E	509249.27197	2385638.77474
132	126	21° 34' 25.77018" N	81° 5' 19.92810" E	509200.28208	2385659.20734
133	127	21° 34' 27.37147" N	81° 5' 19.90615" E	509199.59438	2385708.42802
134	128	21° 34' 28.96906" N	81° 5' 19.91045" E	509199.71887	2385757.55331
135	129	21° 34' 30.56583" N	81° 5' 19.91049" E	509199.69196	2385806.64719
136	130	21° 34' 32.13458" N	81° 5' 19.90449" E	509199.49180	2385854.87758
137	131	21° 34' 33.74958" N	81° 5' 19.90992" E	509199.61973	2385904.55017
138	132	21° 34' 35.34499" N	81° 5' 19.90577" E	509199.47230	2385953.58011
139	133	21° 34' 36.93751" N	81° 5' 19.91514" E	509199.71404	2386002.54175
140	134	21° 34' 38.53126" N	81° 5' 19.91053" E	509199.55330	2386051.54074
141	135	21° 34' 40.11646" N	81° 5' 19.91422" E	509199.63171	2386100.27698
142	136	21° 34' 41.71778" N	81° 5' 19.92046" E	509199.78502	2386149.50896
143	137	21° 34' 43.30704" N	81° 5' 19.94236" E	509200.38487	2386198.37070
144	138	21° 34' 44.89424" N	81° 5' 19.91259" E	509199.50107	2386247.16779
145	139	21° 34' 46.49080" N	81° 5' 19.90483" E	509199.24993	2386296.25342
146	140	21° 34' 48.07788" N	81° 5' 19.93169" E	509199.99449	2386345.04725
147	141	21° 34' 49.68322" N	81° 5' 19.92428" E	509199.75335	2386394.40509
148	142	21° 34' 51.27289" N	81° 5' 19.92108" E	509199.63333	2386443.17608
149	143	21° 34' 52.88430" N	81° 5' 19.93093" E	509199.88805	2386492.81899
150	144	21° 34' 54.45407" N	81° 5' 19.90700" E	509199.19171	2386541.08051
151	145	21° 34' 56.05422" N	81° 5' 19.92402" E	509199.63402	2386590.27698
152	146	21° 34' 57.64767" N	81° 5' 20.47765" E	509215.52602	2386639.27606
153	147	21° 34' 57.64667" N	81° 5' 22.18166" E	509264.52602	2386639.27321
154	148	21° 34' 57.64566" N	81° 5' 23.88568" E	509313.52602	2386639.27037
155	149	21° 34' 57.64162" N	81° 5' 25.58287" E	509362.32988	2386639.17438
156	150	21° 34' 57.63146" N	81° 5' 27.28828" E	509411.37020	2386638.80051
157	151	21° 34' 57.63604" N	81° 5' 28.99513" E	509460.39425	2386639.06005
158	152	21° 34' 57.63813" N	81° 5' 30.66515" E	509509.33670	2386639.15319
159	153	21° 34' 57.63865" N	81° 5' 32.41760" E	509558.86846	2386639.19838
160	154	21° 34' 57.62982" N	81° 5' 34.10878" E	509607.49637	2386638.95585
161	155	21° 34' 57.64979" N	81° 5' 35.80902" E	509656.38906	2386639.50900
162	156	21° 34' 57.63425" N	81° 5' 37.51123" E	509705.33742	2386639.15066
163	157	21° 34' 57.63240" N	81° 5' 39.20786" E	509754.12519	2386639.12321
164	158	21° 34' 57.62192" N	81° 5' 40.93285" E	509803.72840	2386638.83119
165	159	21° 34' 57.63086" N	81° 5' 42.61676" E	509852.15001	2386639.13565
166	160	21° 34' 57.62604" N	81° 5' 44.34176" E	509901.75376	2386639.01756
167	161	21° 34' 57.62419" N	81° 5' 46.02581" E	509950.46703	2386638.95081
168	162	21° 34' 58.15477" N	81° 5' 47.73498" E	509999.31778	2386655.33352
169	163	21° 34' 59.75127" N	81° 5' 47.74935" E	509999.70036	2386704.72480
170	164	21° 35' 1.34929" N	81° 5' 47.74674" E	509999.59506	2386753.54799
171	165	21° 35' 2.92149" N	81° 5' 47.74444" E	509999.49894	2386801.88460
172	166	21° 35' 4.52274" N	81° 5' 47.74659" E	509999.53011	2386851.11437
173	167	21° 35' 6.11660" N	81° 5' 47.75617" E	509999.77535	2386900.11696
174	168	21° 35' 7.72733" N	81° 5' 47.75422" E	509999.68879	2386949.02333
175	169	21° 35' 9.29651" N	81° 5' 47.75068" E	509999.55660	2386997.88180
176	170	21° 35' 10.91555" N	81° 5' 47.75409" E	509999.62392	2387047.65869
177	171	21° 35' 12.49080" N	81° 5' 47.75141" E	509999.51690	2387096.09241
178	172	21° 35' 14.09052" N	81° 5' 47.77128" E	510000.05760	2387145.27231
179	173	21° 35' 15.68074" N	81° 5' 47.77138" E	510000.02436	2387194.16310
180	174	21° 35' 17.26652" N	81° 5' 47.75561" E	509999.54636	2387242.91683
181	175	21° 35' 18.86912" N	81° 5' 47.76980" E	509999.92187	2387292.18639
182	176	21° 35' 20.47384" N	81° 5' 47.75194" E	509999.37989	2387341.52464
183	177	21° 35' 22.05603" N	81° 5' 47.76301" E	509999.66791	2387390.16858
184	**Base Station 1**	**21° 35' 17.03911" N**	**81° 6' 15.02261" E**	**510783.60124**	**2387236.43056**
185	**Base Station 2**	**21° 35' 17.02640" N**	**81° 6' 14.94321" E**	**510781.31853**	**2387236.03828**

LEGEND

- BASE STATION
- CORNER POINT
- INTERMEDIATE POINT
- LIMESTONE BLOCK BOUNDARY

Ashish Panda
Assistant Geologist
Directorate of Geology & Mining
Naya Raipur, C.G.

SANDI LIMESTONE BLOCK,
AREA - 404.00 Ha.

SCALE - 1:5,000

SUBMITTED TO
OFFICE OF THE DIRECTOR OF GEOLOGY & MINING CHHATTISGARH

DGPS Survey Conducted & Map Prepared By
Chhattisgarh Council of Science & Technology
Vigyan Bhawan, Vidhan Sabha Road, Daldal Seoni
Raipur (CG) Pin - 492014

Map showing the Location of mine lease area is given below:

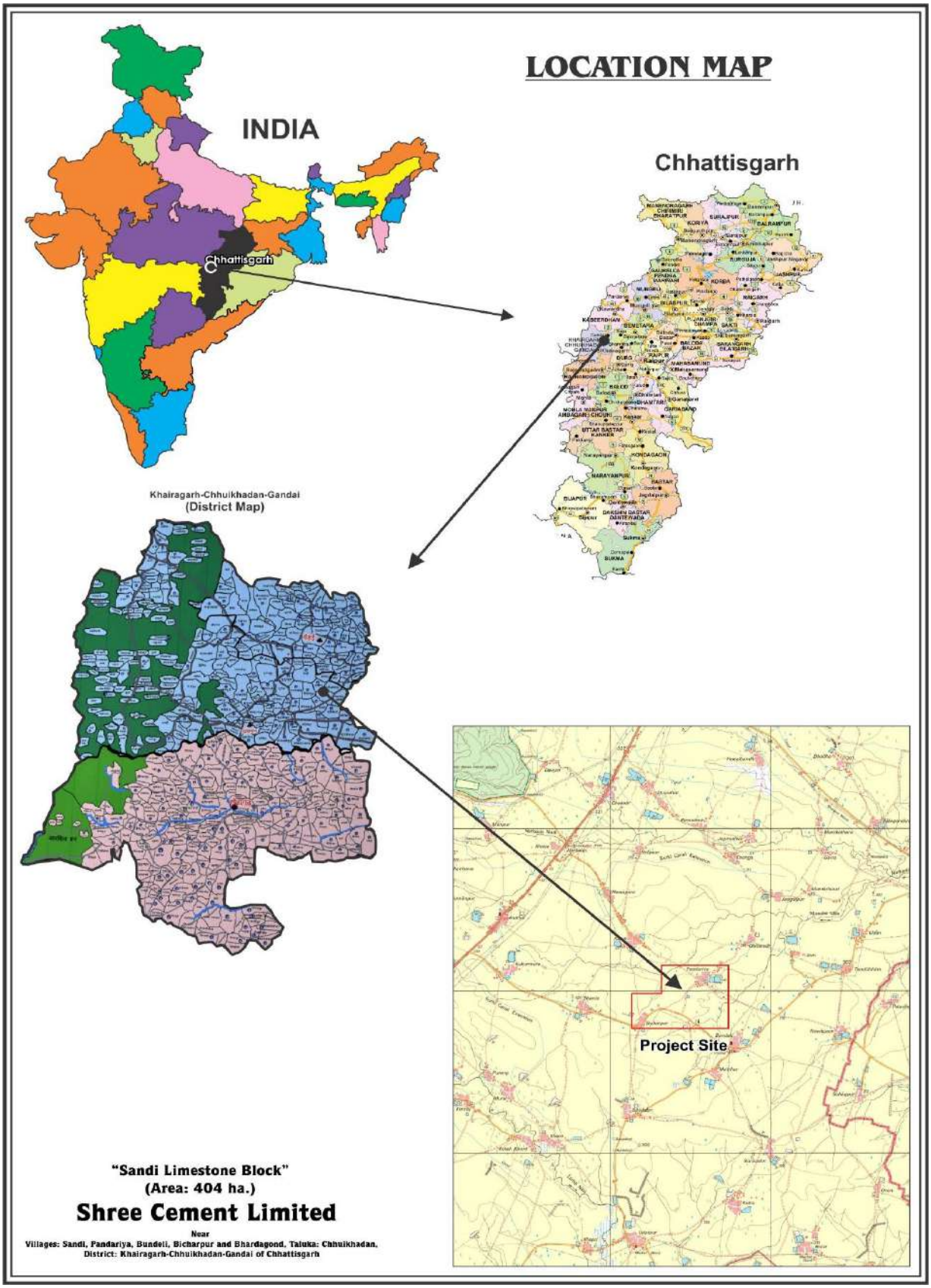


Figure 1: Location Map

(iii) Details of alternative site consideration and basis of selecting the proposed site particularly the environmental considerations gone sound be highlighted

This is a limestone mining project i.e. "Sandi Limestone Block", which is proposed at a specific location based on availability of mineral. No alternative site has been taken into consideration as the mineral (Limestone) has already been proved with adequate reliability at this site.

(iv) Size or magnitude of operation

Shree Cement Limited is proposing "Sandi Limestone Block" (ML Area: 404 ha.) with limestone production capacity of 3.64 Million TPA, OB: 5.128 Million TPA, Top Soil: 0.0409 Million TPA & ROM Rejects: 0.182 Million TPA (Total Excavation: 8.991) and installation of Primary Crusher: 1200 TPH & Secondary Crusher: 400 TPH along with Wobbler near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh.

(v) Project description with process details (A Schematic Diagram/ Flow Chart Showing the Project Layout, Components should be given)

Project description: Shree Cement Limited is proposing "Sandi Limestone Block" (ML Area: 404 ha.) with limestone production capacity of 3.64 Million TPA, OB: 5.128 Million TPA, Top Soil: 0.0409 Million TPA & ROM Rejects: 0.182 Million TPA (Total Excavation: 8.991) and installation of Primary Crusher: 1200 TPH & Secondary Crusher: 400 TPH along with Wobbler near Villages: Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond, Taluka: Chhuikhadan, District: Khairagarh-Chhuikhadan-Gandai of Chhattisgarh.

Process details & description

- Opencast fully mechanized conventional mining method i.e. by combination of shovel & dumper and HEMM with deephole drilling & blasting.
- Hydraulic Backhoe excavator with rear Dumpers will be deployed at mine site with 12-meter bench height to conduct the mining operation in scientific, systematic and sustainable manner.
- Maximum bench height of 12 m and minimum working bench width of 18 m.
- Ultimate pit angle slope is proposed to be kept at 45°.
- Haul road is planned at 1 in 16 gradients with minimum 22 m width.
- Topsoil will be used simultaneously for plantation.
- Over burden would be stacked at earmarked area and backfilled in worked out pit.
- Since the strata is hard and compact, drilling & blasting is required to break the rock.
- Latest controlled blasting technique using shock tube detonators, down line detonators in combination with Noiseless Trunk Line Detonator to reduce the Noise, Ground Vibration, Air Blast & Fly Rock.
- The limestone will be transported to Crusher with the help of dumpers and crushed limestone {after screening system from primary crusher (Feed size of ≥1.25 m to

Output size of ≤90 mm)} will be transported to stockpiles located within proposed cement plant (to be proposed nearby to the mine site) by covered conveyor belt and/ or road. Crushed limestone after primary crusher will be fed into secondary crusher (Feed size of ≤90 m to Output size of ≤40 mm).

- It is proposed to provide vibrating screening system (Primary Screening method is Wobbler with feed size of ≤90 mm and output size of ≤10 mm for separating out any interstitial clay, if any present between limestone bands in near future.
- Limestone will be transported by road to the users without crushing, until the crusher unit will be installed at mine site and thereafter, when the crusher will be installed, the limestone will be transported through covered conveyor belt to proposed cement plant.
- **Mineral processing:**

  It is proposed to provide screening system for separating out any interstitial clay, if any present between limestone bands in near future. The Limestone will be fed to Crusher Wobbler (Primary Screening method), where ≥90 mm part is fed into crusher, where it is crushed to ≤10 mm size. Crusher capacity for primary crusher: 1200 TPH & secondary crusher: 400 TPH along with wobbler. It is also proposed to construct mine workshop, mine office and other infrastructure facilities.

  In the present mining plan period, estimated quantity of ROM Reject Material is in tune of 0.00005 Million Tonnes, 0.00375 Million Tonnes, 0.025 Million Tonnes & 0.05 Million Tonnes in 2nd, 3rd, 4th & 5th year of mining plan period respectively. The ROM Reject will be separated by screening system and will be stored in a hopper by means of belt conveyor. From hopper it will be drawn out into dumpers & disposed-off at screen waste dumping site.

  Details of proposed crusher and screening system are given below:

Table No. 3: Details of Crushers

Crusher capacity	Nos.	Feed Size	Output Size
Primary Crusher (1200 T/Hr.)	1 No.	≥1.25 m	≤90 mm
Secondary Crusher (400 T/Hr.)	1 No.	≤90 mm	≤40 mm

Table No. 4: Details of Screening System of Crusher

Screening Method	Primary Screening Size	Secondary Screening Size
Wobbler	≤90 mm	≤10 mm

Process Flow Chart:

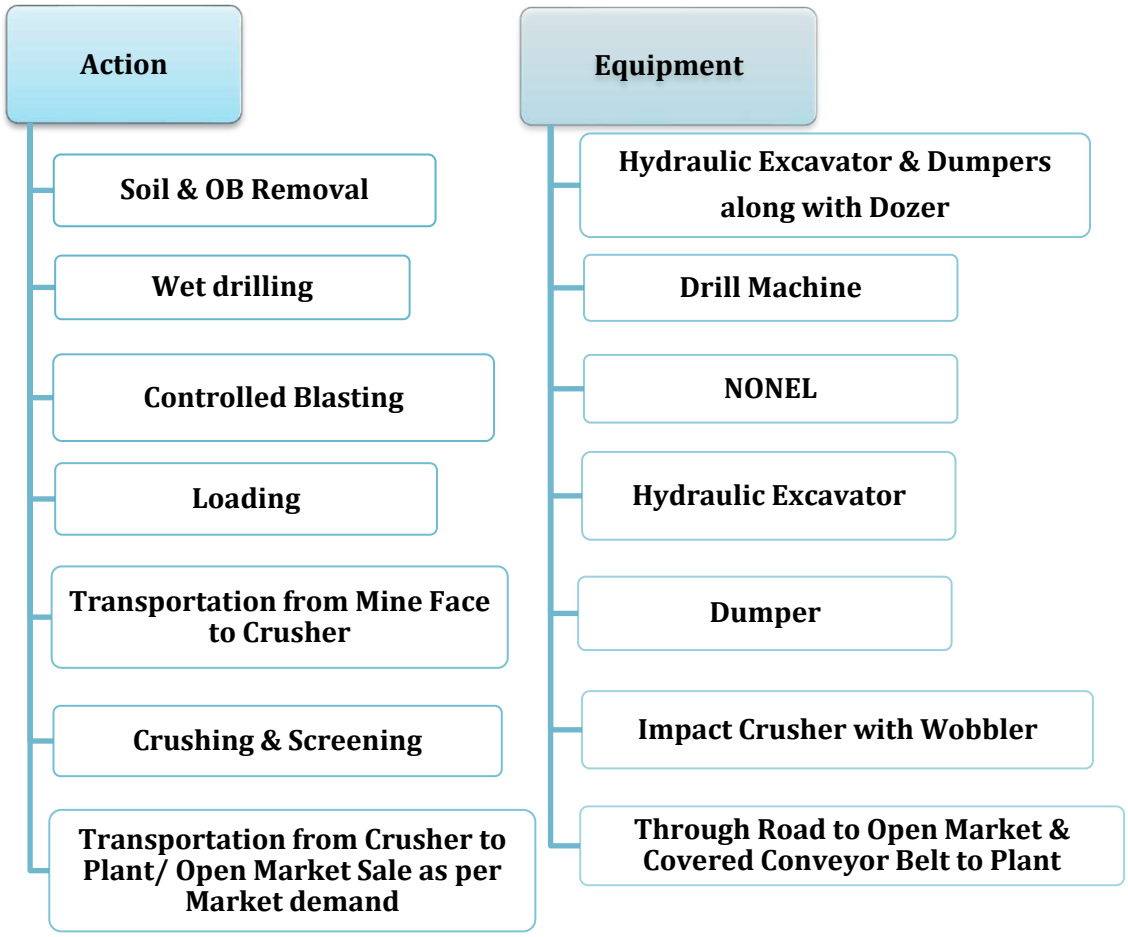


Figure No. 2: Process Flow Diagram

EQUIPMENT DETAILS

List of Heavy Earth Moving Machinery (HEMM) & Equipment's are as follow:

Table No. 5: Requirement of HEMM Equipment's

S. No.	Particulars	Unit	Numbers for Three Shift
1.	**Drill Machines** (HRB-150 @ 16 mtr/Hr, & 65 Tonnage factor)	Nos.	2
2.	**Hyd. Excavators** @ 600 MT/Hr, 15 hr. per day (6.0 Cu M Bucket)	Nos.	4
3.	**Dumpers** @ 150 MT/Hr, 15 hrs per day (55 T Capacity)	Nos.	16

To ensure systematic working and maintenance of roads (Pucca & haul roads), preparation of face for excavator, spray of water, shifting/transportation of men & machineries, repair & maintenance of machineries, diesel filling etc. following Other Miscellaneous Equipment's/ machinery will be deployed at Mine area:

Table No. 6: Requirement of Other Miscellaneous Equipment's

S. No.	Name of Machinery/ Equipment's	Capacity	H. P.	Units
1.	Front end Loader	--	110	1 No.
2.	Rock Breaker	--	110	1 No.
3.	Dozer	--	320	1 No.
4.	Water Tanker	18 KL	310	2 No.
5.	Explosive Van	3T	55	1 No.
6.	Maintenance Van	3T	60	1 No.
7.	Diesel Tanker	12 KL	95	2 No.
8.	Soil Compactor	15 T	110	1 No.
9.	Crusher (Primary)	1200 TPH	--	1 No.
10.	Crusher (Secondary)	400 TPH	--	1 No.

Geology

Regional Geology

Regionally the area exposes the rocks of Nandgaon Group, the Chilpi Group, Chhattisgarh Supergroup, Deccan Trap and laterite. Rhyolite of Bijli Formation and basalt of Pitepani Formation forms the Nandgaon Group. Bijli rhyolite is generally green in colour with an earthy look. Angular phenocryst of feldspar and ferromagnesian minerals altered to chlorite, set in a very fine ground mass of the same composition are seen. Basalt of Pitepani Formation is dark green coloured, fine grained, vesicular at places and shows porphyritic texture with coarse laths of altered plagioclase in a fine grained matrix. Nandgaon Group is overlain by the Chilpi Group of rocks, which comprises of conglomerate, quartzite, phyllite, schist, slaty shale and shale. The conglomerate is the base of the Chilpi Group of rocks and is exposed in the road and nala sections. It occurs as lenses and bands within the metavolcanic rocks. Poorly sorted boulders, cobbles and pebbles granitic gneiss, diorite, cherty quartzite, phyllite etc. are set in a fine arenaceous and argillaceous matrix. The arenaceous cementing material consists predominantly of quartz grains and some feldspar grains. Quartzite of Chilpi Group is exposed in Magarkund, north western part of T.S. 64G/02. Shale of Chilpi Group is generally purple in colour and thinly laminated with some green laminae, in certain patches the green laminae predominate. In slaty shale cleavage and closely spaced joints make the rock extremely fragile. The shale is trending N-S and dipping 15˚ - 30˚ towards east. Chilpi group is overlain by the Chhattisgarh Supergroup of rocks comprising Lohardih Formation of Chandarpur Group, Charmuria Formation, Gunderdehi Formation, Chandi Formation, Tarenga Formation, Hirri Formation and Maniari Formation of Raipur Group. Lohardih Formation is the lower most unit of the Chhattisgarh Supergroup in the area. The stratigraphic succession of the region in standard format is given in below Table.

RESERVES AND LIFE OF MINE:

Geological (Mineral) Reserves

The Limestone resources/reserves available in mining block area are in tune of 178.83 Million Tonnes.

Table No. 7: Limestone Resources in the Mining Lease Area

Sr. No.	Level of Exploration	Type of Mineral Resource	Grade of Limestone	Limestone Resources in Million Tonnes	% CaO	% MgO	% SiO2
1.	G2 – General Exploration	Measured Mineral Resource (331)	-	Nil	-	-	-
2.	G2- General Exploration	Indicated Mineral Resource (332)	Cement Grade	**178.83**	42.02	1.92	13.86
3.	G3- Prospecting	Inferred Mineral Resource (333)	-	Nil	-	-	-
4.	G4-Reconnaissance	Reconnaissance Mineral Resource (334)	-	Nil	-	-	-

Due to factors of village habitation, (Abadi) and Road & 300 meter safety zone from Abadi and 50 meter safety zone on both sides of road; 118.58 Million Tonnes are mineral losses and considered as non-mineable reserves.

Table No. 8: Non-Mineable Part of Mineral Resources

S. No.	Particulars	Blocked Resource in Million Tonnes
1.	Mineral Blocked due to safety zone from village habitation & Public Road & Bench formation	118.58
	Total Non-Mineable Part of Mineral Resources	**118.58**

Table No. 9: Limestone Reserves & Resources in UNFC Terminology

Classification n	UNFC Code	Quantity in Million Tonnes	Grade % $CaCO_3$	Grade % $MgCO_3$	Grade % SiO_2	Remarks
A. Mineral Reserve						
i. Proved Mineral reserve	111	-	-	-	-	
ii. Probable Mineral reserve	122	60.25	75.03	4.04	13.86	
Sub Total		**60.25**	**75.03**	**4.04**	**13.86**	
B. Remaining Resources						
i. Feasibility Mineral Resource	211	Nil	--	Nil	--	Non Mineable Part
ii. Pre-Feasibility Mineral Resource	221 & 222	118.58	75.03	4.04	13.86	
iii. Measured Mineral Resource	331	Nil	--			
iv. Indicated Mineral Resource	332	Nil	--			
v. Inferred Mineral Resource	333	Nil	--			
vi. Reconnaissance Mineral resource	334	Nil	--			
Sub Total		**118.58**	75.03	4.04	13.86	
Total Mineral Resources (A+B)		**178.83**	**75.03**	**4.04**	**13.86**	

Mineable Reserves: The Total Mineable Reserves of the mine are 60.25 Million Tonnes {i.e. 178.83 (Geological Reserves) – 118.58 (Non-Minable Reserves)}.

Life of Mine: With the peak annual Limestone production in tune of 3.64 Million TPA, the life of mine will be 23 years.

EXCAVATION DETAILS:

The total mine lease area is 404 ha., out of which 187 ha. area will be excavated and 163.7 ha will be un-disturbed area at conceptual stage. To excavate 57.61 Million Tonnes of limestone, total 130.56 Million Tonnes material need to be handled including 0.748 Million Tonnes of Topsoil, 69.56 Million Tonnes of Total Waste and 2.88 Million Tonnes of ROM Rejects at the end of life of mine. Accordingly, 69.56 Million Tonnes of Waste need to be handled; for 57.61 Million Tonnes of Limestone production with stripping ratio of Limestone to waste is 1:1.15, which makes the deposit economically viable.

Table No. 10: Total Tentative Excavation Details

Year	Total Handling (T)	Top Soil Quantity (T)	OB (T)	Waste Rocks (IB) (T)	Total Waste (OB + IB) (T)	Total Rom Quantity (T)	ROM Saleable 95% of Total ROM (T)	ROM Reject (T) 5% of Total ROM
	A = B+E+F	B	C	D	E = C+D	F=G+H	G	H
1	-	-	-	-	-	-	-	-
2	316698	12564	303084	0	303084	1050	1000	50
3	360822	6132	275940	0	275940	78750	75000	3750
4	2266836	21360	1340700	379776	1720476	525000	500000	25000
5	2369248	16240	1016800	286208	1303008	1050000	1000000	50000
6	2243044	38455	949743	204846	1154589	1050000	1000000	50000
7	3345339	38455	1424614	307269	1731884	1575000	1500000	75000
8	3345339	38455	1424614	307269	1731884	1575000	1500000	75000
9	4447633	38455	1899486	409692	2309178	2100000	2000000	100000
10	8991789	40909	4285567	843313	5128880	3822000	3640000	182000
11	8463159	38455	3857064	745640	4602704	3822000	3640000	182000
12	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
13	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
14	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
15	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
16	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
17	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
18	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
19	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
20	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
21	8063159	38455	3457064	745640	4202704	3822000	3640000	182000
22	7622697	38455	3016602	745640	3762242	3822000	3640000	182000
23	6157808	35515	2857140	655952	3513092	2609200	2714000	135700
Total	**130562000**	**748000**	**5722000**	**12342000**	**69564000**	**60250000**	**57610000**	**2880500**

vi) Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material and finished product.

Slurry/Emulsion explosives & ANFO will be used for blasting. Bottom initiation will be done by the use of down line detonator in combination of noise less trunk line detonator on surface. Limestone will be transported by road to the users without crushing, until the crusher unit will installed at mine site and thereafter, when the crusher will be installed, the limestone will be transported through covered conveyor belt to proposed cement plant.

(vii) Resources optimization/ recycling and reuse envisaged in the project, if any, should be briefly outlined.

Use of diesel and lube oil in HEMM will be optimized through efficient use. Water used for wet drilling, crusher spray and haul road spray will be optimized by providing efficient jet atomized spray system. Workshop water generated from washing of HEMM will be reused for spray in crusher after removal of oil and grease contents form oil-grease separator. The Waste & ROM Reject of mine will be stacked at earmarked place for back filling. Top soil will be generated during the life of mine will be simultaneously used in plantation.

(viii) Availability of water its source, energy /power requirement and source should be given.

Water Requirement and Source:

Total freshwater requirement for proposed mine will be 100 KLD. This will be sourced from Ground Water as well as rainwater stored in bottom most pit of mine. Necessary permission for utilization of ground water will be obtained from CGWA or concerned competent authority.

Table No. 11: Total Fresh Water Requirement Break-Up

S. No.	Particulars	Quantity (KLD)
1.	Dust Suppression	55
2.	Drinking & Domestic Utility	5
3.	Workshop	15
4.	Greenbelt & Plantation	25
Total		**100**

WATER BALANCE CHART

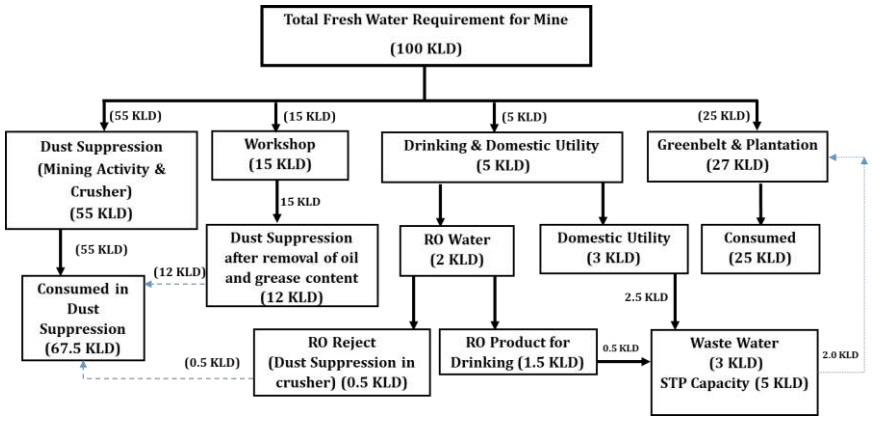


Figure No 3: Water Balance

Power Requirement and Source:

Power Consumption at Mine (@ 2 KWH/Tonnes) will be 2.4 MW.

The required power will be met from the State Electricity Board, Chhattisgarh and DG for emergency in backup, which will supply the regular and sufficient power for mining operations.

(ix) Quantity of waste to be generated (liquid and solid) and scheme for their management/disposal

Solid Waste

- Total Waste of 69.56 Million Tonnes (Over burden & Inter- burden) along with ROM Rejects of 2.88 Million Tonnes will be generated at the end of life of mine. Total waste including ROM-rejects will be backfilled up to general ground level in the excavated area of 90 ha. and later on, will be stabilized by the plantation and re-grassing.
- Total 0.748 Million tonnes of Top soil will be generated during the life of mine, which will be, will be used in plantation.

Liquid Waste

- The wastewater generated from mine workshop (12 KLD) and RO reject water (0.5 KLD) will be reused for dust suppression.
- Wastewater generated from mine office toilets and canteen (3 KLD); same will be treated in STP and treated waste water will be used for greenbelt & plantation.

Table No. 12: Break-Up of Waste Water Generation

S. No.	Units	Waste Water in KLD
1.	Domestic wastewater	3.0
2.	RO Reject	0.5
3.	Mine Workshop effluent	12

4.0 SITE ANALYSIS

(i) Connectivity

The site is well connected with Road & Rail. Nearest Highway is SH - 5 (Pandariya to Rajnandgaon) (~4 Km in WNW direction). Nearest Town & City to the mine lease area is Chhuikhadan (~10.5 km in SW direction). Nearest Railway Station is Durg Railway Station (~45 km in SE direction) and Nearest Airport is Swami Vivekananda Airport, Raipur (~77 km in SE direction). The communication facilities like telephone, fax, wireless and telex are available in the area and no constraints are envisaged in this aspect as the Tehsil and District headquarters are near to the site.

(ii) Land form, Land use and land ownership

The total limestone block area is 404 hectare. Out of which, 53.998 ha is Govt. Land and 350.002 ha is Private Agriculture Land.

(iii) Topography

The topography of the proposed limestone block area is almost flat terrain with gentle undulations. The area mainly covered by soil except few outcrops mainly constituting of limestone at some places. Most of land is cultivated private land. The ground level

difference of the Limestone block area is 23m as the minimum RL is 303m in the NE direction and maximum RL is 326m towards SW side. As such, there is total elevation difference of 23 meters for 404 Ha area, which clearly indicate that the area is fairly level in nature. The general ground level of the area is 315 mRL. Natural vegetation in the proposed limestone block area is scanty.

Part of village Abadi & habitations are falling within the mining block area such as houses of Bicharpur and Pandariya village. A 300 meters safety zone is marked all around the habitation area and ultimate pit has been designed outside the safety zone.

Drainage

The Drainage Pattern of the Limestone block is dendritic type in nature. The general slope of mine lease area is towards NE. There is no Perennial or Seasonal River or surface water stream within the Sandi Limestone Block area. However, One Nala is passing at North Western direction of block boundary. One Major and one minor canal are also passing through the block boundary. Few water ponds are exists near Village Pandariya & Bicharpur within the block boundary and safety distance has been left for these ponds. A 50 meters safety zone on both sides of roads and Canal has been marked and ultimate pit has been designed outside the safety zone.

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

- The total limestone block area is 404 hectare. Out of which, 53.998 ha is Govt. Land and 350.002 ha is Private Agriculture Land. There is no forestland involved in limestone block area.
- No National Park, Wildlife Sanctuary, Tiger/Elephant Reserves, Biosphere Reserve and Wildlife Corridor or any Migratory Route and Ramsar site are located/ existing within 10 km radius study area (Core and Buffer Zone).
- There is no Perennial or Seasonal River or surface water stream within the Sandi Limestone Block area. However, One Nala is passing at North Western direction of block boundary. One Major and one minor canal are also passing through the block boundary. Few water ponds are exists near Village Pandariya & Bicharpur within the block boundary and safety distance has been left for these ponds. A 50 meters safety zone on both sides of roads and Canal has been marked and ultimate pit has been designed outside the safety zone.
- Details of Environmental settings around the proposed limestone block site are given in the table below:

Table No. 13: Environmental Settings of the Area

S. No.	Particulars	Details
1	Elevation above sea level	General ground level: 315 mRL Maximum elevation site: 326 mRL & Minimum elevation Site: 303 mRL.
2	Nearest State/ National Highway	➢ SH- 5 (~4 Km in WNW direction) ➢ NH- 30 (~42.5 Km in NE direction)
3	Nearest Railway Station	Durg Railway Station (~45 km in SE direction)
4	Nearest Airport	Swami Vivekananda Airport, Raipur (~77 km in SE direction)
5	Nearest Tourist Place within 10 km radius study Area	Nathela Waterfall (~16.5 km in WSW direction)
6	Archaeological Important Place within 10 km radius study Area	Mandipkhol Cave Chhuikhadan (~17.8 km in NW direction)
7	Ecological Sensitive Areas (National Park, Wildlife Sanctuaries, Biosphere Reserves, Tiger Reserves, Wildlife Corridors) within 10 km radius study Area	Nil
8	Reserved / Protected Forest within 10km radius (Boundary to boundary distance)	➢ Protected Forest (~5.0 km in West direction) ➢ Protected Forest (~6.0 km in NW direction) ➢ Protected Forest (~8.0 km in West direction)
9	Nearest major city with 100000 population within 10 km radius study Area	Rajnandgaon (~50 km in South direction)
10	Nearest Village	➢ Village Bicharpur (within ML Area) (~300 m from UPL) ➢ Village Pandariya (within ML Area) (~300 m from UPL) ➢ Village Pandariya (~170 m in SE Direction) (~300 m from UPL) ➢ Village Sandi (~600m in NW direction)
11	School within close proximity	➢ Saraswati Sishu Mandir (within ML Area). Same will be shifted after 10th year of mine working ➢ Govt. primary School, Bicharpur (within ML Area) (~270 m from UPL) ➢ Govt. Primary School, Pandariya (within ML Area) (~260 m from UPL)
12	Nearest Town / City	Chhuikhadan (~10.5 km in SW direction)
13	Inter-district Boundary within 10 km radius study Area	➢ Bemetara & Khairagarh-Chhuikhadan-Gandai inter district boundary (~3.5 km in ESE direction)

		➢ Durg & Khairagarh-Chhuikhadan-Gandai inter district boundary (~9.0 km in SE direction)
14	Water bodies within 10 km radius study Area	➢ One Mundi Nala passing through the mining block boundary ➢ One Major Canal passing through the mining block boundary ➢ One Minor Canal passing through the mining block boundary ➢ 6 water ponds are exists near Village Pandariya & Bicharpur (Inside the mining block boundary) ➢ Kukurmuda Pond (~0.92 km in NW direction) ➢ Lumti Nadi (~7.0 km in West direction) ➢ Narbada Canal (~7.0 km in NE direction) ➢ Chichanmeta Canal (~5.0 km in ESE direction) ➢ Surhi Canal extension (~2.5 km in WSW direction) ➢ Lumti Nala (~4.0 km in NW direction) ➢ Gabhra Canal (~6.0 km in WSW direction) ➢ Padmavatipur Canal (~8.0 km in SSW direction) ➢ Moti Nala (~8.0 km in SW direction) ➢ Baigin Nala (~8.0 km in WSW direction) ➢ Kashinala Canal (~9.5 km in SW direction) ➢ In addition to above, seasonal ponds are also exist within the study area
15	Nearest Hill Ranges	None within 10 kms
16	Soil Type	Soil of the study area is medium black colour in nature and Classification are Sandy loam, Clay loam, Clayey and Gravely. Few Limestone outcrops are exposed over surface otherwise the area is concealed and covered by soil. The soil thickness of soil varies from 1m to 25m.
17	Irrigation Facilities	Rains, River, Canal, Pond & Bore wells
18	Seismic Zone	Zone – III as per IS: 1893 (Part-I) : 2002

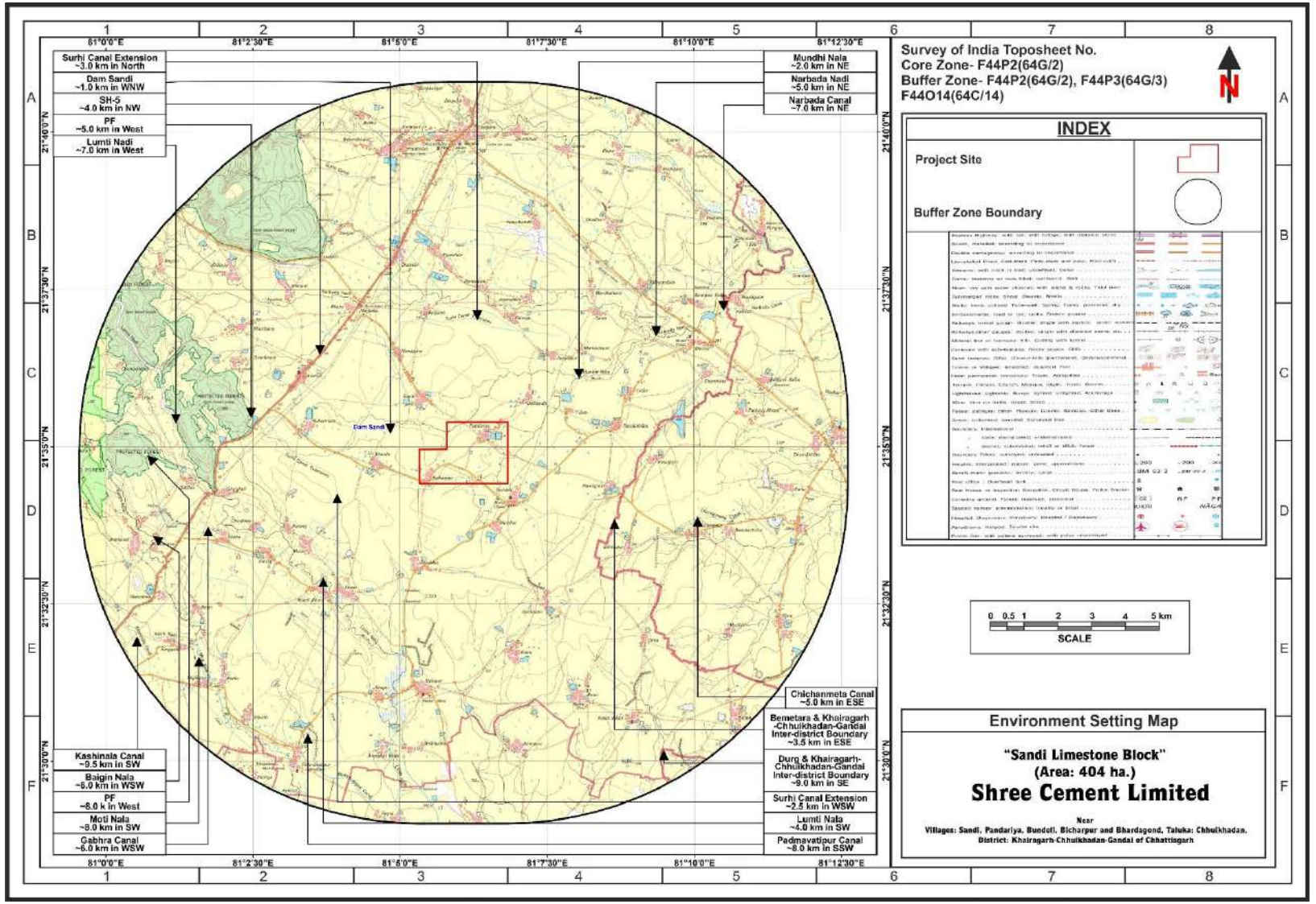


Figure No. 4: Environmental Setting Map

(v) Existing Infrastructure

This is new & proposed limestone mining project i.e. "Sandi Limestone Block" and the proposed site is vacant land and presently no industrial infrastructure exists in "Sandi Limestone Block" area.

(vi) Soil Classification

Soil of the study area is medium black colour in nature and Classification are Sandy loam, Clay loam, Clayey and Gravely. Few Limestone outcrops are exposed over surface otherwise the area is concealed and covered by soil. The soil thickness of soil varies from 1m to 25m.

(vii) Climatic data from secondary sources

The area experiences climate, which is typical of tropical belt, which is warm and dry. Summer months are hot with temperature rising to 45^{o}C in May, while winter months are very cold with temperatures going down to 12 ^{o}C – 13 ^{o}C in the months of December and January. The area receives good amount of rainfall during the monsoon season prevailing from mid-June to September. The average annual rainfall is around 1200 mm. The temperature goes down during monsoon season and becomes around 35^{o}C.

5.0 Planning Brief

(i) Planning Concept (type of industries, facilities, transportation etc.) Town and country Planning/Development authority classification.

- The total limestone block area is 404 hectare. Out of which, 53.998 ha is Govt. Land and 350.002 ha is Private Agriculture Land.
- Blasted material of limestone will be transported to Crusher Hopper and waste will be transported from working face to Waste dump yard by means of Dumper. Limestone will be transported by road to the users without crushing, until the crusher unit will installed at mine site and thereafter, when the crusher will be installed, the limestone will be transported through covered conveyor belt to proposed cement plant.

(ii) Population Projection

Temporary influx of people will be there as the managerial and supervisory staff will generally be outsider. Rest of the workers will be mostly from the local area.

(iii) Land use planning (breakup along with greenbelt etc.)

The total area of "Sandi Limestone Block" is 404 hectare. Out of which, 53.998 ha is Govt. Land and 350.002 ha is Private Agriculture Land. The general topography of the ML area is flat terrain with minor undulations.

At the conceptual stage, Total greenbelt & plantation will be done in 161.1 ha. Area (90 ha over backfilled area + 4.3 ha on the 7.5-meter lease periphery + 22.8 ha on bench plantation + 44.0 ha Plantation on Safety zones around village Abadi, Canal & Road) and 74.2 ha. will be developed as water reservoir. 163.7 ha area will remain undisturbed.

Table No. 14: LAND: STAGE WISE LAND USE AND RECLAMATION AREA (Area in ha)

S. No.	Land Use Category	Present	5th Year (At the end of Mine Plan Period)	Conceptual Stage (At the end of life of Mine)
1	Top Soil Dump	0	**0**	0
2	Waste Dump	0	**15.2**	0
3	Excavation (Voids only)	0	**12**	**97** (22.8 ha on bench plantation + 74.2 ha as water reservoir)
	Reclamation (Backfilled) with re-grassing & plantation	0	0	**90**
4	Road	0	0	0
5	Railways	0	0	0
6	Mineral Storage	0	1	0
7	Infrastructure			
(a)	(Workshop, administrative building & other buildings/ structures and crusher etc.)	0	2.73	0
(b)	Infrastructure (Road, & Isolated hutments)	0	2.5	0
(c)	Infrastructure (Road, Canal & Nala)	5.84	5.84	5
8	Township Area	0	0	0
9	Greenbelt & Plantation			
(a)	Greenbelt on Statutory limit of 7.5 meter around ML boundary	0	**4.3**	**4.3**
(b)	Plantation on Safety zones around village Abadi & Road	0	24.1	44
10	Undisturbed area (Including village habitation of Bicharpur and Pandariya)	**398.16**	**336.33**	**163.7**
Total		**404**	**404**	**404**

Source: *Approved Mining Plan and progressive Mine Closure Plan*

(iv) Assessment of infrastructure demand (Physical & Social)

SCL will assess the demand of infrastructure (Physical & Social) in nearby area of the proposed limestone mining project site and will be developed in under corporate social responsibilities programs.

(v) Amenities/Facilities

Company will develop the Amenities/Facilities in nearby area of the proposed limestone mining project site as per requirement of local people of the nearby area under corporate social responsibilities programs in compliance of PH inputs.

6.0 Proposed Infrastructure

(i) Industrial Area (Processing Area)

Total area of "Sandi Limestone Block" is 404 hectare and Out of total Limestone Block area, 187 ha. area will be excavated, out of which 90 ha over backfilled area, 22.8 ha on bench plantation & 74.2 ha. will be developed as water reservoir. Total greenbelt & plantation will be done in 161.1 ha. Area (90 ha over backfilled area + 4.3 ha on the 7.5-meter lease periphery + 22.8 ha on bench plantation + 44.0 ha Plantation on Safety zones around village Abadi, Canal & Road).

Infrastructure facilities like workshop, machinery stores, time office and security office, dispensary and parking will be developed in the proposed lease area. No additional processing area will be required.

(ii) Residential Area (Non- Processing Area)

Residential area is not required as mine workers will come from nearby villages. Suitable colony with all facilities will be provided adjacent to proposed plant site, which will be common for plant and mines. Operational workers from local villages will be engaged, additional workmen requirement will be sourced from local villages.

(iii) Greenbelt & Plantation

Total greenbelt & plantation will be done in 161.1 ha. Area (90 ha over backfilled area + 4.3 ha on the 7.5-meter lease periphery + 22.8 ha on bench plantation + 44.0 ha Plantation on Safety zones around village Abadi, Canal & Road).

The total limestone block area is 404 ha.

Native Plant species such as Teak, Palash, Saja, Bija, Khair, Amla, Arjun, Pipal, Safed Siris, Dhok, Dhaura, Shisham, Neem, Mango, Mahua, Gulmohar, Amaltas, Karanj, Yellow Gulmohar, Kasood, Bargad, Ashok, Dubai tree, Jamun, Imli, Guava, Chiku etc. will be planted by SCL as per CPCB guidelines. Trees will be planted @ 1200 Trees per hectare with 90% to 95% survival rate.

Table No.: 15

ECOLOGY: STAGE WISE CUMULATIVE PLANTATION

REQUIREMENTS FOR PLANTS FOR AFFORESTATION AND RECLAMATION

Year	Greenbelt on 7.5 m lease periphery		Backfilled Area		Bench Slope Plantation		Plantation on Safety zones around village Abadi, canal & Road		Total	
	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees
Existing	0	0	0	0	0	0	0	0	0	0
1st Year	4.3	5160	0	0	0	0	10	12000	14.3	17160
2nd Year	0	0	0	0	0	0	10	12000	10	12000
3rd Year	0	0	0	0	0	0	2	2400	2	2400
4th Year	0	0	0	0	0	0	2.1	2520	2.1	2520
5th Year	0	0	0	0	0	0	0	0	0	0
6th year onwards to life of Mine	0	0	90	108000	22.8	27360	19.9	23880	132.7	159240

Total	**4.3**	**5160**	**90**	**108000**	**22.8**	**27360**	**44**	**52800**	**161.1**	**193320**
Note: Local trees/plant species will be planted @ 1200 trees /ha.										

(iv) Social Infrastructure

"Sandi Limestone Block" mining project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

The installation of interlinked cement plant will lead to the development of certain local ancillary facilities and consequent employment opportunities. Further, the existing cement plant will also lead to the development of market, trade centers and other activities etc.

In addition to the above, SCL has a track record of engaging the local communities and extending several social services to the nearby villages.

(v) Connectivity (Traffic and Transportation Road/ Rail/ Metro/ Water ways etc.)

- Pandariya – Rajnandgaon Road is SH- 5 (~4 km in WNW direction) & NH – 30 (~42.5 km in NE direction).
- Chhuikhadan Town & City is ~10.5 km in SW direction from mine site.
- Swami Vivekananda Airport, Raipur is ~42 km in SW direction.
- Nearest Railway Station is Ahirwar (~39 km in SE direction).

The site is well connected with communication facilities like telephone, wireless and telex and as such, no constraints are envisaged in this aspect as the Tehsil and District headquarters are near to the site.

(vi) Drinking Water (Source and Supply of water)

This is proposed to be sourced from Ground Water, which will be treated in RO unit for drinking purpose.

(vii) Sewerage system

The domestic effluent generated from mine office toilets, canteen will be treated in STP, and treated wastewater will be used for greenbelt & plantation development.

(viii) Industrial Waste management

Wastewater generation from Mine workshop will be reuse for dust suppression in crusher after removal of oil and grease contents.

(ix) Solid Waste Management

During entire life of mine, total waste of 69.56 Million Tonnes (Over burden & Inter-burden) along with ROM rejects of 2.88 Million Tonnes will be generated at the end of life of mine. Total waste including ROM rejects will be backfilled up to general ground level in the excavated area of 90 ha and later on will be stabilized by the plantation and re-grassing. Total 0.748 Million tonnes of Top soil will be generated during the life of mine, which will be reused in plantation.

(x) Power requirement & Supply/ source

Power Consumption at Mine (@ 2 KWH/Tonne) will be 2.4 MW.

The required power will be met from the proposed captive power plant, which will be established near to the proposed cement plant of company and State Grid of Govt. of Chhattisgarh, which will supply the regular and sufficient power for mining

operations.

7.0 Rehabilitation and Resettlement (R & R) Plan

(i) Policy to be adopted (Central/State)in respect of the project affected persons including home oustees, land oustees and landless laborer (A brief outline to be given):

Total "Sandi Limestone Block" area is 404 ha which spreads in five revenue villages namely Sandi, Pandariya, Bundeli, Bicharpur and Bhardagond. The total Sandi Limestone Block area is 404 hectare. Out of which, 53.998 ha is Govt. Land and 350.002 ha is Private Agriculture Land. Central/State policy for R&R will be followed.

8.0 Project Schedule and Cost Estimates

(i) Likely date of start of construction and likely date of completion (Time Schedule for the project to be given):

Limestone production from mine will be started after execution of Mining Lease and acquisition of private land in the area after obtaining all necessary clearance, approvals and consents from concerned authority.

(ii) Estimated project cost along with analysis in terms of economic viability of the project.

The total investment for the proposed Sandi Limestone Block works out to approximately Rs. 354.57 Crore. The estimated Investment Cost for the project has been based on the requirement of fixed and non-fixed assets.

Table No. 16: DETAIL BREAKUP OF WORKING CAPITAL (HEMM & OTHER ANCILLARY FACILITIES)

Sr. No.	Equipment	Total Eqp. Req. (Nos.)	Est. Unit Cost	Total Cost
			(Rs. In Lacs)	
1	Excavator 60 Ton Class	4	450	1800
2	Dumper 55 Ton Class	16	275	4400
3	Dozer 320 H.P. Class	1	236	236
4	Drill Machine HRB 150 (6.5"dia)	2	90	180
5	Loader (3 Tonnes Capacity)	1	30	30
6	Maintenance Van	1	30	30
7	Diesel browser 12 KL	1	25	25
8	ANFO Mixer BMD	1	45	45
9	Explosive van 5 T	1	10	10
10	Water tanker 18 KL	2	32	64
11	Compressor with pneumatic tools	1	3	3
12	Electric welding M/c (crusher & Mines)	1	2	2
13	Portable welding M/c	1	7	7
14	Portable Lighting tower	5	5	25
15	Crusher- Primary (1200 TPH) & Secondary (400 TPH)	1	3000	3000
Total in Working Capital Cost (Rs. in Lacs)		**9857**		

TABLE- 17: TOTAL COST OF THE PROJECT

S. No.	Particulars	Total Cost after Expansion (In Crores)
1.	Mine Machinery & Equipment	98.57
2.	Land Cost	256.00
	Total	**354.57**

TABLE- 18: COST FOR ENVIRONMENT PROTECTION

S. No.	Particulars	Total Cost (Rs. in Crores)
1	Capital Cost of EMP	Capital Cost: Rs. 4.53 Crores
2	Recurring Cost of EMP (Crore /Annum)	Recurring Cost: Rs. 0.54 Crores

9.0 Analysis of proposal (Final Recommendations)

(i) Financial and Social Benefits with special emphasis on the benefit to the local people including tribal, population, if any in the area

This is "Sandi Limestone Block" project, which is interlinked with proposed integrated cement plant (to be proposed nearby to the mine site). The State will get revenues in terms of taxes, local people will get opportunity in terms of indirect employment, and business opportunity like transport of Cement to the market, fly ash transport, in short nearby people will get opportunity to improve their livelihood.

Development of social amenities will be in the form of medical facilities, education to underprivileged children and creation of self-help groups. No major adverse effect on environment is envisaged as the required mitigation measures will be provided.

10.0 ENVIRONMENTAL MANAGEMENT PLAN

10.1 Air Pollution Control

- Drilling machines will be equipped with wet/dry drilling with de-dusting arrangements to prevent dust.
- Controlled blasting will be adopted and optimum use of explosive energy will help in reducing the air pollution.
- Blasting will be done by latest blasting technique (NONEL) using stock tube detonator (Downline detonator in combination with noise less trunk line detonators).
- Use of Rock breaker in place of secondary blasting to reduce generation of fly rocks and ground vibration.
- Water Spray arrangement will be provided at crusher hopper and haul roads, loading & unloading areas to control the fugitive emission.
- Haul roads will be kept wide to support smooth traffic movement. The roads will be properly maintained by road compactor and regular water spraying will be done during work hours to prevent generation of dust from vehicular movement.
- PPE's including dust masks will be provided to workers & operators working in dusty zones.
- Backfilled area will be vegetated by plantation to prevent air pollution.

- Vehicular emissions will be kept under norms by regular maintenance of vehicles & machineries.
- Greenbelt & plantation will be developed around mine boundary, Safety zones around village Abadi & Road and backfilled areas and bench slope
- Periodic air quality monitoring will be carried and the records will be maintained properly.

10.2 Solid Waste Management

- Total Waste of 69.56 Million Tonnes (Over burden & Inter- burden) along with ROM Rejects of 2.88 Million Tonnes will be generated at the end of Life of Mine. Total waste including ROM rejects will be backfilled up to general ground level in the excavated area of 90 ha and later on will be stabilized by the plantation and re-grassing.
- Total 0.748 Million Tonnes of Top Soil will be generated during the life of Mine, which will be used in plantation.
- To prevent the surface runoff from mine, 4 Nos. of Garland Drain around waste dump (L*W*D = 900m x 1m x 1m, 775m x 1m x 1m, 720m x 1m x 1m and 775m x 1m x 1m) will be created.
- 4 Nos. of Retaining Wall around waste dump (L*W*D = 590 m x 1 m x 1 m, 475 m x 1 m x 1 m, 410 m x 1 m x 1 m and L*W*D = 445 m x 1 m x 1 m) will be created.

10.3 Water and Waste Water Management

- Rain water will be accumulated in bottom most bench of pit and same will be utilized in dust suppression and plantation etc.
- No wastewater will be generated from the mining activities. However, wastewater generated from the mine workshop will be reuse in dust suppression in crusher after separation of oil & grease.
- Wastewater generated from mine office toilets and canteen will be treated in STP and treated wastewater will be used for greenbelt & plantation development.
- Ultimate Working Depth is 246 mRL. Present Water Table is at 298 mRL, therefore, Intersection of Water table will be in 2nd year of mining lease period. Hence, required statuary permissions will be obtained before intersecting of water table.
- To prevent the surface runoff from mine, 4 Nos. of Garland Drain around waste dump (L*W*D = 900m x 1m x 1m, 775m x 1m x 1m, 720m x 1m x 1m and 775m x 1m x 1m) will be created.
- 4 Nos. of Retaining Wall around waste dump (L*W*D = 590 m x 1 m x 1 m, 475 m x 1 m x 1 m, 410 m x 1 m x 1 m and L*W*D = 445 m x 1 m x 1 m) will be created.

10.4 Noise Pollution Control

Following measures will be taken for noise pollution control:

- Drilling will be done with sharp drill bits to achieve optimum drilling performance and to reduce noise generation at source.
- Ground vibrations will not affect the structures in the vicinity of Limestone block area as blasting will be done in accordance with standards prescribed by DGMS for controlled blasting.

- Explosives charge per hole and per delay will be maintained as per DGMS guidelines.
- NONEL will be used to control ground vibrations, noise & fly rocks.
- Blasting will be carried out during day time only.
- Crusher will be installed in closed building to control the noise pollution.
- Development of greenbelt & plantation in the vicinity of the crusher.
- Air-conditioned closed cabin will be provided in HEMM to reduce generation of noise.
- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- The workers employed will be provided with personal protective equipment, earmuffs and earplugs as a protective measure from the high noise level generated at the mine site and wherever required.
- Planting of trees will be done along the mining lease boundary for controlling noise apart from acting as barrier for propagation of noise outside the mine lease boundary.
- Regular monitoring of noise will be carried out regularly.

10.5 Hazardous Waste Management

2 KL per annum used oil will be generated from mines machinery/Gear boxes, which will be sold to the CPCB/ SPCB (CECB) authorized recycler.

10.6 Greenbelt & Plantation Development

The total area of "Sandi Limestone Block" is 404 ha. At conceptual stage, out of the total mine lease area i.e., 404 ha. Total greenbelt & plantation will be done in 161.1 ha. Area (90 ha over backfilled area + 4.3 ha on the 7.5-meter lease periphery + 22.8 ha on bench plantation + 44.0 ha Plantation on Safety zones around village Abadi, Canal & Road). Native Plant species such as Teak, Palash, Saja, Bija, Khair, Amla, Arjun, Pipal, Safed Siris, Dhok, Dhaura, Shisham, Neem, Mango, Mahua, Gulmohar, Amaltas, Karanj, Yellow Gulmohar, Kasood, Bargad, Ashok, Dubai tree, Jamun, Imli, Guava, Chiku etc. will be planted by SCL as per CPCB guidelines. Trees will be planted @ 1200 Trees per hectare with 90% to 95% survival rate.

Table No.: 19

POST-MINING LAND USE OF CORE ZONE WITH ENVIRONMENT MANAGEMENT

S. No.	Description	Land Use (ha)				
		Plantation	Public Use	Water Body	Undisturbed	Total
1	Top Soil Dump	0.00	0.00	0.00	0.00	0.00
2	Waste Dump	0.00	0.00	0.00	0.00	0.00
3a.	Excavation (Voids only)	0.00	0.00	74.20	0.00	74.20
3b.	Reclamation (Backfilled)	90.00	0.00	0.00	0.00	90.00
3c	Reclamation (Bench slope Plantation)	22.80	0.00	0.00	0.00	22.80
4	Road	0.00	0.00	0.00	0.00	0.00
5	Infrastructure (Workshop, administrative building etc.)	0.00	0.00	0.00	0.00	0.00
6	Infrastructure (Road, Nala & Canal)	0.00	5.00	0.00	0.00	5.00
7	Township Area	0.00	0.00	0.00	0.00	0.00

8	Greenbelt on 7.5 m lease periphery	4.30	0.00	0.00	0.00	4.30
9	Mineral Storage	0.00	0.00	0.00	0.00	0.00
10(a)	Plantation on Safety zones around village Abadi, Canal & Road	44.00	0.00	0.00	0.00	44.00
10(b)	Remaining Undisturbed area	0.00	0.00	0.00	163.70	163.70
	Total	**161.10**	**5.00**	**74.20**	**163.70**	**404.00**
Ref: Approved Mining Plan with progressive Mine Closure Plan						

10.7 Socio Economics Measures

Shree Cement Limited is committed to contribute in the development of basic needs of the local area like Education, Health & family welfare, women empowerment, natural resource management, water conservation, maintenance of roads etc. For socio-economic development of the nearby village, we have "Shree Rural Development Society" to survey the basic infrastructure needs of the nearby villagers like education, medical, drinking water for human beings and animal, maintenance of roads, plantation and rain water harvesting etc. and accordingly financial assistance will be provided by the company to the local authority as per the points raised during Public Hearing.

11.0 CONCLUSION

"Sandi Limestone Block" Mining Project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure. Special emphasis on Financial and Social benefits will be given to the local people in the area. Development of social amenities will be in the form of medical facilities, education to underprivileged and creation of self-help groups. No adverse effect on environment is envisaged as proper mitigation measure will be taken up for the same.

पंजीकृत डाक द्वारा

छत्तीसगढ़ शासन
खनिज साधन विभाग
मंत्रालय
महानदी भवन, नवा रायपुर, अटल नगर,
जिला रायपुर–492002

क्रमांक एफ 3–09/2023/12, नवा रायपुर, अटल नगर, दिनांक 04 OCT 2023

प्रति,

मेसर्स श्री सीमेंट लिमिटेड,
C/o Mahendra kumar Garg,
PB Number 33, Bangur Nagar, Beawar-305901 Rajasthan ।

विषयः जिला खैरागढ़–छुईखदान–गंडई के अंतर्गत संडी चूनापत्थर ब्लॉक के कुल रकबा 404.00 हेक्टर क्षेत्र पर खनिज चूनापत्थर का खनिपट्टा हेतु आशय पत्र (Letter of Intent) – **मेसर्स श्री सीमेंट लिमिटेड।**

संदर्भः–टेंडर क. MSTC/RPR/MINERAL RESOURCES DEPARTMENT CHHATTISGARH/45/NAYA RAIPUR/22-23/30169, दिनांक 09.12.2022

––00––

खान एवं खनिज(विकास एवं विनियमन) अधिनियम, 1957 यथा संशोधित 2015 तथा खनिज(नीलामी) नियम, 2015 के अनुसरण में छत्तीसगढ़ शासन, खनिज साधन विभाग द्वारा जिला खैरागढ़–छुईखदान–गंडई के अंतर्गत संडी चूनापत्थर ब्लॉक के कुल रकबा 404.00 हेक्टर क्षेत्र पर खनिज चूनापत्थर का खनिपट्टा स्वीकृति हेतु संदर्भित टेंडर दिनांक 09.12.2022 को जारी किया गया था। खनिज(नीलामी) नियम, 2015 के नियम 9(9)(iii) के अनुक्रम में मेसर्स श्री सीमेंट लिमिटेड से प्राप्त 25.05% Highest Final Price Offer के आधार पर विभागीय पत्र कमांक एफ 3–09/2023/12 दिनांक 08.05.2023 द्वारा मेसर्स श्री सीमेंट लिमिटेड को Preferred Bidder घोषित किया गया है, जिसके अनुपालन में मेसर्स श्री सीमेंट लिमिटेड द्वारा खनिज(नीलामी) नियम, 2015 के नियम 10(1) के तहत् अपफ्रंट पेमेंट का 20%(बीस प्रतिशत) प्रथम किश्त के रूप में दिनांक 22.05.2023 को रूपये 8,52,57,202/– (आठ करोड़ बावन लाख सन्तावन हजार दो सौ दो रूपये) मात्र जमा किया गया है।

2/ अतएव उपरोक्त के परिप्रेक्ष्य में खनिज (नीलामी) नियम, 2015 (यथासंशोधित 2017, 2020 एवं 2021) के नियम 10(2) के अनुसरण में मेसर्स श्री सीमेंट लिमिटेड के पक्ष में जिला खैरागढ़–छुईखदान–गंडई के अंतर्गत संडी चूनापत्थर ब्लॉक के कुल रकबा 404.00 हेक्टर क्षेत्र (नक्शे में चिन्हित क्षेत्र एवं को–ऑर्डिनेट्स अनुसार) पर 50 वर्ष की अवधि के लिए खनिज चूनापत्थर का खनिपट्टा स्वीकृति हेतु खान एवं खनिज (विकास एवं विनियमन) अधिनियम, 1957 यथा संशोधित 2021 सहपठित खनिज(परमाणु और हाइड्रोकार्बन ऊर्जा खनिजों से भिन्न) रियायत नियम, 2016, अधिसूचित नियमों, टेंडर में उल्लेखित प्रावधानों एवं निम्नलिखित शर्तों के अधीन राज्य शासन एतद् द्वारा यह आशय पत्र (Letter of Intent) जारी करता है :–

1 Preferred Bidder मेसर्स श्री सीमेंट लिमिटेड को सफल बोलीदार (Successful Bidder) नामित किये जाने तथा तदुपरान्त खनि पट्टा की स्वीकृति हेतु वांछित अर्हताएं निम्नानुसार होगी–

(क) Preferred Bidder पात्रता के सभी निबंधनों और शर्तों का पालन जारी रखता है।

(ख) Preferred Bidder आशय पत्र (Letter of Intent) जारी तिथि के 180 दिवस के अंदर अपफ्रंट

...02

पेमेंट का 20% (बीस प्रतिशत) द्वितीय किश्त के रूप में रूपये 8,52,57,202/– (आठ करोड़ बावन लाख सन्तावन हजार दो सौ दो रूपये) मात्र का भुगतान करती है।

(ग) Preferred Bidder आशय पत्र (Letter of Intent) जारी तिथि के 180 दिवस के अंदर खनिज नीलामी नियम 12 के उपनियम (1) के अनुपालन में रूपये 42,62,86,012/– (बयालीस करोड़ बासठ लाख छियासी हजार बारह रूपये) मात्र की परफार्मेन्स सिक्यूरिटी BG रूप में प्रस्तुत करेगा। नियम 12 के उप–नियम (1) के अनुसार में परफार्मेन्स सिक्यूरिटी प्रत्येक 5 वर्ष में नियमों के आधार पर इस तरह से समायोजित की जावेगी जिससे उसे अनुमानित संसाधनों के पुनर्निधारित मूल्य के 0.50 प्रतिशत के तत्समान बराबर बनाया जा सके।

(घ) Preferred Bidder, MMDR, 1957 की धारा 5 की उपधारा (2)(b) में विर्निदिष्ट शर्तों के समाधान के अनुक्रम में आशय पत्र (Letter of Intent) जारी तिथि के 180 दिवस के अंदर आईबीएम को ड्राफ्ट मायनिंग प्लान अनुमोदनार्थ प्रस्तुत करते हुए, सूचना पत्र संचालनालय, भौमिकी तथा खनिकर्म को प्रस्तुत करेंगा ।

(ड़) Preferred Bidder द्वारा आशय पत्र (Letter of Intent) जारी तिथि के 03 वर्षो के अंदर अनुमोदित मायनिंग प्लान के अलावा खनन संक्रिया हेतु आवश्यक अन्य समस्त Clearances/approval प्राप्त किया जावेगा।

(च) पट्टाधारी खनिज का उपयोग/विक्रय मुख्य खनिज के निर्धारित प्रयोजनार्थ ही करेगा।

(छ) Preferred Bidder द्वारा ऐसी अन्य शर्तों का, जो राज्य सरकार केन्द्रीय सरकार के पूर्व अनुमोदन से विर्निदिष्ट करें, पालन किया जावेगा।

यह अर्हताएं केवल संदर्भ हेतु दर्शाई जा रही है तथा अधिनियम अथवा नियमों में किसी प्रकार के संशोधन की स्थिति में संशोधित अधिनियम अथवा नियमों के अंतर्गत वांछित अर्हताएं, जो भी हो लागू होंगे।

2 मेसर्स श्री सीमेंट लिमिटेड द्वारा खनन संक्रियाएं प्रारंभ करने के लिए लागू विधियों के अधीन अपेक्षित आवश्यक सभी सहमतियां, अनुमोदन अनुज्ञापत्र, अनापत्तियां एवं अन्य औपचारिकताएं अभिप्राप्त करने के पश्चात् Preferred Bidder मेसर्स श्री सीमेंट लिमिटेड को राज्य सरकार द्वारा सफल बोलीदार (Successful Bidder) नामित किया जावेगा ।

3 मेसर्स श्री सीमेंट लिमिटेड, सफल बोलीदार (Successful Bidder) के रूप में छत्तीसगढ़ शासन के साथ खान विकास एवं उत्पादन अनुबंध (MDPA) पर हस्ताक्षर करेगा ।

4 खान विकास एवं उत्पादन अनुबंध (MDPA) हस्ताक्षर उपरान्त मेसर्स श्री सीमेंट लिमिटेड को अपफ्रंट पेमेंट का 60% (साठ प्रतिशत) राशि तृतीय किश्त के रूप में रूपये 25,57,71,608/– (रूपयें पच्चीस करोड़ सत्तावन लाख इकहत्तर हजार छः सौ आठ रूपये) मात्र का भुगतान करेगा तथा तत्पश्चात् छत्तीसगढ़ शासन द्वारा खनिपट्टा स्वीकृत किया जावेगा।

5 कण्डिका 4 का पालन किये जाने की तिथि के 30 दिवस के भीतर खनिपट्टा अनुबंध निष्पादित किया जावेगा, जो कि अधिनियम एवं इसके अधीन बनाये गये नियमों के उपबंधों के अध्याधीन होगा।

संलग्न :– उपरोक्तानुसार ।

छत्तीसगढ़ के राज्यपाल के नाम से
तथा आदेशानुसार,

04/X/13

(एम0 चन्द्रशेखर)
अवर सचिव
छत्तीसगढ़ शासन
खनिज साधन विभाग

.....03

पृ0 क्रमांक एफ 3–09/2023/12, नवा रायपुर, अटल नगर, दिनांक 04 OCT 2023

प्रतिलिपिः–

1. सचिव, भारत सरकार, खान मंत्रालय, शास्त्री भवन, नई दिल्ली ।
2. सचिव, भारत सरकार, वन एवं पर्यावरण मंत्रालय(एफसी डिवीजन) पर्यावरण भवन सीजीओर काम्प्लेक्स, लोधी रोड, नई दिल्ली।
3. सचिव, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, पर्यावास भवन, सेक्टर–19 नया रायपुर(छत्तीसगढ़)
4. खान सुरक्षा निदेशक, भुवनेश्वर क्षेत्र प्लाट नं0–1, नयापल्ली स्वस्ती प्लाजा होटल के समीप पो.आ. आरआरएल कैम्पस भुवनेश्वर –751013 (उडीसा)
5. उप खान नियंत्रक, भारतीय खान ब्यूरों, क्षेत्रीय कार्यालय, विधानसभा के पास महालेखाकार भवन परिसर, रायपुर (छत्तीसगढ़)
6. संचालक, भौमिकी तथा खनिकर्म, द्वितीय तल, इन्द्रावती भवन, नया रायपुर, छत्तीसगढ़।
7. प्रधान मुख्य वन संरक्षक(भू–प्रबंध), नोडल अधिकारी वन संरक्षण अधिनियम, 1980 छत्तीसगढ़ अरण्य भवन, नार्थ ब्लॉक, सेक्टर 19 नवा रायपुर, अटल नगर।

8 कलेक्टर, जिला खैरागढ़–छुईखदान–गंडई, छत्तीसगढ़ ।

की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु अग्रेषित।

9. गार्ड फाईल रजिस्टर।

04/x/23

अवर सचिव
छत्तीसगढ़ शासन
खनिज साधन विभाग

By e-mail

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES
OFFICE OF THE REGIONAL CONTROLLER OF MINES, RAIPUR

No. RPR/KHAIRAGARH CHHUIKHADAN GANDAI/LIMESTONE/1423/MP/2023-24

Dt : 14/03/2024

Shri/M/s. SHREE CEMENT LIMITED ,
POST BOX NO. 33, BANGUR NAGAR, BEAWAR BEAWAR MASUDA

Sandi Limestone Block (PB132)

Sub : Approval of Mining Plan along with Progressive Mine Closure Plan in respect of Sandi Limestone Block, Preferred Bidder -M/s Shree Cement Limited over an area of 404.00 Ha. situated in Sandi Village, Chhuikhadan Taluka, Khairagarh Chhuikhadan Gandai District of Chhattisgarh State.

Sirs,

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines & Minerals (Development & Regulation) Act, 1957 read with Government of India Order No. S.O.445(E) dated 28.04.1987 and S.O. 1857(E) dated 18th May, 2016; I hereby **approve** the Mining Plan along with Progressive Mine Closure Plan (PMCP) in respect of Sandi Limestone Block, Preferred Bidder -M/s Shree Cement Limited over an area of 404.00 Ha. situated in Sandi Village, Chhuikhadan Taluka, Khairagarh Chhuikhadan Gandai District of Chhattisgarh State. This approval is subject to the following conditions:

General Conditions:

1. This Mining Plan (including Progressive Mine Closure Plan) is approved without prejudice to any other laws applicable to the mine / area from time to time whether made by the Central Government, State Government or any other Authority.
2. The Mining Plan (including Progressive Mine Closure Plan) is approved without prejudice to any order or direction from any court of competent jurisdiction.
3. It is also clarified that the approval of your aforesaid Mining Plan (including Progressive Mine Closure Plan) does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development & Regulation) Act, 1957 as amended or the rules framed there under and any other laws including Environment (Protection) Act, 1986, and the rules framed there under.
4. It is further clarified that the approval of the Mining Plan (including Progressive Mine Closure Plan) is subject to the provision of Forest (Conservation) Act, 1980, Forest Conservation Rules, 2003 and other relevant statutes, order and guidelines as may be applicable to the lease area from time to time.
5. The provisions of the Mines Act, 1952 and Rules & Regulations made there under shall be complied with.
6. The execution of Mining Plan shall be subjected to vacations of prohibitory orders /notices, if any.
7. Your attention is invited to the Supreme Court interim order in W.P. (C) No. 202 dated 12.12.1996 for compliance. The approval of above said Mining Plan (including Progressive Mine Closure Plan) is therefore, issued without prejudice to and is subject to the said directions of the Supreme Court as applicable.
8. If anything is found to be concealed as required by the Mines Act in the contents of the Mining Plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
9. ^^The validity period of the financial assurance shall be renewed before the expiry of the same and should be submitted to this office. (^^wherever applicable)
10. This department does not undertake any responsibility regarding correctness of the boundaries of the lease area shown on the ground.
11. This approval for mining operation and mining related activities is restricted to the mining lease area only. The mining lease area is as shown on the statutory plans by the Lessee/QP/Applicant and Indian Bureau of Mines has not undertaken verification of mining lease boundary on the ground.
12. This approval is given for received proposals as applicable from this date for the mining activities to be carried out within the mining lease area only.
13. At any stage, if it is observed that the information furnished in the Mining Plan document are incorrect or misrepresent facts, the approval of the Mining Plan shall be revoked with immediate effect.
14. ^^This approval is subject to submission of DGPS Plan duly authenticated by the State Government and submission of modifications in the approved Mining Plan if, consequent to the authentication of DGPS Survey Plan, any change in mining lease area is accepted by the State Government. (^^ If applicable)
15. The approval of the above said Mining Plan with PMCP is subject to condition that you shall maintain boundary pillars as indicated in

Rule 12 (v)of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

16. The next Review of Mining Plan for the subsequent period of five (05) year shall become due 180 days before the expiry of this Mining Plan Period.
17. It shall be mandatory for the project proponent abstracting ground water, to obtain “No Objection Certificate” from Central Ground Water Authority or the concerned State/Union Territory Ground Water Authority, as the case may be.
18. Lessee shall ensure grassing/re-grassing of worked out mining lease area in accordance with Hon'ble Supreme Court order dated 08.01.2020.

Special Conditions:

1. The Preferred/Successful Bidder/Lessee shall submit performance security to State Govt. and sign the Mine Development and Production Agreement (MDPA) with State Govt. as per rule and submit a copy of the same to this office.

Yours faithfully,

(PREM PRAKASH)

Regional Controller of Mines

Indian Bureau of Mines, Raipur

Copy forwarded for kind information to:

1. The Controller of Mines (CZ), Indian Bureau of Mines, Nagpur.
2. The Director, Department of Mines & Geology, Government of Chhattisgarh.
3. Qualified Persons.

ANNEXURE - V

LAND SCHEDULE MAP OF SANDI LIMESTONE BLOCK

TEHSIL - CHHUIKHADAN, DISTRICT - RAJNANDGAON, CHHATTISGARH

81°5'30"E | 81°6'0"E | 81°6'30"E

21°35'0"N

Sandi

Pandariya

Bicharpur

Bhardagond

Bundeli

A | B | C | D | E | F

LEGEND

- CORNER POINT
- VILLAGE BOUNDARY
- LIMESTONE BLOCK BOUNDARY
- GOVERNMENT LAND
- PRIVATE LAND
- INFORMATION NOT AVAILABLE

VILLAGE	GOVERNMENT LAND	PRIVATE LAND	INFORMATION NOT AVAILABLE	TOTAL AREA (In Ha.)
BHARDAGOND	0.061	1.636	-	1.697
BICHARPUR	33.747	150.404	0.451	184.602
BUNDELI	1.465	46.232	1.399	49.096
PANDARIYA	17.924	145.427	0.767	164.118
SANDI	0.32	4.167	-	4.487
TOTAL AREA (In Ha.)	**53.517**	**347.866**	**2.617**	**404.0**

SANDI LIMESTONE BLOCK,
AREA - 404.00 Ha.

SCALE - 1:4,000

0 40 80 160 240 320 400 Meters

SUBMITTED TO
OFFICE OF THE DIRECTOR OF
GEOLOGY & MINING CHHATTISGARH

DGPS Survey Conducted & Map Prepared By
छत्तीसगढ़ अंतरिक्ष उपयोग केन्द्र
Chhattisgarh Council of Science & Technology
Vigyan Bhavan, Vidhan Sabha Road, Daldal Seoni
Raipur, (CG) Pin - 492014

कार्यालय,
छत्तीसगढ़ विज्ञान एवं प्रौद्योगिकी परिषद
विज्ञान भवन,
विधान सभा रोड, डालदल सिवनी
रायपुर (छ.ग.) पिन - 492014

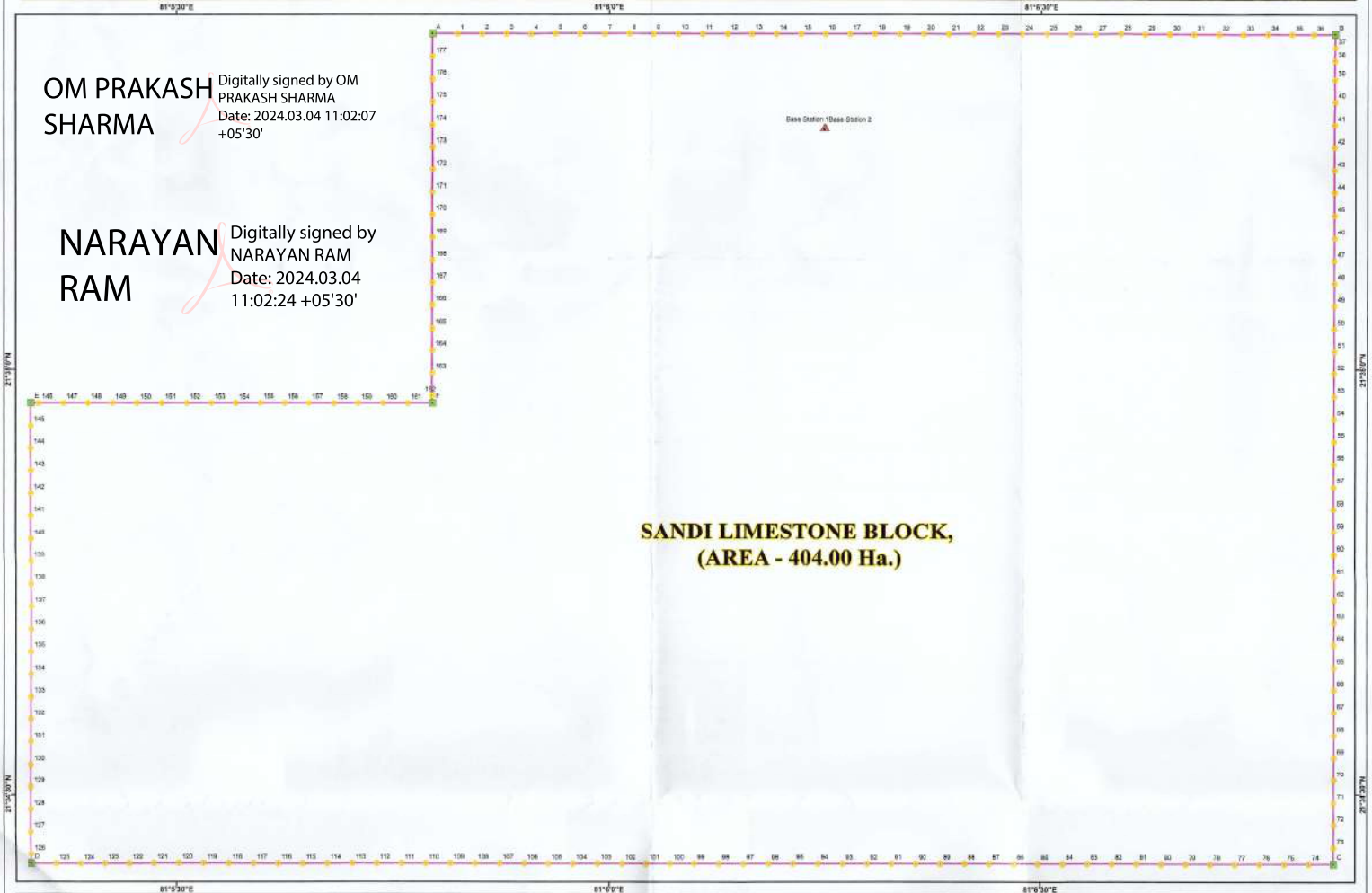
Ashish Panda
Assistant Geologist
Directorate of Geology & Mining
Naya Raipur, C.G.

DGPS SURVEY BOUNDARY POINT AND THEIR COORDINATES OF SANDI LIMESTONE BLOCK

TEHSIL - CHHUIKHADAN, DISTRICT - RAJNANDGAON, CHHATTISGARH

OM PRAKASH SHARMA
Digitally signed by OM PRAKASH SHARMA
Date: 2024.03.04 11:02:07 +05'30'

NARAYAN RAM
Digitally signed by NARAYAN RAM
Date: 2024.03.04 11:02:24 +05'30'



S. No.	POINT ID	GEOGRAPHICAL COORDINATES		UTM COORDINATES	
		LATITUDE	LONGITUDE	EASTING	NORTHING
1	A	21° 35' 23.64255" N	81° 5' 47.76405" E	509999.66746	2387438.94548
2	B	21° 35' 23.60219" N	81° 6' 50.37650" E	511800.03919	2387438.92219
3	C	21° 34' 25.06745" N	81° 6' 50.31103" E	511799.47346	2385639.29403
4	D	21° 34' 25.10755" N	81° 5' 19.91613" E	509199.94954	2385638.83486
5	E	21° 34' 57.66142" N	81° 5' 19.92634" E	509199.67265	2386639.68969
6	F	21° 34' 57.63100" N	81° 5' 47.74188" E	509999.52601	2386639.23054
7	1	21° 35' 23.64041" N	81° 5' 49.47051" E	510048.73555	2387438.91019
8	2	21° 35' 23.65255" N	81° 5' 51.18348" E	510097.99037	2387439.31448
9	3	21° 35' 23.65511" N	81° 5' 52.87662" E	510146.67504	2387439.42361
10	4	21° 35' 23.63700" N	81° 5' 54.58571" E	510195.81803	2387438.89787
11	5	21° 35' 23.66528" N	81° 5' 56.28702" E	510244.73837	2387439.79833
12	6	21° 35' 23.65480" N	81° 5' 57.97605" E	510293.30509	2387439.50703
13	7	21° 35' 23.64107" N	81° 5' 59.70666" E	510343.06776	2387439.11681
14	8	21° 35' 23.65627" N	81° 6' 1.39993" E	510391.75595	2387439.61539
15	9	21° 35' 23.65283" N	81° 6' 3.10335" E	510440.73643	2387439.54123
16	10	21° 35' 23.64912" N	81° 6' 4.79840" E	510489.47642	2387439.45906
17	11	21° 35' 23.63390" N	81° 6' 6.49376" E	510538.22541	2387439.02270
18	12	21° 35' 23.63833" N	81° 6' 8.21442" E	510587.70167	2387439.19126
19	13	21° 35' 23.64904" N	81° 6' 9.91460" E	510636.58875	2387439.55279
20	14	21° 35' 23.62912" N	81° 6' 11.62710" E	510685.83061	2387438.97291
21	15	21° 35' 23.62736" N	81° 6' 13.32261" E	510734.58358	2387438.95117
22	16	21° 35' 23.63738" N	81° 6' 15.01752" E	510783.31934	2387439.29199
23	17	21° 35' 23.63499" N	81° 6' 16.73403" E	510832.67627	2387439.25156
24	18	21° 35' 23.64243" N	81° 6' 18.44374" E	510881.83732	2387439.51334
25	19	21° 35' 23.62958" N	81° 6' 20.14548" E	510930.76986	2387439.15147
26	20	21° 35' 23.64276" N	81° 6' 21.83991" E	510979.49139	2387439.58972
27	21	21° 35' 23.62302" N	81° 6' 23.55131" E	511028.70178	2387439.01630
28	22	21° 35' 23.64286" N	81° 6' 25.25792" E	511077.77378	2387439.65997
29	23	21° 35' 23.63956" N	81° 6' 26.96270" E	511126.79319	2387439.59242
30	24	21° 35' 23.63078" N	81° 6' 28.67102" E	511175.91483	2387439.35639
31	25	21° 35' 23.62848" N	81° 6' 30.37510" E	511224.91436	2387439.31974
32	26	21° 35' 23.62566" N	81° 6' 32.05977" E	511273.35568	2387439.35980
33	27	21° 35' 23.62533" N	81° 6' 33.77424" E	511322.65400	2387439.29139
34	28	21° 35' 23.66039" N	81° 6' 35.51476" E	511372.70037	2387440.40432
35	29	21° 35' 23.62304" N	81° 6' 37.18244" E	511420.65400	2387439.29009
36	30	21° 35' 23.62189" N	81° 6' 38.88653" E	511469.65400	2387439.28944
37	31	21° 35' 23.62073" N	81° 6' 40.59063" E	511518.65400	2387439.28878
38	32	21° 35' 23.61682" N	81° 6' 42.29946" E	511567.79021	2387439.20372
39	33	21° 35' 23.61185" N	81° 6' 44.00178" E	511616.73840	2387439.08617
40	34	21° 35' 23.60688" N	81° 6' 45.70405" E	511665.68660	2387438.96863
41	35	21° 35' 23.60190" N	81° 6' 47.40634" E	511714.63479	2387438.85108
42	36	21° 35' 23.60205" N	81° 6' 48.89142" E	511757.33699	2387438.88664
43	37	21° 35' 22.68543" N	81° 6' 50.37073" E	511799.89411	2387410.73655
44	38	21° 35' 21.76866" N	81° 6' 50.36497" E	511799.74903	2387382.55090
45	39	21° 35' 20.42257" N	81° 6' 50.35641" E	511799.53312	2387341.16557
46	40	21° 35' 18.84320" N	81° 6' 50.37138" E	511799.99921	2387292.60881
47	41	21° 35' 17.24111" N	81° 6' 50.34745" E	511799.34721	2387243.35272
48	42	21° 35' 15.64961" N	81° 6' 50.34502" E	511799.31318	2387194.42274
49	43	21° 35' 14.04620" N	81° 6' 50.34530" E	511799.35732	2387145.12618
50	44	21° 35' 12.45467" N	81° 6' 50.34273" E	511799.31912	2387096.19534
51	45	21° 35' 10.85964" N	81° 6' 50.34341" E	511799.37444	2387047.15659
52	46	21° 35' 9.25968" N	81° 6' 50.35764" E	511799.81983	2386997.96697
53	47	21° 35' 7.67292" N	81° 6' 50.33508" E	511799.30674	2386949.18217
54	48	21° 35' 6.07552" N	81° 6' 50.34707" E	511799.58750	2386900.07081
55	49	21° 35' 4.47912" N	81° 6' 50.34796" E	511799.64901	2386850.99030
56	50	21° 35' 2.89165" N	81° 6' 50.33649" E	511799.35486	2386802.18368
57	51	21° 35' 1.28900" N	81° 6' 50.35878" E	511800.03185	2386752.91150
58	52	21° 34' 59.71214" N	81° 6' 50.33597" E	511799.41151	2386704.43102
59	53	21° 34' 58.11651" N	81° 6' 50.34453" E	511799.69337	2386655.37426
60	54	21° 34' 56.51979" N	81° 6' 50.33506" E	511799.45710	2386606.28349
61	55	21° 34' 54.92188" N	81° 6' 50.35291" E	511800.00628	2386557.15683
62	56	21° 34' 53.33111" N	81° 6' 50.32986" E	511799.37924	2386508.24865
63	57	21° 34' 51.74390" N	81° 6' 50.32568" E	511799.29476	2386459.45040
64	58	21° 34' 50.14366" N	81° 6' 50.32257" E	511799.24128	2386410.25182
65	59	21° 34' 48.55715" N	81° 6' 50.33478" E	511799.62804	2386361.47535
66	60	21° 34' 46.96508" N	81° 6' 50.34488" E	511799.95173	2386312.22053
67	61	21° 34' 45.36326" N	81° 6' 50.34421" E	511799.97120	2386263.28078
68	62	21° 34' 43.75662" N	81° 6' 50.32931" E	511799.57883	2386213.88492
69	63	21° 34' 42.18566" N	81° 6' 50.34240" E	511799.99056	2386165.58658
70	64	21° 34' 40.57814" N	81° 6' 50.32190" E	511799.43719	2386116.16372
71	65	21° 34' 38.99918" N	81° 6' 50.33316" E	511799.73649	2386067.61964
72	66	21° 34' 37.40970" N	81° 6' 50.33451" E	511799.87105	2386018.75151
73	67	21° 34' 35.80148" N	81° 6' 50.33000" E	511799.77751	2385969.30749
74	68	21° 34' 34.20883" N	81° 6' 50.33285" E	511799.89540	2385920.34234
75	69	21° 34' 32.61369" N	81° 6' 50.33334" E	511799.94539	2385871.30036
76	70	21° 34' 31.02096" N	81° 6' 50.32779" E	511799.82155	2385822.33239
77	71	21° 34' 29.42579" N	81° 6' 50.32547" E	511799.79082	2385773.28959
78	72	21° 34' 27.82991" N	81° 6' 50.32760" E	511799.88799	2385724.22503
79	73	21° 34' 26.23525" N	81° 6' 50.31967" E	511799.69559	2385675.19778
80	74	21° 34' 25.07632" N	81° 6' 48.61133" E	511750.59429	2385639.53103
81	75	21° 34' 25.06264" N	81° 6' 46.91059" E	511701.68568	2385639.07491
82	76	21° 34' 25.05399" N	81° 6' 45.20609" E	511652.69908	2385638.77351
83	77	21° 34' 25.04528" N	81° 6' 43.49019" E	511603.32430	2385638.47010
84	78	21° 34' 25.05251" N	81° 6' 41.79730" E	511554.64097	2385638.65729
85	79	21° 34' 25.05977" N	81° 6' 40.09336" E	511505.64004	2385638.84571
86	80	21° 34' 25.06708" N	81° 6' 38.37969" E	511456.35909	2385639.03520
87	81	21° 34' 25.08230" N	81° 6' 36.69080" E	511407.79073	2385639.46874
88	82	21° 34' 25.07962" N	81° 6' 34.98443" E	511358.71980	2385639.35178
89	83	21° 34' 25.07997" N	81° 6' 33.28027" E	511309.71261	2385639.32817
90	84	21° 34' 25.08073" N	81° 6' 31.57113" E	511260.56226	2385639.31715
91	85	21° 34' 25.07632" N	81° 6' 29.86693" E	511211.55384	2385639.14723
92	86	21° 34' 25.08174" N	81° 6' 28.16620" E	511162.64522	2385639.27963
93	87	21° 34' 25.08160" N	81° 6' 26.46013" E	511113.58311	2385639.24188
94	88	21° 34' 25.08771" N	81° 6' 24.75290" E	511064.48739	2385639.39663
95	89	21° 34' 25.08941" N	81° 6' 23.04240" E	511015.29786	2385639.41452
96	90	21° 34' 25.08548" N	81° 6' 21.35240" E	510966.69791	2385639.26078
97	91	21° 34' 25.08605" N	81° 6' 19.64737" E	510917.66561	2385639.24481
98	92	21° 34' 25.08723" N	81° 6' 17.94345" E	510868.66537	2385639.24826
99	93	21° 34' 25.09095" N	81° 6' 16.23997" E	510819.67751	2385639.32940
100	94	21° 34' 25.09679" N	81° 6' 14.53332" E	510770.59860	2385639.47632
101	95	21° 34' 25.09178" N	81° 6' 12.83075" E	510721.63720	2385639.28964
102	96	21° 34' 25.09101" N	81° 6' 11.12481" E	510672.57877	2385639.23354
103	97	21° 34' 25.09572" N	81° 6' 9.42346" E	510623.65236	2385639.34590
104	98	21° 34' 25.09725" N	81° 6' 7.71456" E	510574.50877	2385639.36078
105	99	21° 34' 25.10372" N	81° 6' 6.00422" E	510525.32361	2385639.52754
106	100	21° 34' 25.10048" N	81° 6' 4.31142" E	510476.64329	2385639.39600
107	101	21° 34' 25.09230" N	81° 6' 2.61001" E	510427.71515	2385639.11284
108	102	21° 34' 25.08751" N	81° 6' 0.90832" E	510378.77918	2385638.93420
109	103	21° 34' 25.09682" N	81° 5' 59.20970" E	510329.93088	2385639.18894
110	104	21° 34' 25.09467" N	81° 5' 57.50798" E	510280.99387	2385639.09172
111	105	21° 34' 25.09248" N	81° 5' 55.77454" E	510231.14493	2385638.99269
112	106	21° 34' 25.10396" N	81° 5' 54.08908" E	510182.67504	2385639.31485
113	107	21° 34' 25.10858" N	81° 5' 52.38948" E	510133.79892	2385639.42613
114	108	21° 34' 25.10810" N	81° 5' 50.67946" E	510084.62333	2385639.38043
115	109	21° 34' 25.10761" N	81° 5' 48.97632" E	510035.64524	2385639.33492
116	110	21° 34' 25.10450" N	81° 5' 47.26215" E	509986.35039	2385639.20880
117	111	21° 34' 25.10500" N	81° 5' 45.57615" E	509937.85536	2385639.19416
118	112	21° 34' 25.11131" N	81° 5' 43.86640" E	509888.69726	2385639.35800
119	113	21° 34' 25.11772" N	81° 5' 42.16423" E	509839.74704	2385639.52512
120	114	21° 34' 25.10707" N	81° 5' 40.46091" E	509790.76420	2385639.16767
121	115	21° 34' 25.10681" N	81° 5' 38.74708" E	509741.47900	2385639.12993
122	116	21° 34' 25.11044" N	81° 5' 37.06014" E	509692.96701	2385639.21252
123	117	21° 34' 25.11572" N	81° 5' 35.35020" E	509643.79605	2385639.34519
124	118	21° 34' 25.12312" N	81° 5' 33.64377" E	509594.72085	2385639.54356
125	119	21° 34' 25.12955" N	81° 5' 31.90627" E	509544.75473	2385639.71170
126	120	21° 34' 25.13598" N	81° 5' 30.16877" E	509494.78862	2385639.87983
127	121	21° 34' 25.12348" N	81° 5' 28.43066" E	509444.80535	2385639.46610
128	122	21° 34' 25.11128" N	81° 5' 26.73584" E	509396.06700	2385639.06267
129	123	21° 34' 25.10655" N	81° 5' 25.03513" E	509347.15913	2385638.88885
130	124	21° 34' 25.10182" N	81° 5' 23.33443" E	509298.25125	2385638.71503
131	125	21° 34' 25.10468" N	81° 5' 21.63124" E	509249.27197	2385638.77474
132	126	21° 34' 25.77018" N	81° 5' 19.92810" E	509200.28246	2385659.20734
133	127	21° 34' 27.37147" N	81° 5' 19.90515" E	509199.59438	2385708.43802
134	128	21° 34' 28.96906" N	81° 5' 19.91045" E	509199.71887	2385757.55531
135	129	21° 34' 30.56583" N	81° 5' 19.91049" E	509199.69196	2385806.64719
136	130	21° 34' 32.13458" N	81° 5' 19.90449" E	509199.49180	2385854.87758
137	131	21° 34' 33.74958" N	81° 5' 19.90992" E	509199.61973	2385904.53017
138	132	21° 34' 35.34499" N	81° 5' 19.90577" E	509199.47230	2385953.58011
139	133	21° 34' 36.93751" N	81° 5' 19.91514" E	509199.71404	2386003.54175
140	134	21° 34' 38.53126" N	81° 5' 19.91053" E	509199.55330	2386051.54074
141	135	21° 34' 40.11646" N	81° 5' 19.91422" E	509199.63173	2386100.27698
142	136	21° 34' 41.71778" N	81° 5' 19.92046" E	509199.78302	2386149.50896
143	137	21° 34' 43.30704" N	81° 5' 19.94236" E	509200.38487	2386198.37070
144	138	21° 34' 44.89424" N	81° 5' 19.92559" E	509199.50107	2386247.16779
145	139	21° 34' 46.49080" N	81° 5' 19.90483" E	509199.24993	2386296.25342
146	140	21° 34' 48.07788" N	81° 5' 19.93169" E	509199.99449	2386345.04775
147	141	21° 34' 49.68322" N	81° 5' 19.92428" E	509199.75335	2386394.40308
148	142	21° 34' 51.27289" N	81° 5' 19.92108" E	509199.63333	2386443.27698
149	143	21° 34' 52.88430" N	81° 5' 19.93092" E	509199.88805	2386492.81899
150	144	21° 34' 54.45407" N	81° 5' 19.90766" E	509199.19171	2386541.08051
151	145	21° 34' 56.05422" N	81° 5' 19.92402" E	509199.63402	2386590.27698
152	146	21° 34' 57.64767" N	81° 5' 20.47765" E	509215.52602	2386639.27606
153	147	21° 34' 57.64667" N	81° 5' 22.18166" E	509264.52602	2386639.27321
154	148	21° 34' 57.64566" N	81° 5' 23.88568" E	509313.52602	2386639.27037
155	149	21° 34' 57.64162" N	81° 5' 25.58287" E	509362.32988	2386639.17438
156	150	21° 34' 57.63146" N	81° 5' 27.28828" E	509411.37020	2386638.89051
157	151	21° 34' 57.63604" N	81° 5' 28.99313" E	509460.39425	2386639.06005
158	152	21° 34' 57.63813" N	81° 5' 30.69515" E	509509.33670	2386639.15319
159	153	21° 34' 57.63865" N	81° 5' 32.41766" E	509558.86846	2386639.19838
160	154	21° 34' 57.62982" N	81° 5' 34.10879" E	509607.49827	2386638.95585
161	155	21° 34' 57.64979" N	81° 5' 35.80902" E	509656.38906	2386639.59900
162	156	21° 34' 57.63425" N	81° 5' 37.51123" E	509705.33742	2386639.15066
163	157	21° 34' 57.63240" N	81° 5' 39.20786" E	509754.12519	2386639.12321
164	158	21° 34' 57.62192" N	81° 5' 40.93285" E	509803.72840	2386638.83119
165	159	21° 34' 57.63086" N	81° 5' 42.61676" E	509852.15001	2386639.13555
166	160	21° 34' 57.62604" N	81° 5' 44.34176" E	509901.75376	2386639.01756
167	161	21° 34' 57.62419" N	81° 5' 46.02581" E	509950.46703	2386638.99081
168	162	21° 34' 58.15477" N	81° 5' 47.73498" E	509999.31778	2386655.33352
169	163	21° 34' 59.76127" N	81° 5' 47.74935" E	509999.70036	2386704.72480
170	164	21° 35' 1.34929" N	81° 5' 47.74674" E	509999.59506	2386753.54799
171	165	21° 35' 2.92149" N	81° 5' 47.74444" E	509999.49894	2386801.88460
172	166	21° 35' 4.52274" N	81° 5' 47.74659" E	509999.53011	2386851.11437
173	167	21° 35' 6.11660" N	81° 5' 47.75617" E	509999.77535	2386900.11696
174	168	21° 35' 7.70733" N	81° 5' 47.75422" E	509999.68879	2386949.02333
175	169	21° 35' 9.29651" N	81° 5' 47.75068" E	509999.55660	2386997.88189
176	170	21° 35' 10.91555" N	81° 5' 47.75409" E	509999.62392	2387047.65869
177	171	21° 35' 12.49090" N	81° 5' 47.75141" E	509999.51690	2387096.09241
178	172	21° 35' 14.09052" N	81° 5' 47.77128" E	510000.05760	2387145.27231
179	173	21° 35' 15.68074" N	81° 5' 47.77118" E	510000.02434	2387194.16310
180	174	21° 35' 17.26652" N	81° 5' 47.75561" E	509999.54636	2387242.91683
181	175	21° 35' 18.86912" N	81° 5' 47.76980" E	509999.92387	2387292.18839
182	176	21° 35' 20.47384" N	81° 5' 47.75194" E	509999.37989	2387341.52464
183	177	21° 35' 22.05603" N	81° 5' 47.76301" E	509999.66791	2387390.16858
184	Base Station 1	21° 35' 17.03611" N	81° 6' 15.02261" E	510783.60124	2387236.43056
185	Base Station 2	21° 35' 17.02640" N	81° 6' 14.94321" E	510781.31853	2387236.03828

LEGEND

BASE STATION
CORNER POINT
INTERMEDIATE POINT
LIMESTONE BLOCK BOUNDARY

Ashish Parda
Assistant Geologist
Directorate of Geology & Mining
Naya Raipur, C.G.

SANDI LIMESTONE BLOCK,
AREA - 404.00 Ha.

SCALE - 1:5,000

SUBMITTED TO
OFFICE OF THE DIRECTOR OF
GEOLOGY & MINING CHHATTISGARH

DGPS Survey Conducted & Map Prepared By
छत्तीसगढ़ साईंस एवं टेक्नोलॉजी परिषद
Chhattisgarh Council of Science & Technology
Vigyan Bhavan, Vidhan Sabha Road, Daldal Seoni
Raipur, (CG) Pin - 492014