

I/163385/2023

HARYANA STATE POLLUTION CONTROL BOARD

C-11, SECTOR-6, PANCHKULA
Ph-0172-577870-73, Fax No. 2581201
E-Mail: hspcbcoordination@gmail.com
Website: hspcb.org.in

Dated: 15/05/2023

To

The Director General,
Information, Public Relations
& Cultural Affairs Department,
Haryana, Chandigarh.

Subject: Draft EIA/EMP report of public hearing - reg EIA/EMP report of Minor Mineral of Jainpur Stone Mine (total area of 5.26 hectare) in village Jainpur, Distt. Mahendragarh, State Haryana by M/s Govinda Gopal Infra Solutions Pvt. Ltd. Gurugram.

Kindly refer to the subject noted above.

I have been directed to enclose herewith an advertisement regarding Public Hearing Notice to be held on **21.06.2023 at 09:00 AM** at the site of the unit for the project of "*Minor Mineral of Jainpur Stone Mine (total area of 5.26 hectare) in village Jainpur, Distt. Mahendragarh, Haryana* by M/s Govinda Gopal Infra Solutions Pvt. Ltd. Gurugram for publication in the following leading newspapers on DAVP rates:-

1. One major national daily newspaper.
2. One Regional Vernacular daily Newspaper in Hindi.

This advertisement should appear on or before **20.05.2023** in the above said two leading newspapers only and bills of above two newspapers on DAVP rates may be sent to this office at the earliest, the bill payment of above said notice will be made for two newspaper only.

DA/-Advertisement

**Sr. Env. Engineer (HQ)
For Member Secretary**

Copy to :-

A copy of the above is forwarded to the following for information and necessary action:-

1. The Deputy Commissioner, Mahendragarh at Narnaul.
2. The Chairman, Zila Parishad, District Mahendragarh at Narnaul.
3. The Executive Officer, Municipal Council Narnaul for display on notice board
4. The Joint Director, District Industries Centre, District Mahendragarh at Narnaul.
5. The Regional Officer, Mahendragarh, Haryana State Pollution Control

I/163385/2023

Board, SCO D-6 & D-7, Suncity Commercial Complex, Sector-6, Block Rewari alongwith copy of EIA report & Executive Summary and CD for sending the same to the concerned authorities mentioned above to place the same in their offices for consultation of the general public during office hours.

6. Sh. Govinda Gopal Infra Solution Pvt. Ltd., 212 DLF Corporate Greens, SPR Road, Sector-74, Gurugram-122004, Haryana.
7. The Sr. Env. Engineer (IT) HSPCB (HQ) for uploading the notice on the website of the Board.

DA/-Advertisement

**Sr. Env. Engineer (HQ)
For Member Secretary**

Copy to:-

A copy of the above is forwarded to the following for information please:-

1. The Additional Chief Secretary to Govt. Haryana, Environment Department, Chandigarh.
2. The Director General, Environment Department, Haryana at Sector 17, Chandigarh.
3. P.S. to Chairman/ P.A. to Member Secretary, HSPCB, Panchkula.

DA/-Advertisement

**Sr. Env. Engineer (HQ)
For Member Secretary**

HARYANA STATE POLLUTION CONTROL BOARD

C-11, SECTOR-6, PANCHKULA
Ph-0172-577870-73, Fax No. 2581201
E-Mail: hspcbcoordination@gmail.com
Website: hspcb.org.in

Notice for Public Hearing

It is for the information of concerned that M/s Govinda Gopal Infra Solution Pvt. Ltd. has proposed a project regarding Minor Mineral of jainpur stone mine (total area of 5.26 hectare) in Village - Jainpur, District Mahendragarh Haryana and going to conduct of Public Hearing for obtaining Environmental Clearance.

The project proponent mentioned above has applied to the Haryana State Pollution Control Board for conducting the Public Hearing for obtaining Environmental Clearance as per EIA notification dated 14th September, 2006 for the proposed project. Accordingly, the Public Hearing for the above said project has been fixed on **21.06.2023 at 09.00 AM** at Village Jainpur, District Mahendragarh.

Copies of executive summary of the project report and EIA study report, submitted by the project proponent, are available in the Head Office of the Board and on the website of the Board i.e. <https://hspcb.org.in/> as well as in the following offices, which can be perused during office hours, on any working day:-

1. Deputy Commissioner, Mahendragarh at Narnaul.
2. Chairman, Zila Parishad, District Mahendragarh at Narnaul.
3. Executive Engineer, Municipal Council, Narnaul.
4. Joint Director, District Industries Centre, District Mahendragarh at Narnaul.
5. Regional Officer, Mahendragarh, Haryana State Pollution Control Board, SCO D-6 & D-7, Suncity Commercial Complex, Sector-6, A-Block, Rewari.

Notice is hereby given to all concerned to file suggestions, views, comments and objections, if any, on the above said proposed project, to the Chairman, Haryana State Pollution Control Board, C-11, Sector-6, Panchkula as well as Regional Officer, Mahendragarh, Haryana State Pollution Control Board, at SCO D-6 & D-7, Suncity Commercial Complex, Sector-6, A-Block, Rewari i.e within 30 days of the publication of this notice. Besides, a Public Hearing will also be held on the Date, Time & Venue mentioned above at the proposed site of the project, which can be attended by any person including Environmental Groups, bonafide residents and others, located at the project site/sites of displacement/sites likely to be affected. Oral/Written suggestions, if any can also be made during the Public Hearing.

No TA/DA will be admissible for attending the Public Hearing.

Pardeep Kumar, IAS
Member Secretary

M/S GOVINDA GOPAL INFRA SOLUTIONS PVT. LTD.

212, DLF Corporate Greens, SPR Rd., Sector-74A, Gurugram-122004

Dated: 22.03.2023

To
Member Secretary
Haryana State Pollution Control Board
Environment & Climate Change Department,
Sector-6,
Panchkula (Haryana)

Sub: Submission of EIA/EMP report for public hearing – reg.

Sir

With reference subject cited above, we have prepared the EIA/EMP report of minor mineral of Jainpur Stone Mine (total area of 5.26 hectare), in Village- Jainpur, District- Mahendragarh, State- Haryana.

The following documents are submitting for public hearing:

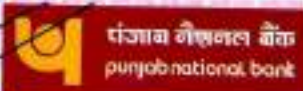
1. Hard and Soft copy of EIA/EMP report
2. Hard copy of Executive Summary of EIA/EMP report in English
3. Public hearing fee Rs. 1,50,000/- (Demand Draft No. 38.6972.....dated.22/03/23 bank Punjab national.....for Member Secretary Haryana State Pollution Control Board, Panchkula (Haryana).

This is for your kind perusal.

Thanking You



**M/S Govinda Gopal Infra
Solutions Pvt. Ltd.**



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AUTHORISED SIGNATORY WITH GBPA No.

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DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

**JAINPUR STONE MINE AT VILLAGE JAINPUR,
TEHSIL NARNAUL, DISTRICT MAHENDRAGARH, STATE HARYANA**
ToR No. SIX/HR MIN 406219-2022

**LEASE AREA OF 5.26 HA
PRODUCTION QUANTITY: 30,00,000 TPA
MINERAL QUANTITY: 28,50,000 TPA
WASTE QUANTITY: 1,50,000 TPA**

Submitted to:
**HARYAN POLLUTION CONTROL BOARD,
SECOND FLOOR BAYS NO. 55-58, PRAYATAN BHAWAN,
SECTOR-2, PANCIKULA, HARYANA**
PROJECT PROPONENT



GG INFRA
A way to success

M/S GOVINDA GOPAL INFRA SOLUTIONS PRIVATE LIMITED
212 DLF Corporate Greens, SPR Road Sector 74 A, Gurugram,
Gurgaon-122004, Haryana
Email: gginfra0008@gmail.com
Phone Number: 7678168863

Base line Data collection from December 2022 to February 2023

Project Cost: 4 crores

Prepared by:



OVERSEAS MIN TECH CONSULTANTS
APEX TOWER, 501, 5TH FLOOR, LALKOTHI, TONK ROAD, JAIPUR, PIN - 302015
RAJASTHAN

Email: omtejaipur@gmail.com

STONE MINE, PRODUCTION CAPACITY 10,00,00 TPA, VILLAGE: JAINPUR, TESIIE-NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

**DRAFT EIA/EMP REPORT
DECLARATION BY CONSULTANT**

DECLARATION BY EXPERTS CONTRIBUTING TO THIS REPORT

I, hereby, certify that I was part of the EIA team in the following capacity that developed the above EIA.

Sector No. as per EIA Notification	I(n)	Sector as per EIA Notification	Mining of minerals
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EIA Coordinator:

Name: Mr. Arun Kumar Yadav

Signature:

Date: 20.03.2023

Period of Involvement: December 2022 to February 2023 (Winter Season)

Contact Information: M/s Overseas Min - Tech Consultants, Jaipur

501, 5th Floor, Apex Tower, Tonk Road, Jaipur-302015

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Mobile: +91-9460221084

E-mail:

arun.onitc@gmail.com.

Associate EIA Coordinator

Name: Dr. Nafeesh Ahmed

Signature:

Date: 20.03.2023

Period of Involvement: December 2022 to February 2023 (Winter Season)

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, VILLAGE: JAINPUR, TENSIL, NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

DRAFT EIA/FMP REPORT
DECLARATION BY CONSULTANT

FUNCTIONAL AREA EXPERTS:

S. No.	Functional Areas	Name of the Expert/s	Involvement (Period and Task)
1	Air Pollution Prevention, Monitoring & Control (AP)	Dr. Sanjeev Kumar Yadav	December 2022 to February 2023 Task: Reconnaissance of study area, Ambient air quality monitoring, interpretation of data and ambient air quality, identification of sources of air pollution and its impact on air quality during operational phase, suggesting mitigation measures to minimize impact on ambient air quality.
4	Solid Waste and Hazardous Waste Management (SHW)	Dr. Sanjeev Kumar Yadav	December 2022 to February 2023 Task: Identification of sources, nature of solid waste generated, categorization of solid waste, quantity and method of disposal.
5	Socio-Economics (SE)	Rajesh Kumar Mundotiya	December 2022 to February 2023 Task: Guiding AFAL for undertaking primary and secondary data collection and analysis, impact assessment, mitigation plan, and CSR budget allocation.
6	Ecology and Biodiversity (EB)	Dr. Nafisah Ahmed	December 2022 to February 2023 Task: Field survey for ecology and biodiversity, identification and classification of species, impact prediction and mitigation measures.
8	Hydrology, Ground Water & Water Conservation (HG) Geology(GR)	Jayaprakash Chathanibath	December 2022 to February 2023 Task: Field survey for assessing regional and local geology and drainage pattern, Aquifer distribution, water resource evaluation, variation and change in groundwater level throughout the year, determination of groundwater use pattern, impact on ground water regime, mitigation measures, development of rainwater harvesting program.
9	Meteorology, Air Quality Modeling & Prediction (AQ)	Onair Hashmi	December 2022 to February 2023 Task: Estimation of sources of air emissions, supervision of air quality modeling, interpretation of results obtained, impact prediction and mitigation measures.
10	Noise/Vibration (NV)	Arun Kumar Yadav (FAE-B Category)	December 2022 to February 2023 Task: Monitoring of noise level, interpretation of data, prediction of noise level due to project activity and suggestions of mitigation measures.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, VILLAGE JAINPUR, TEHSIL NARNAUL, DISTRICT MAHENDERGARH, HARYANA

**DRAFT EIA/EMP REPORT
DECLARATION BY CONSULTANT**

S. No.	Functional Areas	Name of the Expert/s	Involvement (Period and Task)
11	Noise Vibration (NV)	Arvind Kumar (Team Member - NV)	Task: interpretation of baseline data generated, prediction of noise level and suggestion of mitigation measures December 2022 to February 2023
12	Land Use (LU)	Muthuswamy Vasantha Kumar	Task: Preparation of land use land cover maps for the study area using satellite imagery, GIS related tools followed by ground truth verification for classification of resources available within the study area.
13	Risk Assessment & Hazard Management (RH)	Arun Kumar Yadav	December 2022 to February 2023 Task: Identification of risk, interpreting consequence contours, suggesting risk mitigation measures.
14	Water Pollution Prevention, Control & Prediction of Impacts (WP)	Dr. Sanjeev Kumar Yadav	December 2022 to February 2023 Site visit, finalization of surface and ground water sampling locations, interpretation of baseline data collected for water quality, water balance for the project identification of impacts and suggestion for mitigation plan.
15	Soil Conservation (SC)	Dr. Sanjeev Kumar Yadav Dr. Nafesh Ahamed	December 2022 to February 2023 Task: Reconnaissance, Selection of sampling locations, collection of soil samples and analysis, interpretation of data, soil quality, impact identification and mitigation measures, suggestion of soil conservation plan

Declaration by the Head of the Accredited Consultant Organization: Authorized Person

I, Arun Kumar Yadav hereby confirm that the above mentioned experts were involved in preparation of the EIA report "Stone mine project at Village Jainpur, Tehsil Narnaul, District Mahendergarh (Haryana)." I further confirm that prescribed ToR's have been complied with and the data submitted is factually correct. The consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature:

Name:

Arun Kumar Yadav

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, VILLAGE: JAINPUR, TENSIL: NARNAUL, DISTRICT: MAHENDGARH, HARYANA

**DRAFT EIA/EMP REPORT
DECLARATION BY CONSULTANT**

Name of the EIA Consultant Organization: M/s Overseas Min - Tech Consultants, Jaipur

NABET Certificate No. & Issue Date: NABET/EIA/2013-RA 0252 Dated 31.08.2022

Valid Upto: 01.08.2023

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT VILLAGE JAINPUR, TEHSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA

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DISTRICT MAHENDERGARH, HARYANA**

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DRAFT EIA/EMP REPORT
ABBREVIATION

ABBREVIATION

AAS/ICPA	Atomic Absorption Spectrophotometer Inductively Coupled Plasma Analyzer
AAQ	Ambient Air Quality
AAQM	Ambient Air Quality Monitoring
AAQS	Ambient Air Quality Standards
AIS & LUS	All India Soil and Land Use Survey
AMSL	Above Mean Sea Level
ANFO	Ammonium Nitrate - Fuel Oil
APHA	American Public Health Association
BH	Business Head
BHs	Bore Holes
BIS	Bureau of Indian Standards
BGL	Below Ground Level
CAZRI	Central Arid Zone Research Institute
CC	Calcium Carbonate
CCA	Cultural Command Area
CFM	Cubic Feet per Minute
CWC	Central Water Commission
CPCB	Central Pollution Control Board
CCR	Central Control Room
CSR	Corporate Social Responsibility
CMO	Cement Manufacturing Officer
DFO	District Forest Officer
DGMS	Directorate General of Mines Safety
DMP	Disaster Management Plan
DMG	Department of Mines and Geology
DSB	Differential Sub Basin
DTH	Down the Hole
F	East
EAC	Expert Appraisal Committee
EC	Environmental Clearance
ECO	Emergency Coordinating Officer
EIA	Environmental Impact Assessment
EMC	Environment Management Cell
LMP	Environmental Management Plan
LMP	Environmental Monitoring Programme
ESF	East of South East
ENF	East of North East
EPA	Environmental Protection Act
ETP	Effluent Treatment Plant

**STONE MINE, PRODUCTION CAPACITY 30.00,000 TPA, NEAR VILLAGE: JADHPUR, TEHSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
ABBREVIATION**

ERDAS	:	Earth Resources Data Analysis System
EPO	:	Emergency planning officer
FPS	:	Fine Particulate Sampler
FCC	:	False Color Composite
Govt	:	Government
GCP	:	Ground Control Points
GLC	:	Ground Level Concentration
GOI	:	Government of India
GPS	:	Global Positioning System
GSI	:	Geological Survey of India
GWEC	:	Ground Water Estimation Committee
Ha	:	Hectare
HIV	:	Human Immunodeficiency Virus
HEMM	:	Heavy Earth Moving Machine
HP	:	Horse Power
HOD	:	Head of Department
HSD	:	High Speed Diesel
IBM	:	Indian Bureau of Mines
IMD	:	India Meteorological Department
IS	:	Indian Standards
ISO	:	International Organization of Standardization
IUCN	:	International Union for Conservation of Nature
KLD	:	Kilo Liter Per Day
LOI	:	Letter of Intent
LUS	:	Land Use Study
LU/LC	:	Land Use / Land Cover
mRL	:	Meter Reduced Level
MC	:	Magnesium Carbonate
MHS	:	Multi House Hole Survey
ML	:	Mining Lease
MoEF&CC	:	Ministry of Environment Forest and Climate Change
MSK	:	Medvedev-Sponheur-Karsik Scale
MSL	:	Mean Sea Level
MT	:	Million Tonnes
MTPA	:	Million Tonnes Per Annum
N	:	North
NAAQS	:	National Ambient Air Quality Standards
NABET	:	National Accreditation Board for Education & Training
NATMO	:	National Atlas & Thematic Mapping Organization
NABL	:	National Accreditation Board for Testing and Calibration Laboratories

**STONE MINE, PRODUCTION CAPACITY 50,00,000 TPA, NEAR VILLAGE JAINPURI, TENSIL NABNAUL,
DISTRICT: MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
ABBREVIATION**

NDER	Non-Depressive Infrared Spectroscopy
NE	North East
NH	National Highway
NNE	North of North East
NGO	Non-Governmental Organization
NKW	North of North West
NRBPT	National Registration Board for Personnel & Training
NRSA	National Remote Sensing Agency
NRSC	National Remote Sensing Centre
NW	North West
OB	Over Burden
OBC	Other Backward Classes
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Administration
PETN	Penta-Erythritol Tetra Nitrate
PIR	Pre-Feasibility Report
pH	Potential of Hydrogen
PHCS	Public Health Centers
PM	Particulate Matter
PPE	Personal Protective Equipment
PPV	Peak Particle Velocity
QCI	Quality Council of India
RSPM	Respirable Suspended Particulate Matter
SC	Scheduled Caste
SE	South East
SEIAA	State Environmental Impact Assessment Authority
SHE	Safety, Health & Environment
SI	Sustainability Initiatives
SIA	Social Impact Assessment
SOI	Survey of India
SPCB	State Pollution Control Board
SPM	Suspended Particulate Matter
SSW	South of South West
ST	Scheduled Tribe
SW	South West
TC	Total Carbonate
TDS	Total Dissolved Solids
TNT	Tri Nitro Toluene
ToR	Terms of Reference
TPD	Tonnes Per Day

**STONE MINE, PRODUCTION CAPACITY 50,00,000 TPA, NEAR VILLAGE: JAINPURA, TEHSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
ABBREVIATION**

TRC	:	Technical Research Cell
TW	:	Tube Well
UNIC	:	United Nations Framework Classification
UPA	:	Urban Planet Atlas
USDA	:	United States Department of Agriculture
USEPA	:	United States Environmental Protection Agency
VT	:	Vocational Training
RF	:	Reserved Forest
PF	:	Protected Forest
W	:	West
WNW	:	West of North West
WSW	:	West of South West
$\mu\text{g}/\text{m}^3$:	Micro gram per meter cube
μm	:	Micro Meter
cu. M	:	Cubic meter
dB	:	Decibel
gm/sec	:	Gram per second
gm/cc	:	Gram per cubic meter
hr/day	:	Hour per day
Kg	:	Kilogram
Kg/hr	:	Kilogram per hour
Kg/ha	:	Kilogram per hectare
Km	:	Kilometer
M	:	Meter
mg/l	:	Milligram per Liter
mm	:	Millimeter
Sq km	:	Square Kilometer
t/hr	:	Tonnes per hour

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT PLOT NO. 3, NEAR VILLAGE BAKHRIJA, TEHSIL NARNAUL, DISTRICT MAHENDERGARH, HARYANA
DRAFT EIA/EMP REPORT
INTRODUCTION AND BACKGROUND

1 INTRODUCTION AND BACKGROUND

1.1 About The Project Proponent

The proposed project has mining lease area of 5.26 hectare and as per EIA Notification of the MoEF&CC dated 14.09.2006, as amended on 1.12.2009, 4.04.2011, 20th April, 2022; the proposed project falls under Category "B1" and obtaining prior environmental clearance is mandatory. Accordingly, TOR was applied in the Month of February 2023 and the project was granted Terms of Reference (TOR) by State Level Environment Impact Assessment Authority (SEIAA) on 28.02.2023 (Refer Annex 1) hearing file number SIA/HR/MIN/406219,2022.

The proposed capacity of the mines is 30,00,000 TPA. The estimated cost of the project is about Rs. 4.0 crores. The lease area falls under the Survey of India topo sheet no. 54N7. The state govt. has issued Letter of Intent (LOI)- vide order no. DMG/HY/ML/Jainpur/2022/2711 dated Panchkula, 20.04.2022.

The details about the client are given in *Table 1-1*.

Table 1-1: Details about the client

S. No.	Details	
1.	Name of Applicant	Mr. Sachin Kumar
2.	Corporate Address	M/S. Govind Gopal Infra Solution Pvt. Ltd Village: Jainpur, Tehsil- Narnaul, District- Mahendragarh, State-Haryana
3.	Name	Mr. Sachin Kumar
	Designation	Director
	Address	212 DLF Corporate Greens, SPR Road Sector 74 A, Gurgaon, Gurgaon, Haryana
	Pin Code	122004
	E-mail	gginfra0008@gmail.com
	Telephone No.	7678168863

1.2 About Mine

Jainpur Stone Mining Project, production Capacity 300000 TPA, Mining Lease Area 5.26 ha. near Village: Jainpur, Tehsil: Narnaul, District Mahendragarh, State Haryana by M/s Govind Gopal Infra solution Pvt. Ltd. The mining plan is for fresh applied area.

Letter of Intent (LOI) issued by Director, Mines and Geology, Haryana to M/s Govind Gopal Infra solution Pvt. Ltd. vide memo no. DMG/HY/ML/ Jainpur/2022/2711 dated Panchkula, 20.04,2022 for a period of nine years and same shall be commence from grant of environmental clearance from the competent authority attached as Annexure-1.

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT
PLOT NO. 3, NEAR VILLAGE: BAKHRIJA, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
INTRODUCTION AND BACKGROUND**

- Total mining lease area of 5.26 ha is Government agriculture Land. The area does not fall in forest land or wild life sanctuary or agricultural land. Copy of the certificate has been attached as **Annexure- 2**.
- The Mining Plan with Progressive Mine Closure Plan has been approved by the Director Mines and Geology, Haryana, vide letter No. DMG/HY/MP/Jainpur/2022/ 5999 dated 22.09.2022. Copy of approved Mining plan enclosed as **Annexure-3**.
- Application for Term of Reference made to SEIAA (State Environmental Impact Assessment Authority, Haryana) on dated 19th Nov, 2022 as proposal no. SIA/HR/MIN/406219/2022 and ToR was issued by SEIAA on dated 28th Feb, 2023
- It is proposed to excavate approximately 28,50,000 TPA of minor mineral Stone along with associated minor mineral by Open-cast mechanized method. The lease area is 5.26 Ha and total mineable reserves are 30,00,000 TPA. The expected life of the mine will be 10 years.

1.3 Location of Project

The proposed mine is located near village- Jainpur, Tehsil- Narnaul, District-Mahendragarh, State- Haryana over an area of 5.26 Ha. The study area falls in Survey of India Toposheet No. 54A-01. Location

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT
PLOT NO. 3, NEAR VILLAGE: BAKHBIJA, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA**
DRAFT EIA/EMP REPORT
INTRODUCTION AND BACKGROUND

map of the proposed area is given as

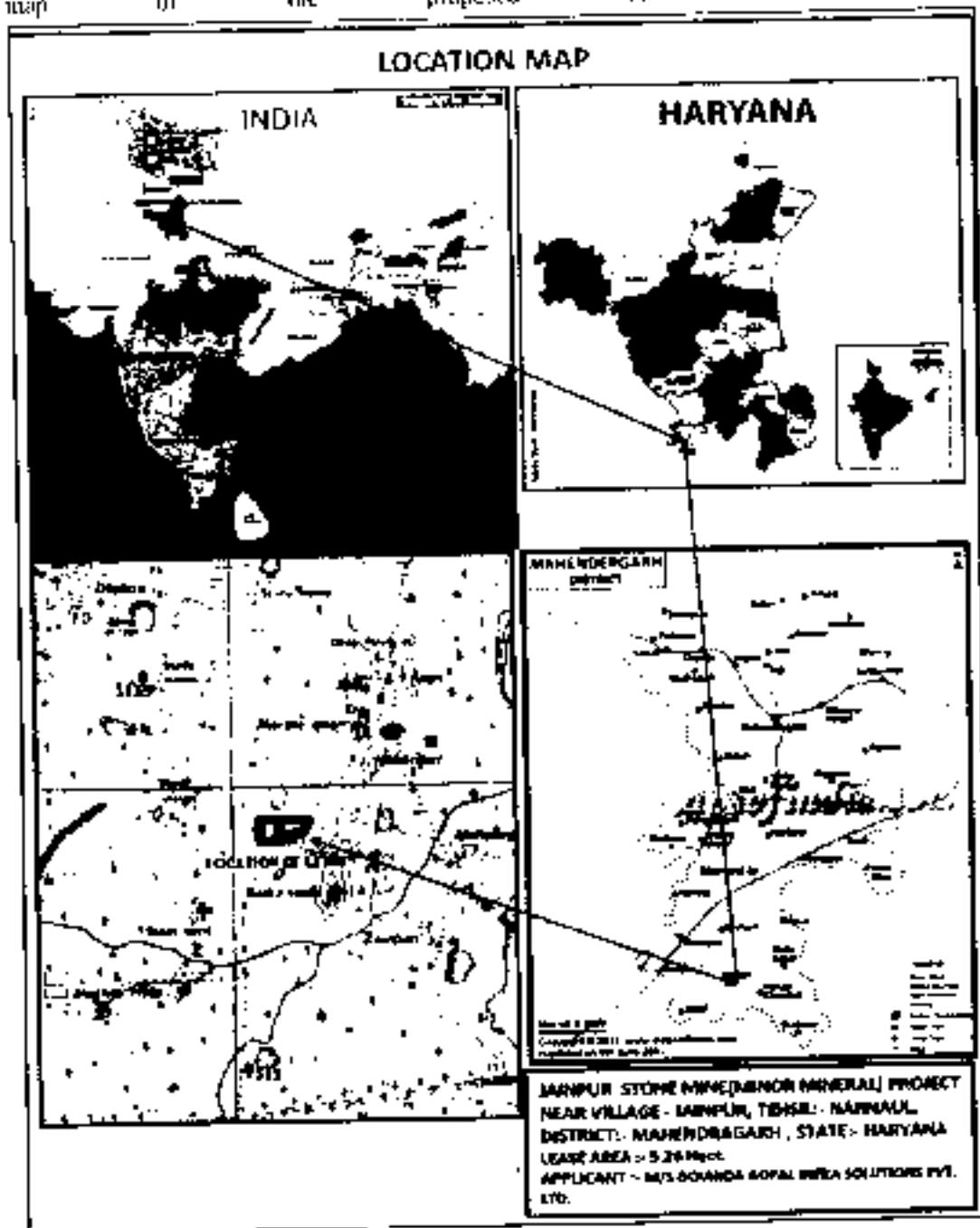


Figure 1-1.

The coordinates of the mining lease are shown in Table 1-2. Google imagery presented as Figure 1-2 Photographs of the mine site are given in Photographs 1-1.

Table 1-2: Latitude and Longitude of the Mining Lease

Pillar	Latitude	Longitude
1	27° 54' 44.66"	76° 05' 12.905"

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT
 PLOT NO. 3, NEAR VILLAGE: BAKHILJA, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA**
DRAFT EIA/EMP REPORT
INTRODUCTION AND BACKGROUND

2	27° 54' 43.092"	76° 5' 11.457"
3	27° 54' 44.506"	76° 5' 11.308"
4	27° 54' 44.552"	76° 5' 13.083"
5	27° 54' 50.459"	76° 5' 13.106"
6	27° 54' 50.387"	76° 5' 12.839"
7	27° 54' 46.446"	76° 5' 15.371"
8	27° 54' 46.46"	76° 5' 12.916"

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT
 PLOT NO. 3, NEAR VILLAGE BAKHRLJA, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA
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Photograph 1-1: Photographs of Mine Lease



Project Site - North Direction

Project Site - South Direction



Project Site - East Direction

Project Site - West Direction

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT PLOT NO. 3, NEAR VILLAGE BAKHRIJA, TEHSIL NARNAUL, DISTRICT MAHENDERGARH, HARYANA
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The details of the environmental sensitive areas falling within 10 km radius from the mining lease are given in *Table 1-3*

Table 1-3: Environment Sensitivity Details

S. No.	Particulars	Details			
A	Nature of the Project	Jaipur Stone Mining Project			
B		Size of the Project			
1.	Mine area	5.26 ha			
2.	Proposed Production Capacity	300000 TPA			
C		Location Details			
1.	Plot no.	11,12,13,14,15,16,17,18,19,20,21,22			
	Village	Jaipur			
2.	Tehsil	Narnaul			
3.	District	Mahendergarh			
4.	State	Haryana			
5.	Latitude & Longitude	Latitude	Longitude		
		27° 54' 44.66"	76° 5' 12.905"		
		27° 54' 45.007"	76° 5' 11.457"		
		27° 54' 44.506"	76° 5' 11.308"		
		27° 54' 44.552"	76° 5' 11.083"		
		27° 54' 50.459"	76° 5' 13.108"		
		27° 54' 50.387"	76° 5' 17.839"		
		27° 54' 46.446"	76° 5' 15.371"		
		27° 54' 46.46"	76° 5' 12.916"		
6.	Toposheet No.	54 A/01			
D		Environmental Settings of the Area			
1. Ecological Sensitive Areas		S. No.	P.F./R.F.	Distance	Direction
		1.	Balupura P.F	7.34 km	South
		2.	Bareti P.F	9.05 km	South
		3.	Kharjo P.F.	10 km	SW
		4.	Protected Forest	10 km	West
		5.	Protected Forest	13.20 km	WSW
		6.	Protected Forest	13.15 km	WSW
		7.	Protected Forest	13.00 km	NW
		8.	Reserve Forest	5.00 km	North
		9.	Reserve Forest	8.10 km	North
2.	River / water body	River/ water body	Distance	Direction	
		Krishanwati or Kasanti Nadi	1.95 km	in North	
		Chandrawati River	13.33 km	in West	

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT
PLOT NO. 3, NEAR VILLAGE: BAKHRLA, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA**
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S. No.	Particulars	Details
3.	Nearest Town / City	Nearest City is Narnaul which is 13.5 km and district headquarter is Mahendragarh which is 23 km from the project area
4	Nearest Railway Station	The nearest railway station is Nizampur which is about 18 Km via road in North West direction from mine site.
5.	Nearest Airport	Indira Gandhi International Airport at a distance of approx. 120 km. in North- East direction from Mining Lease area.
6.	State Boundary	There is no Interstate boundary in mining lease area
7.	Seismic Zone	Zone – III [as per IS (893) (Part-I): 2002]
D	Cost Details	
1.	Total Project Cost	The proposed project cost will be Rs 4.0 Crore Capital Cost: Rs 3.0 Crore Recurring Cost: Rs 1.0 Crore
E	Requirements of the Project	
1.	Water Requirement	12 KLD
5.	Man Power Requirement	186 (Skilled, semi-skilled ,unskilled and technical persons)

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT PLOT NO. 3, NEAR VILLAGE: RAKHBJA, TERSELI, NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

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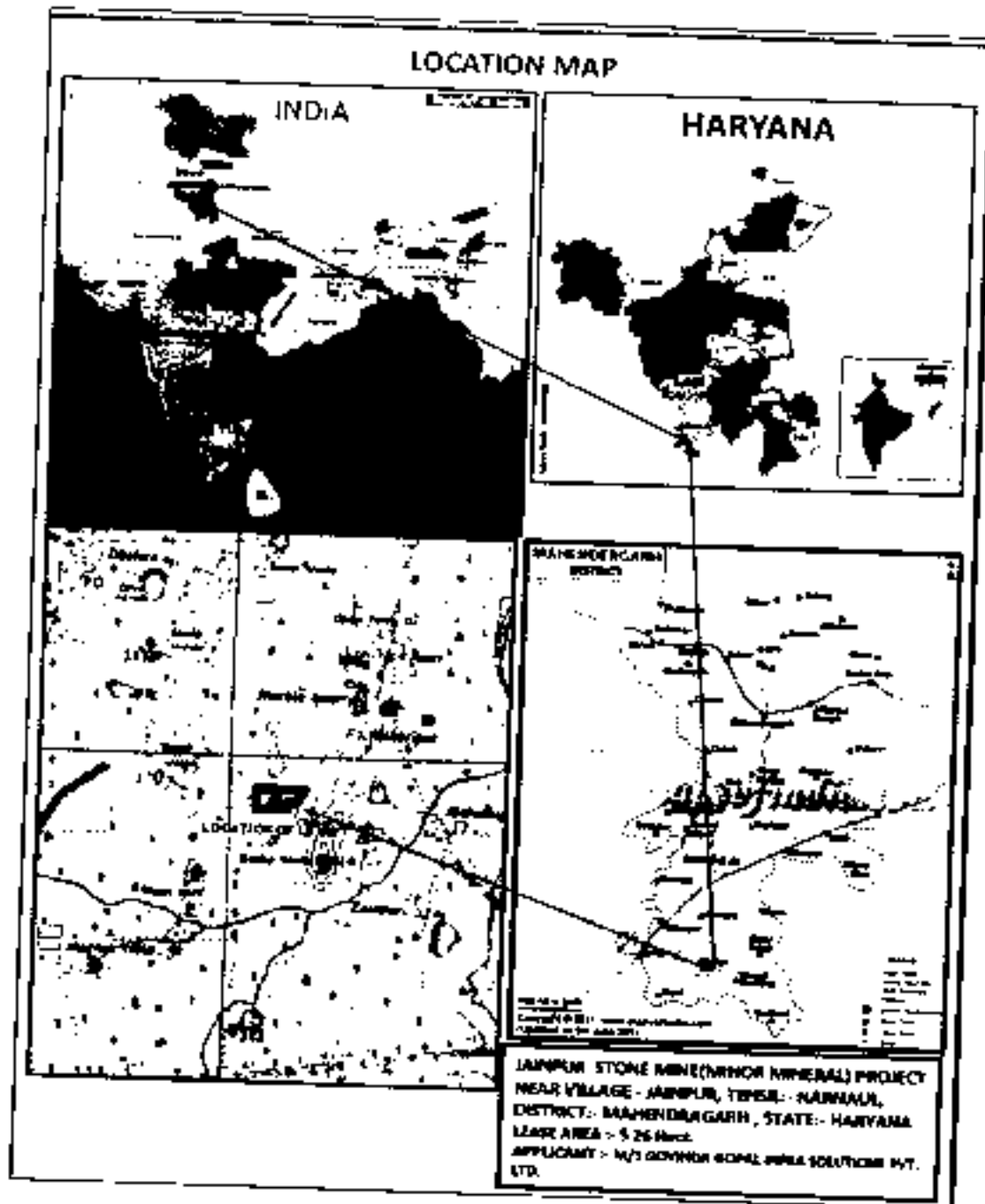
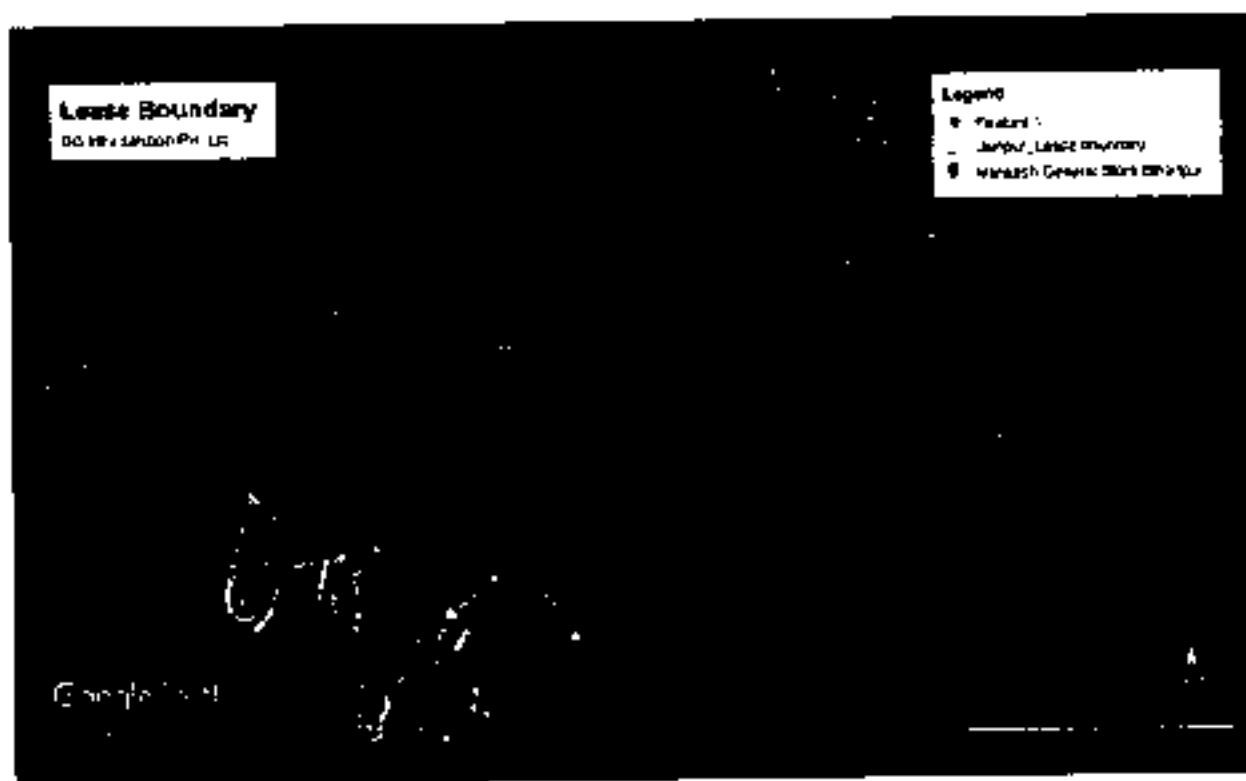


Figure 1-1: Location Map

PTONEMENT, PRODUCTION CAPACITY 30,00.00 TPA, AT NEAR VILLAGE: JAMPUR, TERBIL, MARNAIL, DISTRICT: MAHENDGARH, BIHAR	PART IIA/IMP REPORT INTRODUCTION AND BACKGROUND
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Figure 1-2: Google Image of lease boundary of Jampur Stone Mining Project



**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: NARNAUL,
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1.3.1 Approach to Site

The mining lease area is situated at a distance of 1.75 km from Jainpur Village at SE direction. The lease area is connected to State Highway SH-17 which is ~ 9.85 Km in North West direction from the mine site. The area is also connected by NH 148B is approx. 1.75km in North direction from the mine site. Indira Gandhi International Airport is situated at a distance of approx.120 km. in North East direction from Mining Lease area.

1.4 About EIA Report

1.4.1 Regulatory Framework

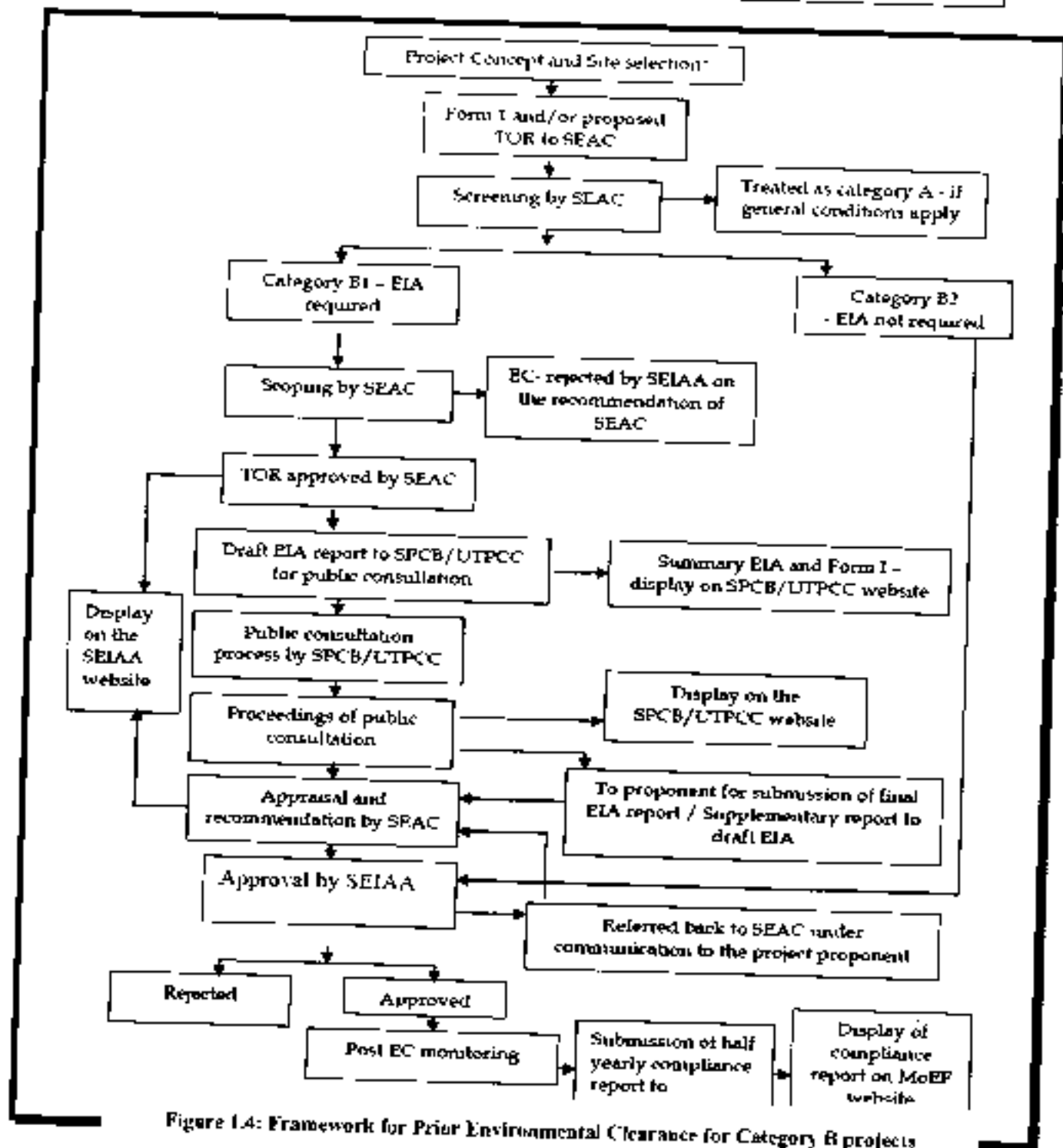
EIA Notification dated 14th September 2006 & its subsequent amendments states: projects shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests and Climate Change for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule.

O.M. No. J-13012/12/2013-1A-II dated 24th December 2013 and S.O. 141 (B) dated 15th January 2016, category "B" projects of mining of minor mineral is further divided into B1 and B2, the periphery of proposed mining lease area is within 500 meter from the periphery of another lease area and the total lease area is less than 25 Ha. will be fall under category B2 and more than 25 ha but less than 50 ha. will be in category B1.

The proposed mining of Stone project of M/s Govind Gopal Infra solution Pvt. Ltd is area of 5.26 Ha, hence project will be categorized as "B1", and thus requiring prior environmental clearance from the State Environmental Impact Assessment Authority (SEIAA).

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAINPUL, TEHSIL NARNAUL,
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Purpose of EIA Report

The purpose of Environment Impact Assessment is to give the environment its due place in the decision-making process by clearly evaluating the environmental consequences of the proposed activity before action is taken. Early identification and characterization of critical environmental impacts allows the public and the government to form a view about the environmental acceptability of a proposed developmental project and what conditions should apply to mitigate or reduce those risks and impacts.

The sole purpose of Environment Impact Assessment report is to assess impacts of project on the physical, natural & social (socio-economic) environment including the people. Probable effects of the activities both negative & positive are identified and assessed for facilitating decision making.

Environment Clearance is statutory requirement for all the 'B1' category mining projects for which EIA/EMP has to be prepared and submitted to State Expert Appraisal Committee (SEAC) for granting environment clearance.

EIA is also necessary to develop the said mines for sustainable growth with respects to Mineral exploitation, social status and conserving the environment aspects of surroundings.

The Consultant

The EIA study was undertaken by the consultant organization namely, M/s Overseas Min-Tech Consultants – Jaipur (OMTC). OMTC is a National Accreditation Board for Education and Training (NABET) Accredited Consultant Organization (ACO) and is qualified to prepare EIA reports for Project Activity 1(a) (Mining of Minerals), a mandatory requirement for agencies submitting such studies to regulators for the purpose of seeking EC.

1.4.2 Project Chronology till Date

1. M/s. Gaurind Gopal Infra solution Private Ltd. submitted requisite documents, namely Form-I (as per the EIA Notification 2006, as amended till date) along with a Pre-feasibility Report and proposed Terms of References (ToR) for carrying out environmental studies to the State Environment Impact Assessment Authority (SEIAA), on 19th November 2022.
2. Monitoring studies during the Winter Season 2022-2023 (December, January, and February) has been carried out by OMTC and presented the findings in draft EIA report.
3. The SEIAA, Haryana prescribed ToR vide no. SEIAA/HR/2023/319 on dated 28.02.2023.

1.5 Statutory Permissions and Clearance Received

The Mining Plan with Progressive Mine Closure Plan has been approved by the Director Mines and Geology, Haryana, vide letter No. DMG/HY/MP/Jainpur/2022/ 5999 dated 22.09.2022. Details of permission and clearance received are given in *Table 1-4*.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE, JAINPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA	
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Table 1-4: Permission and Clearance Received

S. No.	Permit and Clearance	Issue Date
1.	Letter of Intent (LOI)	20.04.2022
2.	Approval letter for Mining plan with Progressive Closure Plan	22.09.2022

1.6 Scoping before ToR

DPR for the project is prepared by the project authority through comprehensive survey considering all the aspects related to the mining, including all environmental and natural aspects. Reconnaissance was carried out prior to proceed for approved ToR. Standard ToR was referred and major aspects, issues and impacts were identified considering site specific attributes involved and ToR was proposed. Relevant project specific and site information's were collected from DPR for the proposed ToR.

1.7 Scope of Work

The following scope of work is intended to be covered as a part of this study report, within the overall framework of the presented ToR's:

Preparation and submission of EIA report incorporating baseline data with respect to environmental components viz. air, noise, water, land, biological and socio-economics aspects, identification, prediction and evaluation of impacts, suggestion of EMP for mitigation of adverse impacts including environmental monitoring, risk and disaster management plan for getting Environmental Clearance from State Expert Appraisal Committee (SEAC) Haryana.

1. Assessment of current level of pollution (air, water, noise & soil) in and around the proposed mine under the existing conditions:
 - Monitoring of ambient air quality for PM_{10} , $PM_{2.5}$, SO_2 and NO_x around the study area
 - Monitoring of meteorological data (wind velocity, wind direction, air temperature, humidity).
 - Monitoring and analysis of surface and ground water quality as per IS 10500,2012.
 - Monitoring of soil characteristics & impact on soil (pollutant deposition/leach) in long run.
 - Monitoring of Noise levels during 6.00 AM to 10.00 PM and night noise level during 10.00 PM to 6.00 AM in and around the mining area covering commercial, industrial, residential and sensitive areas.
2. Data Collection:
 - Collection of meteorological data from nearby IMD station
 - Collection of demographical data within the radius of 10 km from the project site
 - Collection of Geological & Hydro-geological Data.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAINPUR, TEESIL NARNAUL, DISTRICT: MAHENDERGARH, HARYANA	DATE EIA/EMP REPORT INTRODUCTION AND BACKGROUND
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3. Evaluation of existing Environmental status of water, air, flora, fauna, demography, landuse pattern etc.
4. Collection of socio-economic profile of the project area and address in particular, indigenous people, poverty alleviation, gender local population, agriculture, employment, education & health
5. Suggestions / recommendations for mitigation of adverse impacts comprising preventive / control technologies, safeguards etc.

Preparation and submission of EIA report covering all the requirements of State Expert Appraisal Committee (SEAC) Haryana.

1.8 Importance to Country and Region

1.8.1 Importance to Country

Stone is one of the essential components for building and infrastructural development projects. It has high demand in the market due to increased domestic, industrial and other infrastructural activities.

Stone is one of the most sought-out building materials for the construction purposes. Being hard in texture and its property of durability, it is used chiefly for construction of roads and building etc. It is generally used because of its hardness and durability. This will also generate employment opportunity for local people and enhance their socio-economic level which ultimately will improve education, health & sanitation, transport and other development of the surroundings. Thus, keeping in mind this requirement, mining of Stone is necessary for durability and to beautify by carving as per the requirement of the consumer. The Mine is important for development of economic growth and the country.

1.8.2 Importance to Region

It becomes important for the region to operate the mine to generate employment opportunities for local people and improves livelihood as well as lifestyle of people.

About 186 local people will be employed for the mining activity which will create ample opportunities for employment to local population. On the other hand, by Stone production, the applicant will pay revenue in the form of royalty, dead rent, direct and indirect taxes which will contribute and generate additional revenue to the region. Besides this, Jainpur Stone mining project will prove beneficial in terms of socio-economic development as it will provide employment to locals. Further, the average income level, which is the indicator of socio-economic status of households, is expected to increase, which will ultimately result in better standard of living of the local people.

1.9 Generic Structure of EIA Report

This report follows the generic structure of Environment Impact Assessment document provided in Appendix III of EIA Notification, 2016. The report comprises with necessary tables, drawings and annexes. The chapter schemes for the preparation of EIA for the proposed project are as follows.:

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAINPUR, TEHSIL NARNAUL,
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Chapter 1: Introduction

This chapter provided the background information of the project, brief description and objectives of the project, description of the area, scope, methodology and organization of the study.

Chapter 2: Project Description

This chapter presented the background information on the existing and proposed project activities, technology being adopted, sources of pollution and proposed control measures.

Chapter 3: Description of Environment

This chapter presented the methodology and findings of the field studies undertaken to establish the baseline conditions.

Chapter 4: Anticipated Environmental Impacts and mitigation measures

This chapter detailed the inferences drawn from the environmental impact assessment of the project during development and operational phases. It described the overall impacts of the project and underscored the areas of concerned which needed mitigation measures.

Chapter 5: Analysis of Alternatives

This chapter presented the technology alternatives considered for the proposed project.

Chapter 6: Environmental Monitoring Programme

This chapter provided recommendations for Environmental Management Plan (EMP) including mitigation measures for minimizing the negative environmental impacts of the project. Environmental monitoring required for effective implementation of mitigative measures during operation of the project along with required institutional arrangements for their implementation.

Chapter 7: Additional Studies

This chapter will cover the details of public hearing proceedings (after public hearing) and also covered the risks involved in the project. Disaster Management Plan, occupational health and safety and summary of the other special studies as per TOR conditions.

Chapter 8: Project Benefits

This chapter presented the details of enterprise social commitment programmes that are being undertaken in nearby villages.

Chapter 9: Cost Benefits Analysis

This chapter is related to the environmental benefits and cost related to the activities. The economic benefits out of the project for the region and the country.

Chapter 10: Environmental Management Plan

This chapter presented the details of institutional arrangements for environmental protection and conservation. Organization structure for environment Management is also brought out in this chapter.

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: NARNAUL,
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Chapter 11: Justification of project implementation, summary and conclusion.

This chapter presented the certain justification for the project implementation, summary of the project, baseline environmental status and mitigation measures suggested to mitigate the impacts.

Chapter 12: Disclosure of Consultants Engaged

This chapter incorporated the list of various experts engaged in preparation of this EIA report along with brief introduction of the ACO.

1.10 ToR Compliance

The SEIAA, Haryana issued Term of Reference (ToR) vide No. SEIAA/HR/2023/319 on dated 23.02.2023 for the proposed mining lease of Stone along with associated Minor Mineral at Plot No/Khasra no. 11/6,7,8,9,12,13,14,15,16,17,18,19,12,9,10,11,12, Near Village Jainpur, Tehsil: Narnaul, District: Mahendergarh, Haryana

The compliance statement to ToR is given in *Table I-5*.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAINPUR, TEHSIL NARNAUL, DISTRICT MAHENDERGARH, HARYANA

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Table 1-5: Compliance to IoR

S. No.	IoR Conditions	Compliance Status
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not applicable, since, this is a proposal for new mine and mining operation not yet started.
2	A copy of the document in support of the fact that the Proponent is the rightful Lessee of the mine should be given.	Letter of Intent (LOI) issued from Mines and Geology of Haryana vide their order no. DMG/HY/ML-Jainpur/2022/2711 on dated Panchkula 20.04.2022. The same has been enclosed as <i>Annexure-I of Final EIA/EMP Report</i> .
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	The documents submitted are compatible with one another w.r.t. following information: Copy of LoI and the Approval Letter of Mining Plan is enclosed as <i>Annexure I and III Final EIA/EMP Report</i> . Mining Lease Area- 5.26 ha Proposed Production- 30,00,00 TPA Waste generation- There is 573989.61 Tonn mineral rejects. Small amount of domestic waste will be generated for which dustbin will be kept at proper place and it will be disposed properly and regularly. The dump will be protected by retaining wall with garland drain, compacted and temporarily rehabilitated by sowing fast growing grass seeds. Mining Technology – Opencast Mechanized Method Name of the Lessee – M/s. Givind Global Infra solution Private Ltd.
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet should be provided. Such an imagery of the proposed area should clearly show the	All corner coordinates of the mine lease area has been mapped on Survey of India Toposheet no. 54 A/01 is given in <i>Table 1-2 and Figure 2-1 of Final EIA/EMP Report</i> .

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S. No.	TOR Conditions	Compliance Status
	Land use and other ecological features of the study area (core and buffer zone). Lease area should precisely marked in survey of India Toposheet of 1:50000	Land Use / Land Cover map of the study area have been prepared on the basis of Satellite imagery & the same has been incorporated in <i>Chapter - III of Final EIA/EMP Report.</i>
5.	Does the company have a well laid down Environmental Policy approved by its Board of Directors? If so, may be spell out in the EIA report with description of the Prescribed operating process procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order to the company to deal with the environmental issues and for ensuring compliance with the EC conditions may be given. The system of reporting of non-compliance/ violations of environmental norms to be Board of Director of the Company and/ or shareholders or stakeholders or large may also be detailed in the EIA Report.	The company is having well laid down Environmental Policy duly approved by its Board of Directors & the same is enclosed as <i>Annexure-IV of Final EIA/EMP Report.</i> Standard Operating Procedures (SoPs) have been incorporated in the Corporate Environmental Policy of the company. The hierarchical system or administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions etc has been given in <i>Chapter 6 of Final EIA/EMP Report.</i>
6.	Issues relating to Systematic Mine Development, Mine Safety and stability in case of open cast working, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be mentioned. Daily explosive consumption and its legitimate storage are to be assessed. Adequate mitigating measures based on scientific studies in respect of blast induced ground vibration (flying fragment and air blast) are to be taken along with requisite precaution.	Mines relating to mine safety has been adopted and same has been incorporated in <i>Chapter 4 of Final EIA/EMP Report.</i> Blasting study has been done, Daily explosive consumption and storage of explosive has been assessed given in <i>Chapter 2 and Chapter 4 of Final EIA/EMP Report.</i> Mitigation measures due to vibration has been given in <i>Chapter 4 of Final EIA/EMP Report.</i>
7.	The study area will comprise of 10 km	Study area is comprised of 10 km radius and has been

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: MARNAUT,
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S No.	TOR Conditions	Compliance Status
	zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine lease period.	given in <i>Chapter 1 (Figure 1-3) of Final EIA/EMP Report</i> . There is no generation of waste material in this mining. Total volume of 62001.82 m ³ top soil will generated from joints and cracks, which will stack separately and used for plantation.
8	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and Post-operational phases and submitted. Impact, if any, of change of land use should be given	Land use / land cover map of the study area showing present land use pattern & also, delineating agricultural land, water bodies, forest land, human settlements and other ecological features etc. is given in <i>Chapter 3 (Table-3-2) of Final EIA/EMP Report</i> . At the conceptual stage, out of the total mining lease area (i.e. 5.26 ha), total mined-out area will be around 4.65 ha; which will developed as water reservoir and 1.7358 ha area will be reclaimed as plantation. Land use plan of the mine lease area in pre-operational, operational and post operational phases has been prepared and given in <i>Chapter 4 (Table -4.6 & Table 4.7) of Final EIA/EMP Report</i> .
9.	Mineral resources and reserve in terms of UNFC are to be given duly supported by adequate representative plans and sections. Ultimately mineable limit should be marked over geological plan and sector. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	Mineral resources and reserve in terms on UNFC duly adequate plans & section. Geological plan and section and Ultimate limit of mining has been has been given in <i>Chapter 2 of Final EIA/EMP Report</i> . There is no overburden, dumps and human settlement Outside the lease area hence R&R is not applicable.
10.	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by	The total mining lease area (5.26 ha) is Government Agriculture land No. 54 A/11

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S. No.	TOR Conditions	Compliance Status																											
	the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committee.																												
11.	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished	No forest clearance is required as the proposed mining lease area of M/s Gevnd Gopal Infra solution Pvt. Ltd is Government Agriculture Land																											
12.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated. Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable																											
13.	The vegetation in the RF, PF areas in the study area, with necessary details, should be given.	<p>Three Reserved Forests and Three Protected Forest falls within 10 km radius of the mining lease area</p> <table border="1"> <thead> <tr> <th>R.F/P.F</th> <th>Distance</th> <th>Direction</th> </tr> </thead> <tbody> <tr> <td>Balupura P.F</td> <td>7.34km</td> <td>South</td> </tr> <tr> <td>Baneti P.F</td> <td>9.05 km</td> <td>South</td> </tr> <tr> <td>Khajjo P.F.</td> <td>10 km</td> <td>SW</td> </tr> <tr> <td>Protected Forest</td> <td>10 km</td> <td>West</td> </tr> <tr> <td>Protected Forest</td> <td>13.20 km</td> <td>WSW</td> </tr> <tr> <td>Protected Forest</td> <td>13.15 km</td> <td>WSW</td> </tr> <tr> <td>Protected Forest</td> <td>13.00 km</td> <td>NW</td> </tr> <tr> <td>Reserve Forest</td> <td>5.00 km</td> <td>North</td> </tr> </tbody> </table>	R.F/P.F	Distance	Direction	Balupura P.F	7.34km	South	Baneti P.F	9.05 km	South	Khajjo P.F.	10 km	SW	Protected Forest	10 km	West	Protected Forest	13.20 km	WSW	Protected Forest	13.15 km	WSW	Protected Forest	13.00 km	NW	Reserve Forest	5.00 km	North
R.F/P.F	Distance	Direction																											
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Khajjo P.F.	10 km	SW																											
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S. No.	TOR Conditions	Compliance Status			
		<table border="1" style="width: 100%;"> <tr> <td style="width: 33%;">Reserve Forest</td> <td style="width: 33%;">8.70 km</td> <td style="width: 33%;">North</td> </tr> </table> <p>Details of Flora and fauna found in the study area are given in <i>Chapter 3 of Final EIA/EMP Report.</i></p>	Reserve Forest	8.70 km	North
Reserve Forest	8.70 km	North			
14.	<p>A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.</p>	<p>Biological study has been done for the project which details the impact on surrounding wildlife and mitigation measures are given in <i>Chapter 3 and Chapter 4 of Final EIA/EMP Report.</i></p> <p>Conservation Plan for Schedule-I & II have been prepared with budgetary provision and incorporate as <i>Annexure-VII of Final EIA/EMP Report</i></p> <p>Proper mitigation measure has been incorporate in <i>Chapter-5 of Final EIA/EMP Report.</i></p>			
15.	<p>Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/ Elephant Reserves/lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the zoologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished</p>	<p>No National Parks, Wildlife Sanctuaries, Biosphere Reserves, wildlife corridors, Tiger/Elephant Reserves (existing as well as proposed) etc. falls within the study area (10 km radius of the mine boundary).</p> <p>There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves fall within 10 km radius of the mine lease area</p>			
16.	<p>A detailed biological study of the study area (core zone and buffer zone (10 km radius of the periphery of the mine lease)) shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the</p>	<p>Detailed Biological study for the study area (core zone & buffer zone) has been conducted</p> <p>List of Flora & Fauna for core & buffer zone has been authenticate and enclosed as <i>Annexure VI of Final EIA/EMP Report.</i></p> <p>Conservation Plan for the Schedule I & II species is attached in <i>Annexure VII of Final EIA/EMP Report.</i></p>			

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	<p>necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.</p>	
17.	<p>Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range' (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.</p>	<p>The Mine site does not fall under the Critically Polluted Area and 'Aravali Range' and it does not attract any court restriction for mining operation</p>
18.	<p>R&R Plan-compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/ National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of</p>	<p>The total mining lease area (5.26 ha.) is Government Agriculture land. No houses, villages connecting road and infrastructure existing in the area will be disturbed. Therefore no Rehabilitation and resettlement action plan is required</p>

**STONE MINE, PRODUCTION CAPACITY 10,00,00 TPA, AT NEAR VILLAGE JAINPUR, TERSIL NARNAUL,
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S. No.	TOR Conditions	Compliance Status
	Village including their R&R and socio-economic aspects should be discussed in the report	
19.	One season (non monsoon) primary baseline data on ambient air quality (PM10, SO2 and NOx) water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the predominant Downward direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downward direction. The mineralogical composition of PM10, particularly for free silica, should be given.	<p>Primary baseline data on ambient air quality, water quality, noise level, soil and flora and fauna are collected in winter season (December, January, February) 2022-2023 given in <i>Chapter 3 of Final EIA/EMP Report</i>.</p> <p>Ambient Air quality has been determined by measuring the concentration of parameters like P.M.2.5, P.M.10, SO2, NOx according to the latest standards prescribed by CPCB has been given in <i>Chapter 3 of Final EIA/EMP Report</i>.</p> <p>Site-specific meteorological data has also been collected. The location of the monitoring stations minimum 8) has been justified has been given in <i>Chapter 3 of Final EIA/EMP Report</i>.</p> <p>The location of the monitoring stations represents 10 km area of mining lease area and justified the direction. One monitoring station had within 500 m of the mine lease.</p> <p>The monitoring has been carried out by NANI approved laboratory and copy of the report has been enclosed as <i>Annexure V of Final EIA/EMP Report</i>.</p>
20	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the	<p>Air quality modeling has been carried out for prediction of impact of the project on the air quality of the area.</p> <p>The impact of movement of vehicles for transportation of mineral has been taken into account. The details of the model used and input parameters used for modeling are given in <i>Chapter 4 of the Final EIA/EMP Report</i>.</p> <p>The isopleths have been drawn on the location map has been given in <i>Chapter 4 (Figure 4.2 & Figure 4.3) of Final EIA/EMP Report</i>.</p> <p>The wind rose diagram has been prepared which is showing pre-dominant wind direction is NW has been given in <i>Chapter 5 (Figure 3.7) of Final EIA/EMP Report</i>.</p>

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S. No.	TOB Conditions	Compliance Status
	map. This should also be complied with if the excavated material is stacked outside the mining lease area.	
21.	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total water requirement for the proposed mining project will be 12KLD. Dust Suppression = 1.0 KLD Plantation = 5.5 KLD Domestic Purpose = 5.5 KLD It will be procured from existing water sources from tube well nearby villages or tanker supplier. Detailed water balance is shown in <i>Chapter 2 of Final EIA/EMP Report.</i>
22.	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	No groundwater will be abstracted for use at mine site
23.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	In the proposed mining, the water will be required during water sprinkling. The rain water collected in the mine pit will be pumped out and fed to the nearby pond by flexible pipes.
24.	Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Ground Water- Mining activity will not intersect the ground water table as the water table is below 74 m bgl. Surface Water- There is no surface run-off in mining lease area no discharge of chemical from mining. Hence no adverse impact will be on Ground and Surface water
25.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of	A detailed hydro-geological study has been undertaken and details are given in <i>Chapter 3 of Final EIA/EMP Report.</i> Winter season monitoring of the ground water was carried out. Drainage map of the 10 km study area has been prepared and shown data regarding ground water quality of the study area is given in <i>Chapter 3 (Figure 3-4) of Final EIA/EMP Report.</i> In no case the mining activity will intersect the ground water throughout the life of mine as indicated in the approved mining plan. The mining will be restricted above the

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA. AT NEAR VILLAGE, JAINPUR, TEHSIL, NARNAUL,
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	mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished	water table. Hence, it will not intersect the ground water table at any point of time.
26	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no stream or nullah passing through lease area. Krishnawati or Kasaunti Nod River at a distance about 7.95 km in North and Chandrawati River distance 13.33 km in West. The drainage pattern is towards north Eastern side of the lease area and will not disturb due to mining.
27	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.	The highest elevation is 339 mRL and lowest elevation of 330 mRL in core zone. The proposed mining will start from the ground level at 319 mRL and at the end of fifth year maximum working depth will be 226 mRL. The ultimate depth of the mine workings is estimated to reach up to 74m below the ground level. The general ground water level in the area is between 80-85m (220-215 m RL) below the ground level (300 mRL). Schematic diagram showing mine working and depth of water table is given in <i>Chapter 2 (Figure-2.5) of Final EIA/EMP Report.</i>
28	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the liner and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up from on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for	A time bound progressive greenbelt development plan is given in Chapter 10 (<i>Table 10.2</i>) of <i>Final EIA/EMP Report.</i> Local tree species such Bahwal, Vilayati babul, Khejari, Neem, Amaltas, Perkinsonia and Karanja will be planted.

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	green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	
29.	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Impact on local transport and infrastructure due to the project will be on positive side. The projected increase in hauling vehicles as a result of the project will certainly increase the traffic load in the present road network. Government has already planned 4 lane field routes from NH-8 Palwal to running via Nangal Chudhary to Narraul Rewari. Traffic Density is carried out at SH-17, SH-37 D & SH-26 the post project PCUs has been calculated at about 211 PCUs/hr will be increased and the same is given in <i>Chapter 3 of Final EIA/EMP Report.</i>
30.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	Details of the infrastructure facilities to be provided for the mine workers is given in <i>Chapter 2 (Table 2.11) of Final EIA/EMP Report.</i>
31.	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Post-Mining (Conceptual) Land Use of Cure Zone with Environment Management has been prepared & given in <i>Chapter 2 (Table 2.12) of Final EIA/EMP Report.</i> Conceptual Plan has been enclosed as part of mining plan.
32.	A time bound Progressive Mine Closure Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage plant species and time frame) and submitted. Keeping in mind, the same will have to be executed up front on	Progressive Mine Closure Plan has been prepared and enclosed as part of Approved Mining plan. A time bound progressive greenbelt development plan is given in <i>Chapter 10 (Table 10.2) of Final EIA/EMP Report.</i> Local tree species such Babool, Vilayati babool, Khejari, Neem, Amaltas, Perkinsonia and Karamp will

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAINPUR, TENSIL, NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

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	commencement of the project. Phase-wise plan of restoration of land degraded by mining and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given.	be planned.
33	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spell out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Details regarding Occupational health impact of the project are given in <i>Chapter 4, of Final EIA/EMP Report</i> . Health study of the surrounding area is carried out by covering information regarding prevailing diseases, mortality rate etc. Accordingly, Health and Safety Plan has been prepared and given in <i>Chapter 6 of Final EIA/EMP Report</i> .
34	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Public health implication of the project and related activities for the population in the impact zone has been evaluated.
35	Measures of socio-economic significance and influence in the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio-economic survey of the villages situated in the study area was carried out has been given in <i>Chapter 3 of Final EIA/EMP Report</i> . Based upon its findings and keeping in view the needs of local populations, adequate budget provisions are made for carrying out CSR activities. Measures to be taken to mitigate socio-economic influence on the local community due to proposed project are given in <i>Chapter 5 of Final EIA/EMP Report</i> .
36	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should	Detailed environmental management plan to mitigate the environmental impacts due to change of land use, loss of agricultural & grazing land, if any, is given in

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	inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	<i>Chapter 10 of Final EIA/EMP Report.</i> Besides other impacts of the project is given in final EIA. Budgetary provision for EMP is given in <i>Chapter 11 (Table 11.2) of Final EIA/EMP Report.</i>
37	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Same has been incorporated in Chapter-7 of final EIA/EMP report.
38.	Details of litigation pending against the project, if any, with direction order passed by any Court of Law against the Project should be given.	No litigation is pending against the project.
39.	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	Capital Cost: Rs. 3.0 Crores Recurring Cost: Rs.1.0 Lakhs EMP Cost: 6 Lakhs CSR Cost: 4 Lakhs
40	Details of Transportation of mined out materials as per the Indian Road Congress for both the ways (loaded as well unloaded trucks) load and its impact on Environment.	Details of Transportation of mined out materials as per the Indian Road Congress for both the ways (loaded as well unloaded trucks) load and its impact on Environment has been given in <i>Chapter 3 of Final EIA/EMP Report.</i>
41	Details of excavation schedule & sequential mining plan to be indicated including depth of mining on year to year basis in terms of MSL.	The details of excavation schedule and sequential of mining and method of mining has been given in <i>Chapter 2 of Final EIA/EMP Report.</i>
42	Riverbed mining proposal should be in consonance with the sand mining guide line given by Ministry of Environment & Forest of Climate Change of Govt. of India. Annual Excavation proposed should never exceed the replenishment rate.	Not Applicable

STONE MINE, PRODUCTION CAPACITY 10,00,00 TPA, AT NEAR VILLAGE, JAINPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA		
DRAFT EIA/EMP REPORT INTRODUCTION AND BACKGROUND		
S. No.	TOR Conditions	Compliance Status
43	The base line data shall be collected so as to represent the whole mine lease area	The base line data has been collected from lease area along with 8 locations from 10 Km radius and given in <i>Chapter 3 of Final EIA/EMP Report</i>
44	Letter from State Govt. of Forests Department that the Mining Lease Area (MLA) does not fall under forests land category and Aravali Plantation.	-
45	Details of continuous monitoring stations for Ambient Air Monitoring to be carried out in each block in the core zone area.	The continuous monitoring has been done for Ambient Air quality. Monitoring results has been enclosed as <i>Annexure V of Final EIA/EMP Report</i>
46	A Disaster management Plan shall be prepared and included in the EIA/EMP Report	Disaster Management has been prepared and the same is given in <i>Chapter 7 of Final EIA/EMP Report</i> .
47	Project proponent shall furnish all the analysis/testing reports of water, air, soil, noise etc. using the MoEF/NABI, accredited laboratories. All the original analysis/testing reports should be made available during appraisal of the project.	Monitoring and analysis has been done by Overseas Test House and Research Center which is MoEF&CC Recognized and NABI, Accredited, Certificate No. TC-11004 is enclosed as <i>Annexure V of Final EIA/EMP Report</i> .
48	Details of outcome of the court case in CWP No. 27700 of 2013 before the Hon'ble High Court of Punjab & Haryana as mentioned in the LoI letter issued by the Mines & Geology Department of State Govt. of Haryana.	Not Applicable
49	Impact of all existing mines on the present land use in the study area.	The impact of all existing mines on present land use in the study area has been given in <i>Chapter 5 of Final EIA/EMP Report</i> .
50	Details of other Associated minor minerals need to provided.	Only Stone minor mineral will be excavated from the proposed mine area.
51	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social,	The benefits of the project as per environment- i) Plantation will be carried out. ii) Rainwater Harvesting Structure will be made. Social, economic & employment potential is given in <i>Chapter 8 of Final</i>

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA		DRAFT EIA/EMP REPORT INTRODUCTION AND BACKGROUND
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S. No.	TOR Conditions	Compliance Status
	economic, employment potential, etc. <i>EIA/EMP Report.</i>	
Besides the above, the below mentioned general points are also to be followed:-		
a	All documents to be properly referenced with index and continuous page numbering.	Complied with
b.	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.	Complied with
c	Where the documents provided are in a language other than English, an English translation should be provided.	Complied with
e	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	Will be submitted with Final EIA/EMP report
f	While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4 th August, 2009, which are available on the website of this Ministry, should be followed.	Complied with
5	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail	No change made

STONE MINE, PRODUCTION CAPACITY 50,00,00 TPA, AT NEAR VILLAGE JAINPUR, TEHSIL: NARNAOL, DISTRICT: MAHENDERGARH, HARYANA		
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S. No.	TOR Conditions	Compliance Status
	conducting the PH again with the revised documentation	
h	As per the circular no. J-11011-618 2010-IA II (D) dated 30.5 2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable	This is a new project
i	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area	Surface plan, geological map & section is enclosed in the Final EIA/EMP Report

1.11 Methodology Adopted

On the basis of quick assessment of the environmental conditions at the mine site and nature of adjoining area, the lease area is considered as core zone. It was found that the area lying within the 5 km radius from the periphery of mine lease boundary considered to be the dominant zone where fugitive emission of the mining activity can have an impact on physical and biological environments. Area between 5 km to 10 km radius from the periphery of mine lease boundary considered as buffer zone, where only slight impact may be observed occasionally.

1.12 Instrument Used

The following instruments were used at the site for environmental baseline data collection work.

- Respirable Dust Controller with attachment for gaseous Pollutants, Envirotech APM 460 BL
- Digital D.O. Meter Model – 831 E.
- Wind Van – One
- Thermometer

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: NARNAUL,
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- Sound Level Meter Model SL-4010
- Anemometer Model AM-4201

1.13 Data Collected

Meteorological data collection instrument was set near to mine site. Expert field team (lab team) stayed in this area during the study period. Micro Meteorological Data were collected for 24 hours during. The baseline environmental data was collected in winter season for the months December, January, February (2022-2023). A number of air, water and soil samples were collected and analyzed. Analyzed samples include the following:-

- Soil samples were collected and analyzed from eight locations
- Ambient air quality was monitored at eight locations in different directions at different distances based on meteorological conditions
- Noise levels measurement was carried out by sound level meter at eight locations
- Groundwater samples were collected from eight locations and one surface water sample was collected and analyzed.

In addition to above, the data on land use, vegetation, Flora and Fauna were also collected by the field team by meeting with large number of local inhabitants in the study area and different Government departments/agencies

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 TPA, AT PLOT NO. 3, NEAR VILLAGE BAKHRIA, TENSIL: NARNAUL, DISTRICT MAHENDGARH, HARYANA
DRAFT EIA/EMP REPORT
PROJECT DESCRIPTION

2. PROJECT DESCRIPTION

2.1 General

The Stone along with associated minor mineral mining lease have an area of 5.26 ha in Government Agriculture land

- Latitude : 27°54'44.6"N to 27°54'46.4"N
- Longitude: 76°5'12.905"E to 76°5'12.916"E
- Marked on Survey of India Toposheet No. 54 A III

Mining lease area falls in Government Agriculture land, plockhasra no. 11,6,7,8,9,12,13,14,15,16,17,18,19,12,9,10,11,12, Village-Jainpur, Tehsil-Narnaual and District-Mahendgarh (Haryana) Production capacity of the project is 30,00,00 TPA. The stone is a basic building construction material for constructing houses, bridges and roads. It is cheaper than the RCC construction material due to its easy in workability. Thus, keeping in mind this requirement, mining of Stone is necessary for durability and to beautify by carving as per the requirement of the consumer.

The Lithological succession of the area is as follows:

Sub Recent-Recent		Alluvium
Alwar Group	Bayal-Panchota Formation	Quartzite/Stone along with associated minor minerals

2.2 Description of Project

EIA Notification dated 14th September 2006 & its subsequent amendments on 1st December 2009 and 4th April 2011; the proposed mining project falls under Activity (1a), namely Mining of Minerals. Such activities are further divided into category "A" and "B". The said project is for mining of stone in an area of 5.26 ha such projects are listed as category "B1" under the said notification, as per O.M No. J-13012/12/2013-LA-II dated 24th December 2013 & as per latest amendment in EIA notification S.O 141 (E) dated 15th January 2016, this project is categorized as 'B1' category project as the total lease area is less than 50 ha, and thus requiring prior environmental clearance from State Expert Appraisal Committee (SEAC) in this case.

The details regarding the mining lease are given in Table 2.1

Table 2.1: Details of the Mining Lease

S. No.	Particulars	Details
A.	Nature of the Project	Stone Mining
B.		Size of the Project
1.	Mine area	5.26 ha
2.	Proposed Production	30,00,00 TPA (Stone: 28,50,00 TPA and Mineral Rejects: 1,50,000).

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT PLOT NO. 3, NEAR VILLAGE: BAKHRIJA, TEHSIL: NARNAL, DISTRICT: MAHENDERGARH, HARYANA
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S. No.	Particulars	Details																											
C	Capacity																												
	Location Details																												
1.	Plot/khasra No.	11,6,7,8,9,12,13,14,15,16,17,18,19,22,9,10,11,12.																											
2.	Village	Jainpur																											
3.	Tehsil	Narnal																											
4.	District	Mahendergarh																											
5.	State	Haryana																											
6.	Toposheet Numbers	S4 A/01																											
7.	Latitude & Longitude	<table border="1"> <thead> <tr> <th>Pillar</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>27° 54' 44.66"</td> <td>76° 5' 12.905"</td> </tr> <tr> <td>2</td> <td>27° 54' 45.097"</td> <td>76° 5' 11.457"</td> </tr> <tr> <td>3</td> <td>27° 54' 44.506"</td> <td>76° 5' 11.308"</td> </tr> <tr> <td>4</td> <td>27° 54' 44.552"</td> <td>76° 5' 13.083"</td> </tr> <tr> <td>5</td> <td>27° 54' 50.459"</td> <td>76° 5' 13.106"</td> </tr> <tr> <td>6</td> <td>27° 54' 50.387"</td> <td>76° 5' 17.859"</td> </tr> <tr> <td>7</td> <td>27° 54' 46.446"</td> <td>76° 5' 15.371"</td> </tr> <tr> <td>8</td> <td>27° 54' 46.46"</td> <td>76° 5' 12.916"</td> </tr> </tbody> </table>	Pillar	Latitude	Longitude	1	27° 54' 44.66"	76° 5' 12.905"	2	27° 54' 45.097"	76° 5' 11.457"	3	27° 54' 44.506"	76° 5' 11.308"	4	27° 54' 44.552"	76° 5' 13.083"	5	27° 54' 50.459"	76° 5' 13.106"	6	27° 54' 50.387"	76° 5' 17.859"	7	27° 54' 46.446"	76° 5' 15.371"	8	27° 54' 46.46"	76° 5' 12.916"
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6	27° 54' 50.387"	76° 5' 17.859"																											
7	27° 54' 46.446"	76° 5' 15.371"																											
8	27° 54' 46.46"	76° 5' 12.916"																											

As per revenue records, the mining lease area is Government Agriculture land. Existing land use pattern is given in Table 2.2.

Table 2.2: Existing Land use Pattern of Mining Lease Area

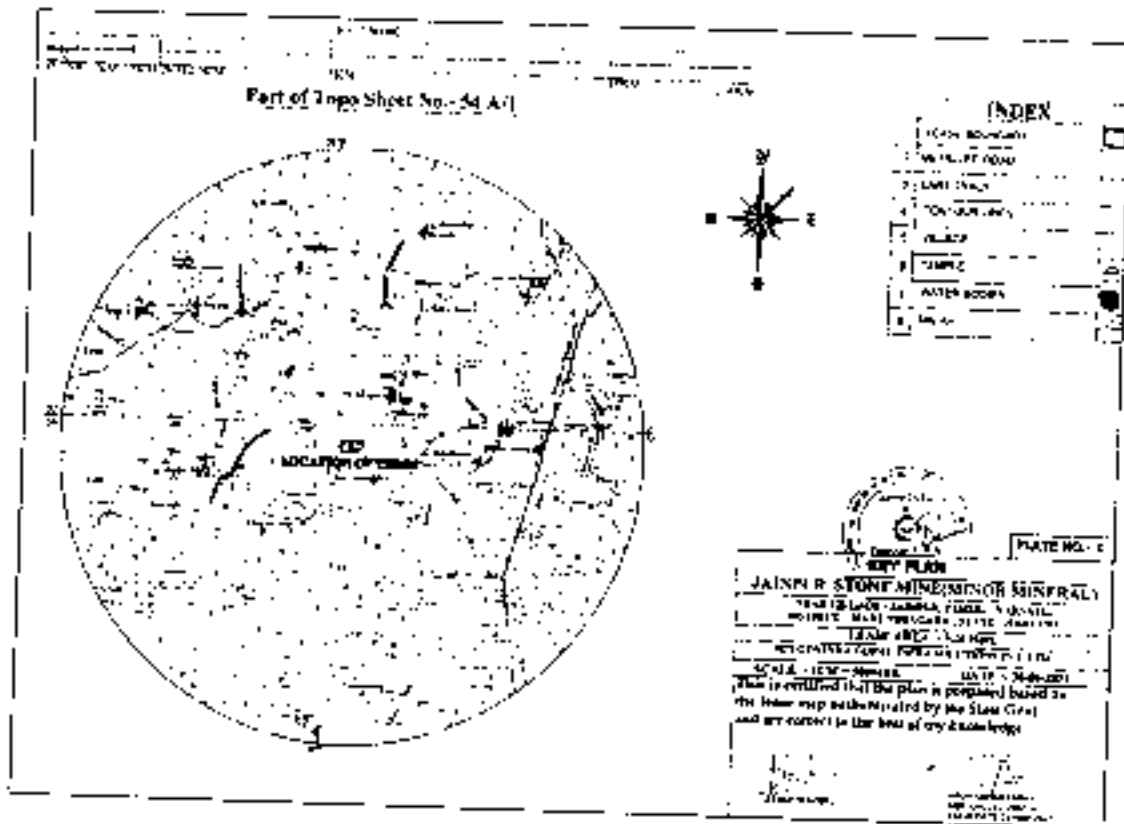
S. No.	Particular	Area in Hectare
1	Total Lease Area	5.26
2	Area Excavated due to Mining	4.65
3	Dump of Ore/Waste/Overburden	0.00
4	Infrastructure : Roads, Building, Electric line etc.,	0.61
5	Backfilled Area	0.00
6	Area under Plantation	0.61
7	Undisturbed Area	5.26
	Total area	5.26

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT PLOT NO. 5, NEAR VILLAGE BAKROLIA, TERRELLI MAMTAUL, DISTRICT, MADHURGAON, MADHARAJ, BIHAR

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PROJECT DESCRIPTION

Figure 2-1: Topological map of Mining lease area



STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT PLOT NO. 3, NEAR VILLAGE-BAKHRIJA, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

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2.3 Geology

2.3.1 Regional Geology

The rocks of Delhi Supergroup constitute a part of the main Aravalli Range originating from Gujarat in the southwest to Haryana in the northeast. This supergroup comprises thick pile of meta-sediments having a cumulative thickness of 6000 m which is divided into an older Alwar Group and younger Ajabgarh Group. The Alwar Group is dominantly arenaceous with argillaceous intercalations while the Ajabgarh Group is dominantly argillaceous with arenaceous and calcareous components. The demarcation between the groups, in the absence of any unconformity, is based on facies variation, structural discontinuity and lithological characteristics in the rocks exposed in the adjacent state of Rajasthan. The rocks of both these groups are intruded by acid and basic intrusives. The rocks of Alwar Group in Haryana are represented by Bayal- Panchnota Formation, after the type locality in Bayal and Panchnota villages, which is equivalent to Panchpalli Formation, the youngest formation of Alwar Group in Rajasthan. The rocks belonging to this group are exposed in two sectors in south western and southeastern Haryana. In the southwestern sector these rocks are exposed as linear NE- SW trending ridges consisting of quartzite. These ridges are exposed in Bayal-Panchnota, Sareli-Tehla- Mukundpura, Ruppursari - Nathedi, Sohla, Nimbi, Narnaul, Kholana and Kalana areas. In the southeast, prominent exposures are found around Khorikherd, Khorikalan and Shikarpur. The regional strike varies from N150E S150W to N450E S450W with vertical to steep dips to the NW or SE. The metapelitic rocks exposed in Tostham area are associated with schist and granite, and are tentatively clubbed under undifferentiated Ajabgarh Group, till further classification. The detailed stratigraphic sequence of the Delhi Supergroup of rocks in Haryana is given in Table -2.3.

Table 2.3: Regional Geology

Super Group	Group	Formation	Lithology	
		Tasing Formation	Slate with minor phyllite Phyllite, carbonaceous phyllite.	
Delhi Supergroup	Ajabgarh Group		slate, rhyolite with quartzite Phyllites, slate, quartzite (locally)	
		Asarwas Formation	Current bedded quartzite with phyllite Sericite quartzite with slate and phyllite	
		Thanghaza Formation	Carbonaceous phyllite with ashstuf, bould	
		Deota-Dantal Formation	Brecciated quartzite interbedded with schist and phyllite	
	Golwa-Gangutata Formation	F	Quartzite, amphibole quartzite and mica	
		L	Impure marble, calc amphibole-schist and amphibole quartzite	

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Super Group	Group	Formation	Lithology
			D Tremulite marble with quartzite, K-feldspar hornfels and magnetite quartzite
			C K-feldspar mica-schist
			B Garnet schist, Kyanite-schist, banded marble and calc-silicate
			A K-feldspar biotite schist, marble, amphibole quartzite, biotite schist
	Alwar Group	Bayal-Panchmota Formation	Cross bedded ripple marked quartzite Massive, feldspathic, gritty quartzite, amphibolite, amphibole-quartzite, minor Marble, chlorite-schist etc.

2.3.2 Local Geology

Geologically, rocks of the allotted area are belonging to Alwar Group. Quartzite is the major litho-unit in the area. It belongs to the Bayal-Panchmota Formation which is mainly comprised of quartzite with intercalation of mica-schist, amphibole-quartzite, minor kyanite-schist, garnet-schist, chlorite-schist, Fe-Mg amphibole-schist, impure marble, amphibolite, silimanite-schist and porphyroblastic K-feldspar schist.

The quartzite varies from being massive to thickly and thinly bedded and are commonly micaceous in nature. In massive varieties, bedding is indistinct and is mostly identified on the basis of partings of mica-schist or rare color banding/laminations. In general, bedding is parallel to the schistosity. The quartzite is, commonly white to dirty white and locally very fine grained, with occasional malachite stains and primary sulphides like pyrite, pyrrhotite and chalcopyrite. Impression of kyanite crystals are noted on bedding planes of quartzite from Bayal and Sohla.

The quartzite exposed in the area under consideration is of Alwar & Ajabgarh groups. It is of good quality & suitable to be used as building material. As per G.S.I. miscellaneous publication No. 30: Part XVIII, several quarries all along the Ajabgarh group exist in the districts of Faridabad, Gurgaon, Rohtak, Mahendergarh etc. This quartzite is being quarried for railway ballasts & concrete aggregates whereas the fissile quartzite of Mahendergarh district is used for roofing & other masonry blocks. At places, lenses of iron ore mainly magnetite occur in black quartzite whereas at some places the quartzite of Ajabgarh group in the area is weathered and formed sand, which is being used as Bajri in construction work. The quartzite occurring to the west of Atola is weathered as high grade silica sand as it is left behind by the change in the course of the Yamuna River.

The stratigraphic sequence of the litho-unit present in the area is as follows: -

Suh Recent-Recent		Alluvium
Alwar Group	Bayal-Panchmota Formation	Quartzite/Stone along with associated minor minerals.

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To understand the structural configuration of the allotted area, surface geological mapping has been done on a scale of 1:1000. Geological cross-sections and longitudinal section have been prepared on a scale 1:1000.

2.3.3 Mode of Occurrence

At present only Quartzite is exposed in the area. The detail of existing pits is given below:

PIT NO.	Length	Width	Depth	Location
1	255	252	40	N-280 N 550 E-555- E 890
2	135	50	22	N-020 N 453 E-200- E 284
3	107	76	30	N-227 N 316 E-121- E 255
4	150	81	32	N-30 N 163 E-130- E 234

Surface geological plan and section of the ML area is given in and also as (Plate no.4) in mining plan has been show in **Figure 2.2**.

2.3.4 Topographical Survey

The district Mahendergarh abounds in sand dunes and barren low hills of the great Aravalli shoots are scattered and these bare rounded formation illustrate the phenomenon of desert erosion. Talis and tibbas of the district present a desert look. The menace of advancing deserts adds complexity to the situation and poses difficulty in the extension and implementation of irrigation plans bearing heavy costs.

Topographical survey in the mining lease area was based on information provided for given point by applicant and officials/patwari of the village. Contouring was carried out at 1m interval on a grid spaced at 200 m x 200 m. The survey was carried out employing WGS-84 spheroid. With the aid of Total station instrument, the grid lines were laid covering the entire ML area. All the natural and man-made features, the grid lines were laid covering the entire ML area. All the natural and man-made features were surveyed. Contour lines were drawn at two meters interval and all topographical features were presented on a plan, the topographic map so prepared on a scale of 1:2000.

2.3.5 Exploration Done

The entire lease area is prominently marked by outcrops of building stone along with associated minor mineral. So there is no need of further prospecting in this area.

2.3.6 Exploration Proposed

The mineral (building stone) is exposed at the top of the area, so there is no need of further exploration in this area.

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2.4 Raw material required along with estimated quantity, likely source, marketing and of final products, mode of transportation of raw material and finished products.

2.4.1 Geological Reserve in Tonnes

Parameters considered:

Considering the above parameters and exposures observed in the existing pits in the allotted area, the surface geological plan and geological cross-sections & longitudinal section are prepared on a scale 1:2000. Accordingly, the reserves for Stone along with associated minor minerals have been estimated on cross-sectional area method.

Proved Reserves: -

Section line	Area of cross section (m ²)	Influence length (m)	Vol. in m ³	Tonne
A-A'	20592.59843	148	3047704.568	7619261.42
B-B'	7514.941492	53	398291.8938	995729.7344
C-C'	20923.73394	70	1464661.376	3661653.439
D-D'	14558.64749	117	1703361.756	4258404.39
			Total	16535048.98

Probable Reserves: -

Section line	Area of cross section (m ²)	Influence length (m)	Vol. in m ³	Tonne
A-A'	4078.0544	148	603552.0512	1508880.128
B-B'	1426.9472	53	75628.2016	189070.504
C-C'	3888.7296	70	272211.072	680527.68
D-D'	2688.73472	117	314541.9622	786454.9056
			Total	3164933.218

Possible Reserves: -

Section line	Area of cross section (m ²)	Influence length (m)	Vol. in m ³	Tonne
A-A'	1019.5136	148	150888.0128	377220.032
B-B'	356.7368	53	18907.0504	47267.626
C-C'	971.1824	70	68052.768	170131.92
D-D'	672.18368	117	78645.49056	196613.7264
			Total	791233.3044

Total Geological Reserve= (Proved + Probable & Possible)

$$= (16535048.98 + 3164933.218 + 791233.3044)$$

$$= 20491215.51 \text{ tonnes}$$

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2.4.2 Mineable Reserves:-

Mineable reserves have been estimated by excluding the reserves blocked under 7.5 statutory barriers and due to formation of systematic benches up to Ultimate Pit Limit. The proposed mining is slicing of general surface level by open cast fully mechanized method.

Proved Reserves:-

Section line	Area of cross section (m ²)	Influence length (m)	Vol. in m ³	Tonne
A-A'	791233.3044	148	2186470.889	5466177.222
B-B'	1819.009472	53	96407.502	241018.755
C-C'	14415.56782	70	1009089.748	2522724.369
D-D'	8629.545369	117	1009646.161	2524115.403
			Total	10754035.75

Probable Reserves:-

Section line	Area of cross section (m ²)	Influence length (m)	Vol. in m ³	Tonne
A-A'	1937450896	148	286816.7326	717041.8315
B-B'	0.0	53	0.0	0.0
C-C'	1638.181888	70	114672.7322	286681.8304
D-D'	427.40208	117	50006.04336	125015.1084
			Total	1128738.77

Possible Reserves:-

Section line	Area of cross section (m ²)	Influence length (m)	Vol. in m ³	Tonne
A-A'	433.5319519	148	64162.72888	160406.8322
B-B'	0.0	53	0.0	0.0
C-C'	358.589616	70	25101.27312	62753.1828
D-D'	55.89472	117	6539.682224	16349.2056
			Total	239509.2106

Total Mineable Reserve= (Proved + Probable)

$$= (10754035.75 + 1128738.77)$$

$$= 11882774.52 \text{ tonne}$$

Reserves	Reserve Calculation (Proved + Probable) in MT	Total Reserves in MT
Geological Reserves	16535048.98+3164933.218	19699982.2
Mineable Reserves	10754035.75+1128738.77	11882774.52

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2% of the total excavation is considered as mining loss. The mineral reserves are computed as per UNFC. The reserves are as follows:

A. Reserves of Stone

Total Mineral Resources (A+B)	UNFC Code	Reserves
A. Mineral Reserves		
1. Proved Mineral Reserves	111	10754035.75 tonne
2. Probable Mineral Reserves	121 & 122	1128738.77 tonne
B. Remaining Mineral		
1. Feasibility Mineral Resources	211	0.0 tonnes
2. Prefeasibility Mineral Resources	221 & 222	8608440.985 tonne
3. Measured Mineral Resources	311	Nil
4. Indicated Mineral Resources	312	Nil
5. Inferred Mineral Resources	313	Nil

2.4.3 Life of Mine

Total mineable reserve for life of mine 11882774.52 MT (Proved + Probable).

The total production of first five years will be 11479793.73 MT of ROM.

Remaining Mineral=Mineable reserve-Production for the first

$$= 11882774.52 \text{ MT} - 11479793.73 \text{ MT}$$

$$= 402980.8 \text{ MT}$$

Production of mine after the first five year will be 10,00,000 MT & will help the mine to least for 4 more years. Hence the total life of mine will be 5+4=9 years

2.4.4 Resources optimization / recycling and reuse envisaged in the project

- All the construction and testing equipment used in the present will be put to use in other similar project once the project is completed.
- Waste water generated will be sent to septic tank / soak pit.
- Rainwater harvesting will be carried out during the operational phase and harvested water will be stored in ponds in the slope areas. This water will be used for sprinkling, plantation and sanitary use.
- Safety zone will be created around the mining lease area to avoid any eventualities and barrier will impose through plantation.
- Proper restoration of the mine lease area will be carried out at the end of the mining through scientific way. Mine restoration plan will be suggested.

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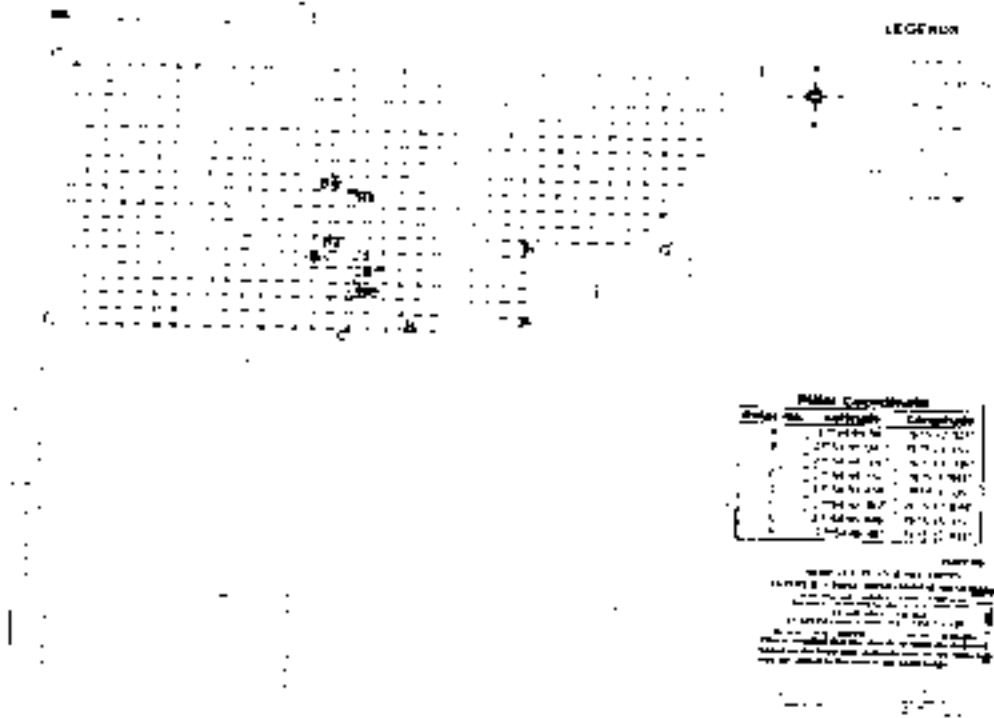
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2.5 Mineral Beneficiation

The mineral produced will be in the boulders form, so it will be supplied to the local crushers which is situated at about 1.5 km in Dholera village from the proposed area. Hence, there will be no storage & beneficiation of the mineral within the allotted area.

STONE MINE, PRODUCTION CAPACITY 30000 TPA. AT NEAR VILLAGE JAINPUR, VERULI, NARMA CD.
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Figure 3.2: Surface Geological Plan and Sections of the ML Area



STONE MINE, PRODUCTION CAPACITY 30000.00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: HARNAUL, DISTRICT: HANDEENBERGARH, HARYANA	DRAFT EIA/EMP REPORT PROJECT DESCRIPTION
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2.6 Project Description with process details and infrastructure facilities

2.6.1 Present and Proposed Method of Mining

The method of mining will be open cast fully mechanized means in two production shifts & one maintenance shift, each of 8 hrs under the supervision of qualified Ist class mines manager/ mining engineer. The drilling will be continued in all the three shifts to achieve the total meterage required. To begin with / starting of mining, any bushes/ grasses present over the site of the proposed quarry will be removed by use of dozer. The allotted area does not have any type of vegetation. Hence, cutting of tree will not arise. Ground will be first scarified and after scarification is over, all the loose scree material/ rock will be dozed with the help of Dozer so that the site will be cleaned & ready to work. A haul road will be made from bottom to top of the general surface level for transportation of men, mining machinery and mineral. The width of the haul road will be 6 meter [(1.5m +1.5m +3m)] Maximum width of the machine plying over the haul road + 3 m from both sides). Haul road is to be made by drilling & blasting method. Mucking & transporting of mineral stone along with associated minor minerals with the help of excavator & dumper combination along with Dozer.

2.6.2 Proposed Mode of Working

It is proposed to work the deposit for winning the Stone along with associated minor minerals by open cast fully mechanized method of mining. The mining is proposed by working from top of the general surface level by slicing in the form of bench of 10m height 7.5 m width. The year wise mine development has been proposed from top to bottom working, so that at the last stage almost complete area will be worked to recover maximum mineral and to restore the land to its optimum reclamation for future use as water reservoir. The year wise plan & sections and position of the benches at the end of each year have been prepared and given in Plate No. 5 (5A to 5E)

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First Year Development and Production

During the period of first year, the work will be carried out between the sections, A-A' & B-B' at 338-310mRL for benches. The first year plan & sections and position of the benches at the end of year have been prepared and given in Plate No. 5A.

Second Year Development and Production

In the period of second year, the work will be carried out between sections, A-A' & B-B' at 310-290 mRL for benches. The second year plan & sections and position of the benches at the end of year have been prepared and given in Plate No. 5B.

Third Year Development and Production

During the period of third year, the work will be carried out between the sections, A-A' B-B' & C-C', at 290-270 mRL for bench. The third year plan & sections and position of the benches at the end of year have been prepared and given in Plate No. 5C.

Fourth Year Development and Production

In fourth year, the work will be carried out between sections A-A' B-B' & C-C', at 270-250 mRL for bench. The fourth year plan & sections and position of the benches at the end of year have been prepared and given in Plate No. 5D.

Fifth Year Development and Production

In fifth year, the work will be carried out between sections A-A' B-B' & C-C', at 250-230 mRL for benches. The fifth year plan & sections and position of the benches at the end of year have been prepared and given in Plate No. 5E.

Table 2.4: Year wise production details of mineral

S. No.	Year	Bench mRL	ROM (in MT)
1	First Year	338-310 mRL	3000000
2	Second Year	310-290 mRL	2437338.18
3	Third Year	290-270 mRL	2043152.62
4	Fourth Year	270-250 mRL	1995445.16
5	Fifth Year	250-230 mRL	2003857.75

Table 2.5: Year wise Production of Mineral and Waste

Year	ROM (in MT)	Mineral rejects (in MT)
1st Year	3000000	150,000
2nd Year	2437338.18	121,866.88
3rd Year	2043152.62	102,157.62
4th Year	1995445.16	99,772.26
5th Year	2003857.75	100,192.85

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Source: As per approved mining plan and progressive mine closure plan

Recovery of stone is taken as 95% of total excavation. The Mineral rejects (5%) generated is also having market and will be sold. Thus Mineral rejects also shall be considered as production.

2.6.3 Open Cast Mining/ Bench Parameters

- Bench or Bank or high wall height 7.5meter.
- Bench width not less than the bench height.
- Bench slope angle from horizontal, about 70°
- Ultimate Pit slope 70°.
- Ultimate Pit Size:

S. No.	Length(in m)	Width(in m)	Depth (in m)
1.	825	438	74 (from ground level)226m RL.

- All benches to be equipped with road edge barrier.
- Transportation of the mineral from mine to end users will be done by trucks/dumpers.

2.6.4 Salient Features of Mining Method

In the allotted area mineral Quartzite/stone along with minor minerals is exposed in the form of Stone at various places and found worked in Pit No - 1,2,3 & 4 mining operation carried out by some other lessee in the past with due permission from the department of Mines & Geology, Haryana, which indicates that the complete area has been mineralized for the mineral Stone along with associated minor minerals. Besides, following points have been considered for reserves calculation.

In the allotted area, the mineral is exposed at the top most part of the general surface level at 337mRL. to the lowermost level of 321mRL. So, the occurrence of mineral is considered for total thickness of mineral exposed under proved category of reserve.

The further 20 m depth is considered for probable category of reserves below the proved category.

Similarly, further 10 m depth is considered for possible category of reserves below the proved category.

Bulk Density of Stone and associated minor minerals is taken as 2.5 Tonnes /m³.

Transportation of the mineral from mine to end users will be done by trucks/dumpers

2.7 Extent of Opencast Mechanized

Presently no mining is carried out in the allotted area, so there is no machinery deployed for mining operations. To achieve the desired production, as proposed in the five year mining plan period, the following machinery is proposed to be deployed for stone mining. The Machinery to be deployed and their Specifications are as follows - :

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Table 2-6: Extent of Opencast Mechanized

S.No.	Machine	No's	Make	Capacity
1.	Excavator	5+1*	J & T	1.85 m ³
2.	Dozer Crawler Mounted	1	BEML- BD355	416 hp
3.	Dumper	35+4*	Ashok Leyland	30 Tonne
4.	Wagon Drill with inbuilt Compressors	2+1*	Atlas Copco	100mm dia
5.	Air Compressor	2	Farm track	500 cfm
6.	Rock Breaker	5+1*	L&T	1.2 m ²
7.	Diesel Operated Pump	2	Kirloskar	5.0 H.P. Motor
8.	Generator	1	---	---
9.	Explosive Van	1	---	---
10.	Mini Bus	1	Tata	30 Seater
11.	Bolero Jeep	1	Mahindra	7 Seater
12.	Maintenance Van	1	---	---

* Standby machinery to be used in case of any breakdown.

2.8 Specification of Machinery Proposed

1. Jack hammer drills - 4
2. Water sprinkler - 1
3. Potable Workshop containing all the equipments for repairing including portable electric welding sets, Gas cutting arrangements, electrical equipments, such as insulators, conductors, transformers, oil circuit breaker, protective fuses & relays, control cables, flexible cables etc.
4. Exploders, circuit testers etc.
5. Safety appliances such as fire extinguisher, safety helmets, shoes, goggles, fluorescent jackets etc.
6. Equipment's & medical appliances for first aid.
7. Office equipment's such as computers, Xerox machine, plotter, surveyor equipment's & tools, various monitoring equipment's such as RDS (Respirable Dust Sampler), Sound level meter, Lux meter, Vibrometer etc.
8. A small workshop along with necessary machines & equipments for repair, maintenance and overhauling of heavy earth moving & other mining machinery.

2.8.1 Drilling and Blasting

Daily 1000 m² area has to be broken to obtain the requisite production of 25,000 Tonne / day of mineral Stone,

No. of holes required = Surface area required / Spacing x Burden
= 1000 / 6 x 4
= 41.66

Say = 42 holes / day

Total meterage to be drilled = Total no. of holes x length of holes (including 10% sub grade drilling)

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$$= 42 \times 11 \\ 462 \text{ m}$$

Considering rate of penetration of drill holes in Stone	= 20m/ hour
So, in one shift of 7 effective hours coverage to be drilled	= 140 m
No. of drill machines required	= $462 / 140$
	= 3.3, say = 4
Time required drilling 462 meter	= $462 / 20$
	= 23.1 hours
	= 24 hours
Stand by drill machine 40%	= 1.6 say 2
Total No. of drill machine required	= 4 + 2 = 6

Blasting: -

Total quantity of explosive required per day = Proposed daily production / Powder factor
 $= 25000 / 15.35$
 $= 1628.664$
 Say = 1629 kg/day

Burden is defined as the shortest distance to relief at the time the hole is detonated in any blasting operation. It is the most critical parameter. If burden is very little, the rock will be thrown to a considerable distance from the face, air blast level will be high and excessive fines will be produced. Too much burden will produce severe back break, hanging of face and shattering of the rock wall.

The following formulae are being used to estimate the burden

Langefors and Kihlstrom (1978): $B(m) = 0.958(d \sqrt[3]{\rho_e \cdot S \cdot C_0}) / (4Sd^2 / Bd)$

Where,

B(m)	= Maximum Burden (m)
d	= Diameter of blasthole (m)
ρ_e	= Density of explosive (kg/m ³)
S	= Relative weight strength of explosive
C ₀	= Corrected blastability factor
C	= C + 0.05 for B(burden) < 1.4- 1.5 m
C'	= C + 0.07 / B for B > 1.4 m
C	= Blastability factor (kg/m ³) (necessary charge factor to break and to throw the rock)
f	= Confinement of the blasthole (free bottom- 0.75; fixed slope (2:1)- 0.85; fixed slope (3:1)- 0.90; fixed vertical- 1.0; tunneling- relief holes- 1.25 to 1.50)
S _d	= Drilled Spacing (m)
B _d	= Drilled Burden (m)

Konya and Walter (1990): $B = [2 \times SG_e / M \cdot r + 1.5] \cdot D_e$

Where, B = Burden (ft); SG_e = Specific gravity of explosive

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SGr = Specific gravity of rock, D_e = Diameter of explosive (m).

Olofsson (1990): $B_{max} = \sqrt[3]{q_d \times R1 \times R2 \times R3}$

Where, K = Explosive constant (gelatinous explosive = 1.47; emulsion= 1.45; ANFO= 1.36), q_d = Concentration of the bottom charge of the explosive (kg/m), R1= Side inclination correction factor; R2= Rock type correction factor and R3= Bench height correction factor. Values for correction factor have been given below:

Values of correction factor

Inclination	8:1	10:1	5:1	3:1	2:1	1:1
R1	0.95	0.90	0.98	1.00	1.05	1.10
Rock constant 'C'		0.3	0.4	0.5		
R2		1.15	1.00	0.90		

Hence, the burden required to achieve daily production will be calculated by using the formula,

Olofsson (1990): $B_{max} = \sqrt[3]{K \times q_d \times R1 \times R2 \times R3}$

So, $B_{max} = 1.36 \times \sqrt[3]{2.98 \times 1.10 \times 1.15}$
= 4m

Therefore, Spacing shall be 1.5 times the Burden.

So, Spacing will be = 4 x 1.5 = 6m

Table 2.7: Blasting parameter for annual production

Bench Height	10m	Types of Explosive 1. Slurry Explosive 2. Emulsion Explosive 3. Electric Delay Detonator 4. Novel
Spacing	6m	
Burden	4 m	
Depth of hole	11 m	
No. of row	2	
No. of hole per round	14	
Charge per hole	38.77 kg	
Wt of Cartridge	2.78 kg	
No. of Primary Cartridge/hole	1	
No. of round per day	3	
Tonnage per hole	595 MT	
Powder factor	15.35 T	

The parameters are considered for the variable annual production of Stone along with associated minor mineral during the first five years. The deck charging of 2 to 3 deck is prepared for better fragmentation by double row blast and single blast in a day.

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The mining Operations will require regularly 1629 Kgs of explosives for blasting of 42 holes. Not more than 14 holes will be blasted at a time in one slot. Thus, total quantity of explosives to be blasted in one slot will be $1629 \times 42 \times 14 = 543$ kg. Therefore, the requirement of explosives will be made with permission of Chief Controller of Explosives. There is no proposal to have Magazine of explosives at the mine site because the complete area is mineralized so in the interest of mineral conservation and its full utilization, the proposed explosive magazine will be constructed outside the lease area as approved by the competent authorities.

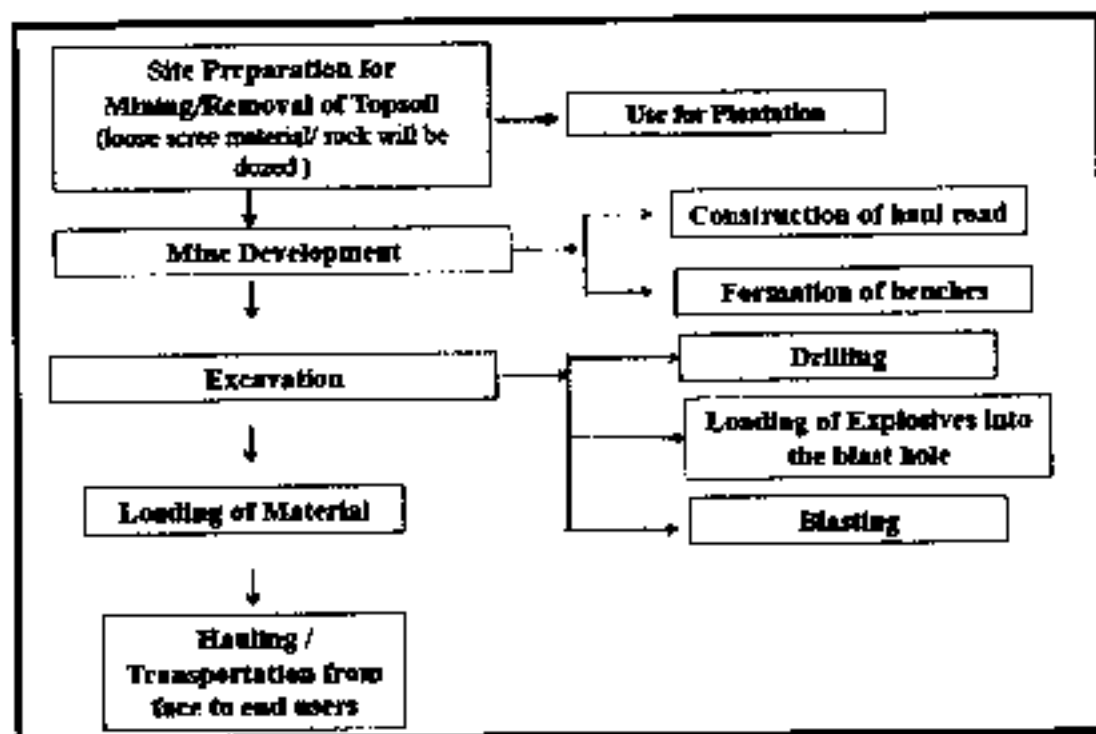
2.9 Solid Waste Disposal (Top Soil/OB)

Top soil of 0.15 m depth mixed with scree is present virgin area of M.I., which will be removed before mining activity & stacked separately in boundary barrier. Total volume of top soil will be removed is 62001.62 m³ and this will require an area of 1.7358 Ha.

Year wise generation OB

There is no overburden material & waste to be mined during the first five years.

Figure 2.3: Process flow chart for mining method



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2.10 Water Requirement and Wastewater Generation

The daily water demand for the proposed project is estimated to be 12 KLD. It will be procured from the existing sources like tube well by tankers of Village- Jainpur. The detailed breakup of the water requirement is given below in *Figure 2.4* and *Table 2-2*.

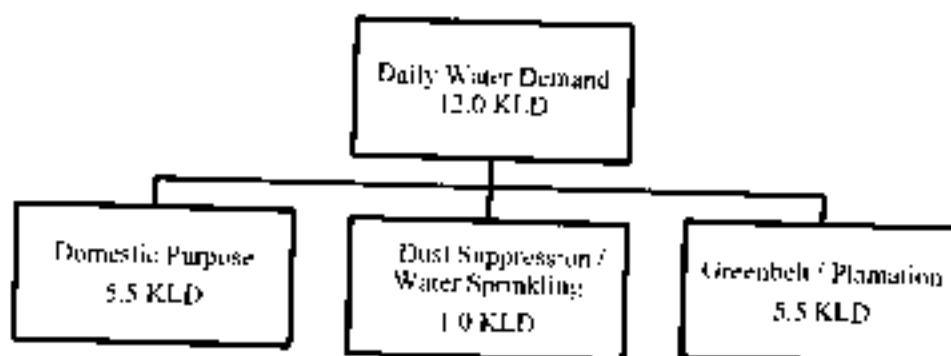


Figure 2.4: Water Balance Diagram

Table 2.8: Break -UP of Water Requirement

S. No.	Usage	Basis	Total Water Requirement
1.	Domestic Purpose	186 workers in mine, 1.0 LPD drinking water requirement per person as per Mines Act hence for drinking purpose total water requirement is 1860 LPD (~1.9 KLD), 1.0 LPD water for 186 people for sanitation purpose hence water requirement for sanitation 1860 LPD (~2.0 KLD). So total water requirement for domestic purpose comes out to be 3720 LPD (~3.9 KLD) domestic water requirement	5.5 KLD
2.	Dust Suppression	Haul road has an area of 28271 m ² has been proposed for mineral transport. Considering the atmospheric condition and type of soil, water requirement is taken as 0.67 L/m ² . Hence total water requirement comes out to be 18941.57 LPD (~19.0 KLD) for water sprinkling. About 1291.44 m ² of top soil will be removed and total water requirement is taken as 1.5 L/ m ² , hence total water requirement is 1937.16 LPD (~2.0). Water sprinkling will be done twice a haul road & uptime on topsoil in a day using 1000 L tanker	1 KLD
3.	Greenbelt Development	About 11170m ² area will be used for plantation and about 1.3 L/Square meter of	5.5 KLD

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S. No.	Usage	Basis	Total Water Requirement
		water is considered while calculating daily water requirement per plant keeping soil and atmospheric conditions in mind. hence total water requirement will be 14521 LPD (1.15 KLD) This water requirement will increase every year as approximately 3120 trees will be planted in five year	
	Total		12 KLD

2.10.1 Wastewater Generation

No process wastewater will be generated during the mining operation; the domestic wastewater generated (4.0 KLD) will be sent to septic tank followed by soak pit.

2.10.2 Power Requirement

There is no electric line passing through the mine area. The nearest power supply line is in village Jainpur itself which is adjoining to the area.

2.10.3 Fuel Requirement

The proposed mining will be done by Open Cast Mechanized method. So fuel consumption will done for operating the machinery. About 4050 LPD Diesel will be required for operating Compressor, Excavator, and Dumper & Loader

Table 2.9: Quantity of Diesel / Energy fuel Consumption

S. No.	Machine	Details of Diesel requirements (Per Day)	Consumption of Diesel (in ltr/day)
1.	Dumper	<ul style="list-style-type: none"> - 2 trips in an hour - Distance travelled by 1 dumper = 2 x 4 = 8km/tr (Considering lead as 2 km) - Distance travelled by 1 dumper in 2 shift = 8 x 12 = 96km - Diesel consumption truck = 96 / 3 = 32 ltr/ day (Considering diesel consumption by the dumper as 3 km / ltr.) - Total Diesel consumption / 44 Dumper = 32 x 44 = 1408 ltr. 	1408 ltr
2.	Excavator	<ul style="list-style-type: none"> - No of excavator = 9 - Hourly Consumption = 20ltr / Shovel/ excavator - 2 shifts of 12 hour diesel consumption = 15x 12x 9 = 1800 ltr. 	1620 ltr.

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S. No.	Machine	Details of Diesel requirements (Per Day)	Consumption of Diesel (in ltr/day)
3.	Dozer	- Diesel consumption 12ltr / hr - 2 shift working of 12 hrs diesel consumption = 12 x 12 = 144ltr	144ltr
4.	Wagon Drill / Air Compressor	No. of Compressor- 3 compressors Diesel consumption by 3 compressors in 2 shift working = 3 x 15 x 12 = 540ltr	540ltr
5.	Generator	No. of gen. - 1 Diesel consumption 15ltr / hr Daily consumption = 12 x 15 = 180ltr	180ltr.
6.	Explosive Van		40ltr
7.	Mini Bus		60ltr
8.	Bolero Jeep		30ltr
9.	Maintenance Van		30ltr
Total Diesel requirements			4052 ltr / day

2.10.4 Employment Details

The total manpower required for the mining activity will be 186. Preference for employment will be given to local workers. Staff & workers proposed to be employed are given in Table 2-10.

Table 2-10: Manpower Requirement

1.	First class mine manager	2
2.	Second class mine manager	1
3.	Mechanical Eng.	1
4.	Electrical eng.	1
5.	Medical officer	1
6.	Security officer	1
7.	Mines Foremen	4
8.	Mines Mate	3
9.	Electrician	3
10.	Blaster	2
11.	H.E.M. operator	120
12.	Skilled Worker	15
13.	Semi-Skilled worker	30
Total		186

2.11 Site Services

The complete lease area is mineralized so it is proposed to provide site services outside the lease area for which, land will be acquired adjoining to the lease area either on lease or on permanent basis. About 1 hectare of area will be quite sufficient to develop the site services in a building.

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Table 2.11: Building proposed for site services

S.No.	Site Services	Purpose of Services
1	Mines manager's office	This will help to supervision and up keeping of records.
2	Rest shelter	This is requiring for the mines labors to rest during lunch period.
3.	Water hut	This will help to drinking water to mines workers
4.	Store room	This will help to keeping necessary tools
5.	Vocational Training Centre	This is requiring to the people who are employed from nearby villages to train them about safety guides and primary treatment during any accident.
6.	Canteen	This is requiring for food and necessary items for mine workers
7.	First aid room.	Require for any accidental case to worker during mining.
8	Washroom	Require for urination and other needed things for workers

Open space for maintenance of mining machinery etc.

Two weigh bridges each of 40 tonne capacity are also proposed within the lease hold area as shown on the year wise development plan Plate No.-5A. The loaded trucks will be weighed, checked and further transported for onward dispatch. These two weigh bridges will be quite sufficient for this proposed level of production.

Magazine of the required sizes will be provided to fulfill the requirement of blasting of Mineral. The design of the Magazine shall be as per the approval of the Chief Controller of Explosives, Govt. of India. The magazine shall be properly fenced and provided with the security guard round the clock.

2.12 Surface Drainage Pattern

The stone along with associated mining is proposed as fully mechanized technology, hence it can also affect the nearby water bodies and water table in ground level. The mining lease area is flat and the drainage pattern follows the general trend of the topography and is towards north Eastern side of the lease area.

The highest elevation is 339.00 mRL and lowest elevation of 330.00 mRL in core zone. The highest elevation 330.00 mRL and lowest elevation of 297.0 mRL of in buffer zone

2.12.1 Groundwater

The water table in the area is low as 13-140 m from surface. The proposed excavation will reach only up to 205 mRL, so it will be much above from water table

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2.13 Planning Brief

1) Planning Concept (type of industries, facilities, Transportation etc.) Town and Planning / Development authority classification)

In order to facilitate augmentation of material supply (minerals) to various consumers in states of India, an analysis of the infrastructure requirements has been carried out and based on such analysis; it is decided to create suitable infrastructure facilities (network) to facilitate transportation of minerals or raw materials from the point of demand to points of supply. The proposed mining is planned by M/s. Govind Group Infra solution Private Ltd. is in process of establishing network all over the states to take care of future demand supply gap to fulfill the requirement of various consumers throughout the state. The details regarding transportation facility is given below:

2.13.1 Transportation

The mineral produced will be loaded in to trucks/dumper with 10 T capacity for onward transport to consumer as well as to crusher unit near by the allotted area. There is all weather haul road right up to mines to dispatch the material from mines to the market. Material is proposed to be sold to the customers' at mine site and transported by them through their own arrangement of trucks. The practice is quite sound in the area and ensure continuous lifting of the material. Customers-purchasers come with transport arrangement of their own.

2) Population Projection

Man power requirement for the proposed mining project is estimated to be 186 persons are required. Most of the employees will be recruited from neighboring village depending upon the availability of skilled and unskilled people. Migration of highly educated and skilled person will take place but it will be temporary basis. So there will be no permanent migration of people, hence there will be no population projection.

3) Land Uses Planning

The land use at the conceptual stage is given in *Table 2-12*. It is proposed to work the deposit by slicing of the general surface level during the first year of mining and till the end of lease contract to exploit the mineral to its fullest extent. Out of total plantation of 1.7358 ha 0.33 ha will be planted.

Table 2.12: Land use Pattern at Conceptual Stage

S. No.	Particulates	Present Land - Use	After 5 th year land- Use	At the end of life of mine land- Use
1.	Area Excavated due to Mining	0.0	4.65	4.65
2.	Dump of Ore/Waste/Overburden	0.0	0.61	0.0
3.	Infrastructure : Roads, Building, Electric line etc.,	0.0	0.0	0.0
4.	Backfilled Area	0.0	0.0	0.0
5.	Area under Plantation	0.0	0.0	0.61
6.	Undisturbed Area	5.26	0.0	0.0

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S. No.	Particulates	Present Land - Use	After 5 th year land- Use	At the end of life of mine land- Use
	Total	5.26	5.26	5.26

2.13.2 Assessment of infrastructure Demand (Physical & Social)

Not Applicable

2.13.3 Amenities / Facilities

Facilities for health to the mine workers, water supply, market, sanitary, communication and recreational facilities as practicable will be provided during the operation phase of the project to make the life more comfortable and adaptive.

2.14 Proposed Infrastructure

(1) Industrial Area (Processing area)

Not applicable

(2) Residential Area (Non-processing Area)

Not Applicable

(3) Greenbelt

Plantation will be carried out with locally available species as per the norms to compensate the cutting of trees in the mining lease area as per the forest conservation Act 1980.

(4) Haryana is one of the leading states in terms of labor productivity and a large proportion of the state is engaged in running owned business. The state govt. is committed to providing better education, training and healthcare to the population.

Education: In Haryana the literacy rate is increased as per census 2011. It is also home to premier educational and research institutions of India.

Health: Public health services are available to the population in all over the Haryana state.

(5) Connectivity (Traffic and transportation Road/rail, metro, water ways etc)

It is intended to make maximum use of the existing infrastructure and augment / strengthen existing roads, wherever required. Hence no major changes are envisaged due to this mining activity.

(6) Drinking Water management (Sources & supply of water)

Drinking water will be supplied to the workers by providing water supply through road tankers and available nearby sources.

(7) Sewage System

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Toilets will be connected to septic tank & soak pits for disposal of human waste during operational phases of the mining.

(8) Industrial Waste Management

Not Applicable

(9) Solid Waste Management

Solid waste generated from the campsite and other wastes like plastics, papers, cardboards etc. will be properly collected, segregated and reused/disposed off appropriately.

(10) Power Requirement and supply / source

Power will be required from Dakshin Haryana Bijli Vitran Nigam Limited. 500 KW DG Set will be proposed, if required

2.14.1 Rehabilitation and Resettlement (R&R) plan (policy to be adopted (central / state) in respect of the project affected persons including home owner's, Land owner's and less labourers, a brief outline to be given)

As the lease area is total Government Agriculture land so there is no displacement or resettlement involved.

2.14.2 Project Cost

Expected project cost is Rs. 4.0 crore

2.14.3 Project Implementation Schedule

Efforts are being made to obtain all the statutory permissions for the mine. The commencement of production with proposed capacity of 30,00,000 TPA (Stone: 2850000 TPA and Mineral Rejects: 150000) will be seen after obtaining Environmental Clearance and other statutory clearances (CTE & CTO) from State Expert Appraisal Committee (SEAC) and SPCB.

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3. DESCRIPTION OF ENVIRONMENT

3.1 Introduction

To assess the impacts of project activities on existing physical, biological and social environment, it is necessary to study the present environmental status of the area by collecting the information on following attributes:

- Land Environment
- Water Environment
- Air Environment
- Meteorology
- Noise Environment
- Biological Environment
- Socio-economic Environment

The relevant information and data (Both Primary & Secondary) was collected in the core as well as buffer zone (10 km distance from the lease boundary) during Winter Season (December, January, February) 2022-23 in accordance to the guidelines set up for preparation of EIA studies. The samples collected were analyzed using in house NABL Accredited Laboratory "Overseas Test House & Research Centre", Jaipur.

Secondary data was collected from Indian Meteorological Department (IMD), Gurgam State Mines & Geology department, Central Ground water board, District Forest office, Socio-Economic data was collected from Directorate of Census, Water Resource department, District Statistical departments etc.

3.2 Study Area

The study area is taken in accordance with the provisions of sector specific EIA guidance manual for Mining of Minerals manual, published by Ministry of Environment and Forests, during 2010. The study area for the proposed stone along with associated minor mineral Mining Project was as follows:

- The proposed project area (M. L. area) is considered as 'Core Zone'.
- 10 km radius from the boundary limits of the M.L. area is considered as 'Buffer Zone'

The study area is entirely rural in Kham no. 11,6,7,8,9,12,13,14,15,16,17,18,19,12,9,10,11,12., Village Jainpur, Tehsil Narnaul, District Mahendergarh, of Haryana State.

3.3 Study Period

The baseline environmental quality represents the existing status of various environmental components in the study area. As a part of Environmental Impact Assessment Study, environmental monitoring was carried out for Winter Season (December, January, and February) 2022-23.

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3.4 Land Environment

Land Use involves the management and modification of natural environment or wilderness into built environment such as fields, pastures and settlements. The study was taken up to prepare current land use / land cover within 10 km area around proposed Stone along with associated minor minerals ML Area 5.26 Ha. of M/s Govind Gopal Infrastructure Pvt. Ltd., at Village Jainpur, Tehsil Narraul, District Mahendergarh, Haryana. Area statistics of land use classes has also been generated for area within 10 km radius of lease mine area.

3.4.1 Objective of the Study

The objective of the land use study is given below:

- To develop land use & land cover map using land coordinates of the project area.
- To identify, mark and classify important basic features as per the primary and secondary data collected.
- To suggest measures for conservation and sustainable use of land.

3.4.2 Land Use Pattern of Mining Lease (Core Area)

The mining lease area is a Govt. Agriculture land. The area will be used for stone exploitation within 04 old pits; these pits are developed along the strike and as per finding and reporting, the stone band continues up to the pit bottom & no mining activity is carried out in the mining lease of 5.26 Ha. Existing land use of the core zone is given in *Table 3-1*.

Table 3-1: Existing Land use pattern of the Core Zone

S. No.	Particular	Area in Hectare
1	Area Excavated due to Mining	0.0
2	Dump of Ore/Waste/Overburden	0.0
3	Infrastructure Roads, Building, Electric line etc.,	0.0
4	Backfilled Area	0.0
5	Area under Plantation	0.0
6	Undisturbed Area	4.63
	Total area	5.26

3.4.3 Land use of the Study Area

The total land of the study area is divided into different categories:

- Agricultural Land
- Dense Forest
- Fallow Land
- Settlement
- Open Scrub

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- Barren Land

3.4.4 Methodology

Indian Remote Sensing satellite IRS-P6, LISS III, multi-spectral digital data has been used for the preparation of land use/land cover map of present study. Survey of India reference map on 1:50,000 scales have been used for the preparation of base map and geometric correction of satellite data. Ground truth has been carried out to validate the interpretation accuracy and reliability of remotely sensed data, by enabling verification of the interpreted details and by supplementing with the information, which cannot be obtained directly on satellite imagery.

The land use/land cover map of the study area has been prepared from using the recent Landsat satellite image scene "LC81440452016112LGN00 downloaded from USGS Earth Explorer portal and processed using GIS software supported with ground checks + ground truth verification. Area and distance calculations have been carried out using GIS software after geo-referencing and interpretation has been performed based on site information acquired through ground survey with survey of India topographical maps of the scale 1:50,000 and Google Earth explorer (Professional Version).

Geo Referencing of Topo Map

So toposheet has been geo-referenced in geographic lat/long coordinate system using ERDAS Imagine Software.

Base Map Layer Creation

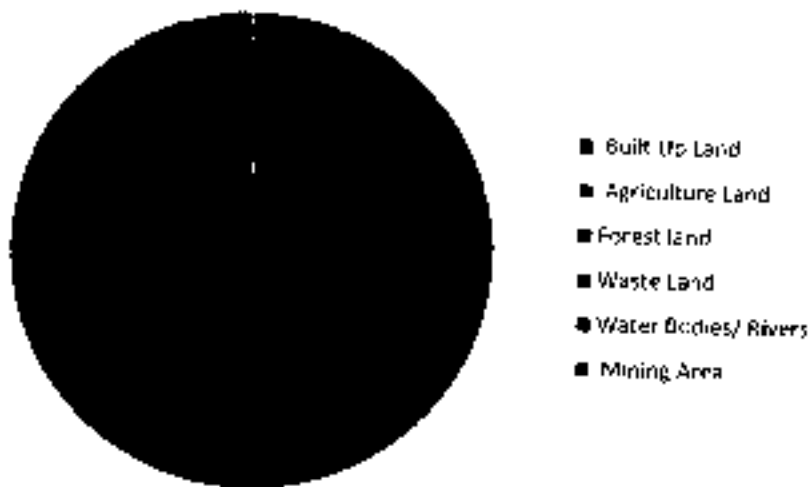
Project site mine plan map, Google maps and geo-referenced Toposheet have been used as a reference map for base layer creation. In base layer linear, polygon and point features like roads, rail, canals, village locations and project site have been created in vector data format. Base map layer information has been used for analysis of surrounding features like roads, rail, and village locations near project site actively through superimposing on thematic map for data integration. The land use of the study area is given in Table 3-2 and shown in Figure 3-1.

Table 3-2: Existing Land use pattern of the Study Area

S.No.	CLASSES	AREA (IN HA.)	AREA (IN %)
1.	Built Up Land	188.2033881	0.06
2.	Agriculture Land	297212.5549	91.44
3.	Forest land	11446.75921	3.52
7.	Waste Land	11378.05641	3.50
8.	Water Bodies/ Rivers	3843.634444	1.18
10.	Mining Area	980.5452249	0.30
	TOTAL	325049.7536	100.00

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Figure 3.1: Flow Chart Showing the Land use of the Study Area



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3.5 Topography and Drainage

3.5.1 Topography of the Study Area

Mahendergarh district is the domain of plains interrupted by barren low hills and dry land. Presence of inland streams, sandy plain, shifting sand dunes devoid of vegetation, fixed or fossil sand dunes, dissected upland tract, and often barren, denuded rocky hill ranges and their outcrops provide an ensemble of terrain features truly associated with semi-arid to arid environment.

Topographical elevation of the core and buffer zone is given in *Table*.

Table 3-3: Topographical Elevation of the Core Zone and Buffer Zone

Elevation range (Core Zone)	349 m RL
Elevation Range (Buffer Zone)	330 m RL
Difference	9.0
Area	5.26 hect.

3.5.2 Drainage of Study Area

The allotted area is flat terrain with some undulations and country rock is hard so the runoff water will be fast and percolation of water will be less. All the surface water will flow down towards North Eastern direction to its natural slope. During the first five years period the working will go beyond surface level but will not reach to the water table. The proposed mining will start from top of the general surface level at 347 mRL to 338 mRL at the end of contract period, so there will be accumulation of rain water in the pit, which will be pumped out, and it will not affect the ground water table.

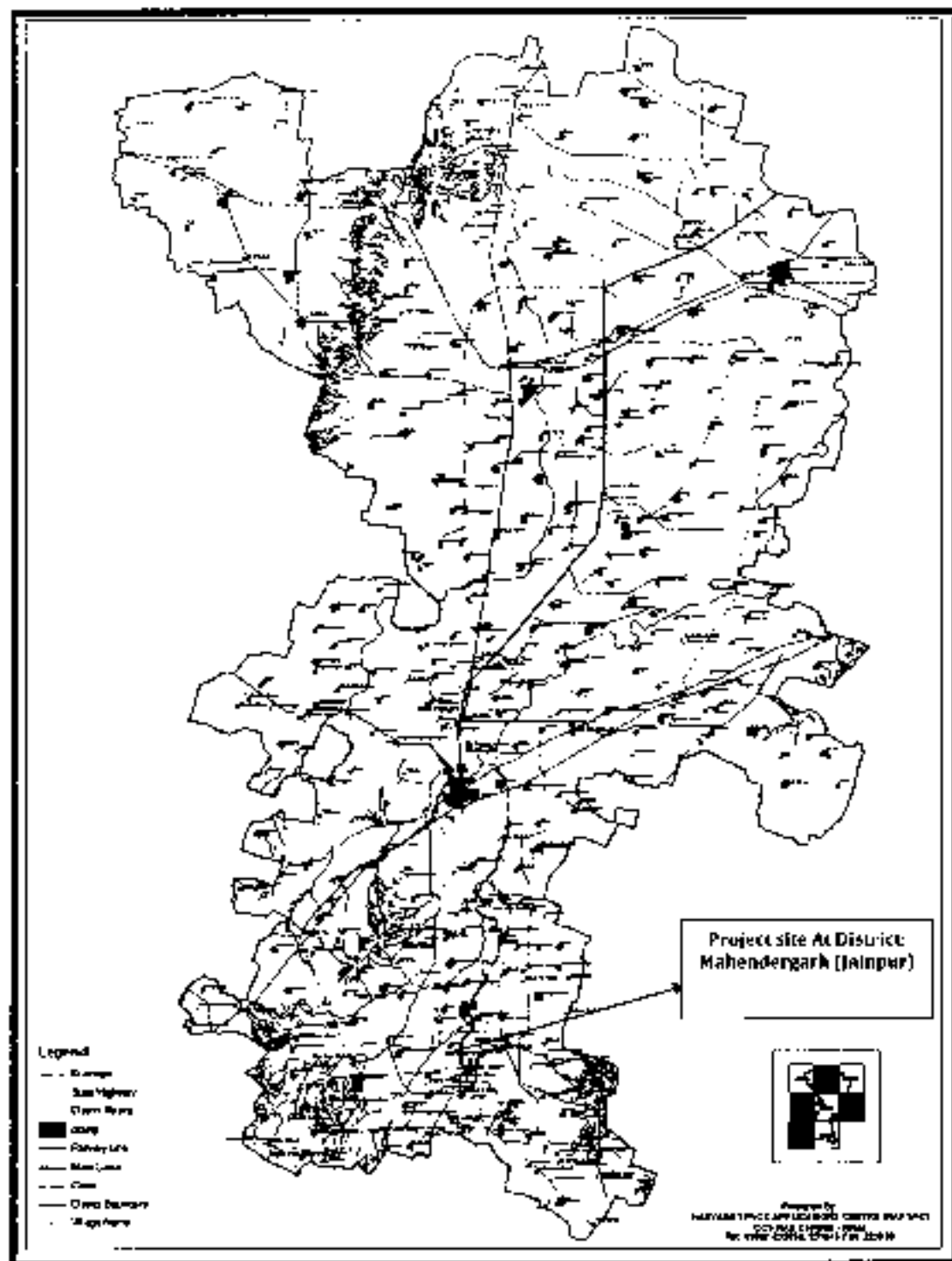
The general ground water table in area is between 130-140 m below from the surface level.

The drainage map of Mahendergarh District is shown as *Figure 3-3* and drainage map of study area is shown *Figure 3-4*.

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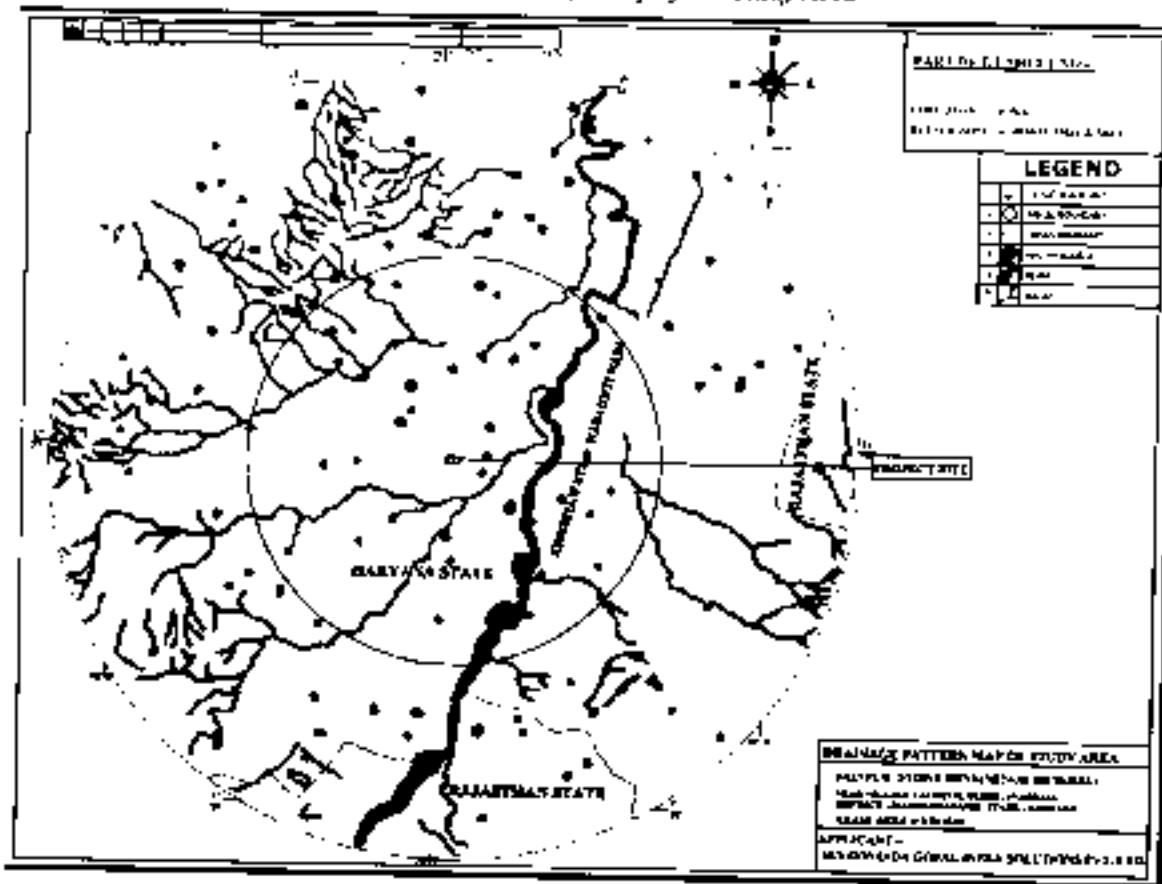
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Figure 3-3: Drainage map of the Mahendergarh District



**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA,
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Figure 3-4: Drainage map of the Study Area



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3.5.3 Seismicity of the Study Area

Based on occurrence of earthquakes of different intensities, the Seismic Zoning Map of India (IS 1893, 2001; BMTPC, 2006; NBC 2003) divides the country into 4 seismic zones as shown in Figure 3-6. Seismic Zone V is the highest risk zone where earthquakes having intensity of IX- on Modified Mercalli Intensity (MMI) scale can take place. Earthquakes of intensities between VIII to IX can be experienced in seismic Zone IV, whereas earthquakes can occur between VI and VIII intensity in seismic Zone III. The Seismic Zone Map of India is shown in Figure 3-5.

The seismic hazard map of India was updated in 2000 by the Bureau of Indian Standards (BIS). According to the new map, Haryana falls in the seismic zone IV, III, & II and therefore, the region is vulnerable to earthquakes. Although, in recent past, no major earthquakes have occurred in Haryana, yet tremors have been felt whenever there is an earthquake in the Himalayan foot-hills. The area is located in an area of moderate damage risk zone (Zone III) as per National standard. The Seismic Zone Map of lease area of Haryana state is shown in Figure 3-6.

Source: National Disaster Management Authority (NDMA), GOI

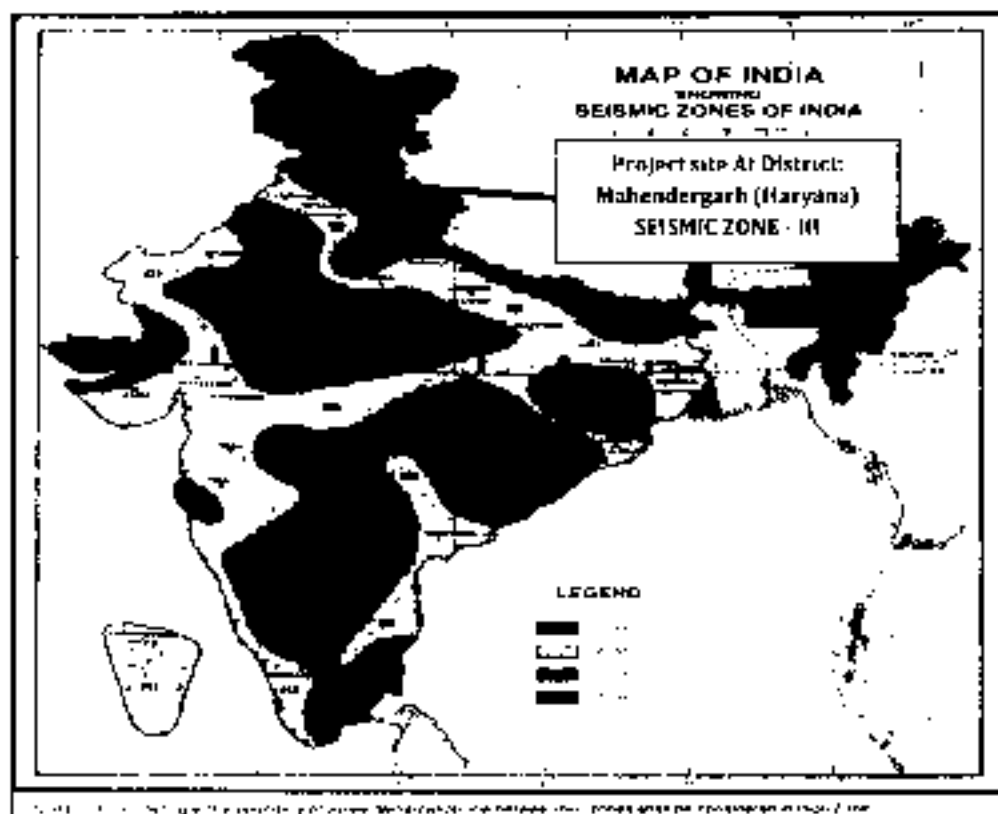


Figure 3-5: Seismic Zone Map of India

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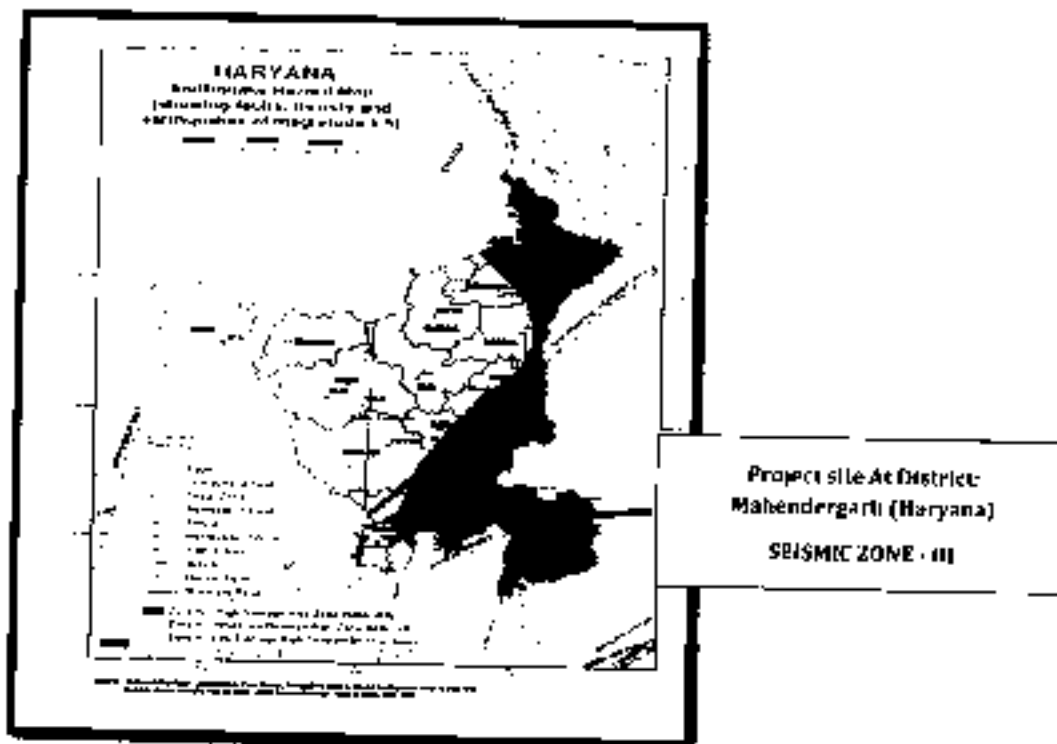


Figure 3-6: Seismic zone map of Haryana

Ambala, Sonapat, Rohtak, Karnal, Gurgaon, Faridabad, Panipat, Rewari and Yamunanagar districts lie in Zone IV. The districts of Kurukshetra, Jind, Hissar, Bhiwani, Mahendragarh and Kathal lie in Zone III while only Sirsa district lies in Zone II. The entire state of Delhi lies in Zone IV and so does the Union Territory of Chandigarh. Since the earthquake database in India is still incomplete, especially with regards to earthquakes prior to the historical period (before 1800 A.D.), these zones offer a rough guide of the earthquake hazard in any particular region.

As the proposed Stone along with associated minor mineral mine is situated in Mahendragarh district which lies in Zone-III, The area is located in an area of moderate damage risk zone (Zone III) as per National standard, hence no major impact on the environment due to this mining.

Source: <http://isc-india.org/seismic/seis-cdi.htm>

3.7 Meteorology

Meteorological plays a vital role in affecting the dispersion of pollutants, once discharged into the atmosphere. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long term reliable data. Such sources of data are the India Meteorological Department

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(IMD), which maintains a network of meteorological station at several important locations. The nearest IMD station to study area is located at Gurgaon. The meteorological parameters obtained from this station are temperature, Humidity, Rainfall, wind speed and wind direction etc.

3.7.1 Long Term Meteorology of Mahendergarh District – Secondary Data

Temperature

May is generally the hottest month with a mean daily maximum temperature of about 40.4°C and mean daily minimum of about 5.9°C. The weather is intensely hot in summer and on some days, the day temperature may reach up to 45°C. The highest temperature recorded at Gurgaon is 49°C on 10th May 1966. From November, both day and night temperatures start decreasing rapidly. January is generally the coldest month with the mean daily maximum temperature at about 25.2°C and mean daily minimum at about 1.9°C. Minimum temperature sometimes drops down to subzero temperatures and the lowest temperature recorded at Gurgaon was -0.4°C on 05th December 1966.

Wind

Long-term wind direction data is presented in Table 3-4, and indicates that the predominant wind during the study period (December, January, and February).

Table 3-4: Predominant Wind Direction as per IMD Gurgaon

Predominant Wind Direction	First Predominant Wind Direction		Second Predominant wind Direction		Third Predominant wind Direction		
	Month	Morning	Evening	Morning	Evening	Morning	Evening
January		E	NW	W	CALM	W	W
February		CALM	SW	NW	CALM	W	SE
March		CALM	W	SE	E	SE	E
April		CALM	W	SW	NE	CALM	E
May		E	SE	WS	SE	W	SE
June		SW	NW	W	WE	WS	S
July		SE	E	SE	SW	NW	E
August		SE	S	SE	SE	W	SW
September		SE	E	SE	NW	NE	SE
October		CALM	CALM	NW	EN	CALM	W
November		CALM	W	W	NW	CALM	CALM
December		W	NW	W	NW	W	EW

Source: IMD Gurgaon

Rainfall

The normal annual rainfall of the district based on period of 2017-2021 is 778.8 mm to 718.5 which is unevenly distributed over the area 26 days (Table 3-5). July is very wettest month with 287.9 rainfall.

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The south west monsoon sets in from last week of June and withdraws in end of September, contributed about 85% of annual rainfall. July and August are the wettest months. Rest 15% rainfall is received during non-monsoon period in the wake of western disturbances and thunder storms. Generally rainfall in the district increases from southwest to northeast.

Table 3-5: Monthly Rainfall (mm) of District Mahendergarh from 2017 to 2021

Month	2017		2018		2019		2020		2021	
	R/F (mm)	DEP (%)	R/F (mm)	DEP (%)	R/F (mm)	DEP (%)	R/F (mm)	DEP (%)	R/F (mm)	DEP (%)
January	17.2	45	0.2	-99	6.2	-43	1.2	89	35.2	223
February	0.0	-100	0.6	-95	1.3	-89	2.4	-80	0.2	-99
March	3.3	-65	0.0	-100	4.8	-38	73.1	837	18.8	141
April	8.0	51	14.9	181	14.1	161	3.5	-35	3.5	-35
May	33.5	77	11.2	-41	3.0	87	24.7	8	53.5	134
June	147.4	219	66.5	53	26.1	-49	27.3	-46	31.0	-34
July	73.0	-53	191.4	24	102.8	-32	91.0	-40	287.9	90
August	58.9	-59	40.5	-72	63.5	-56	101.0	-30	66.2	-54
September	35.9	-32	113.2	113	15.3	-75	36.8	-39	197.3	226
October	0.0	-100	0.0	-100	12.0	15	0.0	-100	21.9	111
November	0.0	100	2.0	-43	2.1	-40	0.0	-100	0.0	-100
December	1.6	-77	1.5	-78	11.0	75	0.0	-100	3.0	-52
Total Rainfall	378.8		442		262.2		361		718.5	

Source: Customized Rainfall Information System (CRIS)/ Hydrome Division
IMD/Ministry Of Earth Sciences.

Note: (1) The District Rainfall in millimeters (R/F) shown below are the arithmetic averages of Rainfall of Stations under the District.

(2) % Dep. are the Departures of rainfall from the long period averages of rainfall for the District.

(3) Blank Spaces show non-availability of Data

Relative Humidity

Most humid conditions were found in the monsoons, followed by post-monsoons, winter and summer in that order. Mornings were more humid than evenings and humidity ranged from a high of 45-81% in monsoon mornings to a low of 26-70% in summer evenings. During study period of December 2022-March 2023 the humidity varies from morning of 44-65% to low of 15-38% in evening.

Cloud Cover

Cloudiness is moderate to heavy during monsoon season, rest of the year skies are generally clear or lightly clouded. The area remains less cloudy between December, January, February and March. During

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this time all clouds cover is between 1.2 to 2.3 Oktas during day time and 1.0 to 1.6 Oktas during night time.

Normal Annual Rainfall	420 mm
Normal Average Rainfall	432.5 mm
Temperature	
Mean Maximum	44.9 C (June)
Mean Minimum	5.9 C (January)
Normal Rainy days	22 days

Source: Centre Ground water Board; Ministry of Water
(Resourcehttp://egpub.gov.in/District_Profile/Haryana/Mahendragarh/)

3.7.1 Site Specific Meteorology – Primary Data

Baseline meteorological data representing the Winter season 2022-2023 (December, January, February) were collected near project site. The parameters for which data collected are.

- Wind Speed
- Wind direction
- Temperature
- Rainfall

Baseline Meteorological Data

Meteorological data showed that the average wind speed during the study period was observed to be 5.60 m/sec (December 2022-March 2023). Wind rose diagram prepared for study period is shown as *Figure 3-8*. It was observed that during study period wind blows dominantly from North & West direction and predominantly was WNW direction. Mean minimum temperature recorded during study period was 31 °C with mean maximum temperature of 15°C. The data obtained during the study period was compiled to obtain average data. Compiled mean meteorological data is represented in *Table 3-6*.

Table 3-6: Mean Meteorological Data for Winter Season (December, January and February) 2022-2023

Time	Wind Speed	Temperature	Wind Direction	Cloud Cover	Rainfall
	m/sec	°C		Oktas	mm
1	4.1	25	CALM	0	0
2	2.1	26	CALM	0	0
3	1.5	21	NW	0	0
4	2.9	22	NW	0	0
5	2.5	22	CALM	0	0
6	4.5	21	SE	0	0
7	6	23	NW	0	0
8	7.1	26	SE	0	0
9	5.9	24	SE	0	0
10	1.2	26	SE	0	00

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Time	Wind Speed	Temperature	Wind Direction	Cloud Cover	Rainfall
	m/sec	°C		Oktas	mm
11	2.3	23	NW	0	0
12	4	28	W	0	0
13	6.5	28	NW	0	0
14	7.2	30	NW	0	0
15	6	31	NW	0	0
16	7.5	31	NW	0	0
17	6.3	28	NW	0	0
18	6.5	28	CALM	0	0
19	7.2	26	W	0	0
20	6.2	21	NW	0	0
21	5.7	19	NW	0	0
22	3.9	15	SE	0	0
23	2.4	15	W	0	0
24	3	19	W	0	0
Average/ Predominant	5.12	24.08	NW	0	0

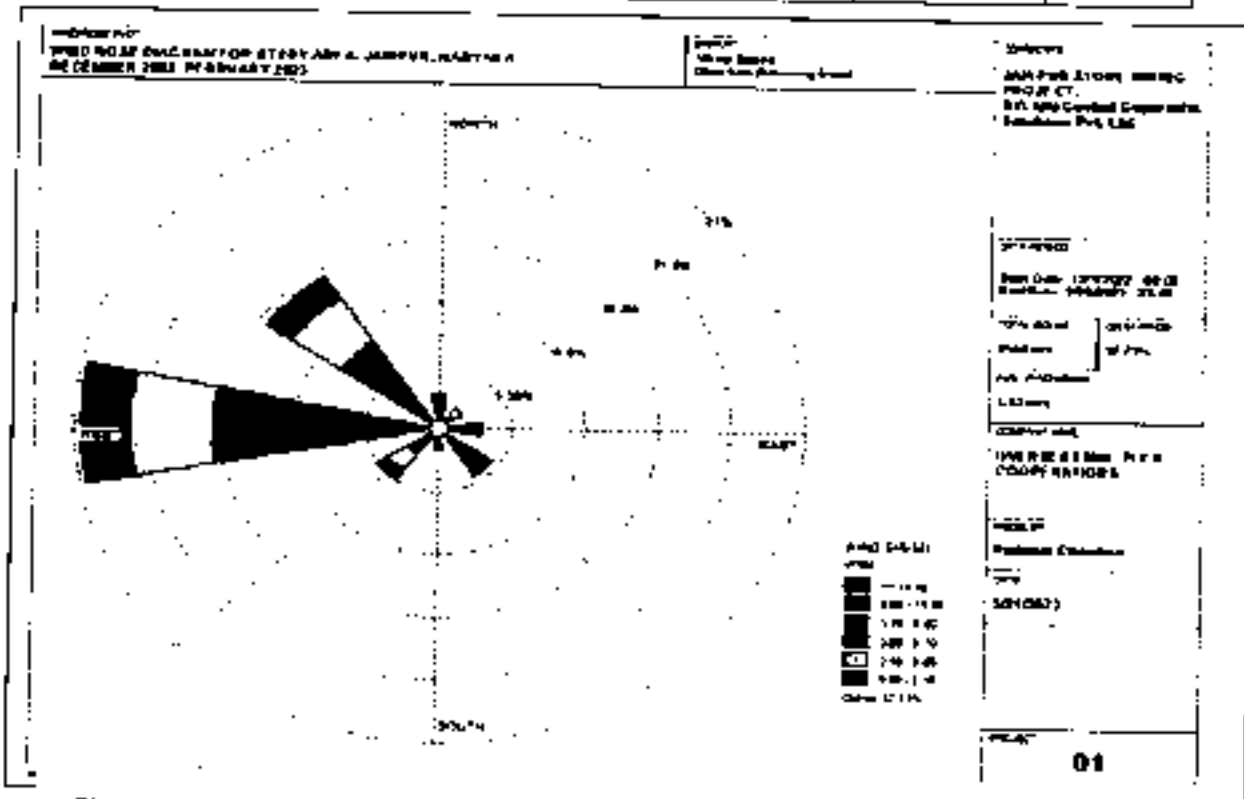


Figure 3-8: Wind Rose Diagram for Winter Season (December, January and February) 2022-2023

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On comparing the baseline data collected with the long term meteorological data it was observed that during the monitoring season, the predominant wind direction was South to North and the same was observed from long term data. The mean average temperature recorded during the monitoring season was at par with the long term data. Also minimal rainfall was recorded during the study period and the same is reflected in the long term meteorological data.

3.7 Ambient Air Quality

In order to assess the background air quality data and also to represent the interference from various local activities, screening technique used for identification of air quality stations in the study area. Ambient air quality of the study area was assessed through a network of eight ambient air quality monitoring stations to represent whole study area including the M.L. area with at least one monitoring location in downwind and four in up wind direction.

Ambient air quality monitoring was carried out in winter season (December, January, and February) 2022-2023 and one month additional study of March 2023 has been done. The long term meteorological data has been enclosed as Annexure-V.

3.7.1 Ambient Air Quality Monitoring Location

The baseline status of the air quality in the study area was assessed through a scientifically designed ambient air quality monitoring network. The selection of monitoring network was based on the following aspects:

- Predominant wind direction in the study area
- Topography / terrain of the study area.
- Populated area within the study area.
- Residential and sensitive areas within the study area.
- Magnitude of the surrounding industries.
- Representation of regional background levels.

The monitoring locations are given in *Table 3-8*, and also shown in *Figure 3-9*.

Table 3-7: Ambient Air Quality Monitoring Locations

S. No.	Area Description	GPS Coordinates	Station Code	Distance from Mining lease area	Direction from M.L. area	Rational for Selection of monitoring Location	Frequency
A	Mine Site	27°54'44.66"N 76° 5'12.85"E	AAQM 1	-	Mine site	Core Zone	The sampling
B	Jainpou	27°54'17.44"N 76° 5'56.24"E	AAQM 2	-1.75	SE	Nearest village at the mine lease and Falls in upwind of predominant wind direction	
C	Dholera	27°55'57.35"N	AAQM	- 2.41 Km	NW	Falls in downwind of	

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S. No.	Area Description	GPS Coordinates	Station Code	Distance from Mining lease area	Direction from M.I. area	Rational for Selection of monitoring Location	Frequency
		76° 49.85"E	3			predominant direction	
D	Nangal Chaudhan	27°53'43.41"N 76° 6'40.97"E	AAQM 4	~ 3 km	SE	Falls in upwind of predominant wind direction Highly populated area Near NH 148B Near Krishnawati River	was done continuously for 24 hours for SO ₂ , NO ₂ , PM ₁₀ & PM _{2.5} with a frequency of twice a week on consecutive days for three months.
E	Simitr Bahali	27°55'11.32"N 76° 7'55.72"E	AAQM 5	~ 4.0 Km	E	Falls in upwind of 2nd dominant wind direction Near 148 B	
F	Niyaz Alipur	27°54'53.58"N 76° 1'28.42"E	AAQM 6	~ 5.5 Km	W	Falls in downwind of 2nd predominant wind direction Near State Highway	
G	Salarpur	27°58'6.92"N 76° 8'5.10"E	AAQM 7	~ 7 km	NE	Falls in upwind of 3rd predominant wind direction Near NH 148B Near Krishnawati River	
H	Goawa	27°50'46.76"N 76° 1'38.45"E	AAQM 8	~ 9.5 Km	SW	Falls in downwind of 3rd predominant wind direction Near RF	

- Monitoring carried out above three meter from ground level.
- The stations selected were representative of the area for which monitoring was done
- There was no obstruction in the wind flow direction (away from tall building and trees)
- For traffic pollution, the monitoring locations were 3 m above the street level of tar road
- Equipment's, reagents, filter papers and other accessories were as per NABL standard.
- During monitoring cross checking was ensured.
- Samples were collected, stored and transported to laboratory as per set procedures for analysis. Following photographs show the monitoring locations (photograph 3-1)

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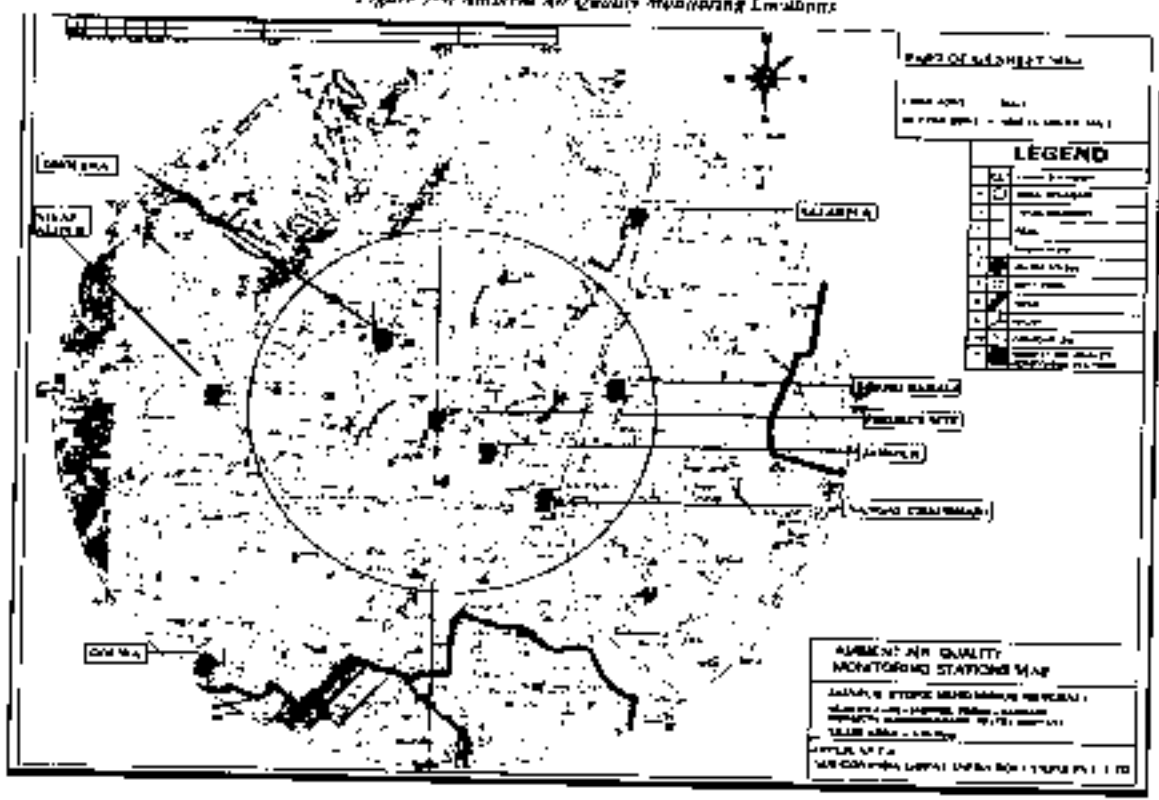


Photograph 3-1: Ambient Air Quality Monitoring Location Photographs

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Figure 3-0: Ambient Air Quality Monitoring Locations



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3.7.2 Parameters Monitored and Methodology

The parameters monitored were PM_{10} , $PM_{2.5}$, Sulphur Dioxide (SO_2) & Nitrogen Oxides (NO_2). These parameters were selected based on the guidelines given by the MoEF&CC and the ToR issued by MoEF&CC New Delhi. The detailed monitoring methodology for ambient air is given in *Table 3-8*.

Table 3-8: Methodology of Ambient Air Monitoring

S. No.	Parameters	Test Method	Range	Instrument used	Model & Make of instrument
1	PM_{10}	IS 5182 (Part-23) 2006, Gravimetric CPCB Guidelines for Ambient Air Monitoring	5 to 1000 $\mu g/m^3$	RDS (Respirable Dust Sampler)	APM 460B1 (Envirotech)
2	$PM_{2.5}$	IS 5182 (Part-23) 2006, Gravimetric CPCB Guidelines for Ambient Air Monitoring	5 to 1000 $\mu g/m^3$	RDS (Respirable Dust Sampler) with attachment of $PM_{2.5}$	APM 460B1 (Envirotech)
3	SO_2	IS 5182 (Part-II) 2001, RealE-9006	5 to 100 $\mu g/m^3$	Gas sampler	APM411 (Envirotech) AAS109 (EcoTech)
4	NO_2	IS 5182 (Part-VI) 2006	6.0 to 100 $\mu g/m^3$	Gas sampler	APM411 (Envirotech) AAS109 (EcoTech)

3.7.3 Result of Ambient Air Quality Monitoring

Results of ambient air quality monitoring are given in *Table 3-9*.

Table 3-9: Ambient Air Quality Monitoring Results

S. No	Station Code	Location	Parameter and Results				Distance	Direction	Rational for Selecting	
			PM_{10} $\mu g/m^3$	$PM_{2.5}$ $\mu g/m^3$	NO_2 $\mu g/m^3$	SO_2 $\mu g/m^3$				
1	AAQM 1	Mine Site							Mine Site Core Area	
		Maximum	68.52	31.82	18.27	13.76				
		Minimum	60.32	26.52	13.28	10.28				
	98 percentile	68.34	31.76	17.98	13.28					
2	AAQM 2	Village Jainpur						~1.75	SE	Buffer Zone Up wind
		Maximum	58.42	26.42	21.34	11.34				
		Minimum	50.28	22.34	17.22	9.64				
	98 percentile	58.15	26.32	21.10	11.28					
3.	AAQM 3	Village Dholera								

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S. No	Station Code	Location	Parameter and Results				Distance	Direction	Rational for Selecting
			PM ₁₀	PM _{2.5}	NO ₂	SO ₂			
			µg/m ³	µg/m ³	µg/m ³	µg/m ³			
		Maximum	56.82	26.82	18.46	11.28	- 2.2 Km	NW	Buffer Zone Downwind
		Minimum	52.34	21.34	15.28	9.36			
	98 percentile	56.34	26.45	18.10	11.00				
Village Nangal Chaudhari									
4.	AAQM 4	Maximum	56.92	28.56	19.26	11.26	- 3 km	SE	Buffer Zone Downwind direction
		Minimum	51.28	26.24	15.40	9.24			
	98 percentile	56.60	28.42	19.00	11.20				
Village Sirahi Bahal									
5.	AAQM 5	Maximum	53.12	27.28	15.89	9.84	- 4.0 km	E	Buffer Zone Cross Wind
		Minimum	53.91	25.20	13.04	8.12			
	98 percentile	56.52	29.98	15.27	9.68				
Village Nivaz Alipur									
6.	AAQM 6	Maximum	55.82	23.92	21.10	12.85	- 5.5 km	W	Buffer Zone Cross Wind
		Minimum	51.16	20.03	10.66	9.96			
	98 percentile	55.63	23.81	19.98	11.91				
Village Satarpur									
7.	AAQM 7	Maximum	56.44	24.62	12.62	11.80	- 7 km	NE	Buffer Zone Cross Wind
		Minimum	50.62	20.86	10.12	8.16			
	98 percentile	50.34	23.52	12.54	11.46				
Village Galwa									
8.	AAQM 8	Maximum	56.34	24.62	12.66	11.32	- 9.5 Km	SW	Buffer Zone Cross Wind
		Minimum	50.26	21.38	10.26	8.12			
	98 percentile	55.32	23.48	12.44	11.32				

S. No	Station Code	Free Silica (µg/m ³) in PM10		
		Max	Min	98 percentile
1	AAQM 1	1.72	1.48	1.68
2	AAQM 2	1.64	1.28	1.62
3	AAQM 3	1.48	1.32	1.42
4	AAQM 4	1.46	1.28	1.44
5	AAQM 5	1.44	1.22	1.42
6	AAQM 6	1.36	1.22	1.34
7	AAQM 7	1.32	1.20	1.28
8	AAQM 8	1.36	1.18	1.34

*Mineralogical composition of free Silica in PM10 has been analyzed only in a season for each monitoring location

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3.7.4 Interpretation and conclusion of results

Ambient Air Quality Monitoring reveals that the minimum and maximum concentrations of PM10 for all the 8 AAQM stations were found to be 66.52 $\mu\text{g}/\text{m}^3$ and 50.26 $\mu\text{g}/\text{m}^3$ respectively and minimum and maximum concentrations of PM2.5 for all the 8 AAQM stations were found to be 31.82 $\mu\text{g}/\text{m}^3$ and 20.3 $\mu\text{g}/\text{m}^3$ respectively. The minimum and maximum concentrations of SO₂ were found to be 13.76 $\mu\text{g}/\text{m}^3$ and 8.12 $\mu\text{g}/\text{m}^3$ respectively. The minimum and maximum concentrations of NO₂ were found to be 21.34 $\mu\text{g}/\text{m}^3$ and 10.12 $\mu\text{g}/\text{m}^3$ respectively. The range of Free Silica in PM10 was found to be $\mu\text{g}/\text{m}^3$ from 1.18 to 1.72. The prescribed CPCB limit of SO₂ and NO₂ is 80 $\mu\text{g}/\text{m}^3$ for residential and rural areas has never surpassed at any monitoring station.

3.6 Soil Analysis

Soil may be defined as a thin layer of earth's crust which serves as a natural medium for the growth of plants. It is the unconsolidated mineral matter that has been subjected to and influenced by genetic and environmental factors, such as, parent material, climate, organisms and physicochemical action of wind, water and sun light acting over a long period of time. Soil differs from the parent materials in the morphological, physical, chemical and biological properties. Also soils differ among themselves in some or all the properties depending on the differences in the genetic and environmental factors.

3.6.1 Soil Profile of District Mahendragarh

Light colored arid soils are found in the major part of the district. These soils are calcareous and have lime nodules in the subsurface horizons. Most of the soils in district are medium textured. Loamy sand is the average texture in all the blocks of the district.

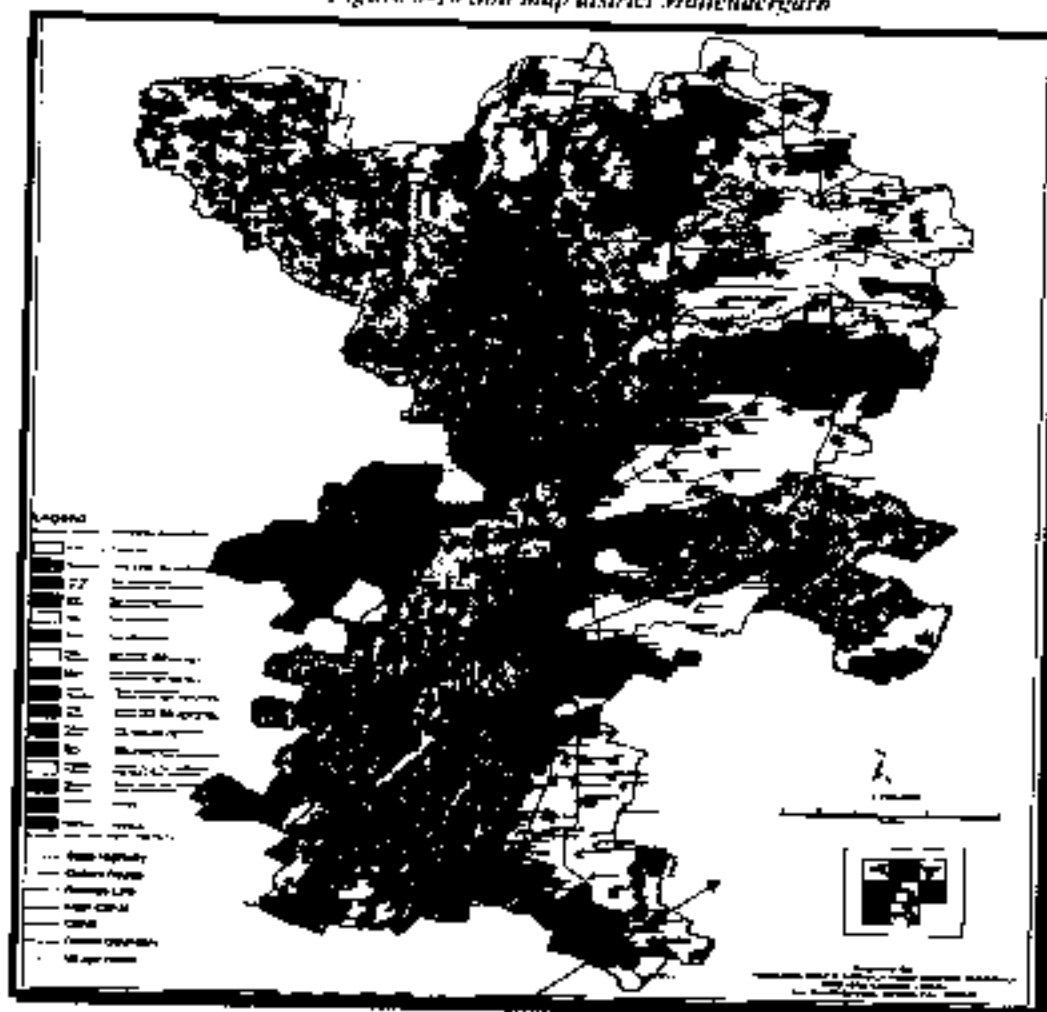
Soil type in district Mahendragarh

S. No.	Items	Year 2010-11	Year 2011-12
1.	Soil Type	Sandy Loam	Sandy Loam
	Alkaline	18.57%	19.02%
	Saline	7.75%	5.56%

Source: <http://mahendragarh.gov.in/agriculture.asp>

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Figure 3-10 Soil map district Mahendergarh



Source: <http://mahendergarh.gov.in/agriculture.asp>

3.6.2 Soil Profile of Study Area

The study on the soil quality establishes the baseline characteristics and identifies the incremental concentrations if any. The soil characteristics include both physical and chemical details, the soil quality monitoring was carried out by the Overseas Test House And Research Center Pvt. Ltd., Jaipur to assess the soil characteristics of the area. The sampling of soils was done at eight locations during the study period.

3.6.3 Objectives

The objectives of the sampling are

- To determine the baseline soil characteristics.

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- To assess the impact on soil (pollutant deposition) over in long run due to proposed activity

3.6.4 Soil Sampling Locations

Soil samples (6) from depth (0-15 cm) were collected from the locations as given in *Table 3-11* for estimation of the physicochemical characteristics of soil. The samples were then packed in polythene plastic bags and sealed. Air-dried and Sieved samples were used for determination of physico-chemical properties of soil. Standard methods were followed for the analysis of soil samples as per the analysis methodology is given in *Table 3-12*.

Table 3-11: Soil Sampling Location

S. No.	Area Description	Sample Code	GPS Coordinate	Distance from M.L. area (km)	Direction from Mining lease area	Frequency
1.	Mine Site	SQ1	Latitude 27°54'44.66"N Longitude 76° 5'12.85"E	-	Mine site	Once during the study period as composite sampling
2.	Jainpur	SQ2	Latitude 27°54'17.50"N Longitude 76° 5'57.81"E	-1.75	SE	
3.	Nangal Chaudhari	SQ3	Latitude 27°55'56.31"N Longitude 76° 49.39"E	- 3 km	SE	
4.	Dholera	SQ4	Latitude 27°53'37.75"N Longitude 76° 6'45.66"E	- 2.4 Km	NW	
5.	Sirohi Bahali	SQ5	Latitude 27°55'11.41"N Longitude 76° 7'54.58"E	-4.65 km	NW	
6.	Niyaz Alipur	SQ6	Latitude 27°54'52.63"N Longitude 76° 1'29.55"E	- 5.5 Km	W	
7.	Salarpur	SQ7	Latitude 27°58'6.38"N Longitude 76° 8'4.41"E	-7 km	NE	
8.	Getwa	SQ8	Latitude 27°50'47.01"N	-9.5 Km	SW	

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S. No.	Area Description	Sample Code	GPS Coordinate	Distance from M.L. area (km)	Direction from Mining lease area	Frequency
			Longitude 76° 1'39.98"E			

Table 3-12: Analysis Methodology of Soil Samples

S. No.	Parameters	Test Method
1.	pH value	IS - 27204 (P-76, 1987)
2.	Conductivity	IS - 14767 - 2000 Reaffirmed 2016
3.	Soil Texture	USDA Method, 1968
4.	Color	USDA Method, 1968
5.	Water Holding Capacity	USDA Method, 1968
6.	Bulk Density	USDA Method, 1968
7.	Chloride (as Cl)	USDA Method, 1968
8.	Calcium (as Ca)	USDA Method, 1968
9.	Sodium (as Na)	USDA Method, 1968
10.	Potassium (as K)	USDA Method, 1968
11.	Organic Matter	IS : 2720 (P-22, 1977)
12.	Magnesium (as Mg)	USDA Method, 1968
13.	Available Nitrogen (as N)	IS : 14681, 1999
14.	Available Phosphorus	USDA, APHA-4510 PC
15.	Zinc (as Zn)	APHA - 3030 D, APHA - 3111 B
16.	Manganese (as Mn)	APHA - 3030 D, APHA - 3111 B
17.	Chromium (Cr)	APHA - 3030 D, APHA - 3111 B
18.	Lead (as Pb)	APHA - 3030 D, APHA - 3111 B
19.	Cadmium (as Cd)	APHA - 3030 D, APHA - 3111 B
20.	Copper (as Cu)	APHA - 3030 D, APHA - 3111 B

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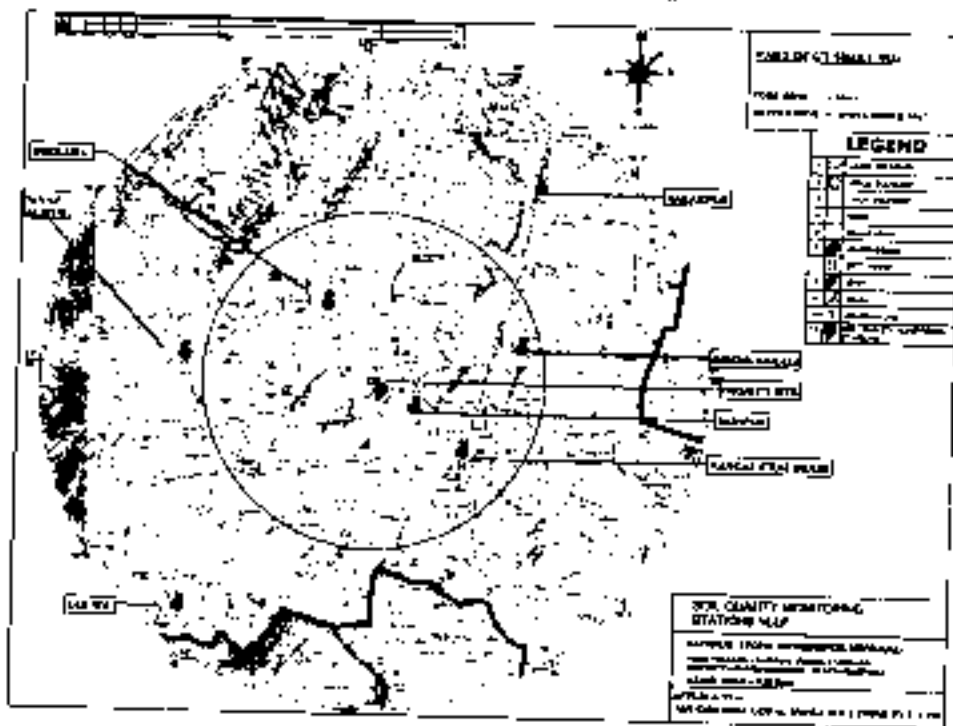


Photograph 3-2: Soil Monitoring at various locations

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Figure 3-11: Map Showing Soil Quality Monitoring Locations



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3.6.5 Soil Analysis Results

The analysis results of the soils are given in Table 3-13.

Table 3-13: Physico-chemical characteristics of soils

S.No.	Parameter	Unit (SI)	S1	S2	S3	S4	S5	S6	S7	S8	Method Use
1.	pH	-	7.16	6.42	7.24	7.62	7.77	7.65	7.54	7.60	IS 2720 (part-26) (1947) (R.A. 2011)
2.	Conductivity	mS/cm	42.9	33.0	40	42	43	36.42	52	60	IS 14672 (part-04) (R.A. 2010)
3.	Moisture content	%	5.57	5.12	4.28	4.12	4.27	3.64	4.51	5.62	IS 2720 (part-21) (1977) (R.A. 2011)
4.	WBC	%	54.25	32.48	31.47	52.42	32.44	21.24	53.24	54.23	LAB-SOP-049
5.	Specific Gravity	-	2.64	2.64	2.5	2.62	2.64	2.66	2.64	2.66	IS 2720 (part-31)
6.	Density	%	37.12	34.54	35.8	-	52.45	32.48	37.97	39.69	IS 2720 (part-11) (1947) (R.A. 2011)
7.	Bulk density	g/cm ³	1.75	1.72	1.64	1.58	1.75	1.7	1.64	1.62	IS 1467 (1965) (R.A. 2011)
8.	Available sodium	kg/ha	118.0	115.24	118.6	114.0	118	118	192	195	LAB-SOP-054
9.	Available potassium	kg/ha	95	92	92.4	96	92	92	107	175	LAB-SOP-056
10.	Available calcium	mg/100g	126	52	102.4	114	112	96	224	226	LAB-SOP-061
11.	Available magnesium	mg/100g	12.54	17.44	12.46	16.4	20.42	20.44	24.54	25.54	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.077	0.014	0.044	0.032	0.056	0.042	0.044	0.045	IS 1464 (1919) (R.A. 2014)
13.	Total Phosphate	kg/ha	51.52	47.54	41.56	45.25	34.47	42.34	35.42	36.24	LAB-SOP-063
14.	Cadmium	Mg/kg	1.92	1.24	1.48	1.47	1.57	1.47	1.32	1.34	USEPA-0505

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S.No.	Parameter	Unit (SI)	S1	S2	S3	S4	S5	S6	S7	S8	Method Use
15	Lead	Mg/kg	0.92	1.25	1.15	1.16	1.37	1.25	1.25	1.3	USEPA 8090B
17	Manganese	Mg/kg	242	218	125	276	113	124	13	132	USEPA 8090B
18	Zinc	Mg/kg	94	172	1242	147	206	116	198	134	USEPA 8090B
19	Iron	Mg/kg	1662	2042	1971	2038	2145	2132	1962	2012	USEPA 8090B
20	Barium	Mg/kg	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	LAB SOP 96
21	CEC (Cation Exchange Capacity)	Meq/100gm	20.34	21.46	21.46	24.52	24.42	22.54	21.42	21.34	LAB SOP 265
22	Organic Carbon	%	0.62	0.48	0.66	0.78	0.49	0.74	0.64	0.66	1:2720 (part 2)
23	Available Nitrogen	%	1.12	1.31	1.25	1.26	0.98	0.92	0.95	0.95	LAB SOP 93
24	Asaketic sulphates	Kg/ha	14.28	78.16	57.42	18.42	24.52	20.42	20.42	26.54	LAB SOP 94
25	ESR (exchangeable Sodium Percentage)	%	5.47	6.41	5.82	5.12	4.82	6.25	5.24	5.25	LAB SOP 133
26	Texture		Clay Heavy Soil	Sandy loam Soil	loamy Soil	Sandy Clay Loam Soil	Clay loam Soil	Sandy Clay loam Soil	loamy Soil	loamy Soil	1:2720 (part 4)
27	Sand	%	18.5	66.45	14.4	66.54	19.64	68.42	19.75	20.14	1:2720 (part 4)
28	silt	%	12.72	24.56	66.42	18.74	18.42	16.42	81.71	66.54	1:2720 (part 4)
29	clay	%	64.58	14.54	15.18	17.22	62.54	15.16	29.38	13.32	1:2720 (part 4)

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Table 3-14 Standard Soil Classification

S. No.	Soil Test	Classification
1.	pH	<4.5 Extremely acidic 4.51- 5.00 Very strongly acidic 5.51-6.0 moderately acidic 6.01-6.50 slightly acidic 6.51-7.30 Neutral 7.31-7.80 slightly alkaline 7.81-8.50 moderately alkaline 8.51-9.0 strongly alkaline 9.01 very strongly alkaline
2.	Salinity Electrical Conductivity (mmhos/cm) (1mmho/cm = 640 ppm)	Upto 1.00 Average 1.01-2.00 harmful to germination 2.01-3.00 harmful to crops
3.	Organic Carbon (%)	Upto 0.2 very less 0.21-0.4 less 0.41-0.5 medium, 0.51-0.8 on an average sufficient 0.81-1.00 sufficient >1.0 more than sufficient
4.	Nitrogen (Kg/ha)	Upto 50 very less 51-100 less 101-150 good 151-300 Better >300 sufficient
5.	Phosphorus (Kg/ha)	Upto 15 very less 16-30 less 31-50 medium, 51-65 on an average sufficient 66-80 sufficient >80 more than sufficient
6.	Potassium (Kg/ha)	0-120 very less 120-180 less 181-240 medium 241-300 average 301-360 better >360 more than sufficient

Source: ICAR (Indian Council for Agricultural Research)

3.6.6 Interpretation and Conclusion of Analysis results

The result of soil analysis is compared with the standard soil classification as 8 number of soil samples have been collected with in the area and analyzed for physical and chemical properties. The sample collected indicated that the pH value for S1,S2, S3& S4 is between 7.76 to 7.82 which show that soil is neutral to alkaline in nature and for S5,S6 S7&S8 is between 7.52 to 7.66 which shows that soil is alkaline in nature. The availability of Organic matters such as Sodium, Potassium, Nitrogen, Calcium,

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Magnesium and Phosphate concentrations are 116.0 kg/ha to 196.0 kg/ha, 76.0 kg/ha to 178 kg/ha, 0.034kg/ha to 0.072 kg/ha, 82 mg/100g to 236 mg/100g, 17.44 mg/100g to 28.4 mg/100g and 36.24 kg/ha to 44.52 kg/ha respectively which are responsible for seed propagation and plant root development. The concentration of Nitrate Nitrogen and Organic Carbon in study area are 0.48 % to 0.82 % respectively which are major plant growth factor.

3.6.7 Suggested Action Plan

The goal of soil management is to protect soil and enhance its performance, so local villagers farm profitably and preserve environmental quality. Regular additions of organic material may be the most important way to enhance soil quality. Organic matter improves soil structure, enhances water and nutrient holding capacity, protects soil from erosion and compaction, and supports a healthy community of soil organisms. Organic matter includes residue and roots from the previous crop, animal manure, cover crops, or amendments from off the farm.

3.8 Ambient Noise

Noise is defined as an unwanted sound. The acoustic environment varies dynamically in magnitude and character throughout in most of the communities. The noise level variation can be temporal. It interferes with speech and hearing and is intense enough to damage hearing or is otherwise annoying. The definition of noise as unwanted sound implies that it has an adverse effect on human beings and their environment. Noise can also disturb natural wildlife and ecological system. Sound is mechanical energy from a vibrating surface, transmitted by cyclic series of compression and rarefaction of molecules of the materials through which it passes. Sound can be transmitted through gases, liquids and solids. The number of compressions and rarefactions of the air molecules in the unit of time is described as its frequency. Frequency is expressed in hertz (Hz), which is the same as the number of cycles per second.

3.8.1 Methodology of Ambient Noise Monitoring

Instant Sound Level Meter (SLM) was used for the collection of data related to noise at an interval of one hour. The day noise levels were monitored during 6:00 AM to 10:00 PM and night noise levels during 10:00 PM to 6:00 AM at all the locations covered in the study area. Measured noise level displayed as a function of time provides a useful scheme for describing the acoustical climate of a community. Noise levels recorded at each station were computed for equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels. The equivalent noise level is defined mathematically as:-

$$10 \log_{10} T \sum (10^{L_i/10})$$

Where L = Sound pressure level a function of time dB (A)

T = Time interval of observations

3.8.2 Noise Monitoring Locations

The hourly Log noise levels were recorded at eight locations in the study area; sampling locations are given in *Table 3-15*, and also shown in *Figure & Photographs 3-12*.

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Table 3-15: Noise Monitoring Locations

S. No.	Area Description	Sample Code	GPS Coordinates	Distance from Mining lease area	Direction from M.L. area	Rational for Selection of monitoring Location	Frequency
A	Mine Site	NQ1	Latitude 27°54'44.66"N Longitude 76° 5'12.85"E	-	Mine site	Core area	Noise was measured once during the study period for 24 hrs. The day noise levels have been monitored during 6:00 AM to 10:00 PM and night noise levels during 10:00 PM to 6:00 AM at all the locations covered in the study area
B	Jaisour	NQ2	Latitude 27°54'17.44"N Longitude 76° 5'56.24"E	-1.75	SE	Buffer Zone Upwind direction	
C	Dhewara	NQ3	Latitude 27°55'57.35"N Longitude 76° 4'9.85"E	- 2.41 Km	NW	Buffer Zone Cross wind direction	
D	Nangal Chaudhari	NQ4	Latitude 27°53'43.41"N Longitude 76° 6'40.97"E	- 3 km	SE	Buffer Zone Downwind direction	
E	Sirohi Bahali	NQ5	Latitude 27°55'11.32"N Longitude 76° 7'55.72"E	- 4.0 Km	E	Buffer Zone Down wind direction	
F	Niyaz Alipur	NQ6	Latitude 27°54'53.58"N Longitude 76° 1'28.42"E	- 5.5 Km	W	Buffer Zone Cross wind direction	
G	Salarpur	NQ7	Latitude 27°58'6.92"N Longitude 76° 8'5.10"E	- 7 km	NE	Buffer Zone Cross wind direction	
H	Go'wa	NQ8	Latitude 27°50'46.26"N Longitude 76° 1'38.45"E	-9.5 Km	SW	Buffer Zone Cross wind direction	

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Photograph 3-3: Ambient Noise Monitoring

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3.8.3 Results of Ambient Noise Monitoring

Noise readings were taken from 8 locations during the study period, and the results are given in *Table 3-16*.

Table 3-16: Ambient Noise Monitoring Results

Sampling code	Name of the location	CPCB Limit dB(A)		Noise levels dB(A)		Rational for Selection of monitoring Location
		Leq day (6.0 AM TO 10.0 PM)	Leq night (10.0 PM TO 6.0AM)	Day Time (6.0 AM TO 10.0 PM) L _{eq}	Night Time (10.0 PM TO 6.0AM) L _{eq}	
NQ1	Mine Site	75	70	66.8	44.4	Core area
NQ2	Jainpur	55	45	51.4	40.2	Buffer Zone Upwind direction
NQ3	Dholera	55	45	52.4	41.6	Buffer Zone Cross wind
NQ4	Nategal Chaudhari	55	45	52.8	40.6	Buffer Zone Downwind direction
NQ5	Sirohi Bahali	55	45	50.4	41.2	Buffer Zone Downwind direction
NQ6	Niyaz Alpur	55	45	53.8	42.6	Buffer Zone Cross wind direction
NQ7	Salarpur	55	45	52.4	41.6	Buffer Zone Cross wind direction
NQ8	Golwa	55	45	53.4	43.6	Buffer Zone Cross wind direction

Generally, noise levels in public places like temples and community hall have higher values in day time. In the study area, higher Noise level 66.80 dB (A) was recorded during day time at Mine site & lower Noise level of 40.2 dB (A) was recorded during night time in village Jainpur.

Day time Noise Levels (Leq day)

- The day time (Leq day) noise levels observed in the range of 50.4 to 66.8 dB (A) in residential area.

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Night time Noise Levels (Leq night)

- The night time (Leq night) Noise levels observed in the range of 40.2 to 44.4 dB (A) which is within the prescribed limit of 45 dB (A) in residential area.

Industrial Area Noise Levels (Leq)

- The noise levels at the mine site were found to be 66.8 dB (A) during day time and 44.4 dB (A) during night time.

Interpretation and conclusion

It was observed from the noise monitoring results that the noise levels at the mine site and the surrounding were higher side. However, within the noise standards prescribed by CPCB for residential, sensitive and industrial areas.

3.9 Hydrology and Physiography of the Study Area

3.9.1 Hydrology

Groundwater Scenario of Haryana

The normal annual rainfall of the district is 420 mm which is unevenly distributed over the area 22 days. The south west monsoon sets in from last week of June and withdraws in end of September, contributed about 85% of annual rainfall. July and August are the wettest months. Rest 15% rainfall is received during non-monsoon period in the wake of western disturbances and thunder storms.

The net ground water draft is 22778 Ham., thus over exploiting 1343 Ham of ground water. The stage of ground water development in the district is 104%.

Hydro-geological map of Haryana (June-2021) is shown in *Figure 3-14* and Hydro-geological map of Haryana (August-2021) is shown in *Figure 3-15*.

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Figure 3.14 Depth to Water Level Map of Haryana State (June 2021)

Figure-14 Hydrology of Haryana (June 2021)



Figure 3.2 Depth to Water Level Map of Haryana State (August 2021)

Figure-15 Hydrology of Haryana (August 2021)

Source: Central Groundwater Board, Haryana

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3.9.2 Physiography

Physiographically, the district can be sub-divided into SatnaliBagar, Mahendragarh Undulating Plain and Krishnawati Plain regions. SatnaliBagar extends over north western fringe of the district. Desert topography is dominant. The district abounds in sand dunes and barren low hills of great Aravalli Range. Sand dunes range from 3 to 5 metres in height. The slope of the district is towards north in which direction the rainfed streams of the district flow. Topographically, the applied area is rugged and hilly.

The area allotted for mining is located 8 Km. North-West of Nangal Chaudhary. The allotted area for mining is having flat terrain with some undulations, generally sloping and rocky. Highest elevation of 339.0 mRL and lowest elevation of 330.00 mRL, thus the elevation difference is of 9 m. The high gradient of south central hillock is in north and south direction while the rest part is showing the moderate to gentle topography. The highest elevation of 308.0 mRL and lowest elevation of 292.0 mRL is observed in buffer zone.

There is no perennial river in the district. The general slope of the district is from south towards north in which direction rain fed streams of the district flow. The Chandrawati and the Kasauti Nadi (or Krishnawati) are the main seasonal streams of the district running parallel to each other from south west to north east and pass through middle of the district. The drainage pattern follows the general trend of the topography and is towards Eastern side of the lease area.

Krishnawati River at a distance of ~ 15 km in East direction. Drainage of the buffer zone is towards North East direction.

3.9.3 Interpretation and conclusion

The applied area is rugged and hilly. The elevation difference is of 10m. There is no protected or reserved forest in the lease area. General drainage pattern is towards North Eastern part of the allotted area. The shallow ground water of the district is alkaline in nature (pH 7.46 to 8.40) and is fresh to highly saline. Among anions, bicarbonate as well as chloride dominates in 40% samples and in the remaining samples, none of the anion dominates. Among cation, sodium dominates in about 60% of the samples whereas calcium and magnesium dominate in the remaining 40% samples. There are several contour depressions in northwestern direction which meet into the nullah. Drainage of the buffer zone is towards North East direction.

3.10 Water Environment

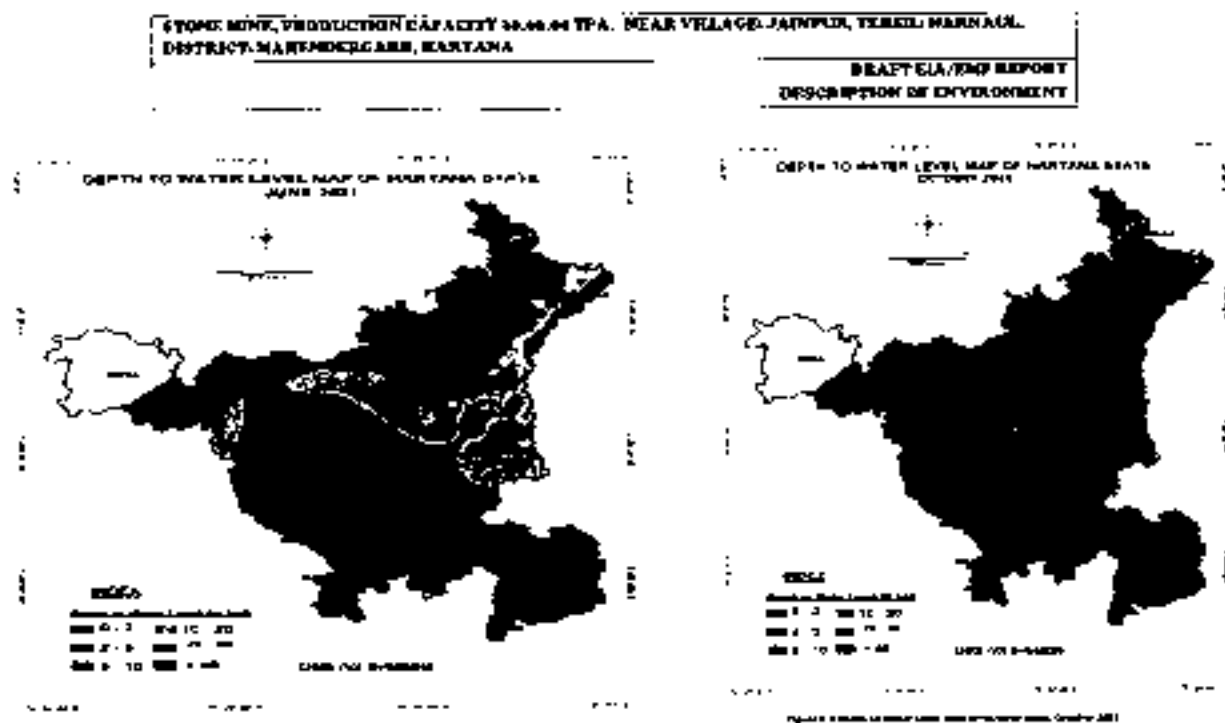
3.10.1 Groundwater Scenario of Mahendergarh District

The district is underlain by alluvium and blown sand of recent to sub recent age which are overlying the rocks of Delhi and Delhi system. Comparing the concentration values of major ions with the recommended desirable and permissible concentration limits for drinking waters (Bureau of Indian Standard) it found that ground water are not suitable for drinking purpose either due to high nitrate or due to high fluoride.

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To study groundwater regime of the area, pre-monsoon and post-monsoon groundwater maps of the Mahendgarh district have been prepared and shown in *Figure 3-18*.



Source: Central Groundwater Board

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It would be better if such waters are used for irrigation salt tolerant crops along with appropriate amount of gypsum on well drained soils.

3.10.2 Groundwater Resources – Secondary Data

The block wise ground water resources potential in the district area has been assessed as per GLC 97. The stage of ground water development in the district ranges 49% (Block-Narnaul) to 178% (Block-Kanina). The total replenish able ground water resources in the district is 21435 Ha.m. The net ground water draft is 22778 Ha. m. thus over exploiting 1343 ha. m. of ground water . The stage of ground water development in the district is 104%.

Assessment unit/block	Net ground water available	Existing ground water draft for irrigation	Existing GW draft for domestic & industrial supply	Existing GW draft for all users	Allocation for domestic and industrial supply next 25 yrs	Net GW draft available for future irrigation development	Stage of GW development (%)
Ateli	3881	3422	70	3492	90	369	90
Narnaul	3726	1694	116	1715	108	1924	49
Kanina	4673	8266	44	8310	44	-3636	178
Mahendragarh	5004	5140	82	5222	82	-219	104
Nanga Choudhary	4151	3931	108	4039	791	-571	97
TOTAL	21435	22453	420	22778	1115	-2133	103.80 say 104

Table 3-17: Ground water resources and development potential of Mahendragarh district

Source: Central Groundwater Board

3.10.3 Ground water potential and water balance in the study area

Groundwater potential and water balance study for the present and future along with water harvesting and recharge in the area is presented below:

Water Balance study for core zone:

Annual ground water recharge in the core zone of mining lease area:

- A = Average annual rainfall of the area (500 mm)
- B = Infiltration index 3 % in soft zone
- C = Geographical area (1899 Sq. km)
- R_g = Recharge in Culturable area

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C	Culturable area
RC	= Recharge in Culturable area
Sy	= Specified yield 3 % in soft zone
D	= Annual Draft
R	= Recharge
Z	= Fluctuation in meters as per representation wells
RF	= Recycled irrigation water 30 % of draft for irrigated wells to be added in the recharge calculated by rainfall infiltration method
S	= Sub surface out flow and evaporation transportation losses 15% of the recharge for partially developed area.

Infiltration Index: - 3%

Geographical Area: - 1899 Sq. km

Average rainfall: - 500 mm

Ground water recharge: - Geographical area x Average rainfall x Infiltration ratio

Ground water recharge in the buffer zone: - $189900 \times 0.5 \times 0.03$

$$= 2.84 \text{ M cu m}$$

Draft (Buffer Zone)

Irrigated land: - $1210 \text{ sq km (Area ha)} \times 2000 \text{ (liter/day/ha)} \text{ for } 80 \text{ days} = 0.19 \text{ M cu m}$

Human Population: - $9,21,680 \text{ (persons)} \times 50 \text{ (liter/day/ha)} \times 365 = 0.16 \text{ M cu m}$

Cattle Population: - $31,554 \text{ (cattle)} \times 31 \times 20 \text{ (liter/day/ha)} \times 365 = 0.71 \text{ M cu m}$

Mining & Other Industries: - $500 \text{ KLD} \times 300 \text{ (days)} = 0.15 \text{ M cu m}$

Total Water Consumption: - Human Population + Other Industries + Cattle Population + Irrigated Land

$$0.19 + 0.16 + 0.71 = 1.06 \text{ Mm}^3$$

Water Balance by Rainfall Infiltration = Ground Water recharge (buffer zone) - Total Water Consumption

Water Balance by Rainfall Infiltration method (Buffer Zone)

$$2.84 - 1.06 = 1.78 \text{ mcm}$$

Water Consumption for mining work (300 days)

$$300 \text{ days} \times 40 \text{ KLD} = 1.20 \text{ M cu m}$$

Hence it can be inferred that plenty of groundwater is available in the area to be used for different purposes.

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3.10.J Methodology of Surface and Groundwater Monitoring

Water samples were collected once during the study period as grab samples at identified locations. The analysis methodology for water samples is given in *Table 3-18*.

Table 3-18: Water Sampling Methodology

Sr. No.	Parameters	Test Method
1.	pH value	APHA 22nd Edition, 4500- H-B
2.	Color	APHA 22nd Edition, 2130 B
3.	Turbidity	APHA 22nd Edition, 2130 B
4.	Odor	APHA 22nd Edition, 2150 B
5.	Taste	APHA 22nd Edition, 2160 H
6.	Total Hardness as CaCO ₃	APHA 22nd Edition, 2340 C
7.	Calcium (as Ca)	APHA 22nd Edition, 3500 Ca B
8.	Alkalinity (as Ca CO ₃)	APHA 22nd Edition, 2320 B
9.	Chloride as Cl ⁻	APHA 22nd Edition, 4500-Cl- B
10.	Cyanide (as CN ⁻)	APHA 22nd Edition, 4500-CN D
11.	Magnesium (as Mg)	APHA 22nd Edition, 2340 B
12.	Total dissolve solid (TDS)	APHA 22nd Edition, 2540 C
13.	Sulphate (as SO ₄)	APHA 22nd Edition, 4500 S
14.	Fluoride (as F ⁻)	APHA 22nd Edition, 4500- F- D
15.	Nitrate as NO ₃	IS 3025 (P-34) 1988
16.	Iron (as Fe)	APHA 22nd Edition, 3500- Fe- B
17.	Aluminum (as Al)	APHA 22nd Edition, 3111 B
18.	Boron (as B)	APHA 22nd Edition, 4500 B C
19.	Hexa Chromium (Cr + 6)	APHA 22nd Edition, 3111 B
20.	Phenolic Compound	APHA 22nd Edition, 5530 C
21.	Mineral Oil	Clause 6 of IS : 3025 (Part 39)
22.	Anionic surface Detergents (as MBAS)	APHA 22nd Edition, 5540 C
23.	Zinc (as Zn)	APHA 22nd Edition, 3111 B
24.	Copper (as Cu)	APHA 22nd Edition, 3111 B
25.	Manganese (as Mn)	APHA 22nd Edition, 3111 B
26.	Cadmium (as Cd)	APHA 22nd Edition, 3111 B
27.	Lead (as Pb)	APHA 22nd Edition, 3111 B
28.	Selenium (as Se)	APHA 22nd Edition, 3111 B
29.	Arsenic (as As)	APHA 22nd Edition, 3111 B
30.	Mercury (as Hg)	APHA 22nd Edition, 3111 B
31.	Total Coliform	IS 1622, 1981 (Reaffirmed 2003)
32.	E. Coli	IS 1622, 1981 (Reaffirmed 2003)

STONE MINE, PRODUCTION CAPACITY 50,00,00 TPA, NEAR VILLAGE: JAINPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA
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3.10.5 Groundwater Monitoring Locations

Eight samples of groundwater from different sites i.e. open well and Dug wells, were collected from the available water resources around the mine area. The quality of groundwater was studied. The water sampling stations are marked on *Figure 3-17*. The details of groundwater sampling locations and their distance & directions are given in the *Table 3-19*.

Photograph 3-4(A): Groundwater Monitoring Location Photographs

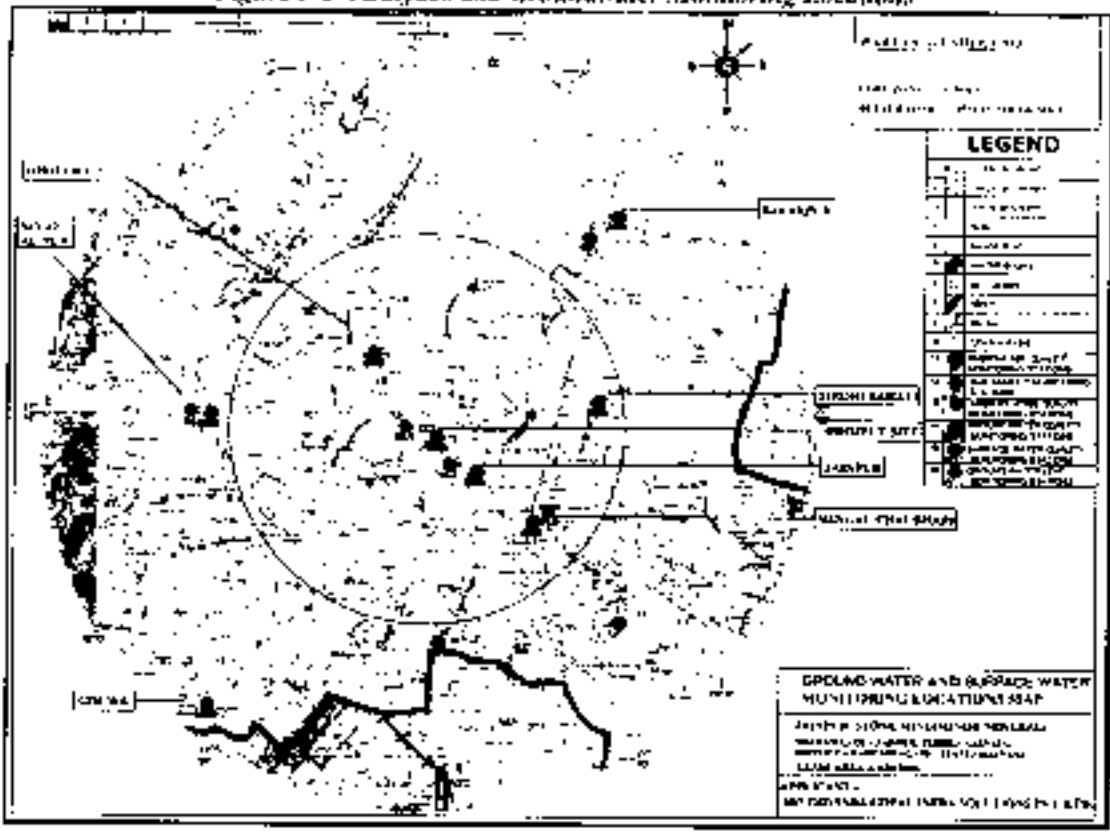


Photograph 3-7(B): Surface Water Monitoring Location Photographs



STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA, AT PLOT NO. 3, NEAR VILLAGE: BAKHRIJA, TEHSIL: NARNA UL, DISTRICT: MAHENDERGARH, HARYANA
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Figure 3-17: Surface and Groundwater Monitoring Locations



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Table J-19: Groundwater Sampling Locations

S. No.	Area Description	Sample Code	Source	GPS Coordinate	Distance from M.L. area(km)	Direction from M.L. area	Frequency
A	Mine site	GW1	Hand Pump	Latitude 27°54'44.66"N Longitude 76° 5'12.85"E			Once during the study period as grab sample
B	Dhokra	GW2	Dug well	Latitude 27°54'16.16"N Longitude 76° 5'57.70"E	-2.41 Km	NW	
C	Nangal Chaudhari	GW3	Hand Pump	Latitude 27°55'56.10"N Longitude 76° 4'9.92"E	-3 km	SE	
D	Jainpur	GW4	Hand Pump	Latitude 27°53'38.35"N Longitude 76° 6'40.83"E	-1.75	SE	
E	Sirohi Bahali	GW 5	Dug well	Latitude 27°55'12.28"N Longitude 76° 7'54.60"E	-4.0 km	E	
F	Niazalipur	GW6	Bore well	Latitude 27°54'53.55"N Longitude 76° 1'29.96"E	- 5.5 Km	W	
G	Salarpur	GW7	Hand Pump	Latitude 27°58'6.39"N Longitude 76° 8'4.80"E	-7 km	NE	
H	Gofra	GW8	Dug well	Latitude	-9.5 Km	SW	

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S. No.	Area Description	Sample Code	Source	GPS Coordinate	Distance from M.L. area(km)	Direction from M.L. area	Frequency
				27°50'47.90"N Longitude 76°14'2.53"E			

STONE MINE, PRODUCTION CAPACITY 1400000 TPA, NEAR VILLAGE JAINPUR,
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3.10.6 Groundwater Analysis Results

Groundwater was monitored at 8 locations within the study area during the Winter Season (December, January and February 2022-2023) and the month/seasonal monitoring has been also done, the results are shown in Table 3-20.

Table 3-20: Groundwater Analysis Results

S. No.	Parameters	Unit (SI)	Specification SPCB norma/BIS Standard	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Permissible Limits in the absence of alternate source	Method Used
1.	pH		6.5-8.5	7.14	7.8	7.66	7.76	7.46	7.7	7.54	7.68		APHA: 4500-H ⁺ B 22 nd Edition
2.	Conductivity	ms/cm	-	44	34	35	36	35	34	34	38		APHA: 2510-B 22 nd Edition
3.	Turbidity	NTU	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10	APHA: 2120-B Spectrophotometric Method 22 nd Edition
4.	Colour	PCU	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	25	APHA: 2120-B Visual Comparison Method 22 nd Edition
5.	COD	mg/l	-	-	-	-	-	-	-	-	-		APHA: 5210-H 22 nd Edition
6.	Total Dissolved Solids	mg/l	500	275	223	215	218	224	256	254	412	500	APHA: 2540-C 22 nd Edition
7.	Dissolved Oxygen (D.O)	mg/l	-	-	-	-	-	-	-	-	-		APHA: 4500-O 22 nd Edition
8.	Alkalinity	mg/l	200	156.0	92	98	102	114	116	112	116	605	APHA: 2470-B Alkalinity 22 nd Edition
9.	Chloride	mg/l	250	96	84	70	68	74	65	66	74	1000	APHA: 4500-Cl ⁻ B 22 nd Edition
10.	Sulphate	mg/l	250	88	28	28	56	68	42	58	62	400	APHA: 4500-SO ⁴ -1 22 nd Edition
11.	Fluoride	mg/l	1.0	0.55	0.54	0.66	0.52	0.56	0.7	0.52	0.92	1.5	APHA: 4500-F 22 nd Edition

STEEL PIPE, PRODUCTION CAPACITY 240000 TPA, NEAR VILLAGE, JALPOT, TEHRI: NAUNAH, DISTRICT: NAKHONOSIKHAB, BARYANA	ENVIRONMENTAL IMPACT ASSESSMENT REPORT DESCRIPTION OF INVESTMENT
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S. No.	Parameters	Unit (SI)	Specification/ SPCB (IS/IS: BIS Standards)	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	Permissible Limit in the absence of alternate source	Method Used
12.	Sodium	mg/l	--	88.4	45.4	52.4	48	38.4	22.8	21.4	26.4		APHA: 3501-N-H 22 nd Edition
13.	Potassium	mg/l	--	42.4	19.6	22.6	20	21.6	11.8	11.8	16.4		APHA: 3502-K-H 22 nd Edition
14.	Total Hardness	mg/l	200	212	122	242	228	194	210	216	210		APHA: 2140-C-H 22 nd Edition
15.	Ca. Hardness	mg/l	--	180	90	124	124	152	124	124	102		APHA: 3504-C-H 22 nd Edition
16.	Calcium as Ca	mg/l	75	75.38	36.02	49.2	49.2	72.94	49.72	73.74	73.66	200	APHA: 3504-C-H 22 nd Edition
17.	Mg. Hardness	mg/l	--	26	32	116	102	22	86	92	118		APHA: 3500-Mg-H 22 nd Edition
18.	Magnesium as Mg	mg/l	50	1.47	1.29	25.82	24.64	13.53	8.96	1.6	28.74	100	APHA: 1100-Mg-H 22 nd Edition
19.	Ammonia Nitrogen	mg/l	--	0.62	0.52	0.65	1.62	0.12	1.30	0.24	1.02		IS: 3025 (Part 3) 1988 (RA: 2014)
20.	Nitrate	mg/l	45	2.64	0.24	0.34	1.22	1.44	0.68	1.44	1.48	100	IS: 3025 (Part 3) 1988 (RA: 2014)
21.	Phosphate	mg/l	--	1.32	1.12	1.14	1.16	1.62	1.24	1.26	1.52		APHA: 4100-PO-H 22 nd Edition
22.	Calcium	mg/l	0.003	0.01	0.1	0.1	0.1	0.1	0.01	0.01	0.01	0.01	APHA: 3114-B 22 nd Edition
23.	Copper	mg/l	0.05	0.05	0.03	0.01	0.01	0.02	0.02	0.03	0.03	1.5	APHA: 3131-B 22 nd Edition
24.	Iron	mg/l	0.3	0.12	0.24	0.32	0.32	0.24	0.26	0.24	0.26	1.0	APHA: 3500-Fe-H 22 nd Edition
25.	Lead	mg/l	0.01	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15		APHA: 3111-B 22 nd Edition
26.	Manganese	mg/l	0.1	0.02	0.03	0.03	0.03	0.03	0.20	0.23	0.20	0.3	APHA: 3111-B 22 nd Edition
27.	Zinc	mg/l	5	1.22	1.18	1.14	1.24	1.28	1.26	1.24	1.21	150	APHA: 3111-B 22 nd Edition

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3.10.7 Observation & Interpretation

The analysis results shows that the pH for the ground water samples GW1, GW2, GW3, GW4, GW5, GW6, GW7 and GW8 ranged from 7.56 to 7.8 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 218 mg/l to 412 mg/l which is within the permissible limit of 2000 mg/l. The highest TDS was found in GW6 and GW8. Total Hardness of Ground water samples in the study area was found to be 122-310 mg/l which is within permissible limit. Alkalinity indicates better buffering capacity of water and ranges between 92-166 mg/l.

Fluoride content varies from 0.3 mg/l – 0.92 mg/l which is within permissible limit. The overall ground water quality in the study area was found to be mineralized with respect to total dissolved solids, chloride (64 mg/l to 96 mg/l), sulphate (26.00 mg/l to 88.00 mg/l) and hardness. However, levels of heavy metals were found to be less except iron in limit of 0.32 mg/l to 0.66 mg/l.

3.11 Surface Water

3.11.1 Surface Water Monitoring Location

The surface water samples were taken from 2 locations during the Post- Monsoon season of 2022-2023; the location details are given in *Table 3-21* and also shown in *Figure 3-19*.

Table 3-21: Surface Water Monitoring Locations

S. No.	Area Description	Sample Code	GPS Coordinate	Distance from M.L. area(km)	Direction from M.L. area
A	Mugla Binja (Open Pond)	SW1	Latitude 27°51'39.99"N	1.25 km	SE
			Longitude 76° 5'21.98"E		
B	Nangal Dagra (Open Water Reservoir)	SW2	Latitude 27°57'35.71"N	8.0 km	NE
			Longitude 76° 7'47.72"E		

3.11.2 Surface Water Monitoring Results

The monitoring results are given in *Table 3-22*

Table 3-22: Surface Water Monitoring Results

S. No.	Parameters	Unit (SI)	S1	S2	Method Used
1.	pH	—	7.54	7.62	APHA: 4500-H ⁺ B 22 nd Edition
2.	Conductivity	mS/m	42	48	APHA: 2510 B, 22 nd Edition

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S. No.	Parameters	Unit (SI)	S1	S2	Method Used
3.	Turbidity	NTU	<1.0	<1.0	APHA: 2130-B Nephelometric Method 22 nd Edition
4.	Colour	Pt-Co	<5.0	<5.0	APHA: 2120-b Visual Comparison Method 22 nd Edition
5.	COD	mg/l	32	142	APHA: 5220 B 22 nd Edition
6.	Total Dissolved Solids	mg/l	310	324	APHA: 2540 C 22 nd Edition
7.	Dissolved Oxygen (D.O)	mg/l	3.5	4.0	APHA: 4500 O-C 22 nd Edition
8.	Alkalinity	mg/l	116	118	APHA: 2320 B Alkalinity 22 nd Edition
9.	Chloride	mg/l	92	112	APHA: 4500-CTB 22 nd Edition
10.	Sulphate	mg/l	64	84.4	APHA: 4500-SO ₄ B 22 nd Edition
11.	Fluoride	mg/l	58	1.24	APHA: 4500-F/D 22 nd Edition
12.	Sodium	mg/l	58.4	86	APHA: 3500-Na B 22 nd Edition
13.	Potassium	mg/l	14.8	54.2	APHA: 3500-K B 22 nd Edition
14.	Total Hardness	mg/l	224	262	APHA: 2340 C 22 nd Edition
15.	Ca. Hardness	mg/l	176	184	APHA: 3500 Ca B 22 nd Edition
16.	Calcium as Ca	mg/l	70.54	73.74	APHA: 3500-Ca B 22 nd Edition
17.	Mg. Hardness	mg/l	48	78	APHA: 3500-Mg B 22 nd Edition
18.	Magnesium as Mg	mg/l	11.69	19	APHA: 3500 Mg B 22 nd Edition
19.	Amm. Nitrogen	mg/l	1.24	1.54	IS 3025 (Part 34); 1988 (RA 2014)
20.	Nitrate	mg/l	1.52	2.56	IS 3025 (Part 34); (3) 1988 (RA 2014)
21.	Phosphate	mg/l	1.66	1.82	APHA: 4500-PC 22 nd Edition
22.	Cadmium	mg/l	<1.0	<1.0	APHA: 3111 B 22 nd Edition
23.	Copper	mg/l	0.03	<0.03	APHA: 3111 B 22 nd Edition
24.	Iron	mg/l	0.62	0.64	APHA: 3500 Fe-B 22 nd Edition
25.	Lead	mg/l	<0.15	<0.15	APHA: 3111 B 22 nd Edition
26.	Manganese	mg/l	<0.04	0.04	APHA: 3111 B 22 nd Edition
27.	Zinc	mg/l	1.38	1.72	APHA: 3111 B 22 nd Edition
28.	*BOD	Mg/l	128	32	-

3.11.3 Observation and Interpretations

Surface water samples were collected, analyzed and compared with Indian standard for drinking water 10500:2012. pH value was found to be 7.54 to 7.62 which indicates that surface water is alkaline in nature. TDS was found to be 310-324 mg/l which is within the permissible limit 500 mg/l. Dissolve oxygen were found about 4.0 mg/l. It is seen that the physicochemical analysis of other parameters like chloride, calcium, magnesium, nitrate and fluoride were found within the desirable limit. The overall surface

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water quality of the available sources within the study area was found to be good physico-chemically with respect to all the parameters. There is no organic load-observed in the sources monitored indicating no pollution load in the source.

3.12 Traffic Density Survey

The traffic study was carried out on State Highway - 17 which is ~ 9.85 Km, in NW direction, SH-37 D which is ~ 13.15 Km, in SE direction from the lease area. The main objective of the survey is to characterize the type, category and number of vehicles plying on the road.

Name of State Highway	Direction		Dispatched ratio in percentage
	Up	Down	
SH- 17	Dadri	Nizampur	47
SH- 26	Rawan	Rajasthan (Jhunjhuna)	19
SH- 14	Dadri	Rajasthan (Alwar)	14
Total Mineral transported through state highway			100%

3.12.1 Methodology of Vehicle Count

The vehicle plying on road in both the directions were counted continuously for 24 hours. The vehicles were counted every hour and stipulated by Indian Road Congress (IRC)

Two outlets are proposed for transportation of minerals from lease area to State Highway. Considering the capacity of the dumper is 30 ac. to transport 40000 te daily 834 dumpers has to pass through this two proposed road. Thus traffic on each road will be of 417 dumpers in 24 hours. As separate road will be constructed for mineral transportation hence there will be no issue by local inhabitants. All the requisite clearances such as land acquisition etc. will be carried out by the lease holder only at his own.

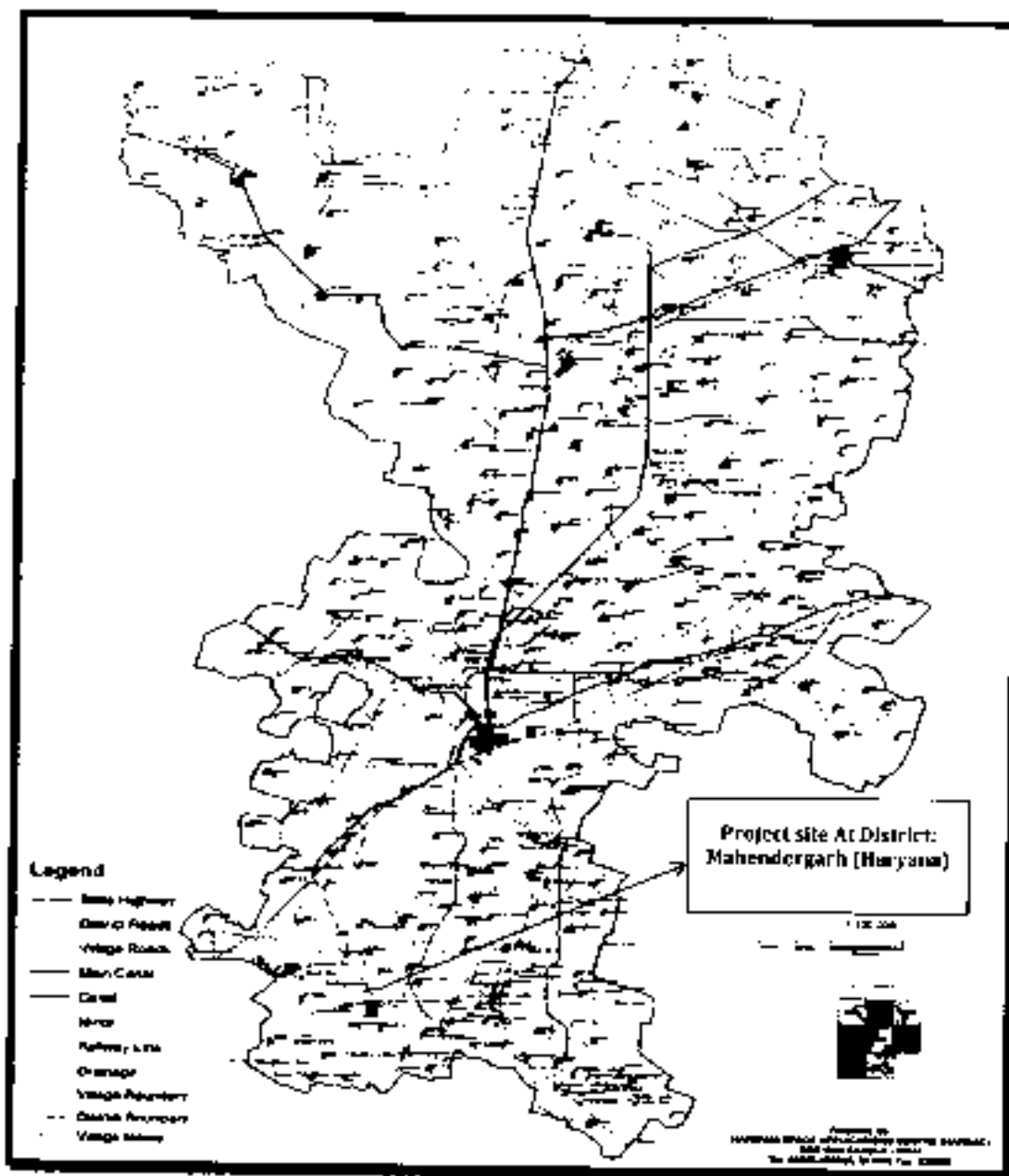
The loaded & unloaded dumpers / trucks will move on the State Highway for the further transportation of minerals from the lease area to other places of demand for the Stone along with Associated Minor Minerals. Keeping in view that, the movement of trucks / dumpers may increase the traffic density of the nearest State Highway. A traffic Study on the present traffic scenario have been made to measure the increase PCU/hr.

Traffic study measurements were performed at three locations on 06.02.2018, 09.02.2018 and 10.02.2018 at SH- 17, SH- 26 & SH- 14 respectively to assess impact on local transport infrastructure due to this mining project.

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Figure 3-18(A): Existing Road Map for Transportation of District Mahendergarh



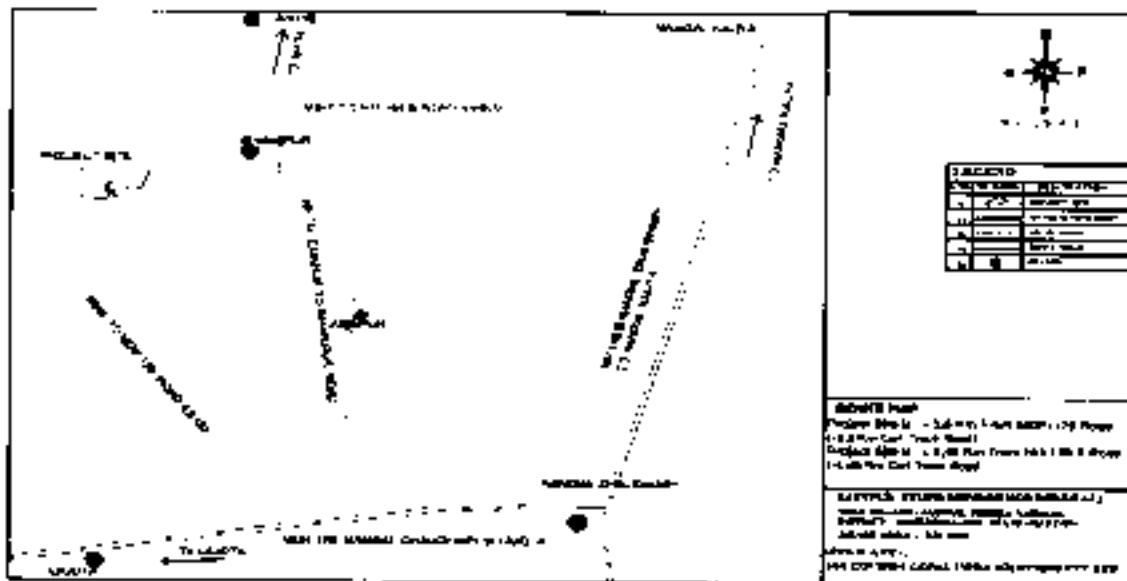
Source: <http://mahendergarh.gov.in/index.asp>

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Figure 3-18(B): Map for Transportation of Stone through haul road to highway



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Table 3-23: Existing Passenger Car Unit (PCU) on State Highway

S. No.	Vehicles Distribution	Number of Vehicles Distribution / day		Passenger Car Unit (PCU)	Total Number of Vehicle (PCU) hour	
		SH- 17	SH- 37 D		SH- 17	SH- 37 D
1.	Cars	3500	2900	1.0	3500	2900
2.	Buses	250	190	3.0	750	570
3.	Two wheelers	1500	1350	0.5	750	675
4.	Three wheelers	1000	900	1.50	1500	1350
5.	Trucks	600	550	3.0	1800	1650
	Total	6850	5890	Total	8300/24 = 346 PCU/hr	7145/24 = 298 PCU/hr

Table (B): Existing traffic scenario & LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
SH- 17	346	900	0.38	B
SH- 37 D	298	600	0.49	C

The existing level may be "very good" for SH- 17, "Average" for SH- 26 & SH 14.

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-0.10	E	Very Poor

Note: Capacity as per IRC: 64-1990

3.12.2 Post project Increase in Traffic Density

Post Project incremental Passenger Car Units (PCU) on State Highway are given in Table 3.24

During Mine Operation

Total Capacity of Mine	: 30, 00,000
No. of working days	: 300
Extraction and transportation of mineral	: 1,000 MT/day
Working Hour per day	: 24
Truck Capacity	: 24 tonnes
No. of trucks deployed [24 no. x 35 trips/day x 2 (up/down)]	: 1680
No. of trucks deployed/hr	: 70

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Increase in PCU/hr . 210

Table 3.24 : Modified Traffic Scenario & LOS

Road	Increased PCUs/State Highways	V	C	Modified V/C Ratio	LOS
SH- 17	$210 \times 47\% = 99$	$346 + 99 = 445$	900	0.49	C
SH- 37 D	$210 \times 39\% = 82$	$298 + 82 = 380$	600	0.64	C

Conclusion

Not much impact will be there on the local transport as only 24 no. x 35 trips . day x 2 (up:down) = 1680 dumpers/ day will be required for transport of minerals from mine. The LOS value from the proposed mine may be "Good" for all two state highways. So, the additional load on the carrying capacity of the concern roads is not likely to have any significant adverse effect.

3.13 Biological Environment

3.13.1 Objective of the study

The objectives of this study were as follows:

- To collect baseline data for the study along with a description of the existing terrestrial, wetland and aquatic vegetation.
- To assess scheduled species in the proposed site (rare, endangered, critically endangered, endemic and vulnerable).
- To identify locations and features of ecological significance.
- To identify impact of proposed project before, after and during development phase.

3.13.3 Project Affected area (Mine Lease Area)

The dominant trees in the study area are *Azadirachta indica* (Neem), *Khejari* (*Prosopis cineraria*), *Babool* (*Acacia nilotica*), *Mangifera indica* (Aam). Total 43 species of trees from the study area.

Shrubs and Herbs: Total 25 shrub species are found in the study area. The dominant shrub community in this area was represented by *Prosopis juliflora* (Bilayati babool), *Calotropis procera*, (Akoda), etc. The shrubs observed in the study area are given in the *Table 3-30*.

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3.13.4 Methodology for Flora Survey

3.13.4.1 Flora

The study on the floral assessment for the project activity was based on field survey of the area. Quadrate Method (frame quadrants, or often simply called quadrants), were used to define sample area within the study site. Plant species inside the quadrants were identified and their abundance estimated to work out the densities of various species. The locations of the quadrants chosen was representative to various vegetation types present within the study area and usually 10 nos. of quadrates were sampled to obtain more representative results. Three locations for tree species were selected for quadrate sampling survey.

The plant species were also identified with the help of taxonomists of related fields and nearby Institutions. Besides the collection of plant species, information was also collected with vernacular names of plant species made by local inhabitants. In this process, the whole study area was divided into different sections to get the maximum diversity of plant species. The sampling sites were selected based on land use pattern, topography and floristic composition of the study area. The other relevant data on bio-diversity, like economically important plant species and medicinal plant, information related to rare and endangered species in the study area had been collected from secondary sources like forest and wild life departments. The plant species found in the area are mentioned below -

3.13.4.2 Flora in Study Area

A general local survey was carried out for the study area. List of flora found in the core zone and buffer zone is given in *Table 3-30*.

Table 3-25(A) List of Flora in project affected Study area (Buffer Zone)

S.No.	Species Name	Common Name
Tress		
1.	<i>Acacia leucophloea</i>	Itaung
2.	<i>Acacia nilotica</i>	Kikar
3.	<i>Acacia senegal</i>	Khari
4.	<i>Acacia jacquemontii</i>	Babul
5.	<i>Acacia tortilis</i>	Israaty Kikar
6.	<i>Ailanthus excelsa</i>	Ullum Neem
7.	<i>Albizia lebbek</i>	Sims
8.	<i>Azadirachta indica</i>	Neem
9.	<i>Anogeissus pendula</i>	Dhaak

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S.No.	Species Name	Common Name
10	<i>Bambusa racemosa</i>	--
11	<i>Bambusa vulgaris</i>	Sernal
12	<i>Bassia vitata</i>	Sala
13	<i>Butea monosperma</i>	Dhak
14	<i>Cassia fistula</i>	Amaltas
15	<i>Cassia sanna</i>	--
16	<i>Cordia dichroma</i>	Lasura
17	<i>Dalbergia sissoo</i>	Shisham
18	<i>Delonix regia</i>	Guarohar
19	<i>Dalbergia sissoo</i>	Dalbergia
20	<i>Eucalyptus hybrid</i>	Safeda
21	<i>Eucalyptus camaldulensis</i>	Safeda
22	<i>Ficus benghalensis</i>	Arjeeer
23	<i>Ficus religiosa</i>	pupal
24	<i>Holoptelea integrifolia</i>	Pahan Papri
25	<i>Jacaranda mimosaefolia</i>	Jacaranda
26	<i>Kigelia pinnata</i>	Kigelia
27	<i>Lycium asiaticum</i>	Su-Babut
28	<i>Mangifera indica</i>	Aam
29	<i>Melia azadirach</i>	Bakain
30	<i>Mitragyna parvifolia</i>	Phaldu
31	<i>Moringa oleifolia</i>	Sohaguna
32	<i>Phoenix sylvestris</i>	Khajur
33	<i>Pongamia pinnata</i>	Karauj
34	<i>Pongamia glabra</i>	Papri
35	<i>Prosopis cineraria (L.) Drake.</i>	Kaerj
36	<i>Prosopis juliflora DC.</i>	Vilan Keekar
37	<i>Salvadora oleoides Decne</i>	Jal
38	<i>Syzygium cumini</i>	Jamun
39	<i>Streulita urens</i>	Gular
40	<i>Tamarindus indica</i>	Imli
41	<i>Tecomella undulata Sonch</i>	Roheda
42	<i>Terminalia arjuna</i>	Arjan
43	<i>Ziziphus mauritiana</i>	Ber
	Sbrubs and Herbs	
1.	<i>Adiantum species</i>	Bansa

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S.No.	Species Name	Common Name
2.	<i>Achyranthes aspera</i>	Pudkanda
3.	<i>Aerva javanica</i>	Bui
4.	<i>Agave americana</i>	Kesra
5.	<i>Amaranthus goenensis</i>	Cholai
6.	<i>Balanites aegyptiaca</i>	Hingot
7.	<i>Bougainvillea spp.</i>	Bougainvillea
8.	<i>Caesalpinia pterocarya (Ait.) Ait. f.</i>	Aak
9.	<i>Cannabis sativa</i>	Bhang
10.	<i>Capparis burrinda</i>	Hias
11.	<i>Cassia tora L.</i>	Panwar
12.	<i>Chenopodium album</i>	Bathua
13.	<i>Datura alba</i>	Dhatura
14.	<i>Euphorbia hirta</i>	Dudhi
15.	<i>Indigofera oblongifolia</i>	Jhojru
16.	<i>Ipomoea carnea</i>	Vilayti Aak
17.	<i>Leptuleia pectinacea (Forsk.)</i>	Khip
18.	<i>Nectandrum odoratum</i>	Kaner
19.	<i>Opuntia dilloensis</i>	Nagphani
20.	<i>Ocimum americanum</i>	Jungli Tulsi
21.	<i>Parthenium spp.</i>	Carrot Grass
22.	<i>Ricinus communis</i>	Arand
23.	<i>Rumex dentatus</i>	Palak
24.	<i>Tephrosia purpurea</i>	Jhojru
25.	<i>Zizyphus monnina (L.)</i>	Pala
Medical Plant		
1.	<i>Carullus calocarythia</i>	Indirai
2.	<i>Datura suramoniya</i>	Dhatura
3.	<i>Sida acuta Burm</i>	Kharaihu
4.	<i>Tribulus terrestris</i>	Bhakra
5.	<i>Timas-peru cordifolia</i>	Glo
6.	<i>Withania somnifera</i>	Asgandha
1.	<i>Cenchrus setigerus</i>	Dhaman
2.	<i>Cenchrus ciliaris</i>	Anjan
3.	<i>Cyperon diactylon</i>	Dub
4.	<i>Desmodium illinoense</i>	Dabh

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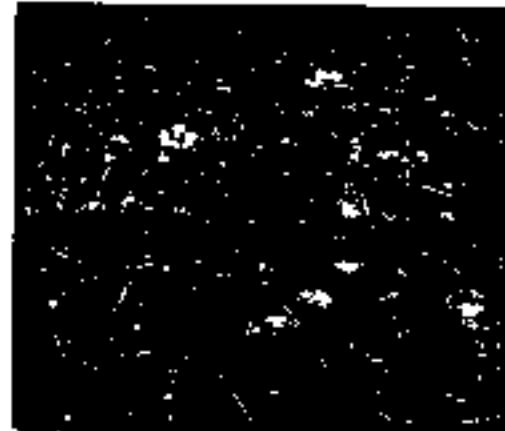
S.No.	Species Name	Common Name
5.	<i>Saccharum bengalense</i>	Kana

Table.3-25 (B): List of Flora in Project affected area (Mine Lease area)

S.No.	Name	Common Name
Trees		
1.	<i>Acacia nilotica</i>	Kikar
2.	<i>Acacia senegal</i>	Kharri
3.	<i>Acacia tortilis</i>	Isranly Kikar
4.	<i>Albizia lebbek</i>	Siris
5.	<i>Eucalyptus hybrid</i>	Safeda
6.	<i>Ziziphus mauritiana</i>	Ber
Shrubs and Herbs		
1.	<i>Calotropis procera (Ait.) Ait. f.</i>	Aak
2.	<i>Datura alba</i>	Dhalura
3.	<i>Euphorbia hirta</i>	Dudhi
4.	<i>Indigofera oblongifolia</i>	Ihojra
5.	<i>Ipomea carnea</i>	Vilayi Aak
6.	<i>Leptadenia pyrotechnica (Forsk.)</i>	Klip
Grasses		
1.	<i>Cenchrus setigerus</i>	Dhanan
2.	<i>Andropogon Lamiger</i>	Khawi
3.	<i>Eriarthus mayu</i>	Munj
4.	<i>Heteropogon contortus</i>	Sava ghas
5.	<i>Cenchrus ciliaris</i>	Anjan
6.	<i>Cynodon dactylon</i>	Dub
7.	<i>Desmostachya bipinnata</i>	Dabh
8.	<i>Saccharum bengalense</i>	Kana
9.	<i>Pennisetum zizanioides</i>	Khas

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Photograph 3-5: Photographs of Flora of the study area

3.13.5 Faunal Diversity

To prepare a detailed report on the status of wildlife biodiversity within 10 km radial area (Study Area) and to assess the impacts due to mining activity and suggesting suitable mitigation measures to protect and conserve wildlife biodiversity, following components were studied

- a) Wildlife survey (diversity)
- b) Habitat study (feeding, breeding, roosting areas)
- c) Distribution of birds
- d) Rare & Endangered species of fauna
- e) Specific local characteristics of biodiversity in study area

3.13.5.1 Methodology for Faunal Study

Primary Data Collection: Several survey techniques such as standard walk transect, visual encounter survey and pitfall trap methods were used to sampling reptiles in each and every habitat of the study area. While doing this survey, photographs were taken for identification of species. Species identification was done by using standard field guides in consultation with experts.

Secondary data Collection: Methodology aspects were also reviewed by the references of Springer International Publishing Switzerland 2015; S. Nautiyal et al., Biodiversity of Semiarid Landscape, Environmental Science, DOI 10.1007/978-3-319-15464-0; 2. Literature review was conducted to identify the representative spectrum of threatened species, population and ecological communities listed by IUCN, WCMC, ZSI, BSI and Indian Wild life Protection Act, 1972 (Bentham and Hooker, 1862-1883; Hunter, 1879; Dixit, 1984; Ghosh et al., 2004; Lushington, 1915; Wilson and Reeder, 1993; BirdLife International, 2000, BirdLife International, 2004a, b, Wilson and Reeder, 2005; BirdLife International, 2010, Kumar and Srivastava, 2012; Kumar, 2013; Kumar et al., 2013; Kumar and Aggarwal, 2013a,b)

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Table 3.26- Survey and monitoring techniques for different types of animals:

S.No	Group of Animal	Survey and Monitoring Techniques	
1.	Mammals	Direct observation technique	Surveying large and medium sized mammals and diurnal mammals
		Hair traps	Small mammalian groups
		Bait traps	All mammals
		Line transect method	Large mammals
2.	Birds	Pellet count method	
		Line transect method	A straight line of 1 km is drawn, and all birds seen or heard till a range of 25 m on either side of the transect were recorded. The transect was worked for one hour.
		Point count method	In this method, the observer will stand in a randomly chosen point and birds seen or heard in 50 m radius are recorded for 5 min. This observation is repeated in another point at least 300 m from the first point.
3.	Reptiles	Opportunistic sightings	While traveling in study area, many bird species will be detected in survey time. Such species are recorded by their appearance or by their call.
		Visual encounter survey	This method is useful for studying the species richness and abundance in a survey path.
		Pitfall trap	Methods were used to sampling reptiles in each and every habitat of the study area.
4	Amphibians	Visual encounter survey	By using vocal sound and photographs, the amphibian species were identified.

3.13.5.2 Status of Fauna

All area of the projected affected is completely Government Agriculture land and have no major faunal diversity. Therefore we prepared a complete checklist of fauna from project affected area and surrounding of project affected area. The list of fauna along with their relative abundance, global and national conservation priority status recorded during the survey and as per authentic list of Fauna provided by Inspector of Wild Life, Mahendergarh given in the *Table 3-27 (A)* and *Table 3-27(B)*.

Table 3-27(A): Faunal Diversity in Study Area

S.No.	Zoological Names (Fauna)	Common Name	WPA, 1972	IUCN
Mammals				
1.	<i>Boselaphus Tragocamelus (Pallas)</i>	Blackbull or nilgai	Schedule-III	LC

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2.	<i>Canis aureus Linnaeus</i>	Jackal	Schedule II	LC
3.	<i>Felis chaus Gmelin</i>	Jungle cat	Schedule-IV	LC
4.	<i>Funum fulus pennanti (Hrough) cat</i>	Five striped palm squirrel or gilheri.	Schedule IV	
5.	<i>Herpestes edwardsi (Geoffroy)</i>	Common mongoose	Schedule II	LC
6.	<i>Hesperoptenus tickelli (Blyth)</i>	Tickelli's bat	Schedule V	LC
7.	<i>Hystrix indica (Kerr)</i>	Indian porcupine or sahi	Schedule-II	LC
8.	<i>Macaca mulatta (Zimmermann)</i>	Rhesus macaque or bandar	Schedule-II	LC
9.	<i>Mus musculus (Linnaeus)</i>	Mouse	Schedule V	LC
10.	<i>Presbytis entellus (Dufresne)</i>	Common langur	Schedule-II	LC
11.	<i>Vulpes bengalensis</i>	Indian Fox	Schedule-II	LC
12.	<i>Hyena hyena</i>	Hyena	Schedule-III	LC

IVC) = VULNERABLE. (LC) - LEAST CONCERN

Table 3-28 Lists of Birds

S.No.	Zoological Names	Common Name	Schedule	IUCN
1.	<i>Pavocristatus</i>	Indian Peafowl	Schedule I	LC
2.	<i>Apus apus</i>	Common Swift	Schedule-III	LC
3.	<i>Apus affinis</i>	Little Swift	Schedule-III	LC
4.	<i>Accipiter bengalis</i>	Shikra	Schedule-IV	LC
5.	<i>Amorornis phoeniceus</i>	White-breasted Water hen	Schedule-IV	LC
6.	<i>Acridothera tristis</i>	Bank Myna	Schedule-IV	LC
7.	<i>Acridothera tristis</i>	Common Myna	Schedule-IV	LC
8.	<i>Anas platyrhynchos Linnacus</i>	Mallard	Schedule-IV	LC
9.	<i>Anser indicus (Latham)</i>	Barheaded goose	Schedule-IV	LC
10.	<i>Ardeola grayii (Sykes)</i>	Paddy bird	Schedule-III	LC
11.	<i>Bubulcus ibis</i>	Cattle Egret	Schedule-III	LC
12.	<i>Circus macrorhynchos (Gmelin)</i>	Pale Harrier	Schedule-III	LC
13.	<i>Cypsiurus parvus bengalensis (J.E. Gray)</i>	Indian palm swift	Schedule-III	LC
14.	<i>Coracias benghalensis</i>	Indian Roller	Schedule-IV	LC
15.	<i>Dicaeum everetti (Hodgson)</i>	King crow	Schedule-IV	LC
16.	<i>Dendrocygna ardeola (Linnacus)</i>	Tree Pie	Schedule-IV	LC
17.	<i>Eudynamis alpestris (Linnacus)</i>	Kool	Schedule-IV	LC
18.	<i>Eschscholochia orientalis (Linn.)</i>	Red munia	Schedule III	LC
19.	<i>Falco tinnunculus (Linnaeus)</i>	Kestrel	Schedule-III	LC

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S.No.	Zoological Names	Common Name	Schedule	IUCN
20.	<i>Francolinus pondicherryanus</i>	Grey Partridge	Schedule-III	LC
21.	<i>Falco tinnunculus</i> (Temminck)	Laggar falcon	Schedule-III	LC
22.	<i>Grusgodulfordi</i> Sharpe	Eastern common crane	Schedule-III	LC
23.	<i>Halcyon asturina</i>	White breasted Kingfisher	Schedule-III	LC
24.	<i>Tringa erythropus</i> (Pallas)	Dusky Redshank		LC
25.	<i>Merops schrenkii</i>	Chestnut-headed Bee-eater	Schedule-IV	LC
26.	<i>Merops persicus</i>	Blue-cheeked Bee-eater	Schedule-IV	LC
27.	<i>Nectarinia asiatica</i>	Purple Sunbird	Schedule-IV	LC
28.	<i>Nectarinia minima</i>	Small Sunbird	Schedule-IV	LC
29.				
30.	<i>Passer domesticus indicus</i> Jardine and Selby	Indian house sparrow	Schedule-III	LC
31.	<i>Pycnonotus cafer</i> (Linnaeus)	Redvented bulbul	Schedule-III	LC
32.	<i>Sturnus contra contra</i> Linnaeus	Indian pied myna	Schedule-III	LC
33.	<i>Sturnus pagodarum</i> (Gmelin)	Brahmmy myna	Schedule-III	LC
34.	<i>Sturnus roseus</i> Linnaeus	Rosy parrot and starling	Schedule-III	LC
35.	<i>Turdoides caudatus</i>	Common Babbler	Schedule-III	LC

Table 3-28 (B) Bird of Schedule-I in study area

Species Name	Common	Scientific Name	IUCN Red list Category & Criteria	As IWPA 1972
Indian Peafowl		<i>Pavo cristatus</i>	Least Concern ver 3.1	Schedule I
<p>This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence <20,000 km² combined with a declining or fluctuating range size, habitat extent/quality, or population size and a small number of locations or severe fragmentation). Conservation Plan has been enclosed as Annexure VII of Final EIA/EMP report.</p>				

Table 3-29: List of Butterflies

S. No.	Family	Scientific Name	Common Name	Relative abundance
1	Nymphalidae	<i>Acrolexis pericles</i>	Common bush brown	Common
			Plain Tiger	
		<i>Danaus chrysippus</i>	Danaid egg fly	
2	Papilionidae	<i>Papilio polytes</i>	Common Mormon	Very Common
3.	Pieridae	<i>Ixias Marianna</i>	White orange tip	
		<i>Eurema hecabe</i>	Common Grass yellow	

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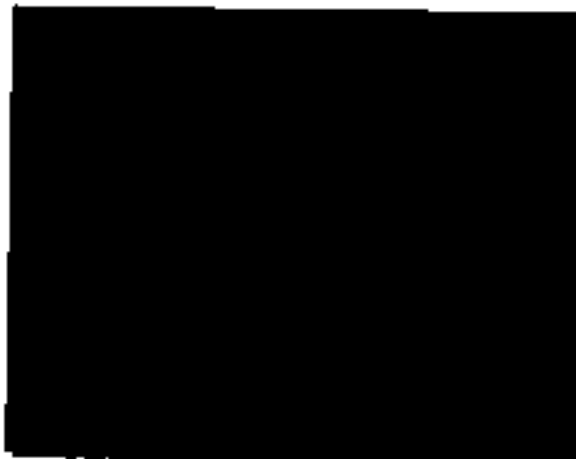
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Table 3-30: List of Reptiles and Amphibian

S. No.	Scientific name	Common Name	Relative abundance
1	<i>Stenopomus orientalis</i>	Fair-Throated Lizard	Not listed
2	<i>Calotes versicolor</i>	Common Garden Lizard	
3	<i>Hemidactylus flaviventris</i>	House Gecko	
4	<i>Bufo bufo</i>	Toad	

Table 3-31: List of Common Animals

S. No.	Scientific name	Common Name
1	<i>Capra aegagrus hircus</i>	Bakri
2	<i>Bos primigenius</i>	Gau
3	<i>Ovis aries</i>	Goat
4	<i>Canis lupus familiaris</i>	Kutta
5	<i>Bubalus bulbulus</i>	Bhains



Photograph 3-6: Photographs of Fauna of the study area

3.13.5.34 Endangered Fauna of the study area

An endangered species is a species which has been categorized as very likely to become extinct. Endangered (EN), as categorized by the International Union for Conservation of Nature (IUCN) Red List, is the second most severe conservation status for wild populations in the IUCN's schema after Critically Endangered (CR). The IUCN Red List of Threatened Species (also known as the IUCN Red List or Red

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Data List, founded in 1964, is the world's most comprehensive inventory of the global conservation status of biological species. India became a State Member of IUCN in 1969

S.No.	Category	No. of species
	IUCN, (2008) has evaluated 1976 animal species from India	
1	critically endangered (CR)	44
2	endangered category (EN)	88
3	vulnerable (VU)	181
	Total threatened species	313

The birds Pea fowl (*Pavo cristatus*) in the study area, is included in schedule I of Wild life protection Act (1972) and other birds are included in schedule IV. Among the reptiles, Indian Cobra (*Naja naja*) were provided protection as per Schedule-II of Wild life Protection Act, (1972). There is no mammals species found under schedule-I. Common Mongoose (*Herpestes edwardsi*), Jackal (*Canis aureus* (Linnaeus)) are a schedule –II animals. Nilgai (*Roselaphustragocamelus*) is protected as Schedule-III animal and itares and five striped squirrels are included in schedule IV of Wild Life Protection act 1972. A well laid Conservation Plan for the Schedule I & II fauna has been proposed. The proposed budget of the conservation for the fauna of Schedule I is Rs. 335 Lakh/- for 12 years. **Conservation Plan enclosed as Annexure VII of Final EIA/EMP report.**

3.13.6 Agriculture Activity

Agriculture is the principal occupation of the residents of the Haryana. Haryana's contribution to the Green Revolution made India self-sufficient in food production in the 1960s and onwards. Haryana is also one of the most economically developed regions in South Asia and its agricultural has experienced sustained growth since 1970s. During this period of two decades about 1.3rd more area has been added for growing wheat and there is marginal increase in area under Bajra. But rest of the crops have been getting declining trend.

Agriculture is a predominant activity for the district Mahendergarh. The major sources of livelihood are agriculture and related activities.

The people of around the study area cropped cultivated in Kharif season are bajra, guar and cotton. Likewise, the major crops grown in Rabi season are mustard, wheat, barley and gram.

The main crops are Rice, Jwar, Bajra, Maize, Wheat, Barley, Cereals, Gram, Moong and Massar.

The economic and ecological sustainability of the existing farming systems of the district are in jeopardy
Source: Agricultural Economics Research Center, University of Delhi, Nov 2012

Interpretation and Conclusion

3.13.7 Socio Economic Environment of the Study Area

There is no habitation falling within the core zone. Socio-economic study is an essential part of environmental study is socio-economic environment incorporating various facts related to socio-economic

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conditions in the area, dealing with the total environment. Socio-economic study includes demographic structure of the area, provision of basic amenities viz. housing, education, health & medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature of aesthetic significance such as temples, historical monuments etc. This would help in visualizing and predicting the possible impacts depending upon the nature and magnitude of the project.

Socio-economic study of an area provides a good opportunity to assess the socioeconomic conditions of it. This study will possibly make a change in living and social standards of the particular area benefited due to the Project. The gross economic condition of the area will be increased substantially due to the existence of this project. It can undoubtedly be said that this project will provide direct and indirect employment and improve the infrastructural facilities and standards of living of the area.

The fibres of socio-economic changes are so complicated that this study would seem to be extremely limited, almost superficial and at time subjective in nature. More thorough and quantified socio-economic study will undoubtedly require vastly longer time and resources and is, therefore, beyond the scope of the present EIA study. The EIA will give a reasonably clear picture about the socio-economic conditions prevailing in the study area.

3.13.7.1 Objective of Socio Economic Study

Socio-economic survey is a very development activity. In socio-economic we prepare demographic details, household category wise, population report, education status, land holding and cropping pattern, live stock details of the village. To conduct socio-economic assessment study in Project Area.

- To know the current socio-economic situation in the region to cover the subsectors of education, health, sanitation, water and food security.
- To recommend practical strategic interventions in the sector.
- To help in providing better living standards.
- To provide employment opportunities.

3.13.7.2 Scope of Study

The scope of socio economic study is as follows:

- To study the Socio-economic Environment of area from the secondary sources.
- To develop a questionnaire for SIA Survey.
- Data Collection & Analysis.
- Prediction of project impact.
- Mitigation Measures.

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3.13.7.3 Methodology

For socioeconomic study, both qualitative and quantitative methods were adopted. Data regarding the demographic structure was collected from the secondary sources (published data, website of Directorate of Census for Mahendergarh District, Panchayat, etc.).

Primary sources include data collected through direct field sampling, observations based on schedules, questionnaires etc. distributed to the local persons, senior citizen, Government officials of district and official of villages, Panchayat etc. with interactions and discussions through meetings.

To know the perception of local people about the Stone mining in the area, a field survey was conducted during Winter Season (November, December, January) 2017-2018. The target groups were selected from villages of core and buffer area of Narraul Tehsil.

Focus Group Discussion (FGD) and Participatory Rural Appraisal (PRA) techniques are the two important tools of participatory method used in the field. Household level contacts and interviews were undertaken with each family for completing the household socio-economic profile. For individual farmers and community members, qualitative interviews were conducted since this approach allows a more in-depth investigation, perception and opinion about the project. It also allows people to speak for themselves without their answers being biased by predetermined hypothesis-based questions. The questionnaire was basically focused to gather respondents' views about the project.

Desk research is the major methodology adopted for the study which involves researching, compiling and analyzing the data. The 10 km radial distance from the boundary of the ML area including core zone of the mine area was studied.

Socio economic aspects including human settlements, demography and infrastructural aspects for education, health, drinking water, power supply, communication and the land use aspects are collected, compiled and analyzed with the help of census data 2011 and district census handbook 2011 of Haryana state.

The details of the study area as follows:

- Demography details
- Employment details
- Infrastructure facilities
- Land use details
- Survey observations
- Opinion and awareness regarding project
- Quality of life

3.13.7.4 Background of Study Area

The study area is defined as 5 km & 10 km radius of the periphery of mine lease boundary. About 38 villages of Tehsil Narraul, District Mahendergarh, Haryana was falling in this study area. The socio-

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economic parameters i.e. population growth, density, literacy etc. played an important role in determining the impact of the proposed activity directly or indirectly on the human population of the study area. These impacts may be beneficial or detrimental. This study area falls in Haryana in India. It lies in Narnaul Tehsil, District Mahendergarh Haryana, India.

Demography of the Study Area

In the Buffer zone, total household is 19955. Total population is 126477 out of which, 65718 are males and 60759 are females. The total literate person in the surrounding area is 68013 and total worker's population is 52030. The detailed demographic profile of villages located in the study area is given below:

Table 3-32: Demography of the Study Area

S. No.	NAME	Total House Hold	Total Population	Total Male	Total Female	Total Literates	Total Illiterates	Total Worker	Total Non Worker
1	Akbarpur Srohi	194	1111	561	550	716	395	451	660
2	Akoli	196	1135	593	544	667	468	549	586
3	Amanpura	171	1233	632	601	607	626	459	774
4	Antri	139	1074	546	528	588	486	410	664
5	Bakrija	48	386	198	188	167	219	91	295
6	Banihari	228	1307	647	660	681	626	565	742
7	Dhatri Barabuda	558	3329	1734	1595	1859	1490	1286	2043
8	Berconulla	95	736	391	345	337	399	177	559
9	Bhagdara	368	2142	1107	1035	1374	768	1267	875
10	Bamanwas Nau	273	1611	830	781	919	692	596	1015
11	Bheslanti	180	1189	615	574	534	655	477	712
12	Bhojawas	791	4707	2493	2214	2585	2122	1731	2976
13	Bhojawaslo Idhani	313	2006	1021	985	1228	778	971	1035
14	Biharipur	135	900	455	445	381	519	379	521
15	Chhapra Bibipi	267	1856	982	874	771	1085	751	1105

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S. N.	NAME	Total House Hold	Total Population	Total Male	Total Female	Total Literates	Total Illiterates	Total Worker	Total Non Worker
16	Chiliro	374	2124	1063	1061	1278	946	924	1200
17	Chak Malkpur	26	202	103	99	122	80	83	119
18	Dankhera	316	2091	1077	1014	858	1233	929	1167
19	Dangli	157	876	455	421	583	293	304	672
20	Dantai	353	2028	1055	973	1069	959	828	1200
21	Dostpur	220	1427	746	681	777	650	549	878
22	Ghataser	342	2320	1196	1124	1333	987	1198	1122
23	Iqbalpur Nangli	180	1065	566	499	663	402	484	581
24	Ishampur	133	986	499	487	477	509	433	553
25	Kalha	309	2006	1060	946	984	1022	874	1132
26	Kamania	406	2645	1357	1288	1472	1173	887	1758
27	Kapwi	382	2388	1242	1146	1483	905	899	1489
28	Karuta	263	1625	855	770	940	685	494	1131
29	Khatoli Jar	140	874	442	432	466	408	198	676
30	Khatoli Abir	172	1075	576	499	633	442	410	665
31	Khawajpur	31	204	111	93	92	112	67	137
32	Kota	465	2552	1300	1252	1592	960	1052	1500
33	Lajota	164	1294	697	597	507	787	551	743
34	Mughol Birja	221	1404	716	688	780	624	525	879
35	Mughol Etala	273	1891	977	914	1078	813	645	1016
36	Murnampur	261	1659	873	786	987	672	783	876
37	Musampur	102	709	363	346	333	376	339	370

**STONE MINE, PRODUCTION CAPACITY 30,00,000 TPA, NEAR VILLAGE: JAINPUR,
TEHSIL: NARNAUL, DISTRICT: HANDELGARH, HARYANA**

**DRAFT EIA/EMP REPORT
DESCRIPTION OF ENVIRONMENT**

S. N.	NAME	Total House Hold	Total Population	Total Male	Total Female	Total Literates	Total Illiterates	Total Worker	Total Non Worker
38	Mosnola	647	1059	2133	1926	1524	2535	1694	2365
39	Mekandipura	130	2447	1442	1305	1092	1655	1384	1363
40	Mulodi	275	1635	825	810	966	669	768	867
41	Murampur	79	473	249	224	264	204	194	279
42	Nangal Dargu	615	4138	2141	1997	1769	2364	1362	2776
43	Nangal Soda	159	1249	628	621	529	720	467	782
44	Nangal	275	1611	832	779	1010	601	613	998
45	Niaz Aligar	190	1268	624	644	574	684	624	644
46	Jainpur	103	722	370	352	363	419	355	367
47	Nizampur	308	1795	919	876	990	805	874	921
48	Nagal Chaudhry	1168	7368	3892	3476	4300	3068	2380	4988
49	Nangal Numa	186	1235	676	559	712	523	670	565
50	Panchnola	194	1365	743	622	513	852	675	690
51	Nangal Pipa	225	1492	756	736	818	674	619	873
52	Ruppur Sarai	217	1376	754	622	493	883	712	664
53	Saidalipur	215	1320	685	635	676	644	573	747
54	Sareli	242	1416	707	709	804	612	754	662
55	Shahbazpur	369	2345	1224	1121	1223	1122	653	1692
56	Simli Ismailpur	113	704	352	352	466	238	308	396
57	Saroh Bahali	707	4548	2322	2226	2514	2034	1846	2702
58	Talot	232	1457	721	736	826	631	637	820
59	Tajipur	220	1561	843	718	531	830	555	1006

**STONE MINE, PRODUCTION CAPACITY 30,00,000 TPA, NEAR VILLAGE, JAINPUR,
TEHSIL NARNAUL, DISTRICT MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
DESCRIPTION OF ENVIRONMENT**

S. N.	NAME	Total House Hold	Total Population	Total Male	Total Female	Total Literates	Total Illiterates	Total Worker	Total Non Worker
60	Tehla	193	1550	840	710	779	771	813	737
61	Thanwas	505	4057	2107	1950	1847	2210	1053	1004
62	Totaleri	237	1379	711	668	814	565	387	992
63	Untoli	418	2409	1275	1133	1548	860	1465	215
64	Banar	449	2554	1343	1211	1490	1064	835	15
65	Chhardara	322	1770	910	860	1199	571	962	154
66	Bawari Ki Dhani	151	954	508	446	547	407	412	96
67	Deota	583	3042	1598	1444	1960	1082	1395	210
68	Karni Nagar	223	1688	877	811	1009	679	782	3
69	Doodhali	231	1533	797	736	986	547	646	144
70	Chhardara	53	290	152	138	204	86	161	149
71	Bhagatwar ki Dhani	172	1201	630	571	625	576	683	299
Total		19955	126477	65718	60759	68011	58466	52030	67636

Source: Census 2011

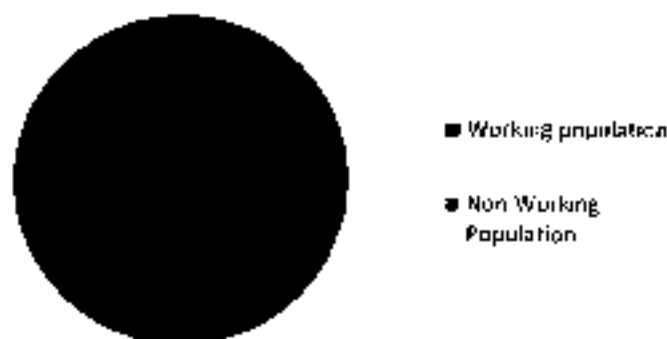
3.13.7.5 Workforce

Stone mining is labor oriented mining because it covers large area. Hence requires large manpower of men and women for excavation, loading, transportation and storage work. From employment point of view, labors are low paid workers and prefer to be engaged from nearby area so as to save the travel cost and time. Therefore availability of workers in core area of mining is important. Table 3-33 presents statistics of work force available in core as well as buffer zone. The total population in the region is 126477 persons, out of which 52030 is working and 67636 is Non-working population.

Figure 3-19: Working – Non Working Population of the Study Area

STONE MINE, PRODUCTION CAPACITY 50,00,000 TPA, NEAR VILLAGE, JAINPUR,
 TERPIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

DRAFT EIA/EMP REPORT
 DESCRIPTION OF ENVIRONMENT

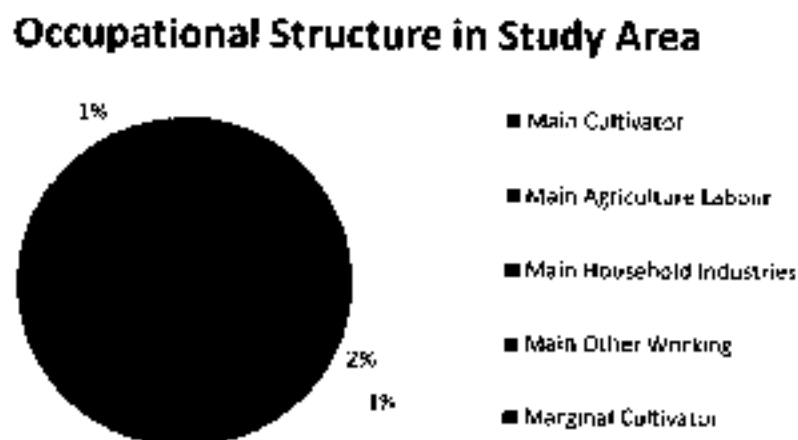


Among the workers, there are two categories i.e. main workers and marginal workers. Main workers are those who work for the major part of the year i.e. 280 days or more and marginal workers are one who work for less than 6 months in a year. Other category is of non-workers, those who are either under the age of 15 years or more than 64 years. This class is not fit for any work. Among the working population, 22.82% population is main workers, as they get work more than 280 day in a year and 19.08% are marginal workers. So from working population point of view, the region is comparatively well off.

3.14 Occupational Structure

Occupational structure of an area shows the nature and status of employment activities in the area. Out of the total population, 41.90% population is working which is further grouped in eight fold classification as shown in Table 3-34. Main occupation of people in this area is agriculture. Out of total working population 12.59% are cultivators, 12.84% are marginal cultivators and 3.00% are engaged as agriculture labour. Villages covered under core area are also dominated by agricultural activities.

Figure 3-20: Occupational Structure of the Study Area



STEEL MINE, PRODUCTION CAPACITY 30.00,00 TPA, AT NEAR VILLAGE JAGDIPUR, TEHSIL NARNAUL, DISTRICT MAHENDRAGARH, HARYANA	DRAFT EIA/EMP REPORT DESCRIPTION OF ENVIRONMENT
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Table 3-14: Occupational Structure in Study Area

Sl.No.	Range	Total Abitges	Total Population	Working Population	Main Cultivator	Main Agriculture Labour	Main Household Industries	Main Other Working	Marginal Cultivator	Marginal Agriculture Labour	Marginal Household Industries	Marginal Other Working
1	Core Area	22	32950	13846	4939	2981	168	2589	4377	945	43	464
2	Buffer Area	26	55212	23094	6185	382	416	5144	6950	1305	223	2062
Total		48	88162	36944	11122	677	601	7738	11327	2650	314	2525

Source: Census 2011

It can be inferred from the table that out of total 36944 working population in the core area 4939 people are engaged in cultivation followed by 4377 people as marginal cultivators. Second category of working population is engaged in other than agricultural works i.e. called main other working population like secondary and tertiary occupation.

3.14.1 Literacy Details

Literacy Rate is the amount of people in a country with the ability to read and write. The analysis of the literacy levels is done in the study area. Literacy in any region is key factor for socio-economic progress and the Indian literacy rate grew to 58.40% in 2011 from 12% at the end of British rule in 1947. Although this was a greater than six fold improvement, the level is well below the world average literacy rate of 84% and of all nations.

STONE MINE, PRODUCTION CAPACITY 50,80,80 TPA, AT NEAR VILLAGE JAINPUR, TEHSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA

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DESCRIPTION OF ENVIRONMENT

Table 3-35: Educational Status of Study Area

Sr.No.	Range	Total Villages	Population			Literates			Illiterates		
			Total	Male	Female	Total	Male	Female	Total	Male	Female
1	Core Area	22	32950	17020	15930	16147	10900	5247	16803	6120	10683
2	Buffer Area	26	55202	28797	26405	29212	19197	10015	25990	9600	16390
	Total	48	88152	45817	42335	45359	30097	15262	42793	15720	27073

Source: Census 2011

Educational Status of Study Area



Figure 3-23: Educational Status of the Study Area

The table shows that out of total population, only 45359 (51.45 %) are literates and (48.54 %) are illiterates. If we look at male-female ratio, there is a wide gender disparity. Out of total literate population, there are 34.14% male literates while female literates are 17.31% only in the region. Among illiterates there are 48.54% male and 30.71 females. This analysis shows that literacy in the region is low. Hence, the potential availability of unskilled labor is more in this region.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JADPURA, TEHSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA

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DESCRIPTION OF ENVIRONMENT

3.14.2 Infrastructure Facilities in the Study Area

Infrastructure is basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. It can be generally defined as the set of interconnected structural elements that provide framework supporting an entire structure of development. It is an important term for judging a country or region's development. The term typically refers to the technical structures that support a society, such educational institutions, medical facilities, banking facilities, telecommunications and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions.

The area is well connected to road network, communication facilities, and amenities like hospitals, schools, post offices and others. The mining operations can well utilize these facilities in the region for running the operations and development of business activities.

3.14.3 Drinking Water Facility

Drinking water is the primary need for survival of the meat, animal and plant kingdom. The state spent thousand and thousand Crore rupees to provide drinking water to the population of the state. *Table 3.36* shows that the region gets drinking water from dug wells, tube wells and hand pumps. It indicates that the water is directly consumed without treatment.

Table 3-36: Drinking Water Facilities in the Study Area

District Mahendergarh (084)						
S.No.	Name of C.D. Block	Number of Villages with different sources of drinking water				
		Only Tap (Treated/untreated)	Only Well (Covered/Uncovered)	Only tubewell / borewell	Only hand pump	More than one source only from tap, well, tubewell, hand pump
1.	0095-Kanina	0	0	0	0	59
2.	0096-Mahendergarh	2	0	0	0	87
3.	0097-Aveli-Nangal	2	0	0	0	75
4.	0098-Narnaul	1	0	0	0	67
5.	0099-Nangal Claudhary	4	0	0	0	72
Total		9	0	0	0	360

Source: Census 2011

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAIMPUR, TEHSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA

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DESCRIPTION OF ENVIRONMENT

3.15 Primary Socio Economic Survey

3.15.1 Sampling Method

A judgmental and purposive sampling method was used for choosing respondents of various sections of the society i.e. Sarpanch, adult male and female, teachers, medical practitioners, business persons, agriculture labours, fishermen, unemployed group etc. Judgmental and purposive sampling method includes the right cases from the total population that helps to the exact situation and views of the people about the project.

For survey purpose, selection of villages was performed within 10 km study area covering core and buffer zone of mine area. Total 6 villages were selected and surveyed. Proportionate and purposive sampling methods were used for selecting respondents (male and female) for household survey. For official information of village, sarpanch, grampanchayat member, govt. school / teacher has been chosen. Structured questionnaire were used for survey. For group discussion, Panchayat bhavan, community halls were used for survey team. Household survey, group discussion & discussion with sarpanch carried out as given in plate 3-5 and list of surveyed villages is given in *Table 3.37*.

Photograph 3-5: Socio Economic Survey Photographs



Types of Data

The data needed for a social science research may be broadly classified into:

- Data pertaining to human beings.
- Data relating to organization.
- Data pertaining to territorial.
- Field Survey and Observations
- Type of houses
- Literacy, education facilities
- Type of occupation farmers / Labours
- Health, medical facilities

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DESCRIPTION OF ENVIRONMENT

- Drinking water facilities
- Daily wages
- Inundation / Flooding
- Drowning
- Sanitation
- Transportation
- Road connectivity
- Communication Facilities

Field survey involved the collection of primary data or information that was new. This was collected through surveys and questionnaires that are made out specifically for this purpose. Observations were conducted on nearly any subject matter and the kinds of observations were depending on survey question. Field survey and observations were made at each sampling village and the quality of life was studied. Visits were made at hospitals, primary health centers and sub-centers to know the health status of the region.

Interview Method

Interview is verbal questioning. Surveys were also conducted through interviews. Interviews were conducted through asking questions, listening to individuals and recording their responses. At times, it was found that it was more beneficial to ask questions to a few individuals instead of carrying out a large-scale questionnaire based survey. The interviews were conducted very informally. In these meetings, one question leads to the next based on the responses given to the previous one. At the other end of the scale, highly structured interviews often rely on questionnaires or interviews held with mostly closed-ended questions that allowed the respondents only a limited range of possible answers. Structured interview method was used to collect data regarding the awareness and from the sample selected of the various socio-economic sections of the community. The questionnaire mainly highlights the parameters of primary needs. The interview method has an advantage that almost all the perfect sample of the general population was to be reached and respond to the approach. Interview method helped to collect more correct and accurate information as the interviewer was present during the field survey.

3.15.2 Awareness and Opinion

Awareness is the state or ability to perceive, to feel, or to be conscious of events, objects or sensory patterns. In this, level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding. In general, an opinion is a subjective belief, and is the result of emotion or interpretation of facts. An opinion may be supported by an argument, although people may draw opposing opinions from the same set of facts. For assessing the awareness and opinion about the project activity, socio-economic survey was conducted in the sampling villages.

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Public opinion is the aggregate of individual attitudes or beliefs. It is very important to take opinion of the villagers about the project. The awareness will not only promote community participation but also enable them to understand the importance of the project and encourage them to express their views. To know the awareness and opinion of the villagers about the project, group discussion, meeting with school teachers / village leaders were carried out in the study area.

The salient observations drawn through survey are given below:

- The respondents from almost all the villages were aware about the project activity.
- Some of the respondents have very good opinion about the project and they opined that due to proposed project activity, quality of life of the villages will improve.
- Respondent have suggested minimizing the environmental pollution during and after project activity.
- Most of the respondents were opined that they will get employment during the operation of mining activities in the form of skilled as well as unskilled labourers.
- There is a need for strengthening of local facilities such as hospitals, schools as there will influx of the people.
- Major problems in the study area were lack of medical facilities and employment opportunity, respondents expecting these facilities from the project proponent.
- Respondents were ready to welcome the project because study area was main Centre for employment in the mining area. Migration from other states for employment was common in the area. Project will generate employment for non-working population.

STONE MINE, PRODUCTION CAPACITY 10,00,00 TPA, AT NEAR VILLAGE, JAINPUR, TEBHET, KARNAL, DISTRICT MAHENDGARH, HARYANA
 TRAFFIC/ZIP REPORT
 DESCRIPTION OF ENVIRONMENT

Table 3-17: Primary Data Collection within 5 km of the mine site

S. No	Name of Village	Infrastructure Facilities			Education Facilities			Social Indicators			Health Facilities			Livelihood			Agriculture		Animal Husbandry			
		Drinking Water Facilities	Public Sanitation facilities	Plumbing	Primary	Secondary	Col lege	Family Structure	Religion	Food Habits	PH C	MLI	AM P	Local Artisans	Source of livelihood	Major Occupation	Major Crop	Source of Irrigation	Income source (out of season)	Animal	Women Involvement in participation	Income from Animal Husbandry
1	Jainpur	Tube well	No	No	Yes	No	No	Jain	Hindu	Rice	No	No	No	No	Agri culture	Wages	Bajra	Rain Water Nahar	Wages	Cow, Goat, Buffalo	Yes	No
2	Dhola	Tube well	Yes	Yes	Yes	Yes	NI	Jain	Hindu	Rice	Yes	No	No	No	Agri culture	Wages	Bajra, Wheat	Rain Water Nahar	Wages	Cow, Goat, Buffalo	Yes	No

EPSON MODEL, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE, JALIMPA, TESSAI, HARNATH,
 DISTRICT: MAHENDRAGARH, BIHAR

DRAFT EA/EEMP REPORT
 DESCRIPTION OF ENVIRONMENT

1	Margal Choudhary	Tube well Hand pump	Yes	No	Yes	No	No	Joint & Nuclear	Hindu	Rice	No	No	No	Hand Manufacturing	Agriculture	Labour	Hajira, West	Rain Water Dug well	Wages	Low Cost Buffalo	Yes		
4	Sarun Bihari	Hand well Hand pump	No	No	Yes	No	No	Joint	Hindu	Rice	No	No	No	No	Agriculture	Wages & Agn.	Hajira, West	Rain Water Dug well	Wages	Low Cost Buffalo	Yes		
5	Nagar Aripur	Tube well Hand pump	No	Yes 20 Hectar	Yes	No	No	Joint	Wes Hindu, 06% Muslim	Rice	No	No	No	Hand Manufacturing Sugar cane	Agriculture	Wages & Agn.	Hajira, West, Janin	Rain Water Dug well	Wages	Low Cost Buffalo, Pig, etc	Yes		
6	Sabrapur	Tube well Dug well	Yes	No	Yes	Yes	No	Joint	Hindu	Rice	Yes	No	No	Hand Wages	Agriculture	Wages	Hajira, West, Janin	Rain Water, Canal	Wages	Low Cost Buffalo	Yes		
7	Colwa	Hand well Hand pump	No	No	Yes	No	No	Joint	Hindu	Rice	No	No	No	No	Agriculture	Wages & Agn.	Hajira, West	Rain Water Dug well	Wages	Low Cost Buffalo	Yes		

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAIMPUR, TEHSIL NARNAUL,
DISTRICT MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
DESCRIPTION OF ENVIRONMENT**

3.15.3 Conclusion

Above observation shows increase in total household as compared to the secondary data resulting increase in male and female population, increased literacy rate, increased number of main workers as compared to secondary data as shown in above tables. Causing increased demands of all the essentials of life required to sustain life. These demands can be achieved to some extent by mining industries and the work done by the owner such as school development, hospital maintenance, road maintenance, proper water facility development, plantation etc. as well as the local market developed during the working phase, making their life financially strong too.

The project would not lead to displacement of any family / household or lead to loss of agriculture land or forest land or other wild life sanctuaries because the total lease area is Government agriculture land. The area doesn't comprise of any human habitation or personal property.

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**DRAFT EIA/EMP REPORT
ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Any human activity in any environment produces impact, modifying it to a status which is considered adverse or beneficial according to the damage or improvement it brings about in physical, chemical and biological status of air, water, land including flora and in socio-cultural life styles and economy of the populace it affects. Depending on the nature of activities and existing status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating actions are suggested for minimizing impacts.

This chapter details about the project activities that could have beneficial or adverse impacts on the environment, identify, predicts and assess the impacts over the various environmental attributes in the study area due to proposed mining activities. Examining each environment aspect – impact relationship in detail and identify its degree of significance, identify possible mitigation measures for the project activities and select the mitigation measures, based on the reduction in significance achieved and practicality in implementation.

4.1 Impact Assessment Methodology

4.1.1 Key Definitions

Environmental Aspects

These are elements of an organization's activity or product or services that can interact with the environment. Environment aspects could include activities that occur during normal, abnormal and emergency operations.

Environmental Impacts

Environmental impacts are defined as any change to the environment, whether adverse or beneficial, wholly or partially resulting from project activities.

Environmental Indices

The environmental indices (or parts of the receiving environment on which impacts are being assessed) include: Land use/land cover, air quality, noise levels, surface and ground water quality, soil, ecology and bio diversity, socio economics, occupational health, community health and safety. After the identification of impacting activities, impacts require to be assessed based on subjective/objective criteria to assess the impacting activities. This is done in the following steps.

4.2.2 Identification of Impacts

For identification of impacts a simple checklist method has been employed requiring:

- 1 Listing of environmental aspects

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ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

2. Identifying applicable components of environment on which environment aspect may cause environmental impacts
3. Listing of the environmental components likely to receive impacts, along with the key impacting activities on each component

A component wise approach to risk assessment and mitigation measure is applied with following steps.

Review and Assessment of Specific Aspects Generating Environmental Risk

Several scientific techniques and methodologies are also used to predict impacts on the environment. Mathematical models are useful tools (where applicable) to quantitatively describe the cause and effect relationships between sources of pollution and different components of environment. In cases where it is not possible to identify and validate a model for a particular situation, predictions have been arrived at based on logical reasoning / consultation / extrapolation or overlay methods. In any case, for each component of the environment, the methods used to arrive at the likely impacts require to be described.

Quantifying the Environmental Risk, Identifying Aspects

Once a general understanding of the impacts has been studied and understood, efforts are made to compare different impacts so as to prioritize mitigation measures, focusing on those impacting activities (i.e. aspects) that require urgent mitigation. For ease of comparison across different activities, a summary environmental risk score is calculated. Two key elements are taken into consideration based on standard environmental risk assessment methodologies.

- **Severity/consequence:** the resultant effect of an activity and its interaction with the physical, biological and/or socio-economic environments.
- **Probability:** the likelihood that an impact may occur due to the project activity/aspect.

A combination of severity / consequence with probability gives a reasonable measure of environmental risk, which aids in decision making. It must always be kept in mind that any scoring methodology however well-defined is subjective and different persons can arrive at different impact risk scores based on their understanding / opinion. Therefore end results should be evaluated against past experience as well as professional judgment as well as project and activity specific conditions to ensure adequacy and equity. Adequate efforts are made to ensure that the scoring does not change significantly assuming that different evaluators are equally well informed on the project as well as knowledgeable on the concerned issues. The steps in identifying environmental risk are as follows:

Scoring the Impact Severity / Consequence

The consequences on various environmental receptors have been ranked into 5 levels ranging from insignificant to catastrophic consequence and are given in *Table 4-1*.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JALINDAR, DISTRICT: NARNANA, DISTRICT: HANUMANGARH, HARYANA	IMPACT EIA/EMP REPORT
ANNEXURE ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	

Tools: Mathematical models are the best tools to quantitatively describe the cause-effect relationship between source of pollution and different components of environment. In case, mathematical models are not available or it is not possible to identify/validate models for a particular situation, predictions are used through available scientific knowledge and judgments.

Table 4-7: Impact Scaling System – Consequence Assessment

S. No.	Environmental Component Impacted	Impact and Score				
		Insignificant Consequence (+/-) 1 point	Minor Consequence (+/-) 2 points	Moderate Consequence (+/-) 3 points	Major Consequence (+/-) 4 points	Catastrophic Consequence (+/-) 5 points
1.	Landuse/ Landcover*	Duration				
		Very short term (upto 1 Year)	Short term (1 - 3 years)	Medium term (3 - 5 Year)	Long term (>5 - 10 years)	Very long term
		Extent				
	Very limited (Within lease area)	Limited (< 1 km around lease area)	Medium Range (1 - 3 km around core site)	Long Range (>3 - 7 km around core zone)	Extensive (>7 km around core zone)	
	Effect on Land Use and Classes					
	Non-agricultural land	Scrub land	Water body	Agricultural Land & Open and Close Vegetation	Forest Area	
2.	Air Quality	Temporary nuisance due to controlled/uncontrolled release of an emissions, odor, dust	Minor environmental impact due to controlled/uncontrolled release of an emissions, odor, dust with no lasting detrimental effects	Moderate environmental impact due to controlled/uncontrolled release of an emissions, odor, dust leading to visual impacts at significant nuisance levels	Significant environmental impact due to release of air emissions, odor, dust leading to exceedance of limits specified in LP Rules	Unacceptable environmental impact due to release of an emissions, odor, dust leading to possibility of chronic/acute health issues, injuries or fatalities
3.	Noise Environment*	Incremental Noise Levels, as Predicted at Boundary of Nearest Human Settlement / Sensitive Receptor from Boundary of Mining Lease				
		1 dB(A) - 1.5 dB(A)	1.5 dB(A) - 2.0 dB(A)	2.0 dB(A) - 2.5 dB(A)	2.5 dB(A) - 3.0 dB(A)	3.0 dB(A) or more

STONE MINE, PRODUCTION CAPACITY 50,00,00 TPA, AT NEAR VILLAGE-JAINPUR, TENDU PARNAUL,
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ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

S. No	Environmental Component Impacted	Impact and Score				
		Insignificant Consequence (+/-) 1 point	Minor Consequence (+/-) 2 points	Moderate Consequence (+/-) 3 points	Major Consequence (+/-) 4 points	Catastrophic Consequence (+/-) 5 points
4	Surface Water*	Background Noise Levels, with respect to Applicable Limit as per The Noise Pollution (Regulation and Control) Rules, 2000, as Measured at Boundary of Mining Lease				
		< 10% or more	Between +10% & +5%	Between +5% of the limit	Up to 5% above the limit	> 5% above the limit
		Water Consumption (KLD)				
		< 50	51 - 100	101 - 250	251 - 500	501 or more
		Water Consumption, Duration				
		< 5 Year	5 - 10 Year	10 - 15 Year	15 - 20 Year	20 Year or more
5	Groundwater*	Wastewater Discharge, Quality				
		No wastewater generation except domestic wastewater	Zero Discharge	Discharge to authorized functional C/E/P	Other discharges within the limits specified by the EP rules	Other discharges, outside limits specified by EP rules
		Location of Disposal, as per CGWA/CWB regulation				
		Safe	Semi-Critical	Critical	Over-Exploited	Notified
		Water Depled (KL Day)				
		< 50	51 - 100	101 - 250	251 - 500	501 or more
6	Soil Quality	Wastewater Discharge Quality				
		No wastewater generation except domestic wastewater	Zero Discharge	Discharge to authorized functional C/E/P	Other discharges within the limits specified by the EP rules	Other discharges, outside limits specified by EP rules
		Loss upto 20% topsoil, or minor contamination of soil that can be easily restored close to original condition for volume < 10 m ³	Loss upto 40% topsoil, or actual, or possible contamination of soil volume < 25 m ³ but below Dutch Intervention Values	Loss upto 60% topsoil, or actual or possible contamination of soil volume < 25 m ³ but above Dutch Intervention Values	Loss upto 80% topsoil, or actual or possible contamination of soil volume > 25 m ³ and above Dutch Intervention Values, but not deemed to require urgent	Loss upto 100% topsoil, or actual or possible contamination of soil volume > 25 m ³ and above Dutch Intervention Values (I), and deemed to require
		Location of Disposal, as per CGWA/CWB regulation				
		Water Depled (KL Day)				
		< 50	51 - 100	101 - 250	251 - 500	501 or more

OVERSEER/MENTOR/CONSULTANTS

NO

RIVINE RIDGE, PRODUCTION CAPACITY 2400,00 TPA, AT NEAR VILLAGE: JAINPURA, TRIBHILL NARNAUL, DISTRICT: KARNAL, HARYANA	DRAFT EIA/EMP REPORT ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES
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S. No.	Environmental Component Impacted	Impact and Score				
		Insignificant Consequence (+/-) 1 point	Minor Consequence (+/-) 2 points	Moderate Consequence (+/-) 3 points	Major Consequence (+/-) 4 points	Catastrophic Consequence (+/-) 5 points
7	Terrestrial Aquatic Flora Fauna Habitat Ecosystem	<p>Site specific loss (transient) of common floral species (but not any tree or large bush) short term or long term impacts are likely to adversely affect the surrounding habitat ecosystem.</p> <p>Site specific disturbance to common generalist faunal species (e.g. movement pattern, displacement etc.)</p> <p>No negative impacts on surrounding ecosystem (biodiversity or habitat ecology)</p>	<p>Site specific loss (transient) of 1-5 trees.</p> <p>Minor temporary impacts on ecosystem functioning or habitat ecology of common generalist species.</p> <p>Minor short term long term impacts on surrounding immediate adjacent habitats and are resilient to changes in habitat structure or condition.</p> <p>Impact on surrounding agro-ecosystem (agriculture when environmental data parameters are within permissible limit)</p>	<p>Site specific loss (transient) of some common well grown tree trees species.</p> <p>Site specific loss of nesting breeding habitat of common generalist species of Deer fauna but will not result in permanent loss of habitat.</p> <p>Short term or long term impacts are likely to adversely affect the surrounding habitat character habitat ecology functioning of ecosystem.</p> <p>Impact on surrounding agro-ecosystem (agriculture when physical parameters within marginal increase but can be mitigated)</p>	<p>Site specific impact on threatened species but impacted species is widely distributed outside the project site.</p> <p>Short term impacts may lead to loss of abundance or extent, but unlikely to cause local population extinction.</p> <p>Site specific habitat loss of fauna listed in IUCN, WCMU, Birdlife.</p> <p>International or any other international literature secondary information.</p> <p>Impacts on habitats ecosystems of international importance.</p>	<p>Impact on the endangered species listed in as a endemic: Schedule-I as per WPA, 1972, HSI, Red Data Book, ZSI, HSI is literature published by any State Forest Institute, University and College etc.</p> <p>Loss of habitat of above said Flora-fauna.</p> <p>Impact on greater diversity.</p> <p>Impact on NP, PF, WLS, IAS, IBA, tiger reserve, elephant corridor.</p> <p>Impact on ecosystem like river, forest, wetland (e.g. RAMSAR site etc.) etc.</p>
8	Socio Economic Environment-	<p>0-50</p>	<p>51 - 75</p>	<p>76 - 100</p>	<p>101 - 250</p>	<p>More than 251</p>

STOCK MINE, PRODUCTION CAPACITY 300,000 TPA, AT NEAR VILLAGE JAINPUR, TIRSUL MARNUL, DISTRICT MALKANGARH, HARYANA

**IMPACT EVALUATION REPORT
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S. No.	Environmental Component Impacted	Impact and Score				
		Insignificant Consequence (+/-) 1 point	Minor Consequence (+/-) 2 points	Moderate Consequence (+/-) 3 points	Major Consequence (+/-) 4 points	Catastrophic Consequence (+/-) 5 points
I	Economic Aspects*	Persons having gain or loss in income both direct and indirect				
		< 5%	51 - 75	76 - 100	101 - 250	More than 251
		Land losses				
		< 5	6 - 10	11 - 30	31 - 50	51 and more
II	Socio Economic Environment - Social Aspects*	Losses of households				
		< 5	6 - 10	11 - 20	21 - 50	51 and more
		Temporary or Permanent migration as a % population of study area				
		< 1.5%	1.5%	> 1.5%	> 2%	More than 2%
III	Occupational Health and Safety	Gender Imbalance, compared to existing sex ratio				
		Non likely	Possible	Limited	Significant	Severe
III	Community Health and Risk to surrounding Inhabitants	Near acute incident or injury which may require call administered first aid	Injury requiring onsite treatment by medical practitioner.	Serious injury requiring offsite treatment by medical practitioner	Single Fatality	Multiple Fatality
		Insignificant impact on surrounding communities	Minor complaints or exposure to community. Maximum occurrence limited to two times per year	Ongoing complaints from community. Significant emission to discharge that impacts on surrounding population	Minor ongoing long term health effects likely to surrounding communities and workers	Extreme health risk potential for death in community

*Give the final score from the categories, rounded to the nearest decimal

Source: Ministry of Housing, Spatial Planning and the Environment, Netherlands. Soil Investigation Circular 2006.

Quantifying the Probability of Occurrence of the Impact

After identifying the consequence severity as shown in Table 4-1, the probability of occurrence also needs to be estimated to arrive at a complete picture of environmental impact risk. Table 4-2 provides probability likelihood ratings on a scale of 1-5. These ratings are used for estimating the likelihood of each occurrence.

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Table 4-2: Probability Score

Type	Description	Probability Score
Frequent	Continuous Activity	5
Often	Occur Several Time during the project Activity	4
Likely	Might Occur at least once during the project activity	3
Possible	Might occur during the project activity	2
Rare	Very rarely occur (rare) during the project life cycle	1

4.2.3 Identifying Activities Causing Unacceptable Risk

Environmental risks are now clubbed into four levels from extreme risk to low risk activities. Extreme risk activities are unacceptable and therefore need to be either stopped or modified such that they are brought to a lower level of environmental risk. High and moderate risk activities, although acceptable, require being evaluated and mitigated in a manner that their consequences / probabilities are lowered with more focus on high risk activities vis-a-vis moderate risk activities. Low risk activities do not require further mitigation. This is summarized in Table 4.3.

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Table 4.3: Environmental Risk Matrix

Scoring Negative Impacts			Scoring Positive Impacts	
Score Range	Type of Risk	Inference	Score Range	Inference
21 - 25	Extremely Severe	Impacting Activity should not proceed in its current form	21 - 25	Impacting activity has extremely positive impacts
15 - 20	Very Severe	Impacting activity shall be modified	15 - 20	Impacting activity has major benefits
9 - 14	Moderately Severe	Activity can operate subject to modification and management	9 - 14	Impacting activity has moderate benefits
6 - 8	Severe	No action required unless escalation of risk is possible	6 - 8	Impacting activity has minor benefits
1 - 5	Minor	Impacting activity will cause negligible risk	1 - 5	Impacting activity has mild positive impact

**STONE MINE, PRODUCTION CAPACITY 50,000 TPA, AT NEAR VILLAGE JAMPUR, TERBILU NAHNAUL,
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ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

Table 4-1- Identification of Impacting Activities and Proposed Mitigation Measure

S. No.	Project Activities / Aspect	Potential Environmental Impacts on Environment								Remarks	
		Landuse / Landcover (LULU/C)	Air Quality (AQ)	Noise and Vibration (NV)	Surface Water (SW)	Groundwater (GW)	Soil (SC)	Ecology and Biodiversity (EB)	Soils - Economic (SE)		Topography Hydrogeology and Drainage (THD)
1.	Site Selection										
1.	Land Use/ Purpose	*					*				LU (1) Potential change in land use and cover of the mining lease area. SE (1) Compensation as Government agricultural lease. EB (1) Fauna & Biodiversity is affected due to mining because the total lease area is forest land.
2.	Mining Operation										
2.	Mining, Excavation of Mine Pit	*	*	*	*	*	*	*	*	*	LU (1) Creation of pit will change the existing Landuse. AQ (1) Dust emission due to mining activities. The use of LCV, vehicular movement and use of dewatering pump. NV (1) Due to use of machines for mining activities. SW, GW (1) use of water for dust suppression, domestic purpose and Community development. THD (1) Due to excavated area topography of the lease area will change. EB (1) dust emission, and generation of noise. SC (1) Loss of Soil cover. SE (1) generation of employment prospects due to mine workers. OHC/CHS (1) Due to generation of dust particle health risk to the mine workers.

STONE INDUSTRY PRODUCTION CAPACITY 66,000 TPA, AT NEAR VILLAGE: JAMPUR, TERAIL NARNAUL, DISTRICT MANDIDERGAH, BIHAR

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ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

S. No.	Project Activities / Aspects	Potential Environmental Impacts on Environment								Remarks	
		Landuse / Landcover (LULU)	Air Quality (AQ)	Noise and Vibration (NV)	Surface Water (SW)	Groundwater (GW)	Soil (SCL)	Ecology and Biodiversity (EB)	Socio - Economic (SE)		Topography Hydrogeology and Drainage (THD)
22	Stacking of Mineral, O/H and waste	*	*	*	*	*	*	*	*	*	TH (1) Creation of pit and mineral stacking AQ (1-2) Dust emission from the mineral stock NV (1) Due to use of machines for stacking activities. SW, TH (1) Potential damage due to mine runoff THD (1) Due to mineral stacking, topography of the lease area will change. SC (1) Loss of Soil cover EB (1) Direct emission and generation of noise OHS (1) Due to generation of dust particles health risk to the mine workers
23	Transportation of Mineral, O/H and Waste		*	*	*		*	*		*	AQ (1) Dust emission due to transportation of mineral O/H and waste NV (1) Due to use of transportation of mineral, O/H and waste TH (1) dust emission and generation of noise SE (1) generation or employment in transport industry SW (1) Potential damage due to mine runoff & dust generation due to transportation. TH (1) Due to generation of dust particles health risk to the mine workers
3	Conceptual Stage										

STONE EDGE, PRODUCTION CAPACITY 10,000 TPA, AT NEAR VILLAGU JAMPUS, YEKELI MARRAUL, DISTRICT: MAZONDERGAH, BALIYANA

DRAFT EIA/EMP REPORT

Anticipated Environmental Impacts and Mitigation Measures

S. No.	Project Activities/ Aspects	Potential Environmental Impacts on Environment										Remarks
		Landuse / Landcover (LULU/C)	Air Quality (AQI)	Noise and Vibration (NV)	Surface Water (SW)	Groundwater (GW)	Soil (SC)	Ecology and Biodiversity (EB)	Socio - Economic (SE)	Topography Hydrogeology and Drainage (THD)	Occupational Health, Community Health & Safety (OHC/CHS)	
14	Land Reclamation	+	+									LULU: some area will be converted to water reservoir AQI: Dust emission due to leveling Backfilling NV: -1- Some area will be converted to water reservoir 20% ground level depression SW: -1- Conversion of water reservoir SC: -1- Soil generated can be utilized for greenbelt development

The symbol '+' indicates an adverse impact and '-' indicates a beneficial impact

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Impact Assessment for the mining project, based on the methodology described here, is given in the next section. As discussed earlier, environmental impacts have been identified based on an assessment of environmental aspects associated with the project. Based on this preliminary identification, environmental indices that are likely to be impacted due to the project are:

Landuse / Land cover: Land lease/purchase, mining and site restoration.

Air quality: Excavation, Vehicle movement during mining for transportation of mineral, OB and waste.

Noise: Excavation, Vehicle movement during mining for transportation of mineral, OB and waste.

Surface Water: Use of raw water for dust suppression, green belt development, and Surface runoff during rainy season. Contamination due to mining.

Ground water: Use of raw water for dust suppression, green belt development and domestic purpose, surface runoff during rainy season. Contamination due to mining.

Soil: Losses of soil cover during mining, site restoration. Contamination and grade loss due to mining.

Ecology and Biodiversity: impact during excavation, transportation, and reclamation and land degradation.

Socio – Economic: positive impact due to creating of jobs and increase in indirect income and also creation of water reservoir after completion of mining work.

Occupational health, community Health and safety: Occupational risk during various activities associated with mining.

4.3 Land Environment

4.3.1 Land Acquisition leading to change in Landuse/ Landcover

Letter of Intent (LOI) issued by Mines and Geology, Haryana vide memo no. DMG/HY ML/Jainpur-2022-2711 on dated Panchkula, 20-04, 2022 for a period of nine years from the date of registration.

The total lease area is 5.26 ha, which is Govt. Agriculture Land. The Mining Plan with Progressive Mine Closure Plan has been approved by the Director Mines and Geology, Haryana, vide letter No. DMG/HY/MP/Jainpur/2022/ 5999 dated 20.09.2022. The land use pattern of the mining lease is given in *Table 4.3*.

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Table 4-5: Existing Land use of the Mining Lease

Mining Lease	Forest Land Area(Ha.)	Private Land (Ha.)	Government Land (Ha.)	Total (Ha.)
54 A/01	-	-	5.26	5.26

4.3.2 Site Clearance

Total mining lease area of 5.26 ha is Government Agriculture waste Land, NOC from DEO, Mahendergarh will be obtained, that the area is neither fall in forest land or wild life sanctuary or agricultural land.

4.4 Mining Activity

Mining

During mining phase pit will be developed having depth of 40 m in the first five years as well as laterally extended in horizontal direction this will change the land use of the mining lease area.

Transport of Mineral, Waste and O.B

Trucks transporting materials would increase once mining would start functioning. It would pass through Kaccha road which is connected to State highway-17 -9.85 km in NW direction from mine site, SH-37 D km is about 13.15 km in SW direction from mine site and NH48B is approx. 1.75km in North direction from the mine site. This would cause generation of dust, spread of pollutants and deposition of particulates along the road.

Top soil of 0.15 m depth mixed with scree is present virgin area of M.L. which will be removed before mining activity & stacked separately in boundary barrier. Total volume of top soil will be removed is 62001.82 m³. In statutory barrier having 7.5 m and piece of land that will be purchased by the applicant for the purpose of plantation.

The deposit is proposed to be mined by Opencast mechanized method of mining by adopting a system of small hole/deep hole blasting and/or working with the help of machinery for digging and excavation. There is no generation of waste in the proposed mining. Sharp drill bits will be used for drilling and they will be maintained periodically to reduce the generation of dust & Blasting with down the hole initiation technique will be adopted which produces less vibration, less noise and better fragmentation.

4.4.1 Reclamation

In the proposed mining plan, it is suggested that the waste generated during five year period will be backfilled once the ultimate depth of mining pit is achieved. As volume of voids is much more than material available for backfilling so entire mined out land upto original ground level will not be possible. Therefore part of mined out area will be backfilled upto original ground level and other part of the mined out area will be used as water reservoir. On this backfilled area in some portion plantation activity will be carried out. So there will be change in mining area & plantation and water reservoir on the completion of mining activity.

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Table 4-6: Land use pattern for first five years

Particulars	Forestland	Govt. land	Govt. agriculture waste land (ha)	Private Irrigated	Private non irrigated	Remarks
Area excavated	Nil	Nil	4.65	Nil	Nil	Nil
Storage of top soil	Nil	Nil	Nil	Nil	Nil	Nil
Overburden/ Dump	Nil	Nil	Nil	Nil	Nil	Nil
Mineral Storage	Nil	Nil	Nil	Nil	Nil	Nil
Infrastructure (Workshop, Admin. Building, Roads)	Nil	Nil	0.61	Nil	Nil	Nil
Railway	Nil	Nil	Nil	Nil	Nil	Nil
Area under plantation	Nil	Nil	Nil	Nil	Nil	Nil
Others Undisturbed	Nil	Nil	5.26	Nil	Nil	Nil
Total			5.26			

Table 4-7: Land Use pattern at the end of life of mine

S. No.	Particulates	Present Land - Use	After 5 th year land- Use	At the end of life of mine land- Use
1	Area Excavated due to Mining	0.0	4.65	4.65
2.	Dump of Ore/Waste/Overburden	0.0	0.0	0.0
3.	Infrastructure : Roads, Building, Electric line etc.,	0.0	0.61	0.0
4	Backfilled Area	0.0	0.0	0.0
5	Area under Plantation	0.0	0.0	0.61
6.	Undisturbed Area	5.26	0.0	0.0
	Total	5.26	5.26	5.26

33% of the total area i.e. 1.53 hectare has to be covered under plantation during the lease period.

The likely impact score on land environment is given in *Table 4-8*

Table 4-8: Impact Scoring Land Use/ Land Cover

Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score C X P	
Clearance of Land	Change in Land cover from	-3.33	1	-3.33 - -3	Change in Land cover is negative impact

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Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score C X P	
	Govt. Waste land to mining area				hence -3 score Consequence score is taken as - 3.33 + -5 for long term impact, -2 for limited extent of impact, and -2 as government land hence mean score of - 3.33. probability score is taken as 2 as this activity is rare
Mining Activity	Change in Land use during mining activity	-2.33	2	-4.66 - -9	The mining lease area (5.26 ha) will be change due to blasting & pit formation
Reclamation	Positive impact as water reservoir will be developed	+3.66	3	10.99 - 11	

4.4.2 Mitigation Measures

- The mining will be done systematically by formation of benches of 10 m height and width more than 10 m.
- Average slope of the benches from horizontal about 70° from horizontal and dump less than 77° which will take care of land slide due to any natural calamity of heavy rainfall/ earthquake.
- The pits, dumps and stacks will be provided with proper garland drains, vertical drains and retaining walls to avoid spread of waste, dust and silts in the area through water.
- During rains, emergency gangue will be maintained for proper drainage of water, cleaning of silts to take care of stability.
- The waste rocks dumping will also be done by formation of terraces which will be subsequently vacated
- The land required for mining and allied activities will be used gradually and simultaneously backfilling will be done.
- We have proposed to develop the land suitable for grasses/ some fruit trees which will be beneficial during the mining and also after closure of the mines
- A siltation or check dam is also suggested outside the lease area over the drainage connecting the nallah to arrest the silts flowing through surface runoff water.
- Plantations is proposed on safety zones and other places to absorb the pollutants.

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4.5 Air Environment

4.5.1 Mining Activity

Emission of PM10 from Mining Area

The emission rates for the different sources in the mining area were calculated primarily based on emission factor equation given in latest USEPA's AP-42 guidelines. As the proposed mine development will be undertaken in environmentally friendly manner as per the stipulated guidelines, activity specific control factors have been considered in calculation the final emission rates.

Drilling

Emissions from drilling are a relatively minor component of the overall emission from an open-cast mine. The USEPA default uncontrolled emission factor of 0.31 kg/hole is used for PM10 emission estimation. Each day, total 40 holes having 11m depth with 4m spacing and 2.5m burden will be drilled using wagon drill.

Emission of PM10 due to Transportation

The hauling of mineral from the mining pit to the dumping yard via unpaved road (haul road within mining lease or connecting road) will cause emission of particulate matters. This emission generally occurs in close vicinity of the transportation route. The emission generated gets settled in proximity of the unpaved road only. As per the approved mining plan, transportation of 28,50,000 tonnes of mineral will be carried out for 24 hours/day. Each hour maximum 2 round trips will be made by dumpers for transporting mineral to dumping yard. The following empirical expression is used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road in industrial sites, per vehicle mile traveled (VMT)

$$E = k \left(\frac{s}{12} \right)^a \left(\frac{W}{J} \right)^b + C \quad \text{--- AP42 (Nov 2006)}$$

Where

k, a, b are empirical constants i.e. different for different particle size.

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear, 0.0047 lb/VMT for PM10. The source characteristics s, W are referred to as correction parameters for adjusting the emission estimates to local conditions. The effective emission factor after considering reduction in emission potential of haul roads due to water sprinkling was calculated for use in CALINE4 model. Since CALINE4 has option for only 1-hour and 8-hour pollutant concentration prediction and in NAAQS (2009) the PM10 concentration standard is given at 24-hour averaging time, the

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model was first used to predict 1-hour worst case incremental concentration which was later converted into 24-hour G1.C using Turner Equation¹

Following precautions will be taken while transporting the explosive in bulk: -

- Transportation of the explosives from the magazine to priming station or the site of blasting will not be done except in the daylight, and in the original packing cases. The quantity of explosives transported at one time, to the site of blasting, will not exceed the actual quantity required for use in one round of shots, and not more than 30 minutes before the commencement of charging of the hole.
- No mechanically propelled vehicle will be used for the transport of the explosives, unless it is of a type, approved in writing by the Chief Inspector, provided that a Jeep or such type of approved vehicle is to be used for the transport of detonators from the magazines to the priming stations, subject to the following conditions: -
 - Not more than 200 detonators are transported in a vehicle at a time;
 - The detonators are to be packed suitably in a wooden box.
 - The wooden box, containing detonators, is to be placed inside an outer metal case of a construction approved by the Chief Inspector.
 - The outer metal case will be suitably bolted to the floor of the vehicle, or otherwise fixed in a wooden frame, so that the container is not displaced while the vehicle is in motion.
 - No person will ride on the rear portion of the vehicle.
 - Vehicles, used for transporting explosives, will be substantially constructed, in good working order and have tight beds, to prevent the explosives from falling off the vehicles.
 - Every vehicle, used for the transport of explosives, will be marked or placarded, on both sides and ends, with the word EXPLOSIVES in red letters, not less than 15 cm high, on a white background.
 - Every mechanically propelled vehicle, transporting explosives, will be provided with not less than two fire extinguishers (One of Carbon Tetra Chloride type, for petroleum fire, and other of Carbon Dioxide under pressure type, for electrical fire), suitably placed for immediate use.
 - The vehicle, used for the transport of explosives, will not be overloaded, and in no case will the explosive cases be piled higher than the sides of its body.
 - Explosives and detonators will not be transported in the same vehicle.
 - The metal parts of every vehicle, carrying explosives that may come in contact with containers of explosives will be suitably covered with wood, tarpaulin, or other suitable material.

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- Explosives, carried on vehicles, will be so secured/ fastened as to prevent any part of the load from becoming dislodged.
- No person, other than the driver and his helper (not below 18 years of age) will ride on a mechanically propelled vehicle, used for the transport of explosives.
- A vehicle, loaded with explosives, will not be left unattended.
- The engine of a vehicle, transporting explosives, will be stopped, and the brakes set securely, before it is loaded or unloaded or left standing.
- The transfer of the explosives from the magazine will be so arranged that no undue delay will occur between the time the explosives leave the magazine and the time they are properly stored in the designated storage places, or distributed to the point of use.
- A vehicle, transporting explosives, will not be driven at a speed exceeding 25 km/hr.
- A vehicle, loaded with explosives, will not be taken into a garage or repair shop, and will not be parked at a congested place.
- A vehicle, transporting explosives, will not be refueled except in emergencies, even when its engine will be stopped, and other precautions taken to prevent accidents.
- No trailer will be attached to a vehicle, transporting explosives.
- Every vehicle, used for transporting explosives, will be carefully inspected once in every 24 hours by a competent person to ensure that -
 - Fire extinguishers are filled and are in place.
 - The electric wiring is well insulated and firmly secured.
 - The chassis, engine, and body are clean and free from surplus oil & grease.
 - The fuel tanks & fuel lines are not leaking.
 - Lights, brakes and steering mechanics are in good working order.
- A report of every inspection, made under (a) above, will be recorded in a bound pagged book, kept for the purpose, and will be signed and dated by the competent person making the inspection.
- All operations, connected with the transport of the explosives, will be conducted under the personal supervision of an foreman, solely placed in charge of the blasting operations in the mine.
- The shotfirer/ blaster will personally search every person engaged in the transport of explosives, and will satisfy himself that no person so engaged has, in his possession, any cigar, cigarette, bin or other smoking material, or any match or any other apparatus of any kind, capable of producing a light, flame or spark.

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SAFETY PRECAUTIONS:-

- The position of every deep- hole to be drilled will be distinctly marked by the foreman so as to be readily seen by the drillers.
- No drilling will be commenced in an area, where shots have been fired, until the blaster has made thorough examination at all places, including remaining butts of the old deep- holes, for unexploded charges that the drill may strike.
- No drill or bore rod or pick will be inserted in the butts of old deep- holes, even if the examination under clause (a) has failed to reveal the presence of explosives.
- Drilling and charging of deep- holes will not be carried out in the same area at the same time
- Drilling operations will not be carried on simultaneously on two benches, at places directly one above the other.
- Shots shall not be fired except during hours of day – light
- Shotfiring shall be carried out during the rest interval.
- Before a shot is charged, stemmed or fired, it is ensured that all the persons have taken proper shelter & also take suitable steps to prevent any person approaching the shot.
- Siren will be blown over the entire area falling within a radius of 500m from the place of firing.
- Two persons will be posted, one in either direction at the two extreme points of the road lying within the danger zone
- During the approach and progress of an electric storm. The following precautions shall be taken: -
- No explosives, particularly detonators, shall be handled
- If charging operations have been commenced, the work shall be discontinued until the storm has passed
- All exposed wires shall be coiled up and if possible placed in the mouth of the holes, or kept by something other than a metal plate.
- The preparation of charges and the charging & stemming of holes will be carried out by or under the personnel supervision of a competent person – blasters.
- The manager shall fix, from time to time, the maximum number of shots that a blaster may fire in any 1 shift.
- The number of detonators issued to, and in the possession of, a blaster during his shift shall not exceed the maximum number of shots that he is permitted to fire.

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- Shut firing tools such as electric lamp or torch, a tool made entirely of wood suitable for chipping and stemming. A Scraper made of brass or wood, a knife for cutting off fuses. Crimpers, pricklers shall be provided by the owner.

(Source: DGMS Circular 36 of 1977)

Conclusion

From the results of AIRMODE 9.50 models, it is concluded that the maximum cumulative concentrations of PM10 both due to mining activities and transportation are expected to be high but meeting the prescribed standard for PM10 within the mining zone. Further, the maximum incremental concentration due to mining activities is much lower in comparison to transportation which is major source of high concentration levels. Outside the mining zone, the impact on nearby settlements is low.

The concentrations of SO_x and NO_x generated from mining area are expected to be low due to absence of any major sources. The concentration of CO due to vehicle exhaust is also low due to small number of vehicles plying on haul road.

It should be noted that the predicted concentrations are due to M/s Govind Gopal Infra solution Pvt. Ltd. Stone mine only and higher pollutant concentrations may observed in the study area due to simultaneous operations of other mines, other anthropogenic activities, data for which is not available.

The overall impact on air quality due to proposed mining project is expected to be high within the mining lease area and in proximity of haul roads. To minimize the pollutant PM10 concentration, the following control measure will be adopted by the project proponent –

- As there is no settlement adjoining the proposed mine and the impact on nearest village will be low, no specific mitigation measures are suggested to be taken at nearby settlements. However, medical checkups and awareness campaigns will be planned as part of Environmental Enhancement / CSR activities.
- Controlled and wet drilling shall be used.
- Controlled blasting shall be undertaken during lunch hours or other suitable time when all other activities are stalled. Further, blasting will be carried out under suitable atmospheric conditions (low wind etc.). All necessary precautions will be implanted as per DGMS guidelines.
- Before loading of material water shall be sprinkled out on blasted material.
- Nose mask will be provided to the workers and their use will be strictly monitored. Frequent medical checkups, trainings and campaigns will be arranged to ensure awareness about importance of wearing nose masks among labours / drivers.
- Increased frequency of water spray on haul roads to avoid dust generation during transportation. (>23m2).
- Transportation of materials shall be carried out during day time only in covered trucks.

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- The speed of dumpers plying on the haul road will be limited to avoid generation of dust.
- Haul road shall be covered with gravels.

4.5.2 Fugitive Dust Generation during Reclamation

As the excavated area will be reclaimed as water reservoir at the end of life of mine, so there will be no fugitive dust will be operation.

Ambient Air quality measured in the area is reflection of mining activities not due to stone mine alone but activities of the adjacent mining leases, traffic on the road and other activities.

However, the mining activities are not going to cause any adverse impact since the incremental increase and predicted PM10 at the nearby villages are within the norms of the residential area.

The likely impact score on air environment is given in *Table*.

Table 4-12: Impact Scoring Air Environment

Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score C x P	
Excavation of Pit	Fugitive Dust generation may cause breathing problems	-2	5	-10	Score for consequence is taken as -2 as it is a negative impact and probability score is taken as 5 as it is a continuous activity.
Stacking of Mineral waste and O/B	Fugitive dust emission may cause breathing problems	-3	4	-12	Score for consequence is taken as -2 as activity will have moderate environmental impact leading to visual impact and significance nuisance level, for probability score is taken as 4 as this activity will occur several times during the project activity.
Transportation of mineral, O/B and waste	Air emission from vehicle plying and dust emission may cause breathing problems and other health risks	-2	5	-10	Consequence score is taken as -2 as this activity will have minor impact with no lasting detrimental effect, as it is a continuous activity probability score of 5 is taken.
Land Reclamation	Fugitive dust emission during backfilling operation may cause breathing problems and other health risks	-1	3	-3	Consequence score is taken as -1 as it is a negative impact causing temporary nuisance for few days during backfilling, probability score is taken as 3 as this activity will occur once during the study period.

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4.5.3 Mitigation Measures

- Water sprinkling will be done twice during the day in summer season and once during the day in winter season for settling of dust particles.
- Sharp drill bits will be used for drilling and they will be maintained periodically to reduce the generation of dust.
- Transportation of material will be done on Kaccha road which will generate dust and rest of the distance will be on State Highway will not cause air pollution
- Drilling machines will have bag filters attached to them also to prevent the dust to get air borne/water tanks attached for wet drilling..
- Blasting will be done in most scientific manner with the use of latest technology and optimizing the blasting parameters to control & prevent the dust to get air borne, and also to control the fly rocks.
- Regular maintenance of machinery and vehicles will be done to check the excess emissions. A system of regular overhauling of dumpers & excavators, after specified hours of working shall be evolved and observed to avoid generation of obnoxious fumes.
- Green belt with tall trees will be planted. It will restrict the particulates and reduce the concentration of SO₂ and NO₂.
- Plantation along Kaccha road and statutory barrier etc. will also protect the soil from wind crossings.
- All the haulage roads including the main ramp from crusher to mine pit will be kept properly maintained and watered regularly during the working shift to prevent generation of dust due to the movement of dumpers, water tankers etc.
- Dust mask shall be provided to the workers engaged at dust generation points like excavations and loading points.

4.6 Noise and Vibration

Adverse impact on noise level is due to vehicular movements during mining phase, during operation of Excavator, etc. and vehicle movement during reclamation phase

The proposed project related activities will lead to emission of noise that may have minor impact on the surrounding communities in terms of minor increase in noise levels. The potential impacts on noise level may arise out of the following.

4.6.1 Noise from Machinery and Equipment during Mining

During mining phase vehicle movements and operation of Excavator, etc. will lead to generation of noise. The equipment will be used during daytime. Thus, there will not be any adverse impact on nearby habitation due to proposed activity.

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4.6.2 Noise from Vehicular Traffic

Vehicular movement for transportation of materials and work force to the site will cause minor noise emission as the frequency of vehicular movement will be few times in a week.

4.6.3 Assessment of Noise Level Using Model

For hemispherical sound wave propagation through homogeneous loss free medium, one can estimate noise levels at various locations at different sources using model based on first principle.

$$Lp2 = Lp1 - 20 \log(r2/r1) - Ael,2$$

Where

$Lp1$ & $Lp2$ are sound levels at points located at distances $r1$ & $r2$ from the source

$Ael,2$ is the excess attenuation due to environmental conditions. Combined effect of all the sources that can be determined at various locations by logarithmic addition

$$Lp_{total} = 10 \log (10^{(Lp1/10)} + 10^{(Lp2/10)} + 10^{(Lp3/10)} + \dots)$$

The sources considered at the project site for the analysis with their approximate Sound Pressure Levels are considered slightly on the higher side for more critical analysis and are given in *Table 4-13*.

Table 4-13 Noise Generating Machinery at Mining Lease

S. No.	Source Name	Noise Level dBA)
1.	Hydraulic Excavator	110
2.	Dumper	100
3	Blasting & Drilling	140

With the above consideration, model was run and results were generated at the project site using the model, the results obtained are given in *Table 4-14*.

Table 4-14: Noise Level at Receptor during Mining Activities

S. No.	Location	Distance from Mining Lease (m)	Direction from Mining Lease	Noise Level (dB(A))		Remarks
				Day time (6.00am to 10.00pm)	Night time (10.00pm to 6.00 am)	
1	Mine Site	-	Mine site	66.8	44.4	Within the CPCB limit for Industrial Area
2	Jaipur	~1.75 Km	SE	51.4	40.2	Within the CPCB limit for Residential Area
3	Dholera	~ 2.41 Km	NW	52.4	41.6	No addition in noise level due to mining activities
4	Nangal Chaudhari	~ 3 km	SE	52.8	40.6	No addition in noise level

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S. No.	Location	Distance from Mining Lease (m)	Direction from Mining Lease	Day time (6.00am to 6.00pm)	Night time (10.00pm to 6.00 am)	Remarks
5	Sirohi Bahali	- 4.0 Km	E	50.4	41.2	due to mining activities No addition in noise level due to mining activities
6	Niyaz Alipur	- 5.5 Km	W	53.8	42.6	No addition in noise level due to mining activities
7	Salarpur	- 7 km	NE	52.4	41.6	No addition in noise level due to mining activities
8	Golwa	- 9.5 Km	SW	53.4	42.6	No addition in noise level due to mining activities

Observation

- Incremental noise level in nearest habitation area at a distance of 500 m from site will be in the range of 7.0 dB (A) during day time at mine site & 4.44 dB (A) at Jainpur.
- Beyond 500 m from the project area, increase in noise level, due to proposed activities, will be negligible.
- Noise level does not exceed the CPCB limit at any location due to mining activity.

The likely impact score on noise environment is given in *Table 4-15*.

Table 4-15: Impact Scoring Noise Environment

Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score C X P	
Excavation of Pit	Noise generation will disturbance to workers and ecology and biodiversity of the area	-1	5	-5	Consequence score is taken as -1 as the incremental noise level due to mining activity will be 9.51 dB (A) at mine site & 0.31 dB (A) of habitation and probability is taken as 5 as it is a continues activity
Stacking of	Noise generation will	-1	4	-4	Consequence score is taken

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Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score C X P	
Mineral, waste and O.B	disturbance to workers and ecology and biodiversity of the area				as -2 as the incremental noise level due to mining activity will be 9.51 dB (A) at mine site & 0.31 dB (A) is taken as 4 as it this activity occur several time during the project life cycle
Transportation of mineral, OB and waste	Noise generation will disturbance to workers and ecology and biodiversity of the area	-1	5	-5	Consequence score is taken as -1 as the incremental noise level due to mining activity will be 9.51 dB (A) at mine site & 0.31dB (A) habitation and probability is taken as 5 as it is a continues activity
Land Reclamation	Noise generation will disturbance to workers and ecology and biodiversity of the area	-1	3	-3	Consequence score is taken as -1 as the incremental noise level due to mining activity will be 9.51 dB (A) at mine site & 0.31dB (A) habitation and probability is taken as 3 as this activity occur at least once during the project life cycle

4.6.4 Ground Vibration

The total mining lease area is Govt. Agriculture waste land which indicates the high absorption of disturbances in the grounds, if any caused due to any kind of activities.

As mining will be carried out by Opencast mechanized method by adopting a system of small hole/deep hole blasting and/or working with the help of machinery for digging, excavation and removal of ore, overburden etc. Sharp drill bits will be used for drilling and they will be maintained periodically to reduce the generation of dust & blasting with down the hole initiation technique will be adopted which produces less vibration, less noise and better fragmentation. So, there will be less impact due to mining activities.

Operation of machineries, movement of trucks & dumpers & rolling down of boulders along the slope are likely by cause vibration in the air & ultimately ground vibration but it will be less as mining will be done in most scientific manner with the use of latest technology.

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However, workers working on dumpers and other machines will be subjected to vibrations required, maintenance of machines. Maintenance of road is essential to reduce vibrations and jerks to take care of health of workers.

Vibrations due to movement of machines, dumpers can be a source and identification of sources of body pain, spinal and orthopedic problems to workers and necessary treatment will be provided time to time. Provide adequate control measures for ground movement. Adequate safety retaining wall at the bottom of dumps backfilled area will also provide stability to mining, dumping and reclaimed area.

4.6.5 Measures to Minimize Vibrations due to blasting and check noise pollution

Vibration pollution will be there during the proposed blasting. Scientific blasting is proposed to reduce the vibrations and check noise pollution. Earplugs will be provided to the work persons.

The permissible peak particle velocity limits is as follows:-

Type of structure	Dominant excitation frequency, Hz.		
	< 8 Hz.	8-25Hz.	> 25 Hz.
(A) Building Structures not belonging to the owner			
(i) Domestic houses/ structures (Kuccha, Brick & Cement)	5	10	15
(ii) Industrial Buildings (R.C.C. & Framed structures)	10	20	25
(iii) Objects of historical importance & sensitive structures	2	5	10
(B) Buildings belonging to owner with limited span of times			
(i) Domestic houses/ structure (Kuccha, Brick & Cement)	10	15	25
(ii) Industrial Buildings (R.C.C. & Framed structures)	15	25	50

There are several modules for calculation of ground vibration. The energy released (E) is taken to be directly proportional to the weight (Q) of the explosive fired. The common equation to assess the energy produced during blasting is-

$$E \propto Q^{0.5}$$

Studies on wave propagation phenomenon were conducted by Morris (1950). He propounded that the amplitude (A) of particle displacement is proportional to the square root of the weight of the charge (Q) and inversely proportional to the distance (D) from the blast. That is:

$$A = K \frac{Q^{0.5}}{D}$$

Where, K is the site constant.

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Haberjam and Whetton (1952) suggested a higher power for the charge weight in their formula.

$$V = K Q^{0.85}$$

The subsequent investigations (Duvall and Petkof, 1959; Arrawall, 1964; Nicholls et al., 1971; Siskind et al., 1980, and Daemen et al., 1983) have proposed further modifications of the propagation law.

Assuming cylindrical explosive geometry for long cylindrical charges, Daemen et al., (1983), Duvall and Petkof (1957), Duvall and Jagelson (1962); Duvall et al., (1963) concluded that any linear dimension should scale with the square root of the charge weight. Blasts should be scaled to the equivalent distance or scaled distance, which is defined as the actual distance (D) divided by the square root of the charge weight (Q). The corresponding relationship assumes the form:

$$V = K (D/Q^{0.5})^B$$

Where B is the slope of the best-fit straight line of the V (peak particle velocity) versus $D/Q^{0.5}$ plot on a log-log scale and K is the intercept on the particle velocity axis when $D/Q^{0.5} = 1$.

Langeliers et al. (1958) suggested the following relationship for various charging levels ($Q/D^{3/2}$) to estimate peak particle velocity. The equation is:

$$V = K (Q/D^{3/2})^B$$

For spherical symmetry, the USBM investigations suggested that any linear dimension should be scaled to the cube root of the charge size. Thus, a scaled distance is the actual distance divided by the cube root of Hendron (1968) also obtained similar results. An inverse power law was suggested to relate amplitude of seismic waves and scaled distance to obtain the following relationships:

$$V = K (D/Q^{1/3})^B$$

The empirical relationship suggested by the Indian Standard (1973) uses the concept in which blast is scaled to the equivalent distance or scaled distance, defined as the charge weight divided by the cube root of the square of actual distance. The relation is expressed as-

$$V = K (Q^{2/3}/D)^B$$

Davies et al. (1964); Birch and Chalfer (1983); Attewell (1964); Daemen et al. (1983) considered no particular charge symmetry and used a general equation instead

$$V = K D^{-B} Q^A$$

Where K, A and B are empirical constants which can be determined by multiple regression analysis of two independent variables.

It is to be noted that after the invention of delay detonators (or millisecond relays), the weight of the charge (Q) became "maximum charge per delay fired in a round of blast".

The empirical equation used for assessment of peak particle velocity (PPV) is:

$$V = 417.8 (D/Q^{0.5})^{-1.265}$$

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Where,

V= Peak particle velocity in mm/s

D= Distance between location of blast and gauge point.

Q= Quantity of explosive per blasting.

Thus, vibration at a distance of 300 m from the blast site while blasting 191.60 kg. of explosive in one round will be –

$$\begin{aligned} &= 417.8 \times \{300 \div \sqrt{543}\}^{-1.265} \\ &= 417.8 \times \{300 \div 23.30\}^{-1.265} \\ &= 417.8 \times 1.265^{-1.265} \\ &= 417.8 \times 0.1498 \\ &= 41.06 \text{ mm/sec} \end{aligned}$$

The calculated peak particle velocity is 41.06 mm/sec, which is within permissible limit as per DGMS circular 7 of 1997.

Considering the above inventions the following measures will be taken to minimize the vibration :-

1. Blasting shall not be permitted within 100 m of surface structure not belonging to owner.
2. Peak particle velocity at a distance of 100 m from the shot hole, shall not exceed 20mm/ sec
3. The flying fragments shall not project beyond the distance of 3 m.
4. Proper spacing & burden will be maintained
5. Optimum utilization of the explosives will be ensured
6. Direction of the hole will be maintained towards free face
7. Electric delay detonator will be used.
8. Deck charging will be practiced for required fragmentation

Although there was no increase beyond the allowable limit predicted at any of the locations outside the project site, the noise environment also includes the people who are working within the project site, and who may face hearing damage in case they face the Noise Dosage beyond the allowable level of Noise. Therefore, it is important to implement the following mitigations in order to avoid any permanent hearing damage to the people working inside the project site.

Mitigation measures suggested are as follows.

- Proper and timely maintenance of machine excavator, transport vehicle will help to reduce sound nuisance as much as possible.
- Blasting with down the hole initiation technique will be adopted which produces less vibration, less noise and better fragmentation.

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- Trees will be planted on both the sides of the roads and near the office etc. to attenuate noise generated during mining.
- Noise level measurement in the mine area will be carried out quarterly. Use of personal protective equipment i.e. ear plugs/ear muffs etc. to the operator of excavation and transport vehicle will be provided.
- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce noise generation.
- Regular monitoring of noise level will be done quarterly at the stations identified. Regular medical examination of workers for audiometric will be done, and also use of ear muffs by workers on duty will be ensured.
- Use of physical barriers and greenbelt development around the mine lease area to restrict the noise levels from going outside the proposed mine boundary during operation.

4.7 Surface Water

4.7.1 Surface Water Flow

Krishnawati River at a distance about 1.95 km in East direction and Chandrawati River distance is 13.13km in west direction. Rainwater falling over the mining pits, waste dumps, top soil stacks are likely to cause land erosion, failure of dumps, silt transportation from dumps, stacks and mixing of minerals with water & water flowing during rains at very high speed is likely to cause soil erosion & take silts with it to the surface water sources. Nallahs/ ponds etc. and silts are likely to be accumulated over the nallah and likely to affect surface water flow in the lease area & the buffer zone.

If water flow will not be controlled there is possibility of sliding of benches of mining pits & dumps therefore adequate precautions will be required to ensure free flowing of water during rains to reduce likely erosion. The ingress of water during rains is predicted in pits which can hamper the mining activities after rains as water can be accumulated and stored in the open mining pits.

The mining activity will be restricted to limited area so the general slope of the area will not be affected.

4.7.2 Water Quality

The water will pass through broken land, waste dump, top soil stack & its quality is likely to deteriorate. There will be no O&B generated and mineral is non-toxic and therefore there will be no toxicity in water whenever it is mixed in the speed of flowing water & waste is likely to increase T.D.S. and suspended solids but as the gradient is almost flat will not travel to long distances. This can be checked with proper mitigations.

However due to mechanization and operation of machines, the oil, lubricants, fuel spillage on ground is expected which can mix with rain water after a span of time and can pollute the surface water. As the mining activity will be very limited and deployment of machines will be very limited, the impact

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predicted due to spillage will be negligible as it will restrict to mining pits and upto the dump + stack areas.

The likely impact score on surface water environment is given in *Table 4-16*.

Table 4-16: Impact Scoring Surface Water

Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score C X P	
Excavation of Pit (Usage of Surface Water during mining activity)	No Water consumption for drinking and domestic purpose will create burden on existing water availability	-1	2	-2	Consequence score is taken as -2 as it is a Positive impact and the water quantity will have mean score of 2, probability score is taken as 5 as no water will be consumed as long as mine is in running condition
Stacking of Minerals, waste and O/B	There is no Surface Runoff will deteriorate the quality of nearby surface water body	--	--	--	Consequence score is taken as - as it is no impact and probability score is taken as - as surface runoff may not happen during the life of mine

4.7.3 Mitigation Measure

- In open cast mining pits as well as on dumps, it is necessary that the rainwater falling outside the edge limit of the working areas will not be allowed to enter into the pit and working areas. Therefore it is proposed to develop garlands drains around the mining pits and dumps to arrest the surface runoff water and divert it to lower synclines without any contact with the mining operations. In the lease for proper drainage of water, a set of garland drainages will be made in the mining lease area and the water will be accumulated at the lower most gradient by constructing siltation tanks which will act as water storage in the area as well as collection of silts. Silts will be regularly cleared regularly.
- Surface water will not likely to be affected. All water drains from the pits/dumps will be constructed in such a way that the water will be drained to nullas through check dams

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- The vertical drains and horizontal drains will be provided on the dumps, mining pits and benches to properly channelize the mine water flow and surface water flow and will be connected to final drainage with check measures.

4.8 Groundwater

4.8.1 Impact on Ground water

Since water table is very deep & mining will be carried out much above the water table & therefore there will be no impact on ground water. As the depth of groundwater table in the mining lease area is 80-90 m, and the maximum working depth proposed is 74 m, hence the mine working will not intersect the groundwater table.

Stone present mining is confined to this band from top level to the present depth of 74 m, the water percolation rate is pure in the area as the litho-logy is comprising of stone which is an absorbent, the water is not likely to be mixed with ground water and will be naturally checked by the ground conditions and advancement of mines.

Ground water pollution can takes place only if the mining rejects contain chemical substances. The chemicals get leached by the precipitation water and percolate to the groundwater table thus polluting it. Any nearby wells or other sources of water can be rendered unfit for drinking and even for industrial or domestic use. This is not the case with the deposit as the mineral or topsoil does not contain any harmful ingredients. Moreover the area under consideration constitutes inert and chemically non-reactive ingredients. The water is potable in the dug wells, bore wells and hand pump. There is no beneficiation plant located nearby, and hence the contamination of water due to chemical is not envisaged.

4.8.2 Waste water generation Treatment and Disposal

There is no generation of the wastewater from the mining operations. Water used for dust suppression along the haulage roadways and at mining faces is not accepted to generate any wastewater as it will percolate through ground and for evaporate. The domestic sewage is the only waste water generations at the mining lease that is in negligible quantity. Hence no impact of wastewater is envisaged.

The likely impact score on groundwater environment is given in *Table 4-17*.

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Table 4-17: Impact Scoring Groundwater

Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score C X P	
Stacking of Mineral, waste and O.B	Surface Runoff will not deteriorate the quality of groundwater	-1	4	-4	Consequence score is taken as -1 as it is negative impact and probability score is taken as 4 as surface runoff will not happen during the life of mine

4.8.3 Mitigation Measure

Mining activity and degradation of land and subsequent flow of water is likely to disturb the drainage course. The quality of water flowing in these drainages will also be polluted. Therefore to safeguard the existing drainages in the areas following precautions are proposed.

- Garland drainages are proposed surrounding the mining pits, top soil, waste dumps and back filled areas. Even vertical water drains are proposed so that from one bench to another bench water will flow in a controlled manner without causing the sliding of benches, dumps, terraces, etc. Even during rains these drainages will be regularly cleaned from the sites so that there will be not be any obstruction to flow of water.
- The mining pits will be properly benched; soil and waste dumps will be properly terraced with inward slope retaining walls at the toe so that there will not be land slide during the rains.
- The benches of mining pits, terraces of waste dumps and soil dumps will have grass plantation during the rain so that it will also reduce the land degradation.
- Construction of check dams are proposed in these drainages so that speed of water flowing during rains does not increase abruptly to cause land slide and degradation of land.
- Regular monitoring of quality of water and surface water flow in these drainages are proposed to take care of adverse impact due to mining.

The efforts made by us within our mining lease area will definitely reduce the impact. Regular monitoring of water quality/ suspended particulars in water during the rains will be made by us at the nullahs flowing in the M.L. area.

There is no stone water or natural drainage on the surface area of mining lease area. For complying the statutory provisions of MoEF&CC and pollution control board, water quality will be monitored and evaluated. The corrective measures will be taken on the basis of monitoring results.

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4.9 Soil

Soil quality may be affected by mining activity. The impacts would be degradation of soil or change in its structure due to compaction and erosion during excavation, stacking activities and plying of trucks during operational phase.

4.9.1 Loss of Top Soil during Mining

Top soil of 0.15 m depth mixed with serec is present virgin area of M.L. which will be removed before mining activity & stacked separately in boundary barrier. Total volume of top soil will be removed is 62001.82 m³ and this will require an area of 1.53 Ha. In statutory barrier having 7.5 m depth it will be used for plantation within the year of commencement of mining activity.

Change in Land Use Pattern

The proposed mining activities will be done within the lease area which is Government Agriculture waste land, therefore permanent change in land use pattern is expected.

Impact of Domestic Solid waste

Waste generated during mining operation will be stacked separately in the boundary barrier and will be stabilized by plantation. Small amount of domestic waste will be generated for which dustbin will be kept at proper place.

Disposal of Overburdens and Mitigation Measures

There is no overburden or mineral rejects. Excavated part will be developed as water reservoir, which will recharge the ground water table.

The likely impact score on groundwater environment is given in *Table 4-18*.

Table 4-18: Impact Scoring for Soil Environment

Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence e, C	Probability, P	Final Score C X P	
Excavation & Stacking of Mineral, waste and OB	Soil contamination and removal of top soil	-2	5	-10	Consequence score is taken as -2 as it is negative impact and probability score is taken as 5 as stacking is a continuous process

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4.9.2 Mitigation Measure

- Preserve top soil layers to be used for afforestation.
- The overburden proposed to be dumped in earmarked area.
- Dumps will be around the boundaries and the slope, spread and height of dumps will not be more than 45°, 7.5 and 5.0 m respectively.
- Afforestation will be carried out on dumps once complete dumping height has been reached. The slopes will be covered with grass to protect against erosion.
- Along the mining lease boundary, afforestation will be carried out once nearby area has been mined.
- Systematic garland drains, retaining wall and water arresting trenches will be made to arrest the sliding of the loose materials and runoff during monsoon season from the dumps.
- Garland drains will be desilted regularly.
- Use symbiotic and non-symbiotic microbes along with organic manures for efficient rising of trees (afforestation).
- Trucks carrying raw material should be covered to avoid dusting.
- Soil (EC, pH & ESP) and Water (EC, pH & SAR) quality should be monitored periodically and if they become alkaline use iron pyrite or sulphur as an amendments.
- Treatment of soil with additional combination for restoring and upgrading the quality of soil like mixing of organic manures, recycling of dumps, etc.

4.10 Topography, Hydrology, and Drainage

Mining is proposed to be carried out from RL. 339 to 330m RL. during the first five year of mining the depth of the pit will not increase more than 74 m during the life of mine. The dump will be protected by retaining wall with garland drain, compacted and temporarily rehabilitated by sowing fast growing grass seeds. Temporary waste dump will be designed with low heights and smooth angles.

Part of the excavated area will be used as water reservoir at the end of life of mine this will cater to the water requirement of the local people.

The proposed plantation will increase the green belt in the surroundings.

Change In Drainage Pattern

The drainage pattern is not likely to be disturbed due to mining.

Mitigation Measure

- The mining will be done systematically by formation of benches of 10.0 m height in mineral and width more than 10.0 m, part of the area will be backfilled and brought to original condition and rest will be converted to water reservoir.

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- Average slope of the benches will be 70° degree from horizontal and dump less than 37.5' to ensure the stability of slopes & which will take care of land slide due to any natural calamity of heavy rainfall, earthquake.
- During rains, emergency gangue will be maintained for proper drainage of water, cleaning of silts to take care of stability.
- The waste rocks dumping will also be done by formation of terraces which will be subsequently vacated.
- The land required for mining and allied activities will be used gradually and simultaneously backfilling will be done.
- It is proposed to develop the land suitable for grasses, some fruit trees which will be beneficial during the mining and also after closure of the mines.

4.11 Ecology and Biodiversity

4.11.1 Ecological Component Likely to be impacted

Based on project activities and aspects, following ecological components are determined, which may face likely impacts in different phases of project duration

During Mining Activities

Terrestrial flora and fauna will be impacted by uprooting of vegetation present in the lease area as site specific floral diversity and associated faunal diversity will be lost also there will be site specific habitat diversity loss.

During Excavation of mineral and its transportation, noise will be generated which will have minor negative impact as the normal faunal movement will be hindered. Surface runoff will not touched so impact as water body will not contaminated by it

Mining activity will not affect the plant and animal biodiversity in the study area as all the activities will be confined in lease area. On the contrary there will be positive impact due to constructed reservoir on the surrounding vegetation and bird population.

Impact on Fauna

The impact on the fauna of the buffer zone due to mining activity will be marginal. The proposed progressive plantation over a period of time will create conditions favorable to fauna.

Impact on Aquatic Ecology

No waste water generation is envisaged from the mining operations. The rainwater reused for dust suppression and for plantation. There is no runoff water from mining lease area so that there water will not enter in the agriculture fields or any man made create reservoir.

The likely impact score on ecological environment is given in *Table 4-19*.

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Table 4-19: Impact Scoring on Ecological Environment

Impacting Activity	Impact	Impact Scoring			Remarks
		Consequence, C	Probability, P	Final Score CXP	
Site Clearance	The total lease area is Government Waste land hence no are specific loss of floral species and associated faunal species	-3	5	-15	As the total lease area is Government agriculture waste land so some kind of common species and plants are present there hence for consequence scoring of -3 is given. probability score of 5 is given as very dense forest are present.
Mining activity including transportation	Uprooting of common species hence loss of floral species and associated faunal species	-2	4	-8	Consequence is given a score of -2 as the total lease area is a government waste land& faunal species present in the mining lease will have some impact.
Stacking of mineral, OB and waste	There is no waste water or OB runoff from mining lease.	-3	1	-3	Consequence is give a score of -3 as there is no water runoff or river hence short term impact are likely to occur on aquatic flora in nearby water body
Land Reclamation	Water reservoir proposed at the end of life of mine, and green belt will have positive impact as floral and faunal diversity will increase	4	3	12	Water reservoir and green belt that will be developed at the end of life of mine will have positive impact as it will increase floral and faunal richness of the area

4.11.2 Mitigation Measures for Flora

- The plant species proposed for greenbelt development along Kaecha road, will include local species, fruit plants, forestry plants suitable for wood timber, animal life and also grasses suitable for cattle's will be grown and the plantation will increase forest cover in the area. This will serve not only as pollution sink but also as a noise barrier.
- Measures will be taken to curb pollution in air, water, land & noise environment.
- Creating and developing awareness for nature and wildlife in the adjoining villages.
- Proper handling of minerals, overburden and transportation in a closed truck so as to protect surrounding flora and fauna due to deposition of mineral and overburden.

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- Proper land management to restore the ecological conditions in the region
- All this results concluded that mining activity will have minor effect on the existing flora and fauna.

4.12 Socio economic Environment

The mining activities in the proposed area will definitely help in the improvement of socio-economic status of the people around the mine area by generating direct or indirect employment opportunities. The project will also attract ancillary and related small-scale industries in the adjoining areas. Similarly, people shall get variety of businesses opportunities like, hotel, beetle/ pan shops, grocery shops, milk vending and daily house services etc. The sources of earning will help in improving the quality of life of the inhabitants of the region.

Continued mining activities will benefit the local people due to provision of more infrastructural facilities provided by local industry as mining industry will boost up the local market.

Since, the extraction of the reserves of this mineral is economically viable, their proper utilization will improve the economic status of the people nearby and the country as a whole.

The social welfare activities will be handled by a full time team of village development officials, who will monitor the programme and give necessary back-up support. The programmes will be made broad based by involvement of local groups and government agencies to the maximum extent possible.

4.13. SOCIO ECONOMIC IMPACT

Socio-economic survey was conducted in six villages within the study area located in all directions with reference to the project site. The respondents were asked for their awareness/opinion about the project and their opinion about the impacts of the project, which is an important aspect of socio-economic environment, viz. job opportunities, education, health care, transportation facility and economic status.

According to survey carried out in the study area, the observations made are as follows:

- The study area is following under the categories of rural area and the main occupation is agriculture (farming) and labor work on the daily basis, the average per day income of the people living in study area is about Rs 100 to Rs150 per day. Any project or mining activities in this area will generate employment to these people and hence their per day income may increase from Rs. 150 to Rs. 300 per day. The public consultation in this area has shown positive response for the mining activities as they will be having better lively hood and good source of earning throughout the tenure of the project.
- Daily two hours a day (Morning & Evening) water is supplied in the villages. These schemes are executed for smaller villages also, where normally there is no dependable drinking water source. The water supply is provided to the villagers with the help of a power pump, pipeline and tank under.

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The respective Panchayat have to pass a resolution for taking over these schemes for running and maintenance. Sometimes a smaller village may be considered for piped water supply scheme due to special circumstances such as existing topography or availability of distant drinking water source. Such schemes are executed under Government of Haryana in notified villages, having more scheduled caste population, under Special Component Plan. Water supply for villages / habitations under this plan are covered under (a) State Programme, (b) Accelerated Rural Water supply Programme (ARWSP). It has also found that hand pump water (India mark II) is unsafe for drinking; it is only use for domestic purpose.

- Most of the houses were found semi - pakka
- Villages are well connected by tarred roads with the district place
- Farmers depend mainly on monsoon and canal water is also used for agricultural activities. Farmer use diesel engine to pump water from canal to their fields.
- Communication facility is good due to better mobile network and transportation facilities
- All villages are well electrified (15 to 18 hours a day) and use of electricity for all purposes.
- Main language in study area is Hindi, widely spoken by the population
- LPG is used by villagers in general, as fuel for cooking; otherwise wood, kerosene etc.

The mining project will impact the rural development in many ways. It will increase the employment both directly and indirectly, increase the purchasing power and saving also. New employment opportunities will help in increasing the living standards also.

4.13.1 Measure to Improve Socio Economic Status

With mining activities, almost 186 local people will have a lot of direct and indirect employment avenues opened up. There will be direct employment opportunities in the mine and also the secondary employment by providing services to the employed manpower. The construction and operation phase of mine development will increase income of local people as some local unskilled, semiskilled and skilled persons will get engaged in various jobs suiting their capabilities. Thus the local people will enjoy the economic upliftment. The following activities will be followed: -

- Rural/village & Community welfare.
- Healthcare of local population,
- Free medical camps,
- Literacy awareness, supports to schools etc.,
- Environment protection and Environment awareness activities like Environment awareness camps, plantation etc.
- Social awareness program.
- Thus the socio-economic status of the area will be improved.

4.13.2 REHABILITATION & RESETTLEMENT (R&R) ACTION PLAN

Resettlement and Rehabilitation is not applicable as there is no acquisition of private land and no individuals are residing in the core zone permanently or temporarily.

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4.14 Occupational Health and Safety

Occupational health and safety (OHS) is a Cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational health and safety programs is to foster a safe work environment.

The mining operations will be carried out with all the safety measures laid down in Mining Laws. Regular Medical checkup of workers will be done to check occupational disease, if any, and respective records will be maintained at the mine.

By formation of a medical team consisting of medical practitioners having experienced in industrial disease supported by local Panchayat and mine owner and expenses to be borne by mine owner

Occupational health surveillance program:

Occupational health surveillance programme will include the following facilities:

- As per the provisions of Mines Act and rules and regulations made there under, the management will undertake all the necessary precautions.
- Normal sanitary and cleaning facilities will be provided.
- All necessary first aid and medical facilities will be provided to the workers. The mines are well equipped with proper fire protection and fire-fighting equipment.
- All the necessary protective equipment's such as helmets, safety goggles, earplugs, earmuffs, etc. will be provided to persons working in risky areas.
- Constant Monitoring of work practices including human behavior & capabilities and developing awareness of competency level of human resource will be done for effective implementation of OH&S Management System.
- Pre-placement medical examination and periodical medical examination of workers will be conducted such as Hematological Test, Biochemical Test, Urine R/M, Spirometry, Audiometry, Vision test
- Constant Monitoring system including infrastructure for identification of potential deficiencies and their control to ensure occupational Health and Safety.

4.14.1 Occupational Risk and Mitigation Measures

The occupational risk arising out of the mining activities and their mitigation measures are given in *Table 4-20*.

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Table 4-20: Occupational Risk and Mitigation Measure

Type of diseases	Causes	First Aid Measures	Exposure Control/Personal Protection
Lung diseases	Inhalation may cause coughing, sneezing, labored breathing. It may then evolve into burns with perforation of the nasal septum, abdominal pain, nausea and vomiting.	<ul style="list-style-type: none"> • First Aid for Eyes: Dust or powder should be flushed from the eyes with running water for 15 minutes. If irritation persists obtain medical assistance. 	<ul style="list-style-type: none"> • Personal Protective Equipment <ol style="list-style-type: none"> 1. Eye protection requirements: Safety glasses are recommended. 2. Skin protection requirements: Protective gloves are recommended, to prevent mechanical irritation. 3. Respiratory protection: Not normally required, use an appropriate respirator if airborne dust concentration exceed the OSHA standards. 4. Other protective equipment: Eye wash fountain should be readily available in areas of use or handling.
Skin Diseases	Over expression can cause Itching Rash or hives	<ul style="list-style-type: none"> • First Aid for Skin: Skin cuts and abrasions can be treated by standard first aid. Skin contamination with dust or powder can be removed with soap and water. If irritation persists obtain medical assistance. 	
Fever	Hot environment during mining can cause fever with cough, chest pain, and flu like fever, if inhaled in sufficient quantity.	<ul style="list-style-type: none"> • First Aid for Ingestion: Obtain medical assistance at once. • First Aid for Inhalation: Breathing difficulty, caused by inhalation of dust or fume requires removal to fresh air. If breathing has stopped perform artificial respiration and seek medical assistance at once. 	<ul style="list-style-type: none"> • Ventilation Requirements: <ol style="list-style-type: none"> 1. Local Exhaust Recommended, when excavation or any other operation where dust are created. • Environmental Surveillance: <ol style="list-style-type: none"> 1. If the operation generates dust, exposure to airborne materials should be determined by having air samples taken in the employees breathing zone and work area.
Breathe diseases	Exposure to soil and dust has been linked with small vessel vacuities, autoimmune diseases, kidney damage, and rheumatoid arthritis.		
Inhalation	Respiratory irritant. Accumulation in lungs may be responsible for benign pneumoconiosis, but is not considered to cause pulmonary functional impairment.		
Eye/Skin -	Eye irritant		

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4.15 Impact Identification / Evaluation

S. No.	Process Activity	Environmental parameters	Environmental Impact	
			Significant	Insignificant
Pre-operational phase				
1.	Selection of mine lease area, site preparation	Land Use/ Land Cover Social Habitation Biological Road/Rail/river pond, lake in the selected areas	I.U (-) Potential change in landuse / land cover of the mining lease area. EB (-): Ecology of the lease area is affected due to mining	SE (+): Compensation to Government against lease
2.	Excavation	Air Noise Water Land Biological Socio- Economic	I.U (-) Creation of pit will change the existing Landuse. THD (-) Due to excavated area topography of the lease area will change. SC (-) Loss of Soil cover OH (-) Due to generation of dust particle health risk to the mine workers	AC (-) Dust emission due to mining activities like use of JCB, vehicular movement and use of dewatering pump NV (-) Due to use of machineries for mining activities. SW, GW (-) use of water for dust suppression, domestic purpose and Greenbelt development EB (-) dust emission, and generation of noise SE (-) generation of employment nuisance due to mine workers
Operational Phase				
3	Separation of Overburden, Collection & Storage	Air Noise Water Land Biological Socio- Economic	I.U (-) Creation of pit and mineral stacking SC (-) Loss of Soil cover	AC (-) Dust emission from the mineral stack. NV (-) Due to use of machineries for stacking activities. SW, GW (-) Potential damage due to mine runoff THD (-) Due to mineral stacking topography of the lease area will change. EB (-) dust emission, and generation of noise

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S. No.	Process Activity	Environmental parameters	Environmental Impact	
			Significant	Insignificant
				OH (-) Due to generation of dust particle health risk to the mine workers
4	Transportation of minerals	Air Noise Water Land Biological Socio-Economic	AP (-) Dust emission due to transportation of mineral, OB and waste OH (-) Due to generation of dust particle health risk to the mine workers.	NV (-) Due to use of transportation of mineral, OB and waste EB (-) dust emission, and generation of noise SE(+) generation of employment in transport industry SW (-) Potential damage due to mine runoff & dust generation due to transportation.
Post Operation Phase				
5	Restoration / Reclamation of Abandoned mine	Land Water	LU (-) some areas will be converted to water reservoir	AQ(-): Dust emission due to leveling/ Backfilling EB (+): Some area will be converted to water reservoir and green belt development SE (+) creation of water reservoir. SC (-): Soil generated can be utilized for greenbelt development.
6	Plantation		EB (+) : Some area will be converted to water reservoir and green belt development	EB (+) : Some area will be converted to water reservoir and green belt development SC (+) : Soil generated can be utilized for greenbelt development.

There will be positive significant impact because of supply of minerals by establishing distribution/supply and transportation network to the consumers which will help to invite more industries in the region and also to the existing industries in the state. Nearby there will be development of industrial growth and increase in economic benefits in the region which will also help to enhance the economic growth of the region & the country.

4.15.1 Causes & Preventive measures of Dust Exposure

Causes for dust Exposure are:

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- As this is Stone mining and blasting technology will be used for excavation so the Operation will produce dust in heavy amount.

Preventive Measures for Dust Exposure area:

- To implement statutory rules & regulations to achieve standards of safety.
- To provide all material and monetary resources needed for smooth and efficient execution of safety plans
- Wet drilling will be done
- Periodic Dust sampling will be done
- Periodical medical examination of all mine workers will be done and records will be maintained.
- As soon as early diagnostic symptoms and signs are recognized, the workers will be withdrawn from his duty environment to a suitable surface job and the proper authority notified.
- The eating and drinking will be forbidden at work amongst mining personnel.
- Washing facilities will be provided and kept in places away from any possibility of contamination by dust.

Likely impact on health of mine worker is tabulated in *Table 4-21*.

Table 4-21 Impact on Health of Mine Worker and Mitigation Measure

Type of diseases	Causes	Protective measures
Parkinson's disease	Inhalation of toxic Gases through fumes, dust, water, food & soil	Provide all material and monetary resources needed for smooth and efficient execution of safety plans
Lung diseases	Inhalation of dust	Suppression of dust and protective equipment's
Stomach diseases	Water pollution	Proper treatment of water & regular analysis
Night blindness	Bad illumination	Proper lighting
Hearing loss	Working at high noise areas	Measures to suppress noise, and protective equipment's

4.15.2 Occupational Risk and Arrangement Proposed

As discussed above the occupational risk is identified and the arrangement proposed to mitigate the same are suggested in *Table 4-22*.

Table 4-22: Occupational Risk and Arrangement Proposed

S. No	Source/Location	Provisions proposed	Protective equipment's Proposed
1.	Fall of sides /stones		
a)	At mining faces	Working as per MMR, 1961	Use of helmets, shoes, knee caps, goggles etc.

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S. No	Source/Location	Provisions proposed	Protective equipment's Proposed
b)	Dumps	Proper terracing, stabilization & water drains	N.A.
2.	Movement of trucks & dumpers on road	Proper gradient parapet walls adequate lighting, reversing siren, proper maintenance of trucks etc.	N.A.
3.	Workshop activities	Provisions of MMR, 1961	Hand gloves, welding shields etc.
4.	Dust & noxious fumes	Standards as per DGMS & CPCB	Use of dust mask
5.	Noise pollution	Standards as per DGMS & CPCB	Use of ear muffle/plug
6.	Water pollution	Standards as per ISI & proper arrangement for water drainage	N.A.

Pit Safety Committee

Pit safety committee will be formed, the function of pit safety committee is given below:

- To identify the risks at the mining faces, dumps, road and surface structures.
- To identify the unsafe acts.
- To identify the unsafe places.
- To identify the unsafe practices.
- To identify whether protective equipment are provided / used or not.
- To suggest corrective measures.

The composition of pit safety committee is given in *Table 4-23*.

Table 4-23: Composition of Pit Safety Committee

Mines Manager	1
Foreman / Mining mate	1
Workmen inspector	1
Machinery Operators	1
Dumper operator	1
Face workers	1

4.15.3 Prediction of likely Impacts on Socio-economic Environment

Parameter	Local	Regional	Direct	Indirect	Reversible	Irreversible
Employment	+	-	+	-	-	+
Income	+	-	+	+	-	+
Transport	+	+	+	+	-	+

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Parameter	Local	Regional	Direct	Indirect	Reversible	Irreversible
Education	+	-	+	.	.	+
Medical Facilities	+	-	+	+	.	+
Communication	+	-	+	+	.	+
Sanitation
Housing	+	.	+	.	.	+
Health	+	.	+	.	+	.
Recreation	+	+	+	+	.	+
Agriculture	+
Cost of living
Business	+	+	+	+	.	+
Per capita Income	+	+	+	+	.	+
Pollution

+: Positive Impact.

-: Negative Impact

.: Insignificant

4.16 Summary of Overall Impacts

The proposed Stone mine of M.s. Govind Gopal Infra solution Private Ltd. will be in an area of 5.26 ha in Government Agriculture waste land and situated near village Jaipur, Tehsil Naraul, District Mahendergarh (Haryana). Office of the Divisional Forest, Mahendergarh will be obtained by the applicant for non-involvement of forest land and wild life sanctuary in proposed mining area of 5.26 ha. The Mining Plan with Progressive Mine Closure Plan has been approved by the Director Mines and Geology, Haryana, vide letter No. DMG/HY/MP/Jaipur/2022/ 5999 dated 22.09.2022.

The main impacts will be during the mining activities with respect to Air, Noise, Land, Biological and socio-economic.

Table: 4.24: Summary of overall significant impacts related to environmental components.

Environmental Attributes	Major Impacts
Air Environment	Fugitive emission due to excavation & screening & beneficiation vehicular emission due to transportation and operation of machineries, marginal damage of vegetation, health effect
Noise Environment	Increase in Noise levels due to DG sets, excavator,

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Environmental Attributes	Major Impacts
Water Environment	dumpers and blasting no waste water generation due to mining activities, however rainwater will be harvested in the mine excavated ponds and will be used for sprinkling & plantation.
Land Environment	Acquisition of land, loss of land use / land cover area, change in soil quality, generation of overburden, however positive impact due to plantation in the mine lease area and green belt around the mine lease area.
Biological Environment	Cutting of trees, loss of vegetation, migration of schedule fauna, disturbance to fauna due to noise generation and trenching positive impact due to plantation in and around mine lease area and along the road side.
Socio- economic Environment	No R & R, influx of people, However positive impacts due to enhancement of economic benefits through allied industries, improvement in quality of life and employment etc.

Important Note: Major impacts are described above, there will not be any irreversible damage due to the project. However, assessment of impacts with respect to all the environmental components is made and measures are suggested. CSR scheme as per project specific requirement according to the project economic benefit will be implemented and sufficient budgetary provision will be made available and implemented.

<p>STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA. AT PLOT NO. 3, NEAR VILLAGE BAKHRUJA, TEHSIL NARNAUL, DISTRICT NABENDGARH, HARYANA</p> <p style="text-align: right;">DRAFT EIA/EMP REPORT ANALYSIS OF ALTERNATIVES</p>

5. ANALYSIS OF ALTERNATIVES

5.1 Analysis of Alternate Site

It is a proposed mining lease. Mine of Stone is site specific. The mine is to be located where the mineral exists in sufficient quantity to be economically extracted. The site selected has following advantages

1. The project site is a Government Agriculture Waste Land.
2. There are other stone mines in the study area, however, basic infrastructure such as road and electric connection are available.
3. Better availability of experienced labour from nearby villages.
4. No endangered species around the mine site.
5. The mining project site is and mineral specific.

5.2 Analysis of Alternate Technology

The mining techniques have transformed dramatically since it began thousands of years ago. With the development of new technologies, many advanced methods have been adopted. It yields more extraction and least environmental impacts. That commitment involves an intense drive to improve the safety and health of workers and lifting the economic and environmental performance of mining operations. Mining methods are constantly changing and improving as companies forge new technologies to enhance rates of extraction and minimize impacts such as noise, dust, and land and water disturbance. The mining methods used are (i) open-cast and (ii) underground.

5.2.1 Open- Cast Mining

Open-cast mechanized method of mining known as surface mining is most effective when the mineral deposit is close to the surface. The mining process is fundamentally different between the soft-rock and hard-rock operations. The techniques involves with (or) without blasting depending on the hardness of the rock and removing surface layers of soil and other rocks to reach the deposit. In some cases, a separation process will be used to eliminate waste by-products. It has maximum recovery of mineral compared to underground method of mining.

5.2.2 Underground Mining

There are several variations of underground mining. The common factor for all forms of underground mining is the creation of tunnels extending from the surface into the mineral seam/bed and the use of machinery to extract the mineral. The most commonly used under-ground mining methods are stoping methods, board & pillar, long wall, caving methods, cut & fill and retreat benching etc.

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5.2.3 Selection of Mining Technology

After the complete analysis of various technologies, the nature of material to be excavated that are in practice, it is proposed to operate the mine by opencast mechanized method by using light weight excavators for loading of mineral in tippers and dumpers, as Stone deposits are close to the surface. No other alternative technologies can be used because of the soft nature of the Stone mineral. M's Goward Gopal Infra solution Pvt. Ltd. Limited will use eco-friendly measures to minimize the impact on the surrounding environment.

5.3 Process Flow Sheet, Infrastructures possibilities and selection

Table 5-1: Process Flow Sheet, Infrastructure

Activities	Possibilities	Final Selection
Mine Development OC	Mineral occurs near the surface and OC mining is possible	Mineral is hard and in boulder form, that will be transported to crusher unit for breaking hence OC mining is selected. Final Depth of upto 24 m is selected due to limitation of bench formation.
Drilling and Blasting	Deep hole / small hole both Blasting by using Heavy Earth Moving Machinery	Deep hole / small hole both Blasting by using Heavy Earth Moving Machinery
Excavation of top soil, interburden, mineral.	Opencast Mechanized method of mining.	Opencast Mechanized method of mining.
Stacking of Top soil, OB, mineral, mineral reject and final reclamation	Top soil of 0.15 m depth mixed with scree is present virgin area of M.L. which will be removed before mining activity & stacked separately in boundary barrier. Total volume of top soil will be removed is 62001.92 m ³ and this will acquire an area of 1.53 Ha. There is no OB and waste will be generated	Partly dumping and partly backfilled and stabilized by plantation and 100% handling of waste is not possible because it is hard and very brittle, difficult to fuse. Partly open pit will be kept for storage of water during rainy season and it will be utilized in afforestation and also supplied to nearby villages
Mineral Beneficiation	The mineral produced will be in the boulders form, so it will be supplied to the local crushers. Hence, there will be no storage & beneficiation of the mineral within the allotted area.	The mineral produced will be in the boulders form, so it will be supplied to the local crushers. Hence, there will be no storage & beneficiation of the mineral within the allotted area.

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Activities	Possibilities	Final Selection
Reuse of Waste	The generated mineral rejects is also considered as production, thus it also having market value and will be sold.	Mineral rejects will be transported to market.
Transportation of mineral	By tractor: trucks/ dumpers.	By trucks/ dumpers as tractors are risky and they transport a lesser amount compared to trucks/ dumpers
Afforestation	Statutory barriers. Nearby Panchayat and schools and backfilled area and dumps will be afforested.	Statutory barriers, adjoining the nullah on both sides, nearby Panchayat and schools and at statutory barrier
Employment	Preference shall be given to local people	Local person as per availability
Road construction	The area is also connected by road to Nizampur – Nangal Chaudhary having an aerial distance of ~ 8.0 Km in NorthWest direction from the mining lease area	The area is also connected by road to Nizampur – Nangal Chaudhary having an aerial distance of ~ 8.0 Km in North- West direction from the mining lease area
Site Services	Nearest village is 2 – 3 km from M.L. area therefore minimum site services will be developed in the lease area.	As discussed in Chapter 3 site services will be developed in the lease area
Requirement of water	M.L. is in government waste land and water is portable therefore It will be procured from nearby pond rainwater harvested stored after and during monsoon. Impoundment of the village pond will be done prior to rainy season	M.L. is in Government waste land water is portable therefore It will be procured from nearby pond rainwater harvested stored after and during monsoon. Impoundment of the village pond will be done prior to rainy season.
Construction of labor colony	Proposing to employ local labor.	No colony is proposed
Power	Dakshin Haryana Bijli Vitran Nigam Limited.500 KW DG Set will be proposed, if required	Dakshin Haryana Bijli Vitran Nigam Limited.500 KW DG Set will be proposed, if required
Machineries on contract work	Jack Hammer, Hydraulic Excavator, Dumper, contractors are available locally and will be	Not proposed within M.L. area

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Activities	Possibilities	Final Selection
	used and they bring fuel from local petrol pumps and therefore not required within M.L. area. Workshop facilities are available nearby & not required within M.L. area	
Land acquisition	It is all govt. waste land	It is all govt. waste land

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6. ENVIRONMENTAL MONITORING PROGRAM

6.1 Monitoring Schedule and Parameters

A large part of the sampling and measurement activities will be concerned with long term monitoring aimed at providing an early warning of the undesirable changes or trends in the natural environment that could be associated with mining and allied activities. This is essential to determine whether the changes are a response to a cycle of climatic conditions or due to mining activities.

In particular, a monitoring strategy is required to ensure that all environmental resources, which may be subjected to pollution, are kept under review. Monitoring of the individual elements of the environment is necessary.

To meet the above objectives, an "Environmental Management Cell (EMC)" will be formed, which will be responsible for implementation of EMP and Post operating monitoring. The analysis of the data collected during the preceding month and progress of environmental management system will be reviewed. The following items will be considered under monitoring schedule as given in *Table 6-1*.

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Attributes	Sampling		Measurement Method	Test Procedure	Responsibility
	Network	Frequency			
Chromium, Copper, Manganese Nitrate, EC, BOD, Dissolved O ₂ , Total Coliforms, E. Coli					
Noise					
Noise levels at Day & night time - Leq dB(A)	3 locations (1 location within Mine boundary, High noise generating areas within the lease and 1 location of nearest habitation and 1 of nearest road)	Once in a season for 5 days	Using Sound Level Meter (SLM)	As per CPCII norms	Environmental Officer Mines Manager
Soil					
pH (at 25°C), Cation Exchange Capacity, Moisture Content (%), Soil Texture, Bulk Density, Water Holding Capacity Chloride, Calcium, Sodium, Potassium.	2 locations in the project impact area	Once in a season for 1 season in a year	As per USDA Method, APHA and IS	As per CPCII norms	Environmental Officer Mines Manager

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Attributes	Sampling		Measurement Method	Test Procedure	Responsibility
	Network	Frequency			
Magnesium, Organic Matter, Available Nitrogen, N, Available Phosphorus, Zinc, Manganese, Lead, Cadmium, Copper, Chromium					
CSR related	In nearby villages	Yearly	Socioeconomic Data collection on the amount spent on CSR activities in the villages	Primary Questionnaires and Secondary Survey	Environment Officer Mines Manager
Inventory of Flora and Fauna in the area	In core zone, afforestation area	Yearly	Flora and Fauna Visual Observation and Tag Book of Plantation	Through Monitoring (personal survey)	Environment Officer Mines manager
Periodical Medical Check Up		Schedule given in Section 6.7.7	Occupational Health of Mine Workers Medical checkup by Doctor	Medical report	Safety Officer Mines Manager

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6.2 Occupational Health Check Up

6.2.1 Medical Examination

The following medical examinations are recommended

- X - Ray of chest to exclude pulmonary TB, Silicosis etc.
- Lung Function test
- Audiometric test to check hearing losses
- Urine test, blood test, blood sugar etc.
- Eye test

6.2.2 Schedule of Health Check Up

The following schedule for medical checkup is recommended:

- Persons working as operators in the mine pit : Once in 2 Years (6 times in 12 Year)
- Persons working as worker and supervisory staff: Once in 2 Years (6 times in 12 Year)
- Persons working outside mine pit : Once in 3 Years (4 times in 12 Year)

6.3 Data Analysis and Reporting Schedule

Project proponent will get analyzed the sampling data by environmental laboratory and compliance report will be sent to SEAC and concerned authority in every 6 months.

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7. ADDITIONAL STUDIES

7.1 Public Consultations

Public action plan and details will be incorporated after public hearing in final EIA report.

7.2 Risk Assessment

Risk assessment has been done covering following aspects: - Possible danger due to failure of mine benches, terraces of external dumps, accident due to earth moving machinery, trucks etc.

All types of industries face certain types of hazards which can disrupt normal activities abruptly and lead to disaster like fires, inundation, failure of machinery to name a few. Similarly Stone mines also have impending dangers or risk which needs to be investigated and addressed. Disaster management plan is formulated with an aim of taking precautionary steps to avert disaster and also to take such action after the disaster which limits the damage to the minimum.

Nevertheless, the following natural/industrial problems may be encountered during the mining operation:

- Inundation-Filling of the mine pit due to excessive rains/flooding
- Slope failures at the mine faces.
- Accident due to fire.

As per proposal made under the Mining Plan, during proposed working, the area will be developed by means of opencast mining method. Exploitation and transportation of minerals will be carried out by opencast mechanized means respectively. Bench height is kept 10.0 m. Ground water table in this region of 80-85 m below ground level. Mining will not intersect the ground water level. However, possibility of accidental disaster is also not ruled out. Therefore, all the statutory precautions will be taken for quick evacuation as per the Mines Act 1952, the Mines Rules 1955, Rule of MMR- 1961 and the Rules of MCDR 1988

7.3 Hazard Identification and Risk Assessment

7.3.1 Objective

- To identify risks need maximum attention and the options for achieving risk reduction.
- To identify which risks need careful ongoing management, the nature of ongoing management as well as the indicators that show that the risk is being managed.
- To identify triggers which might be used to monitor that hazard and initiate remedial action if elimination is not feasible.

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7.3.2 Definition

Hazard: source of potential harm, injury or loss

Risk: combination of the likelihood of a specific unwanted event and the potential consequence if it should occur

Risk assessment: the process that involves measurement of risk to determine priorities.

Risk Control: implementation of strategies to prevent or control hazards.

Risk rating: the category or level of risk assigned i.e. high, medium and low.

Risk Management: the description of the steps taken to manage the risk by identifying hazards and implementing control in the work place.

Risk assessment process: • The goal for risk assessment is to identify hazard, determine risk rating and controls.

Assemble the team: -The risk assessment should be done by involving different categories of persons to provide their opinion on likelihood, consequence and controls. The category of employees to be involved are Manager, Supervisor and worker.

7.3.2 Identifying the Hazard

This should be done by using:

- Past experience of accident and occurrences at the mines
- Work process evaluation
- Consultation with employees
- Safety statistics for this or other mines

The other method used is:

- By way of activities like excavation, transportation etc.
- By way of equipment and machinery like Hydraulic excavator, trucks, dumpers etc
- By way of geographical areas like mining pit, dumps, mine road, mule tracks etc

Risk ranking: -The process of risk ranking is carried out by considering both the likelihood of the occurrence of each hazard and the potential consequence should the hazard occur. Each shall be estimated by engineering principle to enable the risk ranking to be carried out. The risks are ranked according to the level of risk i.e. the highest risk to the lowest risk.

The risk of any hazard is dependent upon the change that will be occurring (likelihood) and the impact of an occurrence (consequence).

$$\text{The risk score} = \text{likelihood} \times \text{consequence}$$

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Consequence is the size of the loss or damage. In terms of health and safety, it is the degree of harm that could be caused to people exposed to the hazards, the potential severity of injuries or ill health and to the number of people who could be potentially affected. It should be remembered that consequence of a hazard need not only be in terms of safety criteria but could also be in terms of a money loss, incurred costs, loss of production, environmental impacts as well as public outrage.

Likelihood is the chance that the hazard might occur.

In some cases personnel are only exposed to the hazard for part of the time. A more detailed analysis can be carried out of the risk ranking by taking this into consideration. Replacing likelihood by exposure (% time personnel are present) and probability (chance that they will be harmed).

$$\text{Risk score} = \text{probability} \times \text{exposure} \times \text{consequence}$$

The values used for likelihood, consequence, exposure or probability need to be agreed by the risk assessment team. Risk ranking can be determined by qualitative and quantitative means.

7.3.4 Risk Ranking Process

Table 7-1: Scale of Consequence

Several dead	5
One dead	1
Significant chance for fatality	0.5
One permanent disability/ Less change of fatality	0.1
Many lost time injuries	0.01
One lost time injury	0.001
Small injury	0.0001

Table 7-2 Scale of Exposure

Continuous	10
Frequent (daily)	5
Seldom (weekly)	3
Unusual (monthly)	2.5
Occasional (yearly)	2
Once in five years	1.5
Once in ten years	0.5
Once in 100 years	0.02

Table 7-3: Scale of Probability

May well be expected	10
Quite possible	7
Unusual but possible	3
Only remotely possible	2

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Conservable but unlikely	1
Practically impossible	0.5
Virtually impossible	0.1

- Based on the above guidelines hazard identification and risk assessment and priorities have been done as step-1.
- On the above guidelines the mechanism contributing principle hazards and ranking have been done as step-2.
- The control measures and procedure for respective mechanism contributing hazards have been tabulated as step-3.

Step – 1 – Initial Hazard Identification, Risk Assessment and Priority

Table 7-4: Hazard Identification and Risk Assessment

S No.	Description of hazard	Consequence	Probability	Exposure	Total risk
1	Machinery	0.3	2	5	3
2	Open cast working	1	2	5	10
3	Dumps	0.3	1	2	0.6
4	Shortage of skilled persons / deployment of unskilled	0.3	3	5	4.5
5	Poor supervision	0.3	3	5	4.5
6	Lack of awareness	0.3	3	2	1.8
7	Employment of contractors workers	0.3	3	5	4.5

Step – 2 – Risk Assessment in Mine

Table 7-5 Risk Assessment in Mine

No.	Major Hazard	Mechanism	Consequences	Probability	Exposure	Risk
1.	Inundation	Cloud Burst	1	1	1	1
		Nallah overflow Water logged working				
2.	Geological disturbance	Lithology of the area	5	1	1	5
3.	Improper strata control	Poor Workmanship	5	3	1	15
4.	Training	Non existing of skilled	4	2	1	8

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No.	Major Hazard	Mechanism	Consequences	Probability	Exposure	Risk
	facilities inadequate	target schedule Untrained trainers	5	1	1	5
5	Shortage of skilled or authorized persons/development of unskilled person	Absenteeism Target not done as per requirement	1	1	1	1
		Manpower sanction not as per requirement	1	2	1	2
		Examination for workmanship certificate not done regularly	2	5	1	10
			5	1	1	5
6.	Poor supervision	Negligence/lack of commitment	5	1	2	10
		Not having proper knowledge/experience	5	1	3	15
		Inadequate training	0.3	1	3	2.7
7.	Machinery	Maintenance schedule not followed	1	5	2	10
		Unskilled operators	1	2	5	15
		Moving parts of machineries	1	5	5	25
8.	Use of un-calibrated instrument	Nonexistence of calibration procedures	5	4	2	40
		Nonexistence of calibration infrastructure	5	4	2	40
9	Fires	Electrical Fires	5	5	1	25
		Spilled off lubricants	0.3	1	1	0.3
10.	External theft	Theft	0.01	7	3	0.21
		Political issues	0.001	3	2	0.006
11.	Poor illumination	Non supply of spares	0.01	7	3	0.21
		Tempering with light fittings	0.01	7	3	0.21

Step - 3 - Control Measure

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Table 7-6: Control Measure

Mechanism	Control	Procedure	Responsible person	
Inundation				
Nafth over flow	Embankment Flood alarm, guard & wireless Pumping, Dam & Inspection	Water danger procedure	N	Manager mine
Water logged		Pumping procedure	N	
Training Facilities Inadequate				
Nonexistence of skilled trg. Schedule	Preparation of skilled trg. Schedule Training for trainers	Training procedure	N	Trining manager
Untrained trainers		-do-	N	
Shortage Of Skilled Person/Deployment Of Unskilled Person				
Absentism	Disciplinary action, work programme Comply Agent to appraise Competent authority	Standing order	Y	Manager
Trg. Not done as per requirement Manpower Sanction not as per requirement				
Machinery				
Maintenance schedule not followed	Implement, Monitor & or take corrective action for non-compliance Stop doing temporary joints Stop machine if protective device is not functioning Stop machine if skilled operator is not present train more operators Fence moving parts of machines & don't allow people wearing loose dress	Maintenance Schedule	Y	Mine Manager
Temporary trailing cable joints		Inspection Supervision & monitoring Procedure	N	
Moving parts of machines		Unsafe Practices/unsafe Act & Colliery Standing Order	Y	
			N	
Fires				
Electrical fires Fire during gas	Maintenance as per schedule & fire extinguisher of dry chemical	Conveying & hauling	N	Mine Manager

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- Surface control committee:

Composition of the committee will be as follows:

- Incident control committee:
- Mine Agent
- Mine Manager

Surface control committee:

- Mining Engineer controller
- Medical Officer
- Officer In charge of local police station
- Local representative
- Store Manager
- Officer/Welfare Officer

7.5 Disaster Management Plan

The mining is proposed in a undulating area. The mining will go up to the economical depth and there after backfilling will commence to restore the topography of the area. The mining faces shall be dressed properly because any hanging boulders / loose material may create fatal accidents to the laborers while working in the pit.

The mining will discontinue during rainy season from end of June to end of September. Before the temporary discontinuance, the exposed mining pits will be backfilled with waste materials so that water will not accumulate in the pit & chances of slope failures will be negligible.

7.5.1 Dealing with Emergency Situation

- Written down procedure to come in force at the time of emergency at the mines will be prepared and posted at mines office.
- The written down procedure defines the procedure to be enforced at the time of any calamity accident etc. along with the duties and responsibilities of Mines Manager, Mining man, Security Guard, First Aid in-charge etc.
- Code of signals, telephone Nos. of First aid room, nearby hospital etc. shall be maintained for such emergencies.
- Emergency medicines to be kept at the mine office

7.5.2 Anticipated Disaster and Corrective Actions

Foundation

In the case of inundation, at any time in the future, the water will be allowed to stand and naturally percolate into the ground. If there is any need to empty out any particular pit for working, then pumps will

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be used to pump out the water. In other cases where possibility of accumulation of water is there preventative & management measures shall be planned as per Regulation of MMR 1961.

Disaster Due to Slope Failure

The pit slopes may fall at any time causing damage to human life and machinery. The only remedy to the effect of such situation is to dress pit slopes and maintaining the pit slope as specified in Metalliferous Mine Regulations, 1961.

Disaster Due to Fire

There is no surface firing will be done.

Code of Practice in Case of Fire at Mines

Objective:

To deal with fire efficiently and quickly

Source of Fire:

- i) Electrical Sub Station.
- ii) Oil & Lubricant Room.
- iii) Mine machineries.

Line of Action:

- i) Sufficient fire extinguishers will be installed at selected locations on site. Besides, numbers of water hydrants with sufficient length of hoses/pipes will be made available at the surface for fire protection.
- ii) Any person when notices any sign of fire shall immediately take steps to give warning by blowing the siren continuously and take steps to extinguish the fire by using appliances available near the site

Duties of Primary Controller: - The Primary Controller after receiving the warning will forthwith inform at following places:

- a) Security Gate
- b) Section in-charge (Communication Officer)
- c) Shift in-charge (Accident Controller)
- d) Head of Department (Site Controller)

After intimating he should reach the spot, remove Men & Machinery and take steps to tackle the fire in accordance with the fire fighting instructions. Inform the security office to get an Ambulance if required.

Duties of Head of Department (Site Controller): -

- a) On receipt of information about fire, the Manager will forthwith rush to the spot and assess the situation. He will oversee the overall rescue operation and make necessary arrangement for medical aid to the affected persons, if any.

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by Inform the management and statutory bodies of State and Central Government.

Duties of Shift In-charge (Accident Controller):-

On receipt of information about explosion or accident, they shall forthwith rush to the spot and will withdraw men machines from affected area to minimize damage to the men, machines, environment and loss of material

Make arrangements for transportation of injured personnel.

Care and Maintenance during Temporary Discontinuance

During temporary discontinuance of mine the mining operation due to any reason, notice (as per Rule 24 of MCDR, 1988 & Reg.6 of MMR, 1961) will be sent to IHM and mines safety authorities. Notice will be accompanied as per Rule 24 of MCDR, 1988, vide, Form no.D-1. All precautionary steps will be taken into account in respect of care and maintenance. Following steps will be taken

Protection of the pits:

The quarry part of the lease will be protected by fence as per DGMS circular all around the open pit with caution board displaying the danger in local language.

Protection of area:

There will be protected by displaying a board at the entry with caption like "Entry in the premises without permission is strictly prohibited" in local language

Maintenance and monitoring:

The area will be monitored every week by competent person and if maintenance is needed will be done as per requirement.

- All the mining machinery shall be shifted to a safe place.
- Care and upkeep of plantation done shall be carried out on regular basis.
- All rules and regulations shall be followed in case of any temporary discontinuance of mine

7.5.3 Disaster Prevention Measure

In order to take care of hazards-disasters, the following measures/safeguards will be strictly followed:

- Working of mines as per approved plans.
- All safety precautions and preventions of MMR should be strictly followed during all mining operations.
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines.
- Provision of adequate capacity pumps for pumping out water from the mining pit with standby arrangements.
- Checking and regular maintenance of gairland drain bunds and earthen bunds to avoid any inflow of surface water in the mine pit.
- Entry of unauthorized persons should be prohibited.

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- Periodic check of effective working of firefighting and first aid provision in the mining area.
- Training and refresher courses for all the employees.
- Cleaning of mining faces regularly

As a part of disaster management plan, a rescue team will be formed by imparting specialized training to the selected mining staff.

7.6 Social Impact Assessment and Rehabilitation and Resettlement Action Plan

The total mining lease area is a Government Agriculture waste land. Therefore no Rehabilitation and resettlement action plan is required.

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8 PROJECT BENEFITS

M/s. Govind Gopal Indrasolution Pvt. Limited is conscious of his obligations to society at large. The company will contribute in overall socio-economic development of the area.

8.1 Social and Economic Development

The Company will undertake activities for the upliftment of the social community through community development in various ways as under:

Education

- Promotion of education programs
- Promotion of Adult Education program
- Creche for children.

Water

- Repairing of wells and hand pumps.
- Support for water harvesting schemes
- Awareness programs on safe drinking water
- Facilities for School (Drinking Water)

Health

- An ambulance at the mine site
- Periodic medical check-up of employees
- Preventive medical care for rural population shall be promoted.
- Awareness to improve health and hygiene standards.

Employment Avenues

- Besides direct employment by the mine, indirect employment will also be generated. Preference will be given to the local population for employment based on their educational qualifications and experience.
- Some of the cultivators/agricultural workers, who may be displaced from their work, due to land conversion, would be absorbed as workforce into the proposed mine depending upon their capabilities.

Others

- Supplementing Government efforts in health monitoring camps, social welfare and various awareness programs among the rural population.
- Communication facilities such as phone will also be available on mine site.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, VILLAGE JAINPURI, TEHSIL NARNAUL, DISTRICT MAHENDERGARH, HARYANA

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PROJECT BENEFITS**

8.2 Proposed Action Plan for CSR

The proposed project will help in improving the socio-economic status of the near-by villages by generating direct or indirect employment opportunities.

The project will contribute additional revenue to the State and Central Govt. in the form of royalty, cess and other taxes etc. Job opportunities to the local people will improve the earning and spending capacity of the people. The people in area will be able to utilize improved facilities with regard to education, health care, hygiene, recreational opportunities, small business opportunities etc.

The main focus areas for the development of local community are as follows:

- Eradicating Hunger, poverty and malnutrition, promoting preventive health care and sanitation and making available safe drinking water.
- Promoting education including special education and employment enhancing vocation skills especially among children, women, elderly and the differently abled and livelihood enhancement projects.
- Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up mid age homes, day care centers and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups;
- Ensuring environmental sustainability, ecological balance, protection of flora & fauna, animal welfare, agroforestry, conservation of natural resources and maintaining quality of soil, air and water.
- Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up public libraries; promotion and development of traditional arts and handicrafts.
- Measures for the benefits of armed forces veterans, war widows and their dependents;
- Training to promote rural sports, nationally recognized sports, Paralympic sports and Olympic sports.
- Contribution to the Prime Minister's National Relief Fund or any other fund set up by the central Government for socio-economic development and relief and welfare of the scheduled castes, the scheduled tribes, other backward classes, minorities and women;
- Contributions or funds provided to technology incubators located within academic institution which are approved by the central government;
- Rural Development projects.

Proposed action plan is given in *Table 8-1*

Table 8-1: Proposed Action Plan for CSR

S. No.	CSR Activity	Proposed Budget (in Lacs)
1.	PP will contribute of toilet and water tank in government primary school, Sirrend village	
2	PP will contribute in Sport equipment's like cricket kit, basketball, football, tennis kit etc in Government primary school, Sirrend village	

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, VILLAGE: JAINPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA		ELA REPORT PROJECT BENEFITS
3.	Other activities will be decided as per the consultation with village Gram Panchayat or concern authority.	
	Total	

8.3 AMENITIES/FACILITIES

Break-up and Budgetary provision for the mine workers is given below in *Table 8-2*.

Table 8-2: Budgetary Provision for Mine Workers

S. No.	PARTICULARS	Annual COST (IN RS.)
1	Shelter, Safe Drinking water, Sanitation Facility	50,000
2	Health facility	1,86,000
3	Personal Protective Equipment such as Goggles, Helmet, Safety Shoes, Face mask and Hand gloves	1,86,000
4	Education for Children	1,86,000
5	Insurance cover for mine worker	1,86,000
	Total	7,94,000/-

8.4 Conclusion

The project activity and the management will provide assistance for the development of public amenities in the region. The mine management will recruit semi-skilled & unskilled eligible workers from the nearby villages. The overall effect will improve the buying power of employees and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Housing, transport, medical, educational and other civic amenities will get betterment in the future. This is envisaged as a major positive benefit.

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA,
AT PLOT NO. 3, NEAR VILLAGE BAKHRIJA, TENSIL: NARNAUL, DISTRICT: MAHENDGARH, HARYANA**

**DRAFT EIA/EMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN**

9 ENVIRONMENTAL COST BENEFIT ANALYSIS

M/s. Govind Gopal Infra solution Pvt Limited will operate the mining activities for the extraction of stone to supply to the various consumers in the state and outside the state. This will encourage the industries mainly steel industries to enhance or improve their capacity for the end users which will support the economic growth and industrial improvement.

As a consequence of rapid industrialization in India, minerals like Stone are needed at a rapid rate and for widening the gap between supply and demand. Mineral supply is internationally recognized as preferred alternative for transport of minerals from the point of view of economic growth of the individual country and thereby the more industrial development.

The cost of the project is estimated to be Rs. 4 crore/- for the production of 30,00,000 TPA with a total reserve capacity of 10754135 75 tonnes. Mining of stone has been practiced since ancient times in central India. Stone is one of the most sought-out building materials for the construction purposes. Being hard in texture and its property of durability, it is used chiefly for construction of walls, pavement of roads and foundation of building etc. It is generally used because of its hardness and durability. This will also generate employment opportunity for local people and enhance their socio - economic level which ultimately will improve education, health & sanitation, transport and other development of the surroundings.

Besides the tangible benefits, the project has got number of intangible benefits like minimum emissions of the greenhouse gases, no adverse effect on environment. Socio-economic benefits to the local people and the region through development of infrastructural facilities, ancillary industries and enhancement of the economic growth of the state and country. When mine will operate it will provide significant supply of minerals to the consumers especially in the state of Haryana.

10. ENVIRONMENTAL MANAGEMENT PLAN

10.1 Environmental Management Plans

10.1.1 Introduction

The EIA study for the proposed project has identified impacts that are likely to arise during different phases of the project. The study has also examined the extent to which the adverse impacts identified can be controlled through the adoption of mitigation measures. The Environment Management Plan describes both generic good practice measures and site-specific measures, the implementation of which is aimed at mitigating potential impacts associated with the proposed activities.

10.1.2 Purpose of EMP

The environment management plan is prepared with a view to facilitate effective environmental management of the project, in general and implementation of the mitigation measures in particular. The EMP provides a delivery mechanism to address potential adverse impacts and to introduce standards of good practice to be adopted for all project works. For each stage of the programme, the EMP lists all the requirements to ensure effective mitigation of every potential biophysical and socio-economic impact identified in the EIA. For each impact or operation, which could otherwise give rise to impact, the following information is presented:

- A comprehensive listing of the mitigation measures to be implemented
- The parameters that will be monitored to ensure effective implementation of the action

The timings for implementation of the action are also included to ensure the objectives of mitigation get fully met. The EMP is presented in *Table 10-1*.

STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA,
 AT PT. NO. 1, NEAR VILLAGE BAKELIJA, TIRSELI HARNANUL, DISTRICT MAKELINTROGAKH, BARTANA
 DRAFT EIA/EMP REPORT
 ENVIRONMENTAL MANAGEMENT PLAN

Table 10-1: Environmental Management Plan

S. No.	Project Activities	Impacts	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
Environment Management Plan for Land Environment									
1	Land Lease/ Purchase	Change in Land Use	Before the start of work/ Pre-Operation Phase	<ul style="list-style-type: none"> All the activities shall be treatment within M.L Area Plantation activities to be initiated simultaneously 	Mine Site	Site inspection	Monthly	Mines Manager	To be included in Six monthly compliance report
2	Mining Activities	Change in Land Use	Operation Phase	<ul style="list-style-type: none"> Disturbance will be stopped at the disturbed area within the lease 	Mine Site	Site Inspection/ Visual Observation	Daily	Mines Manager	Daily Record Report of waste dump height and area.
3	Mine Closure/ Reclamation	Change in Land Use	Mine Closure	<ul style="list-style-type: none"> Filling of Vents Spreading the top soil on the backfilled area. Plantation on the backfilled area. The mined out pit will be used as water reservoir which will provide water to villagers for agricultural purpose. Lining of water reservoir 	Mine site	Site Inspection	Weekly	Mines Manager/ Environmental Officer	To be included in Six monthly compliance report
Environment Management Plan for Air Environment									

**STONE ALONG WITH ASSOCIATED MINOR MINERAL BONE, PRODUCTION CAPACITY 75,00,000 MTPA,
AT PLOT NO. 3, NEAR VILLAGE, BARRHA, TEESOL, HANNAH, DISTRICT HANDEERGAH, MARYAMA**
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ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Project Activity	Impacts	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
1.	Site Preparation	Impact on health due to dust due to various impacts on health due to exhaust gas emission	Pre-Operation Phase	<ul style="list-style-type: none"> Water sprinkling on the sites road Adhering to strict maintenance schedule for all equipment and transport vehicle to minimize pozzolanic emissions like CO and NOx Improved maintenance of machines in reducing gaseous and noise pollution Restrictions on vehicle speed sprinkling of water on unpaved road 	Mine Site	Site Inspection Record Keeping and Visual Inspection	Monthly	Mine manager, Environment officer, Safety Officer, Maintenance Department	Monthly Progress report
2.	Generation of fugitive dust emissions & emissions from the access road leading to	Impact on health due to fugitive dust emissions	Operation Phase	<ul style="list-style-type: none"> Through the project life cycle, engage on-road and off-road vehicles equipment that are compliant to prevailing emission standards of CPECI/CEM4 	Mine Site, Approach road	Site Inspection, Visual observation, Record Keeping	Monthly	Mine manager, Environment officer, Safety Officer, Maintenance Department	Monthly Progress report

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE PRODUCTION CAPACITY THROUGH MPFA,
AT PLOT NO. 3, NEAR VILLAGE BACHOLLA, PEBERU MAMBAUL, DISTRICT MAMENDONGARRH, HALKANA**
CHAPTER/EMF REPORT
ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Project Activity	Impacts	Project Stage	Mitigation Measures	Location	Times of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
	mineral haul and HB			<ul style="list-style-type: none"> • Most vehicle No/No and have old PLU certificates, • Make stump and other vehicle operation/maintenance department responsible for personally checking the vehicles stopped in the project for oil and grease leaks, spills and sweeps from any of its parts etc. (probably the practice of stopping to break-down maintenance along roads), • frequent water spraying/sprinkling on the roads, stockpiles, waste dumps and transfer points where dust is 					

**STONE ALONG WITH ASSOCIATED MINOR GENERAL MINE, PRODUCTION CAPACITY 25,00,000 MTPA,
AT PLOT NO. 5, NEAR VILLAGE: BAKERIJAL, TEHSIL: NAANAU, DISTRICT: HANUMANGARH, HARYANA**

DRAFT EIA/EEMP REPORT

ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Project activity	Impacts	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
				<p>generated;</p> <ul style="list-style-type: none"> • Provision of dust mask to workers working at highly dust prone and affected areas, • Control negative dust emission in the mining area by controlling the dust in wind. Some of the strategies include: keep the traffic slowed down; free of excavation materials. Clean excavated area from roadside, sprinkle water on dust source • If any increase of pollutants is reported from monitoring necessary control measures would be taken. 					

STONE ALLOY WITH ASSOCIATED BEDDING GENERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA,
AT PLOT NO. 3, NEAR VILLAGE: BARBERA, TENSAL, NARMAUL, DISTRICT: MAHESHWAR, RAJYANA
DRAFT EIA/EMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Mode of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
				<ul style="list-style-type: none"> Additional control measures would be taken. Follow up of the conditions as stipulated in the Consent from SPB. 					
Environment Management Plan for Noise Environment									
1.	Noise Emission from excavation work, haul trucks along the mine access roads, material handling activities at the (O) and crushers and support equipment such as dumpers, loaders and	Noise Pollution	Operation Phase	<ul style="list-style-type: none"> The operator's cabin of equipment like dumpers, loaders, etc. to be made sound proof. Use of improved plant and machinery designs with robust mechanism to reduce vibration. Use improved rollers, millers and closed noise generating parts. Where noise level is more the workers to be provided with 	Mine Site	Site Inspection, Visual observation and maintain the records	Monthly	Mines Manager, Environmental officer, Safety officer	Half Yearly reporting to M&LRI

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA,
AT PLOT NO. 5, NEAR VILLAGE: BAKHRIJA, TENSU WARDHAUL, DISTRICT: MAHARASHTRA, MANTANA
DRAFT EIA/EMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN**

S. No.	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
	earth works.			<ul style="list-style-type: none"> • ear plugs. • Reduce the exposure time of workers to high noise levels by arranging time bound rotation of individuals. • Green belt will be enhanced by additional plantation in and around the MLI area. • Periodic ambient noise monitoring will be conducted in the vicinity of noise area. 					
Environment Management Plan for Soil Environment									
1	Removal of topsoil. The disturbed areas are stock pile will be kept moist & avoid	Soil erosion Loss of fertile Top soil Soil Contamination	Operation Phase	<ul style="list-style-type: none"> • Proper ground cover to be constructed around the waste dumps. • Identify areas where top soil could be utilized. 	Mine Site	Record Keeping Suppose Site Inspection Visual Observation	Monthly	Mine Manager	Monthly Progress Report

**STONE ALONG WITH A REGULATED MINE OR MINERAL MINE, PRODUCTION CAPACITY 7500000 MT/PA,
AT PLOT NO. 3, NEAR VILLAGE RAJCOLLA, PERUM NANNAL, DISTRICT MAHEMBERGAL, KARNATAKA**
DRAPTELA/DMF REPORT
ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Project Activity	Impact/Issue	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
	And erosion of soil. Topsoil removed shall be stored separately protected and reused for landscape development within the project area. The routes for transport of dumpers and trucks shall be designated to avoid the soil compaction in other area.			<ul style="list-style-type: none"> landscape prior to stripping of top soil. heavy machinery movement will be limited to access roads. 					
2	Soil Contamination due to spillage of Diesel and Lubricant	Soil Contamination	Operation Phase	<ul style="list-style-type: none"> leakage. In addition, waste oil/ lubricant from maintenance of machinery and oil service rigs are properly labeled and stored in waste provided with impervious surface. 	Mine Site	Quantification of water generated, size inspection and visual observation	Quarterly	Mine Manager	3 x monthly EHS report

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 75,00,000 MTPA,
AT PLOT NO. 5, NEAR VILLAGES BARKHOTA, TEHSIL, NARNAUL, DISTRICT, MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN**

S. No.	Project Activity	Impacts	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
				<ul style="list-style-type: none"> shed and secondary containment system; Ensure timely disposal of hazardous waste (within 90 days) through approved registered recyclers and ensure all proper documentation as per HSE Rule. Ensure used oil is stored in impervious floor. 					
Environment Management Plan for Water Environment									
1.	Surface Run-off from wash dump, CFB dump and mineral stock, wastewater generated from mine office	Impact on surface water quality	Operation Phase	<ul style="list-style-type: none"> Waste dump will be provided with bunding and gabion drain Waste water generated from office building will be diverted to siphon tank followed by soak pit 	Mine site	Site inspection and Visual observation	Monthly	Mines Manager	Monthly Progress report

**STONE ALONG WITH ASSOCIATED MINOR GENERAL MPPE, PRODUCTION CAPACITY 75,000 MT/TA,
AT PLOT NO. 5, PEKAY VILLAGE BARRIJA, TERBUK BARU DISTRICT, NANGREH ARAH, BAKELAMA**

DRAFT EIA/CEP REPORT

ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Project Activity	Impacts/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
5	Surface Run-off from waste dump and mineral stock.	Impact on surface water quality	Operation Phase	<ul style="list-style-type: none"> Waste dump will be provided with road and garden apron Oil waste as well as mineral are not hazardous in nature Quarterly monitoring of groundwater level and quality will be carried out by establishing network of existing well and piezometers 	Mine site and nearby area	Site inspection, Visual observation and monitoring records	Quarterly	Mines Mitigation Environment Officer	Half Yearly reporting to MHP&CC
Environment Management Plan for Ecological Environment									
1.	Site cleanup activities	Impact on Flora and Fauna	Pre-Operation Phase	<ul style="list-style-type: none"> Damage to the natural topography and landscape will be minimized. General awareness regarding wildlife will be achieved through meetings, posters etc among the staff and mine workers. 	Mine Site	Site inspection, training records, visual assessment	Once during the project phase	Mines Manager	Once during the project phase

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE PRODUCTION CAPACITY 7500,000 MTPA,
AT PLOT NO. 2, NEAR VILLAGE: BARKOLLA, TEBBIL: NARMAUL, DISTRICT: MAHENDERGARH, JHARKHAND**

**DRAFT EIA/EMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN**

S. No.	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
2	Mining activities (Flying of Vehicles)	Impair on vegetation and green belt due to dust deposition	Operation Phase	<ul style="list-style-type: none"> Lattice speed within the activity area will be regulated. Preference plantation on the mining boundary will increase the forest density of the area. Softwood availability of water will be stored in green belt. The green belt areas will not be disturbed during life of mine. Water sprinkling will be done twice during the day on haul road and collecting mine to State Highway, also water sprinkling will be done on waste dump off dump. 	Mineral	Site inspection, Visual observation by expert, Assessment of satellite	Quarterly	Mines manager, Environmental officer	Half yearly report to MMD/JCCU
Environment Management Plan for Occupational Health and Safety									
1.	Mining Activities	Fugitive dust	Operation Phase	Workers working in dusty area to be	mine site	Site inspection,	Monthly audited	Mines manager, Safety officer	Monthly Progress

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 7500,000 MTPA,
AT PLOT NO. 1, PEAR VILLAGE-BABERUA, TEBELI HANNALE, DISTRICT MABENDBERGARE, BARTANA
DRAFT EIA/EMP/REPI/ET
ENVIRONMENTAL MANAGEMENT PLAN**

S. No.	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
		emission could have potential impact on human health		<ul style="list-style-type: none"> provided with protective gears such as helmets, dust masks, ear muffle, Regular water spraying at dust generating areas and roads Occupational health checkup of all workers working in mine and Pulmonary function test for workers working in dusty areas 		Visual Assessment, medical test reports and PHS work	site inspection, Annual medical checkup		Report
2.	Mining Activities	Continuous exposure to high level of noise will cause health effects in the workers such as deafness.	Operation Phase	<ul style="list-style-type: none"> Workers continuously exposed to higher noise levels will be provided ear muffle ear plugs. Company management will ensure that no personnel is exposed to noise 	Mine site	Noise inspection, Visual Assessment, medical test reports and PHS audit	Monthly and on site inspection, Annual medical checkup	Mines manager/ Safety officer	Monthly Progress report

**STONE ALONG WITH ASSOCIATED MINOR MINERAL MINE, PRODUCTION CAPACITY 50,00,000 MTPA,
 AT PLOT NO. 5, NEAR VILLAGE: BAKERLIA, TOSHI, NARNAUL, DISTRICT: MAHENDERGARH, HARYANA**
DRAFT EIA/EMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Project Activity	Impacts/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
		fatigue, hypertension and high blood cholesterol. Long term continuous exposure to high noise may cause permanent hearing loss.		<ul style="list-style-type: none"> level greater than 45 dB (A) for a duration of more than 8 hours per day without PPE is recommended to DGMS. Use of Personal Protective equipment like ear plugs, ear muffs by mine workers. regular health checking of all the workers working in mine. 					
3	Normal Hazards during mining operation	Safety Hazard, natural hazard can impact the surrounding population	Operational Phase	<ul style="list-style-type: none"> Provision of warning system for any emergency due to natural hazard. A well-elaborated emergency management plan shall be in place to deal with emergency situations. 	Mine site	Site Inspection	As and when required	All the workers in the mine	Responsible of Enterprises

10.2 Environment Management Cell

Apart from having an Environmental Management Plan, it is also necessary to have a permanent organizational set up charged with the task of ensuring its effective implementation of mitigation measures and to conduct environmental monitoring. In this effect, M/s. Goward Gopal Infra solution Pvt Limited will assign responsibilities to officers from various disciplines to co-ordinate the activities concerned with management and implementation of environment control measures. An organization of Environment management is shown in *Figure 10.1*

Basically, this department undertakes the monitoring of environmental pollution level by measuring, ambient air quality, water and effluent quality, Noise level, etc., either departmentally or appointing external agency whenever required. The Environmental and Safety department will also looking after for preparation of environment statement, carrying out environment audit, preparation of Consent to establish & Consent to operate.

Environmental monitoring cell will be established for monitoring of important and crucial environmental parameters which are of immense importance to assess the status of environment during sand mine operation. Proponent will be monitored the Environmental Status with the help of third party and give responsible to Mining or Safety Engineer for compliance and take care the all the things for implementation of EMP as proposed. However, the tentative schematic diagram also shown as follows for the same.

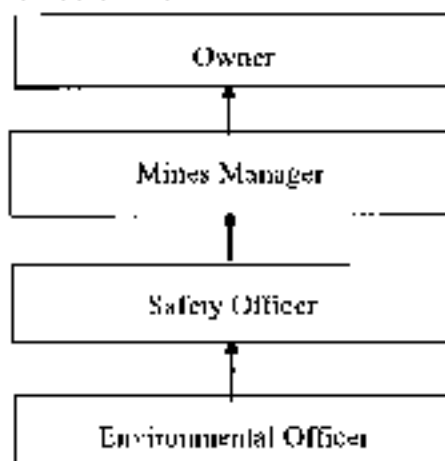


Figure 10-1: Environment Management Cell

In order to carry out the environmental monitoring, EMC will perform the following activities:

- EMC will oversee that environmental control measures are implemented as per approved action plan.
- Identify and record the constraints in respect of environmental planning and implementation.
- Systematically document and record keeping w.r.t environmental issues.
- Field monitoring and laboratory analysis.

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAMPUR, TEHSIL: NARNAUL,
DISTRICT: MAHENDGARH, HARYANA**

**DRAFT EIA/EEMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN**

- Monitoring of plantation development.
- Environmental compliance to the regulatory authorities.
- Communication with the concerned departments on the environmental issues. Interact and liaison with State/ Central Government departments
- To monitor compliance of environmental regulations.
- Continual improvement in environmental performance
- To follow proper documentation and monitoring procedures, for developing better
- Environmental Management System at the mine site.
- To keep up with regulatory requirements and arrange for the necessary certificates or consents viz., air and water.
- To conduct yearly environmental monitoring and submit the statement to SPCB.

10.3 Greenbelt Development

Greenbelt development programme will be designed within the natural constraints of the Stone mine area and in particular species selection reflects flora known to be resistant to the local conditions. About 1.7358ha will be proposed for green belt development. A budgetary information has been described in *Table 10.3*.

Greenbelt development is necessary for:

1. Landscaping and providing shelter
2. Help in reducing Pollution level
3. Surface air purification by providing oxygen and letting SPM to settle on the leaves
4. To attenuate noise generation by movement of vehicles and other machinery.
5. Improve ecological conditions.
6. Improves the aesthetics & beneficially influence the microclimate of the surrounding.

The following characteristics will be taken into consideration while selecting plant species for green belt development and tree plantation

1. They should be local indigenous and drought resistant species.
2. They should be fast growing and tall trees.
3. They should be perennial and evergreen.
4. They should have thick canopy cover.
5. The planting should be in appropriate alternate rows around the site to prevent lateral
6. Pollution dispersion
7. The trees should maintain regional ecological balance and conform to soil and hydrological conditions. Indigenous species should be preferred
8. Native species will be planted as per CPCB guidelines

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE- JAIMPUR, TEHSIL NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA

DRAFT EIA/ EMP REPORT
ENVIRONMENTAL MANAGEMENT PLAN

10.3.1 PLANTATION PROGRAMME

It is proposed to have plantation on both sides of the roads & to provide cover against dust dissemination. plantation will also be carried out as social forestry programmed in villages school and the areas allocated by the Panchayat. State authorities. Year- wise programme of green-belt development for first five years, about saplings 1050 will be planted in an area of 1.75 ha. By the green belt development it will improve the eco-system and aesthetic beauty of the area. Post plantation cares including provisions for watering, soil mulching & manuring the plants will be done. A suitable combination of trees that can grow fast and also have good leaf cover shall be adopted to develop the greenbelt.

Greenbelt development programme is given in *Table 10.2*

Table 10.2: Greenbelt developments Programme

Year	Area (ha.)	No. of Saplings	Species	Place of Plantation
I	0.35	210	Babool, Vilayati	Statutory boundary barrier
II	0.35	210	babool, Khejari,	
III	0.35	210	Neem, Amaltas,	
IV	0.35	210	Perkousmia and	
V	0.35	210	Karanja	
At the end of Lease period	1.75	1050		

Vegetation development is proposed along the bank of mine and along road sides of approach roads. While selecting plant species preference will be given for planting native species of the area and shall have soil binding capacity. M/s Govind Gopal Infra solution Granite Pvt. Ltd. will supply saplings to surrounding villagers for green belt development in their villages and encourage the plantation by means of social forestry.

Greenbelt development as per the scheduled plan will be reviewed every year plantation records will be maintained for period of plantation, area under plantation, length of avenue plantation, type of species density of planted area and survival rate.

10.4 Budget for Environmental Management Activities

The budget for environmental activities is given in *Table 10-3*.

STONE MINE, PRODUCTION CAPACITY 10,00,00 TPA, AT NEAR VILLAGE: JADPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA	DRAFT EIA/EMP REPORT ENVIRONMENTAL MANAGEMENT PLAN
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Table 10-3: Budget for Environmental Management

S.No.	Description of Item	Budgetary Calculation	Recurring Cost (Rs/Lakhs) Per Annum
1	Air Pollution Control	Water Sprinkling/Dust Suppression	1,50,000
2	Environmental Monitoring and Management	Air quality Monitoring Ground Water sampling analysis Surface Water sampling analysis Soil Sampling Analysis Noise Sampling Environment Management	2,50,000
3	Green Belt Development	In lease Area	2,00,000
Total			6,00,000/-

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAIPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

**DRAFT EIA/EMP REPORT
SUMMARY AND CONCLUSIONS**

11. JUSTIFICATION OF THE PROJECT IMPLEMENTATION, SUMMARY AND CONCLUSIONS

11.1 Justification of the project implementation

The mining lease area is Government Agriculture Waste land near Village-Jaipur, Tehsil-Narnaul and District- Mahendergarh (Haryana); this is a project with production capacity of 30,00,00 TPA (Stone: 28,50,000 TPA and Mineral Rejects: 1,50,000) TPA of Stone.

Most part of Haryana is hilled cover & 75% of Mahendergarh District is covered under Hills. There are no other major industries except mining of Stone. Therefore it becomes important for the region to operate the mine to generate employment opportunities for local people and improves livelihood as well as lifestyle of people.

The project will prove beneficial in terms of socio-economic development as it will provide employment to locals further, the average income level, which is the indicator of socio-economic status of households, is expected to increase, which will ultimately result in better standard of living of the local people.

11.2 Technical details of the project

The mining lease area is Government waste land (Gair mukim pahar) of Toposheet No. 54 A/01. The salient feature of proposed project shown in *Table 11-1*.

Table 11-1: Salient Feature of Project

S. No	Particulars	Details									
A.	Nature of the Project	Jaipur Stone (Minor mineral) mining									
B.		Size of the Project									
1.	Mine area	5.26 ha									
2.	Proposed Production Capacity	30,00,00 TPA (Stone: 28,50,000 TPA and Mineral Rejects: 1,50,000) TPA									
C.		Location Details									
1.	Village	Jaipur									
2.	Plot No.	11,6,7,8,9,12,13,14,15,16,17,18,19,12/9,10,11,12									
2.	Tehsil	Narnaul									
3.	District	Mahendergarh									
4.	State	Haryana									
		<table border="1"> <thead> <tr> <th>Plot</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>27° 51' 44.00"</td> <td>76° 05' 12.905"</td> </tr> <tr> <td>2</td> <td>27° 51' 45.005"</td> <td>76° 05' 11.457"</td> </tr> </tbody> </table>	Plot	Latitude	Longitude	1	27° 51' 44.00"	76° 05' 12.905"	2	27° 51' 45.005"	76° 05' 11.457"
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STONE MINE PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAINPUR, TEHSIL NARNAUL, DISTRICT MAHENDERGARH, HARYANA

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S. No	Particulars	Details																																								
		<table border="1"> <tr> <td>3</td> <td>27° 54' 44.50"</td> <td>76° 05' 11.708"</td> </tr> <tr> <td>4</td> <td>27° 54' 44.552"</td> <td>76° 05' 11.684"</td> </tr> <tr> <td>5</td> <td>27° 54' 50.439"</td> <td>76° 05' 11.661"</td> </tr> <tr> <td>6</td> <td>27° 54' 50.387"</td> <td>76° 05' 11.639"</td> </tr> <tr> <td>7</td> <td>27° 54' 46.446"</td> <td>76° 05' 15.171"</td> </tr> <tr> <td>8</td> <td>27° 54' 46.48"</td> <td>76° 05' 12.906"</td> </tr> </table>	3	27° 54' 44.50"	76° 05' 11.708"	4	27° 54' 44.552"	76° 05' 11.684"	5	27° 54' 50.439"	76° 05' 11.661"	6	27° 54' 50.387"	76° 05' 11.639"	7	27° 54' 46.446"	76° 05' 15.171"	8	27° 54' 46.48"	76° 05' 12.906"																						
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D		Environmental Settings of the Area																																								
		No National Park, Wild Life Sanctuary, Biosphere Reserve, Tiger Reserve, Wildlife Corridor, Reserved Forest fall within 15 km radius of the lease area.																																								
	I. Ecological Sensitive Areas	<table border="1"> <thead> <tr> <th>S. No.</th> <th>P.F./R.F.</th> <th>Distance</th> <th>Direction</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Balupura Protected Forest</td> <td>7.14km</td> <td>South</td> </tr> <tr> <td>2</td> <td>Baneti Protected Forest</td> <td>9.05 km</td> <td>South</td> </tr> <tr> <td>3.</td> <td>Khajji P.F.</td> <td>10 km</td> <td>SW</td> </tr> <tr> <td>4.</td> <td>Protected Forest</td> <td>10.0 km</td> <td>West</td> </tr> <tr> <td>5.</td> <td>Protected Forest</td> <td>13.20 km</td> <td>WSW</td> </tr> <tr> <td>6.</td> <td>Protected Forest</td> <td>13.15 km</td> <td>WSW</td> </tr> <tr> <td>7.</td> <td>Protected Forest</td> <td>13.00 km</td> <td>NW</td> </tr> <tr> <td>8.</td> <td>Reserve Forest</td> <td>5.00 km</td> <td>North</td> </tr> <tr> <td>9</td> <td>Reserve Forest</td> <td>8.10 km</td> <td>North</td> </tr> </tbody> </table>	S. No.	P.F./R.F.	Distance	Direction	1	Balupura Protected Forest	7.14km	South	2	Baneti Protected Forest	9.05 km	South	3.	Khajji P.F.	10 km	SW	4.	Protected Forest	10.0 km	West	5.	Protected Forest	13.20 km	WSW	6.	Protected Forest	13.15 km	WSW	7.	Protected Forest	13.00 km	NW	8.	Reserve Forest	5.00 km	North	9	Reserve Forest	8.10 km	North
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8.	Reserve Forest	5.00 km	North																																							
9	Reserve Forest	8.10 km	North																																							
2.	River / water body	Krishnawati or Kasauti Nadi is 1.95 km in N & Chandrawati River is 13.33 km in W.																																								
3.	Nearest Town / City	Narnaul - 13.5 Km. North..																																								
4.	Nearest Railway Station	The nearest railway station is Nizampur which is about 18 Km. north from mine site.																																								
5.	Nearest Airport	Delhi Airport, at a distance of around ~120 km in SE direction from Mining Lease area..																																								
6.	State Boundary	No State boundary passes through the project site.																																								
7.	Seismic Zone	Zone - III (as per IS 1593 (Part-1): 2002)																																								
D		Cost Details																																								
1.	Total Project Cost	Capital Cost: Rs. 4 crore :-																																								

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA	
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S. No	Particulars	Details
E.	Requirements of the Project	
1.	Water Requirement	120 KLD
2.	Man Power Requirement	186 (Skilled and unskilled persons)

Present and Proposed Method of Mining

The Stone mine will be developed by open cast mechanized method of mining, by forming benches of 10.0 meter height and more than 10.0 meter width and benches sloping at 60° with horizontal.

Open Cast Mining/ Bench Parameters

- Bench or Bank or high wall height 10.0 meter
- Bench width not less than the bench height.
- Bench slope angle from horizontal, about 60° from horizontal.
- Ultimate Pit Slope 60°.
- All benches to be equipped with road edge barrier.
- Transportation of the mineral from mine to end users will be done by trucks/dumpers.

Salient Features of Mining Method

The salient features of proposed mining method are:-

- The mining will be done from top to bottom forming benches, with wagon drills and blasting.
- Overall slope during mining operation 60°
- Ultimate pit slope is 60° horizontal after reaching final depth of the mineral and starting backfilling.
- Transportation of the mineral from mine to end users will be done by trucks/dumpers

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAIMPUR, TEHSIL, NABNAL, DISTRICT, MAHENDERGARH, HARYANA

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11.2 Impact Identification

S. No.	Process Activity	Environmental parameters	Environmental Impact	
			Significant	Insignificant
Pre-operational phase				
1	Selection of mine lease area, site preparation	Land Use/ Land Cover Social Habitat Biological Road/Rail/river 'pond'/lake in the selected areas	LU (-) Potential change in landuse / land cover of the mining lease area. EB (-) Ecology & Biodiversity is affected due to mining because the total lease area is forest land.	SE (+) Compensation to Government against lease
2	Excavation	Air Noise Water Land Biological Soils Economic	LU (-) Creation of pit will change the existing Landuse. THD (-) Due to excavated area topography of the lease area will change. SC (-) Loss of Soil cover OH (-) Due to generation of dust particle health risk to the mine workers	AQ (-) Dust emission due to mining activities like use of JCB, vehicular movement and use of dewatering pump NV (-) Due to use of machineries for mining activities, SW, GW (-) use of water for dust suppression, domestic purpose and Greenbelt development FH (-) dust emission, and generation of noise SE (+) generation of employment/ nuisance due to mine workers
Operational Phase				
3	Separation of Overburden, Collection & Storage	Air Noise Water Land Biological Social Economic	LU (-) Creation of pit and mineral stacking SC (-) Loss of Soil cover	AQ (-) Dust emission from the mineral stack. NV (-) Due to use of machineries for stacking activities, SW, GW (-) Potential damage due to mine runoff THD (-) Due to mineral stacking topography of the lease area will change. EB (-) dust emission, and generation of noise OH (-) Due to generation of dust

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAIMPUR, TEHSIL NARNAUL,
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S. No.	Process Activity	Environmental parameters	Environmental Impact	
			Significant	Insignificant
				particle health risk to the mine workers
4	Transportation of minerals	Air Noise Water Land Biological Socio-Economic	<p>AP (-) Dust emission due to transportation of mineral, OB and waste</p> <p>OH (-) Due to generation of dust particle health risk to the mine workers.</p>	<p>NV (-) Due to use of transportation of mineral, OB and waste</p> <p>EB (-) dust emission, and generation of noise</p> <p>SE(+) generation of employment in transport industry</p> <p>SW (-) Potential damage due to mine runoff & dust generation due to transportation.</p>
Post Operation Phase				
5	Restoration Reclamation of Abandoned mine	Land Water	<p>LU (-) some areas will be converted to water reservoir</p>	<p>AO(-): Dust emission due to leveling/ Backfilling</p> <p>EB (-) : Some area will be converted to water reservoir and green belt development</p> <p>SE (+), creation of water reservoir.</p> <p>SC (+) Soil generated can be utilized for greenbelt development.</p>
6	Plantation		<p>EB (+) : Some area will be converted to water reservoir and green belt development</p>	<p>EB (+) : Some area will be converted to water reservoir and green belt development</p> <p>SC (+): Soil generated can be utilized for greenbelt development.</p>

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA. AT NEAR VILLAGE: JADPUR, TERSI, NARNAUL,
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11.3 Environment Management Plan

S. No.	Project Activity	Impact /Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
Environment Management Plan for Land Environment									
1	Land Lease Purchase	Change in Land Use	Before the start of Work/Pre Operation Phase	<ul style="list-style-type: none"> All the activities shall be restricted within M.I. area Plantation activities to be initiated simultaneously. 	Mine Site	Site inspection	Monthly	Mines Manager	To be included in Six monthly compliance report
2	Mining Activities	Change in Land Use	Operation Phase	<ul style="list-style-type: none"> Overburden will be dumped at the demarcated area within the lease. 	Mine Site	Site Inspection - Visual Observation	Daily	Mines Manager	Daily Record Register of waste dump height and area.
3	Mine Closure/Reclamation	Change in Land Use	Mine Closure	<ul style="list-style-type: none"> Filling of Voids Spreading the top soil on the backfilled area Plantation on the backfilled area. The mined out pit will be used as water reservoir which will provide water to villagers for agricultural purpose, fencing of water reservoir 	Mine site	Site Inspection	Weekly	Mines Manager/ Environmental Officer	To be included in Six monthly compliance report
Environment Management Plan for Air Environment									
1.	Site Preparation	Impact on health due to fugitive dust emissions Impact on health due to	Pre Operation Phase	<ul style="list-style-type: none"> Water sprinkling on the internal roads Adhering to strict maintenance schedules for all equipment and transport vehicle to minimize gaseous emissions like CO and NOx Improved maintenance of machinery for reducing gaseous and noise pollution Restriction of vehicle speed, sprinkling of water on unpaved 	Mine Site	Site Inspection, Record Keeping and Visual Inspection	Monthly	Mines manager, Environmental officer, Safety Officer, Maintenance	Monthly Progress report

STONE MINE, PRODUCTION CAPACITY 30,00,000 TPA, AT NEAR VILLAGE: JADPUR, TERSIL: NARNAUL, DISTRICT: MAHENDGARH, HARYANA

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S- No.	Project Activity	Impact Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
		exhaust gas emission		roads.				department	
2	Generation of Fugitive Dust emissions Air emission impact along the access road Loading/Unloading of mineral waste and OR	Impact on health due to fugitive dust emissions	Operation Phase	<ul style="list-style-type: none"> Through the project life cycle, engage on-road and off-road vehicles' equipment that are compliant to prevailing emissions standards of CPCB/Central Motor Vehicle Act Rule and have valid PUC certificates; Make dumper and other vehicle operators/maintenance department responsible for periodically inspecting the vehicles engaged in the project for oil and grease leaks, spills and seeps from any of its parts etc. Prohibit the practice of attending to break-down maintenance along roadside; Frequent water spraying/sprinkling on the roads, stock-piles, waste dumps and transfer points where dust is generated; Provision of dust mask to workers working at highly dust prone and affected areas; Control fugitive dust emission in the mining area by controlling the dust at source. Some of the strategies include, keep the traffic allowed carriageway free of excavation materials, clear excavated waste from roadside, sprinkle water on dust source, If any increase of pollutants is reported from monitoring, necessary control measures would be taken, Follow up of the conditions as 	Mine Site Approach roads	Site Inspection Visual Observation on Record keeping	Monthly	Mines manager, Environment officer, Safety Officer, Maintenance department	Monthly Progress report

**STONE MINE, PRODUCTION CAPACITY 3000.00 TPA, AT NEAR VILLAGE JAHPUR, TEHSIL NARNAUL,
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S. No.	Project Activity	Impact Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
				stipulated in the Consent from SPCB					
3	Emission due to Combustion engine	Impact on health due to dust emission Impact of health due to exhaust gas emission	Operation Phase	<ul style="list-style-type: none"> Adhering to strict maintenance schedules for all equipment and transport vehicle to minimize gaseous emissions like CO and NOx. Improved maintenance of machinery for reducing gaseous pollution. Use of low Sulphur HSD fuel oil (with maximum 1% Sulphur content) to restrict SO₂ emission. If any increase in level of pollutants are reported from monitoring, necessary control measures would be taken. Follow up of the conditions as stipulated in the Consent from SPCB 	Mine Site	Site Inspection Visual Observation- on- on. Record keeping	Monthly	Mines manager, Environment officer, Safety Officer, Maintenance department	Monthly Progress report
Environment Management Plan for Noise Environment									
1	Noise Emission from excavation work, haul trucks along the mine access service road, and material handling activities at the ROM and spoil	Noise Pollution	Operation Phase	<ul style="list-style-type: none"> The operator's cabin of equipment like dumpers, loaders, etc. to be made sound proof Use of improvised plant and machinery designs, with inbuilt mechanism to reduce sound emissions like improved silencers, mufflers and closed noise generating parts Where noise level is more the workers to be provided with ear plugs. Reducing the exposure time of workers to high noise levels by arranging time bound rotation of individuals Green belt will be enhanced by additional plantation in and around 	Mine Site	Site Inspection Visual observation and monitoring records	Monthly	Mines Manager, Environmental officer, Safety officer	Half Yearly reporting to MoEF&CC

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JALDORA, TEHSIL: FARNAUL,
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S. No.	Project Activity	Impact Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
	areas and ancillary and support equipment such as dumpers, tractors and water trucks,			the M.L area. <ul style="list-style-type: none"> Periodic ambient noise monitoring near sensitive receptors in the vicinity of lease area. 					
Environment Management Plan for Soil Environment									
1	Removal of topsoil:	Soil erosion Loss of fertile Top soil Soil Compaction	Operation Phase	<ul style="list-style-type: none"> Proper gulland to be constructed around the waste dump. Identify areas where topsoil could be utilized for landscape prior to stripping of top soil. Heavy machinery movement will be limited to access roads. the disturbed areas and soil stock piles will be kept moist to avoid wind erosion of soil Topsoil removed shall be stored separately, protected and reused for landscape development within the project area. The routes for movement of dumper and tractor shall be designated to avoid the soil compaction in other areas. 	Mine Site	Record Keeping, Surprise Site Inspection, Visual Observation	Monthly	Mines Manager	Monthly Progress Report
2.	Soil Contamination due to spillage of Diesel and Lubricant	Soil Contamination	Operation Phase	<ul style="list-style-type: none"> Ensure hazardous waste oil-lubricant from maintenance of machinery and oil soaked rags are properly labeled and stored onsite provided with impervious surface, shed and secondary containment system; Ensure routine disposal of hazardous waste (within 90 days) 	Mine Site	Quantification of waste generated. Site inspection and visual observation	Quarterly	Mines Manager	Six monthly EHS report

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAMPTER, TEHSIL NARNAUL,
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S. No.	Project Activity	Impact Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
				<ul style="list-style-type: none"> through approved registered recyclers and records are properly documented as per HW Rules. Ensure used oil is stored on impervious floor 					
Environment Management Plan for Water Environment									
1.	Surface Run-off from waste dump, OB dump and mineral stack, wastewater generated from mine office	Impact on surface water quality	Operation Phase	<ul style="list-style-type: none"> Waste dump will be provided with bunding and gulland drain Waste water generated from office building will be diverted to sump tank followed by soak pit 	Mine site	Site inspection and Visual observation	Monthly	Mines Manager	Monthly Progress report
2.	Surface Run-off from waste dump, OB dump and mineral stack.	Impact on surface water quality	Operation Phase	<ul style="list-style-type: none"> Waste dump will be provided with bund and gulland drain OB waste as well as mineral are non-hazardous in nature Quarterly monitoring of groundwater level and quality to be carried out by establishing network of existing well and piezometers. 	Mine site and nearby area	Site inspection, Visual observation and monitoring records	Quarterly	Mines Manager Environment officer	Half Yearly reporting to MoEF&CC
Environment Management Plan for Ecological Environment									
1.	Site clearing activities	Impact on Flora and Fauna	Pre-Operation Phase	<ul style="list-style-type: none"> Damage to the natural topography and landscape will be minimized; General awareness regarding wildlife will be enhanced through trainings posters etc. among the staff and mine workers; Traffic speed within the activity 	Mine Site	Site inspection, training records, visual assessment	Once during the project phase	Mines Manager	Once during the project phase

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA. AT NEAR VILLAGE JAINPUR, TEHSIL: NARNAUL,
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S. No.	Project Activity	Impact Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
				area will be regulated.					
2.	Mining activities (Plying of Vehicles)	Impact on vegetation and green belt due to dust deposition	Operation Phase	<ul style="list-style-type: none"> Extensive plantation on the statutory boundary will increase the floral diversity of the area Sufficient availability of water will be ensured for green belt The green belt area once marked will not be disturbed during life of mine Water sprinkling will be done twice during the day on haul road and connecting mine to State Highway, also water sprinkling will be done on waste dump, OB dump 	Mine site	Site inspection, Visual observation by expert, Assessment of survival rate	Quarterly	Mines manager/Environment officer	Half Yearly reporting to MoEF & CC
Environment Management Plan for Occupational Health and Safety									
1.	Mining Activities	Fugitive dust emission could have potential impact on human health	Operation Phase	<ul style="list-style-type: none"> Persons working in dusty area to be provided with protective gears such as helmets, dust masks, ear muffs etc. Regular water sprinkling at dust generating areas, haul roads. Occupational health checkup of all workers working in mine, and Pulmonary function test for workers working in dusty areas. 	Mine site	Site inspection, Visual Assessment, medical test reports and EHS audit	Monthly audit and site inspection, Annual medical checkup	Mines manager/ Safety officer	Monthly Progress report
2.	Mining Activities	Continuous exposure to high level of noise will cause health issues in the workers, such as	Operation Phase	<ul style="list-style-type: none"> Workers continuously exposed to higher noise levels will be provided ear muffs ear plugs, Company management will ensure that no personnel is exposed to noise level greater than 85 dB (A) for a duration of more than 8 hours per day without PPE's as recommended by DGMS Use of Personal Protective equipment like ear plugs, ear muffs by mine workers. Regular health checkup of all the workers working in mine 	Mine Site	Site inspection, Visual Assessment, medical test reports and EHS audit	Monthly audit and site inspection, Annual medical checkup	Mines manager/ Safety officer	Monthly Progress report

STONE MINE, PRODUCTION CAPACITY 50,00,00 TPA, AT NEAR VILLAGE JAMPUR, TERSIK- NARNAUL, DISTRICT MAHENDERGARH, HARYANA

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S. No.	Project Activity	Impact /Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
		irritation, fatigue, hypertension and high blood cholesterol. Long term continuous exposure to higher noise may cause permanent hearing loss.							
2.	Natural Hazard during mining operation	Safety Hazard, natural hazard can impact the surrounding population	Operation Phase	<ul style="list-style-type: none"> Provision of warning system for any emergency due to natural hazard A well-rehearsed emergency management plan shall be in place to deal with emergency situations 	Mine site	Site Inspection	As and when required	All the workers in the mine	Reporting of Emergency

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAMPUR, TEHSIL: NABNALI,
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11.4 Project Benefits

The project activity and the management will provide assistance for the development of public amenities in the region.

The mine management will recruit semi-skilled & unskilled eligible workers from the nearby villages.

The overall effect will improve the buying power of employees and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Housing, transport, medical, educational and other civic amenities will get betterment in the future. This is envisaged as a major positive benefit.

11.4 Cost Benefit Analysis

M/s. Carving Capital Infrastructure Private Limited will operate the mining activities for the extraction of Stone to supply to the various consumers in the state and outside the state. This will encourage the industries mainly steel industries to enhance or improve their capacity for the end users which will support the economic growth and industrial improvement.

As a consequence of rapid industrialization in India, minerals like stone are needed at a rapid rate and for widening the gap between supply and demand. Mineral supply is internationally recognized as preferred alternative for transport of minerals from the point of view of economic growth of the individual country and thereby the more industrial development.

The cost of the project is estimated to be Rs. 4 crore/- for the production of 30,00,00 TPA with a total reserve capacity of 11882774.52,MT. Mining of Stone has been practiced since ancient times in central India. The stone is a basic building construction material for constructing houses, bridges and roads. Thus, keeping in mind this requirement, mining of Stone is necessary for durability and to beautify by carving as per the requirement of the consumer.

11.5 Health Safety & Environment (HSE) Management

Occupational health and safety (OHS) is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational health and safety programs is to foster a safe work environment.

The mining operations will be carried out with all the safety measures laid down in Mining Laws. Regular Medical checkup of workers will be done to check occupational disease, if any, and respective records will be maintained at the mine.

By formation of a medical team consisting of medical practitioners having experienced in industrial disease supported by local Panchayat and mine owner and expenses to be borne by mine owner.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAINPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

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11.6 Cost of Environment Management Plan (EMP)

The budget for environmental activities is given in *Table 11-3*.

Table 11-3: Budget for Environmental Management

S. No.	Description of Item	Recurring Cost (in Rs)
1	Air Pollution Control Water Sprinkling	1,50,000/-
2	Environmental Monitoring and Management	2,50,000/-
3	Green Belt Development	2,00,000/-
Total		6,00,000/-

11.7 CSR Activities proposed with budgetary provision

CSR activities proposed with budgetary provision are given in *Table*.

Table 11-5: Proposed Action Plan for CSR

S. No.	CSR Activity	Proposed Budget (in Rs)
1.	Safe Drinking water Sanitation Facility	
2.	Health facility	
3.	Education for Children (Books and Uniform for Children)	
4	Personal Protective equipment such as Goggles, Hat, safety Shoes, Face Mask and Hand Gloves	
5.	Insurance cover for quarry Worker	
Total		

11.8 Environmental Policy of Proponent

For protection of environment and sustainable development, the [Govind Gopal Infra solution Private Limited] is committed to abide by environmental norms and various conditions imposed by the Government during approval of project(s) at the central as well as at the state levels. In addition to this, [Govind Gopal Infra solution Private Limited] acknowledges the importance of the concept of inter-dependence of all sections of the society. In particular, its focus revolves around the community residing in the immediate vicinity of its Mining of Stone (M.I. Area: 5.26ha) with production capacity of 30,00,00 TPA Village- Jainpur, Tehsil: Narnaul, District: Mahendergarh (Haryana) where it seeks to actively assist in improving the quality of life.

In line with its abiding concern for preservation of the ecological balance and safeguarding the health and environment of the community, [Govind Gopal Infra solution Private Limited] has always actively demonstrated its firm resolve to protect the environment and is deeply committed to Environmental Protection and professional style of management with the best in business ethics.

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JADPUR, TERSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
SUMMARY AND CONCLUSIONS**

Keeping in view environmental commitments and also the guidelines on norms and directives of different State and Central Government of India, [Gowind Gopal India solution Private Limited] has formulated the following Environmental Policy for effective implementation across the organization.

The monitoring of implementation and review shall be at the level of the Director and the guidance shall be communicated to all concerned in writing for compliance. Together these shall comprise the Environmental Performance Report, and shall be included in the Organization's Annual Report.

Standard Operating Procedures (SOPs) have been framed for each component of mining operations like drilling, loading and transport operations. These are available with the Mine Office.

Environment protection will be responsibility of all the employees. Any employee, who notices any discharge of effluents, leakage from engine, machinery, abnormal emission of any pollutants, noise from any place, machinery or moving part of any machinery or security fence which is broken or any unhygienic condition within the mining lease or near to the mining lease, shall inform the Environment Management cell immediately. No employee shall willfully damage the plantation /green belt developed by the company within the project premises.

Grant of Environmental Clearance along with conditions attached to it shall be prominently displayed on the web-site of the company, office premises, Labour Union Office, Attendance office etc.

Environment Management Officer will directly report to the Mines Manager and no constraint whether financial or Administrative shall come in the way of compliance of all the environment norms. Human resource and technological resource as required for compliance of environmental norms shall be made available to Environment Management Cell.

11.9 Conclusion

As discussed, it is safe to say that the collection of minor mineral from the proposed lease area is not likely to cause any significant impact on the ecology of the area as the mineral is and waste generated is non-toxic and does not harm the surrounding environment.

Adequate measures will be taken to control the fugitive emissions to be generating during mining operation. Green belt development in the vicinity of river banks, approach roads, Govt. buildings, Schools also proposed with the help of local Govt. department and local people as social forestry in the area for betterment of environment.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAIMPUR, TEHSIL: NARNAUL,
DISTRICT: MAHENDGARH, HARYANA

DRAFT EIA/EEMP REPORT
DISCLOSURE OF CONSULTANTS

12. DISCLOSURE OF CONSULTANTS

M/s Overseas Min-Tech Consultants (OMTC) expertise in Mining and Environment Management provides comprehensive professional services for Mining, Highways, and Building & Large Construction sectors. M/s Overseas Min Tech Consultants was established in the year 2011. It is an ISO 9001:2008 certified organization as well as certified ROP organization by Indian Bureau of Mines for preparation of Mining Plans. It is also accredited as Category 'A' Organization for preparation of EIA/EEMP for Mining, Highways, Railways and Building & Large Construction projects by NABEI.

The company's genesis is attributed to the acute need of consulting services by providing end to end solutions for mining and environment sectors. It is a pioneering step in taking mining and environment sectors consultancy on well organized professional services in the state of art manner.

OMTC provides Technical Services on Mineral Resource Management Systems and their Processes. It also provides advanced software advice enabling tasks to be completed quickly and managing Technical Data by use of CAE Data-mine software for optimal solution for existing mine site. The team of OMTC includes Mining Engineers, Geologists, Hydro-geologist, Environment Engineer, Mechanical Engineer, Surveyors, Business Analysts and Modelers who draw years of expertise and experience in order to provide practical advice for extracting optimal value from existing operations, potential projects and mine expansions through involvement in the ongoing global mining industry and awareness towards significant trends in mining, environment and software engineering. OMTC offers proven & up-to-date technical advice with solutions. The key services which make OMTC unique and successful in mining sector.

Following are some of the services which are M/s Overseas Min-Tech Consultants (OMTC) core competency

- Helping the client to select the suitable site as per the norms of Ministry of Environment and Forest & Climate Change, Govt. of India and State Pollution Control Boards in India
- Identification of area for M.L. P.L. and putting the M.L.P.L. application.
- Mine Exploration.
- Preparation of Pre-Feasibility Feasibility Reports for mineral deposits
- Reserve and resource estimation, assessment of life of mine, Geological Modeling by using CAE Data-mine software.
- Preparation of Mine Plan, Scheme of Mining, Progressive Mine Closure Plan, Final Mine Closure Plan
- Consultancy on use of different types of latest explosives for different type of deposits-minerals, drill patterns as well as safety equipments required during blasting.
- Engineering design to prepare long term working Plan of a mine.
- Preparation of EIA/ EEMP and getting Environment Clearance from MoEF, SEIAA.
- Environmental Monitoring and suggesting measures for Environmental protection.
- Environmental and Safety Audit measures for mine environment & safety with their updating.
- Providing Forestry Clearance.
- Procedural requirements for acquisition of private land for PL/ ML.

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE JAMPUR, TEHSIL NARNAUL,
DISTRICT MAHENDERGARH, HARYANA**

**DRAFT EIA/EMP REPORT
DISCLOSURE OF CONSULTANTS**

- Performance testing of emissions pollution control equipments.
- Analysis of Surface Hydrological data pertaining to flow fluctuation, estimation of flows at 10, 50 and 90 percentile levels. Computation of ground water, recharge flow rate & direction, plotting of ground water contours, preparation of water budgets and water danger plan etc.
- Supervisory consultancy services during above operations.
- Highways & Railways, Building & Large Construction projects environments clearance.
- Socio economic studies & social impact assessment studies.
- Field survey by DGPS.
- Remote sensing & GIS studies

OMTC have a well qualified and experienced EIA Coordinator. The following EIA Coordinator and team members have assisted respective FAEs and also assisted in documentation of EIA report. The certificate of accreditation of QC/NABE1 done on 30-04-2018 has been enclosed as Annexure IX.

Table 12-1: List of EIA Coordinator

S.No.	Name	Category
1.	Arun Kumar Yadav	Cat A (Open Cast)

Table 12-2: Expertise of concern functional area

S. No.	Functional Areas	Name of the Expert/s & Associate FAEs
1	Air Pollution Prevention, Monitoring & Control (AP)	Dr. Sanjeev Kumar Yadav
2	Water Pollution Prevention, Control & Prediction of Impacts (WP)	Dr. Sanjeev Kumar Yadav
3.	Solid Waste and Hazardous Waste Management (SHW)	Dr. Sanjeev Kumar Yadav
4.	Socio-Economics (SE)	Rajesh Kumar Mundekiya
5.	Ecology and Biodiversity (EB)	Dr. Nafeesh Ahmed
7.	Hydrology, Ground Water & Water Conservation (HG) Geology(GEO)	Jyaprikash Chauthanbati
8	Metereology, Air Quality Modeling & Prediction (AQ)	Omar Hashim
9	Noise Vibration (NV)	Arun Kumar Yadav (FAE - B Category)
10	Noise Vibration (NV)	Arvind Kumar (Team Member - NV)
11	Land Use (LU)	Muthuswamy Vasantha Kumar
12	Risk Assessment & Hazard	Arun Kumar Yadav

**STONE MINE, PRODUCTION CAPACITY 10,00,00 TPA, AT NEAR VILLAGE: JAMPUR, TEHSIL: NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA**

**DRIFT EIA/EMP REPORT
DISCLOSURE OF CONSULTANTS**

S. No.	Functional Areas	Name of the Expert/s & Associate FAEs
	Management (R11)	
13	Soil Conservation (SC)	Dr. Sanjeev Kumar Yadav Dr. Nafceeh Ahamed

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ANNEXURES

The Bidder shall be bound by the terms and conditions of the Lease Deed and the Lease Deed shall be deemed to have been accepted by the Bidder on the date of submission of the bid.

The Bidder shall be bound by the terms and conditions of the Lease Deed and the Lease Deed shall be deemed to have been accepted by the Bidder on the date of submission of the bid. The Bidder shall be bound by the terms and conditions of the Lease Deed and the Lease Deed shall be deemed to have been accepted by the Bidder on the date of submission of the bid.

1. Extension of tender period up to 15 days: On payment of a sum of Rs. 10,00,000/- (Ten Lakhs) as a security deposit for the extension of the tender period up to 15 days.
2. Extension for a second period up to 15 days: On payment of a sum of Rs. 10,00,000/- (Ten Lakhs) as a security deposit for the extension of the tender period up to 15 days.

Note: Extension of the tender period shall be subject to the availability of the land and the Bidder shall be liable to pay the security deposit for the extension of the tender period.

4.0 You are directed to execute the Lease Deed in Form ML-1 appended to the State Rules, 2012 within a period of 90 days from the date of order of issuance of this list.

NOTE: 90 days period is for execution of Lease Deed. The Bidder is also liable to pay the security deposit along with the relevant documents for the execution of the Lease Deed within 90 days after completion of the formalities of scrutiny and verification.

4.9 In case of the Partnership Deed (where bidding entity is a partnership firm) or Articles of Association (where bidding entity is a registered company) or Affidavit (where bidding entity is a sole proprietorship firm) and the Bidder participating as an individual, no transfer or addition or deletion of Partners/Directors will be permissible before execution of the agreement.

4.10 The Lease Deed executed shall be got duly registered under the concerned Registering Authority and you will be liable to pay applicable stamp duty and registration fee etc. as per the applicable laws and as demanded by the Registering Authority/Revenue Department at the time of registration.

4.11 In case of failure to execute the lease deed, after issuance of this acceptance of bid/LOI within the prescribed period of 90 days, this bid shall be deemed to be

... (b) ... (c) ... (d) ... (e) ... (f) ... (g) ... (h) ... (i) ... (j) ... (k) ... (l) ... (m) ... (n) ... (o) ... (p) ... (q) ... (r) ... (s) ... (t) ... (u) ... (v) ... (w) ... (x) ... (y) ... (z) ...

- 4.21 You will also be liable to pay the following to the landowner in respect of mining operations:
 - (a) Annual rent in respect of the land area licensed under the mining lease which is not being mined; and
 - (b) Rent plus compensation in respect of the area used for actual mining operations.
- 4.22 The amount of annual rent and the compensation shall be settled mutually between the landowner and the mining lessee in accordance with the terms of the lease and compensation of the same shall be dealt with the lessee in accordance with the provisions contained in Chapter 24 of the State Lands Act, 2012.
- 4.23 The total value of minerals extracted by the mining lessee within the area granted or mining lease shall not exceed the value of 25% of the gross production of the approved mining plant, machine, equipment, apparatus, Environmental Clearance, at the point of use.
- 4.24 The mining lessee shall not stock any mineral or material in contravention of the provisions granted in mining contract, without obtaining a valid Material Stockpile License, as per provisions contained in Chapter 24 of the State Lands Act, 2012.
- 4.25 The lessee shall not carry out any mining operations in the reserved forest or any area prohibited by any law in force in the State or prohibited authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal of permission by such authority or officer authorized in this behalf, lessee(s) shall not be entitled to claim any relief in payment of dead rent on this account.
- 4.26 No mining operation shall be allowed in the urban zone of area notified to Town and Country Planning Department. Further, in case of the agricultural area notified by Town and Country Planning Department mining shall be permitted only after obtaining prior permission from the competent authority.
- 4.27 The lessee shall not undertake any mining operation in the area granted in mining lease without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant law.

Official stamp and signature of an authority, likely a government official, located at the end of clause 4.25.

Registered Post

tion

The Director,
Mines and Geology Department,
Plot No. 9, I.I. Park, Sector-22,
Panchkula

✓

M/S. Govinda Gopal Infra Solutions Pvt. Ltd
21, MJE Enclave, Sector-15, NRI Road,
Sector-71A, Gurugram-122004

Memorandum No. DMG/MP/MP/Jainpur/2022/5999
Dated: Panchkula, the 22-04-22.

Subject: Submission of Mining Plan including Progressive Mine Closure Plan of Jainpur Minor Minerals Mine of stone in District Mahendergarh comprising an area of 5.26 hectares of M/S Govinda Gopal Infra Solution Pvt. Ltd, Gurugram (Haryana).

2. Vide letter under reference, the Mining Plan along with Progressive Mine Closure Plan in respect of an area of 5.26 hectares of land in village Jainpur, district Mahendergarh was submitted for approval.

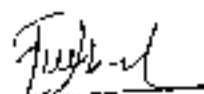
3. In exercise of the powers conferred by Rule 69 of the Haryana Minor Mineral Concession, Staking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012, I hereby approve the above said Mining Plan along with Progressive Mine Closure Plan in respect of Jainpur Minor Minerals Mine of stone over an area of 5.26 hectares of land situated in village Jainpur of district Mahendergarh. This approval is subject to the following conditions:-

- (i) That this Mining Plan along with 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 or State Government or any other authority;
- (ii) That this approval of the "Mining Plan along with Progressive Mine Closure Plan" of Mining does not in any way imply the approval of the State Government in terms of any other provisions of the Mines and Minerals (Development & Regulation) Act, 1957 or Haryana Minor Mineral Concession, Staking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012 or any other law including Forest (Conservation) Act, 1980 and Environment Protection Act, 1986 and rules framed there under;
- (iii) That this "Mining Plan along with Progressive Mine Closure Plan" is being approved on the basis of data provided by you. In case, at any point of time any ambiguity in the same is found, the approval will be revoked with suspension of the mining operations and will be allowed to resume operation only after modification/rectification of the same, if so required
- (iv) That this "Mining Plan along with Progressive Mine Closure Plan" is approved without prejudice to any other order or direction from any court of any competent jurisdiction and is for a period of two years only and shall not be make you entitled for any extension of the lease period;

2726204/2023/Estt.Br

- (vi) That all the norms and provisions as envisaged in the Mining Plan, shall be adhered to during the working of mine, and
- (vii) That the Financial Assurance of Rs. 1,00,000/- (Rs. one lakh only) as required under the provisions of Rule 71(6) of Minerals Minor Mineral Concessions (Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules, 2012) shall be furnished within a period of 60 days or before start of mining operations, whichever is earlier.

Encl: Modified Mining plan & Progressive
Mine Closure Plan (2 copies)


State Geologist,
for Director, Mines and Geology,
Haryana.

Registered Post
Encl. No. DMG/HY/MP/Jainpur/2022/

Dated:

A copy along with a copy of the dully approved Mining Plan and Progressive Mine Closure Plan is forwarded to the Director Mines Safety, Room No. 201-203, 2nd Floor, B-Block, CGO Complex-II, Hapur Road, Gaziabad for information and necessary action.

Encl: Modified Mining Plan & Progressive
Mine Closure Plan

- sd -
State Geologist,
for Director, Mines and Geology,
Haryana.

Registered Post
Encl. No. DMG/HY/MP/Jainpur/2022/

Dated:

A copy along with a copy of the dully approved Mining Plan and Progressive Mine Closure Plan is forwarded to the Mining Officer, Mines and Geology Department, Mahendragarh for information and necessary action.

Encl: Modified Mining Plan & Progressive
Mine Closure Plan

- sd -
State Geologist,
for Director, Mines and Geology,
Haryana.

Encl. No. DMG/HY/MP/Jainpur /2022/

Dated:

A copy is forwarded to M/s Overseas Min-Tech Consultants, 501.5th Floor, Apex Tower, Tonk Road, Jainpur-312015 (Rajasthan) for information and necessary action.

- sd -
State Geologist,
for Director, Mines and Geology,
Haryana.

MINING PLAN INCLUDING PROGRESSIVE MINE CLOSURE PLAN

Submitted under Rule 70 (1) of Haryana Minor Mineral Concessions, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012.

For *DMG/H/2023/5929-600*
"JAINPUR STONE MINE"
 Mineral – Minor Mineral
 Mining Lease Area – 5.26 Ha. (Non-Forest)
 District- Mahendragarh, State- Haryana

APPROVED
 With Conditions
 State Geologist

Lease Period- 10 years from the date of registration
Mining Plan Period- 5 years (2022-23 to 2026-27)

LESSEE

**M/S Govinda Gopal Infra
Solutions Pvt. Ltd.**
212, DLF Corporate Greens, SPR
Rd., Sector-74A, Gurugram-122004

PREPARED BY

M/S OVERSEAS MIN-TECH CONSULTANTS
RQP/AJM/242/2003/A,
Validity 21st May, 2023
OVERSEAS MIN TECH CONSULTANTS
ISO 9001-2008 & NABET Accredited EIA
Consultants
501, 5th floor, Apex Tower,
Tonk Road, Jaipur-302015
Tel. No. 0141-2744509;
Mobile No.-9460221084
E-Mail-arun.omtc@gmail.com
Website: www.overseasmintech.com

AUTHORISATION

M/S Govinda Gopal Infra Solutions Pvt. Ltd., hereby authorise M/S-Overseas min tech Consultants, Key Person , Shri Arun Kumar Yadav, RQP No.RQP/AJM/242/2003/A, Validity 21st May, 2023 to prepare the Mining Plan including Progressive Mine Closure Plan under Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012, In respect of minor mineral of JAINPUR STONE MINE having total area of 5.26 hectare, In Village- JAINPUR, District- Mahendragarh, State- Haryana.

I request the Director General, Mines & Geology Department, Haryana, Plot no 9, I.T. Park, Sector -22, Panchkula to make further correspondence regarding submission /modification / withdrawal / re-submission and to collect the approved copies of the aforesaid Mining Plan Including Progressive Mine Closure Plan with the said recognized person on his following address: -

M/S Overseas Min-Tech Consultants
RQP/AJM/242/2003/A,
Validity 21st May, 2023
501, Apex Tower,
Tonk Road, P.O. Jaipur-302015(Raj.)
E-mail- arun@overseasmintech.com
Website-www.overseasmintech.com
Telefax- 0141-2744509, M-+91-9460221084

Place : Mahendragarh
Date :



For Govinda Gopal Infra Solutions Pvt. Ltd.

Authorised Signatory

M/S Govinda Gopal Infra
Solutions Pvt. Ltd.

OVERSEAS MIN-TECH CONSULTANTS



An ISO 9001:2008 Certified & NABET Accredited EIA Consultants
 501, 5th Floor, Apex Tower, Tonk Road, Jaipur-302015
 tel: +91-141-2744509, Fax No. 0141-2744509 (O), Mobile: +91-946022106
 E-mail: adm_omtc@gmail.com, Website: www.overseasmintech.com



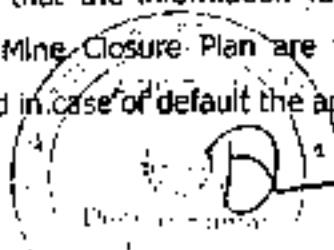
CERTIFICATE

I, Arun Kumar Yadav, Key person, CEO for M/S Overseas Min-Tech Consultants, hereby certify that,

1. "The provisions of Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2017 have been observed in the Mining Plan including Progressive Mine Closure Plan, for minor mineral of JAINPUR STONE MINE having total area of 5.26 hectare in Village- JAINPUR, District- Mahendragarh, State Haryana of M/S Govinda Gopal Infra Solutions Pvt. Ltd. and wherever specific permission is required, the applicant will approach the concerned authorities of Mines & Geology Department, Haryana, Plot no 9, I.T. Park, Sector - 22, Chandigarh for granting the permission."
2. It is also certified that the provisions of Mines Act, Rules and Regulations made there under have been observed in the aforesaid Mining Plan Including Progressive Mine Closure Plan and wherever specific permissions are required, the applicant will approach the Director General of Mines Safety.
3. It is further certified that the aforesaid Mining Plan Including Progressive Mine Closure Plan is prepared as per the copies of the records and documents provided by the licence holder and information given as per discussions held with applicant's representative.
4. It is also certified that the information furnished in the aforesaid Mining Plan including Progressive Mine Closure Plan are true and correct to the best of my knowledge & belief and in case of default the approval would be withdrawn.

Place : Jaipur

Date:



ATM
 M/S Overseas Min-Tech Consultants

RQP/AJM/242/2003/A,

Validity 21st May, 2023

CERTIFICATE

1. It is certified that the provisions of the Mines Act, Rules and Regulations made there under have been observed in the Mining Plan including Progressive Mine Closure Plan for Minor mineral of JAINPUR STONE MINE having total area of 5.26 hectare, in Village- JAINPUR, District- Mahendragarh, State- Haryana of M/S Govinda Gopal Infra Solutions Pvt. Ltd., and wherever specific permissions are required, the applicant will approach the Director General of Mines Safety. Further, the standards as prescribed by Director General of Mines Safety in respect of miner's health will be strictly implemented.

2. The Mining Plan including Progressive Mine Closure Plan for Minor mineral of JAINPUR STONE MINE having total area of 5.26 hectare in Village- JAINPUR, District- Mahendragarh, State- Haryana of M/S Govinda Gopal Infra Solutions Pvt. Ltd., complies all the statutory Rules, Regulations, Orders made by the Central Government or State Government, Statutory organizations, Court etc. and have been taken into consideration. Wherever any specific permission is required, the applicant will approach the concerned authorities.



Place : Mahendragarh (HR)

Date :

For Govinda Gopal Infra Solutions Pvt. Ltd.

Authorized Signatory

M/S Govinda Gopal Infra
Solutions Pvt. Ltd.

DECLARATION

1. The Mining Plan including Progressive Mine Closure Plan, for Minor mineral of JAINPUR STONE MINE having total area of 5.26 hectare in Village- JAINPUR, District- Mahendragarh, State- Haryana of M/S Govinda Gopal Infra Solutions Pvt. Ltd. has been prepared in full consultation with me and I understand its contents and agree to Implement the same in accordance with law and in case of default the approval would be withdrawn.
2. It is further declared that during the pendency period of the approval of above said document or thereafter if any change occurs in the name and address of applicant, It will be informed promptly.

Place : Mahendragarh (HR)
 Date :



For Govinda Gopal Infra Solutions Pvt. Ltd.

[Handwritten Signature]
 Authorised Signatory

M/S Govinda Gopal Infra
 Solutions Pvt. Ltd.

UNDERTAKING

M/S Govinda Gopal Infra Solutions Pvt. Ltd. for Minor Mineral of JAINPUR STONE MINE having total area of 5.26 hectare in Village- JAINPUR, District- Mahendragarh, State Haryana , hereby undertake that all the commitments so made in the aforesaid Mining Plan including Progressive Mine Closure Plan by the RQP, M/S Overseas Min-Tech Consultants RQP/AJM/242/2003/A, Validity 21st May, 2023 to be deemed to have been made with my knowledge and consent and as such shall be acceptable to me and binding on me in all respects.

M/S Govinda Gopal Infra Solutions Pvt. Ltd., hereby also undertake that all the measures proposed in the Mining Plan including Progressive Mine Closure Plan of Minor mineral of JAINPUR STONE MINE having total area of 5.26 hectare in Village- JAINPUR, District- Mahendragarh, State- Haryana will be implemented in a time bound manner from the date of approval of this Mining Plan including Progressive Mine Closure Plan as proposed.

Place : Mahendragarh (HR)

Date :



For Govinda Gopal Infra Solutions Pvt. Ltd.

[Signature]
Authorized Signatory

M/S Govinda Gopal Infra
Solutions Pvt. Ltd.

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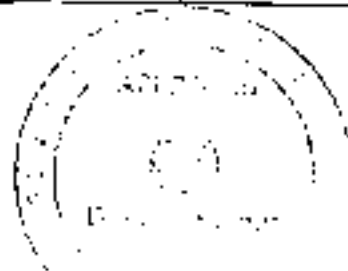


LIST OF ANNEXURES

Sl. No.	PARTICULARS	ANNEXURE NO.
1	RQP Certificate	I
2	A Copy of LOI	II
3	Khasra Map	III

LIST OF PLATES

S. No.	Particulars	Plate Number
1	Location Plan	1
2	Key Plan	2
3	Surface Plan & Sections	3
4	Surface Geological Plan & Sections	4
5	Year wise Development Plan & Sections	5
6	Progressive Mine Closure Plan	6
7	Conceptual Plan	7
8	Environment Plan	8



INTRODUCTION

M/s Govinda Gopal Infra Solutions Private Limited, through Shri Sachin Kumar, 212 DLF Corporate Greens, SPR Rd, Sector-79A, Gurgaon 122004 offered the highest bid through the e-auction held on 25/03/2022. The Director General, Mines and Geology Haryana, accepted the highest bid in respect of minor mineral mine of stone at village "Jainpur" having tentative area of 5.26 ha. offered by the applicant M/s Govinda Gopal Infra Solutions Private Limited.

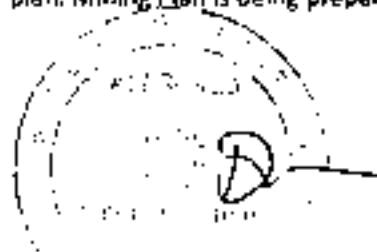
Letter of intent was issued on dated 20.04.2022 with letter vide no. Memo no. DGM/HY/ML/Jainpur/2022/2711 in favour of M/s. Govinda Gopal Infra Solutions Private Limited. (Annexure-II)

The mining lease area falls in Khasra No. 11//6,7,8,9,12,13,14,15,16,17,18,19, 12//9,10,11,12 of village Jainpur, District-Mahendragarh and having an area of 5.26 Hectare.

The period of the contract shall be 10 year and the same shall commence were the date of grant of environmental clearance by the competent authority and the Consent to operate (CTO) by state pollution control Board whichever is later or on expiry of the period of 12 months from the date of issue of LOI whichever is earlier.

As per provision of Haryana Minor Minerals Concession, Stocking, Transportation of mineral & prevention of Illegal Mining Rules-2012 and also as required under Para 3(XVI), of Letter of Intent, the allottee has appointed and authorized Shri Arun Kumar Yadav (RQP) to prepare a Mining Plan including Progressive Mine Closure Plan.

DGPS & Drone Survey was carried on dated 30.06.2022 and collected the relevant data for prepare the Mining Plan including progressive mine closure plan. Mining Plan is being prepared for the next five year.

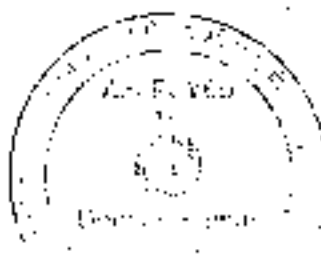


M/s. Govinda Gopal Infra Solution Private Limited (Area- 5.26).

CHAPTER-1

1.0: GENERAL INFORMATION


[a]	Name of lease holder:	M/s. Gownda Gopal Infra Solutions Private Limited
	Address:	Through Sh. Sachin Kumar, 212, DLF Corporate Greens, SPR Road, Sector-74A,
	District:	Gurugram
	State:	Haryana
	Pin code	122004
	Phone & Mobile No.	
[b]	Status of Lease holder:	Private Sector Undertaking
[c]	Minerals which are included in prospecting licence:	Minor Mineral Stone
[d]	Minerals which are included in the lease deed	This is the fresh mining area
[e]	Name of Qualified Person who prepared Mining Plan and his qualifications & experience	Arun Kumar Yadav Mining Engineer Address: 501,5th Floor, Apex Tower, Tonk Road, Jaipur-302015 Telefax:0141-2744509(O) Mobile No.: +91-9460221084 E-Mail: arun.emtc@gmail.com



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CHAPTER-2

2.0 LOCATION AND ACCESSIBILITY

(a)	Lease Details (Fresh Mining area)			
	Name of Mine/Applied area:		Jainpur Stone mine	
	Lease No. TC No. & Mine Code		Nil	
	LOI Issue Date		20.04.2022	
	Name of lease holder		M/s. Govinda Gopal Infra Solutions Private Limited	
	Location of mine /area		Jalpur	
	Postal Address		212, Tower2, DLF Corporate Greens, Sector 74A, Gurugram, Haryana-122004	
	Email ID		contact@gginfrasolution.com	
	Phone No.			
Fax		-		
(b)	Details of applied/ lease area with location plan- (type of land- reserve, forest, protected forest, other forest, waste land, grazing land, agriculture land and others to specify)			
(i)	Forest		Non-forest	
	Forest (specify)	Area in ha.	Type of Land	Area in Ha.
	Nil	Nil	(i) Waste Land	Nil
			(ii) Grazing Land	nil
			(iii) Agricultural	5.26
			(iv) Others (specify)	Nil
	Total lease area/applied area		5.26 hectare	
District & State		Mahendragarh & Haryana		
Taluka		Narnaul		
Village		Jainpur		
(ii)	Whether the area falls under CRZ? If yes, details thereof along with the permission from CRZ authorities and whether it is in accordance with the provisions of Rule 3(2) of Atomic Minerals Concession Rule 2016		No 	
(iii)	Existence of public road/railway line, if any nearby and approximate distance		<ul style="list-style-type: none"> The allotted area is situated at Narnaul is connected by all-weather pitch roads to Delhi via Rewari in east and to Khetri via Nizampur in west. It is also connected by all-weather roads with Singhana, Mahendragarh, Bhiwani and Kotputli (Raj.) via Nangal Choudhary. 	

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		<ul style="list-style-type: none"> The nearest railway station is Nizampur on Rewari- Phulera (Broad Gauge) line of North Western Railway which is located at a distance 18 km NW 	
(iv)	Toposheet No. of Survey of India Map	54N/1	
	Latitude & Longitude of all corner boundary point/ pillar, Fixed reference point (FRP)	Latitude	Longitude
	Pillar No.	Latitudes	Longitudes
	1	27°54'44.66"	76°5'12.905"
	2	27°54'45.097"	76°5'11.457"
	3	27°54'44.506"	76°5'11.308"
	4	27°54'44.552"	76°5'3.083"
	5	27°54'50.459"	76°5'3.106"
	6	27°54'50.387"	76°5'17.839"
	7	27°54'46.446"	76°5'15.371"
	8	27°54'46.46"	76°5'12.916"
(C)	<p>Attach a general location map showing area and access routes. It is preferred that the area be marked on the survey of India topographical map or a cadastral map or forest map as the case may be. However, if none of these are available, the area may be shown on an administrative map. Map is annexed as Plate No.2.</p>		



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CHAPTER-3

3.0 GEOLOGY AND EXPLORATION

3.1 Briefly describe the topography, drainage pattern, vegetation, climate, and rainfall data of the area applied/mining lease area

(a) Physiography:

The area allotted for mining is located 8.0 Km. North-West of Nangal Chaudhary. The allotted area for mining is having flat terrain with some undulations. It comprises of Quartzite/Stone along with associated minor minerals as the main country rock. The highest elevation of the surface area is 339 mRL and lowest elevation is 330 mRL. There is no protected or reserved forest in the lease area. General drainage pattern is towards North Eastern part of the allotted area. There is no habitation within allotted area.

(b) Vegetation

The vegetation of the allotted area is scanty and includes thorny shrub and bushes with scattered and rare large trees. Babul (*Acacia arabica*), Meem (*Melia indica*), Pipal (*Ficus religiosa*), Shisham (*Delbergia sisso*) are the main trees of the area.

(c) Climate and Rainfall

The climate of the Mahendergarh district is classified as tropical steppe, semi-arid and hot which is mainly dry with very hot summer and very cold winter except during monsoon season when moist air of oceanic origin penetrates into the district. The hot weather season starts from mid-March to last week of June followed by the South-West monsoon which lasts up to September. The transition period from September to October forms the post-monsoon season. The winter season starts late in November and remains up to first week of March. The normal annual rainfall of the district is 420 mm which is unevenly distributed over the area for about 22 days. The South West monsoon sets in from last week of June and withdraws in end of September, contributed about 85% of annual rainfall. The months of July and August are the wettest. Rest 15% rainfall is received during non-monsoon period in the wake of Western disturbances and thunder storms. Generally, rainfall in the district increases from South West to North East.

Delhi Supergroup	Ajabgarh Group	Asarwas Formation	Phyllites, slate, quartzite (locally)	
			Current bedded quartzite with phyllite	
			Stratite quartzite with slate and phyllite	
		Thanaghari Formation	Carbonaceous phyllite with ash/tuff, bands	
		Doota- Dantal Formation	Brecciated quartzite interbedded with schist and phyllite	
		Golwa- Gangutana Formation	F	Quartzite, amphibole quartzite and mica schist
	E		Impure marble, calc amphibole-schist and amphibole quartzite	
	D		Tremolite marble with quartzite, K-feldspar biotite- schist and magnetite quartzite	
	C		K-feldspar mica-schist	
			B	Garnet-schist, Kyanite- schist, banded marble and calc-silicate
		A	K-feldspar biotite schist, marble, amphibole quartzite, biotite schist	
Alwar Group	Bayal- Panchnota Formation	Cross bedded ripple marked quartzite Massive, Feldspathic, gritty quartzite, amphibolite, amphibole-quartzite, minor Marble.		

(ii) Local Geology of the area

Geologically, rocks of the allotted area are belonging to Alwar Group, Quartzite is the major litho-unit in the area. It belongs to the Bayal-Panchnota Formation which is mainly comprised of quartzite with intercalation of mica- schist, amphibole- quartzite, Minor kyanite- schist, garnet-schist, chlorite- schist, Fe-Mg amphibole- schist, impure marble, amphibolite, sillmanite- schist and porphyroblastic K- feldspar schist.

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The quartzite varies from being massive to thickly and thinly bedded and are commonly micaceous in nature. In massive varieties, bedding is indistinct and is mostly identified on the basis of partings of mica-schist or rare color banding/laminations. In general, bedding is parallel to the schistosity. The quartzite is, commonly white to dirty white and locally very fine grained, with occasional malachite stains and primary sulphides like pyrite, pyrrhotite and chalcopyrite. Impression of kyanite crystals are noted on bedding planes of quartzite from Bayal and Sohta. The quartzite exposed in the area under consideration is of Alwar & Ajabgarh groups. It is of good quality & suitable to be used as building material. As per G.S.I miscellaneous publication No. 30: Part XVIII, several quarries all along the Ajabgarh group exist in the districts of Faridabad, Gurgaon, Rohtak, Mahendergarh etc. This quartzite is being quarried for railway ballasts & concrete aggregates whereas the fissile quartzite of Mahendergarh district is used for roofing & other masonry blocks. At places, lenses of iron ore mainly magnetite occur in black quartzite whereas at some places the quartzite of Ajabgarh group in the area is weathered and formed sand, which is being used as Bajri in construction work.

To understand the structural configuration of the allotted area, surface geological mapping has been done on a scale of 1:1000. Geological cross-sections and longitudinal section have been prepared on a scale 1:1000.

3.3 DETAILS OF EXPLORATION

(a) Already Carried out in the area

This is the fresh mining lease area no previous exploration was carried out within the mining lease area. But as per previous geological field studies (quartzite) stone are exposed at some places.

(b) Proposed to be carried out

The mineral building stone (Quartzite) is exposed in some part of the area, so there is no need of further exploration in this area.

3.4 METHOD OF ESTIMATION OF RESERVES

In the allotted area mineral stone along with minor minerals is exposed in the form of Stone at various places which indicates that the complete area has been mineralized for the mineral Stone along with associated minor minerals. Besides, following points have been considered for reserves calculation.

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- i. In the allotted area, the mineral is exposed at the top most part of the general surface level at the highest altitude of the area is 339 mRL and lowest altitude is 330 mRL. So, the occurrence of mineral is considered for total thickness of mineral exposed under proved category of reserve is 100 m.
 - ii. The further 20 m depth is considered for probable category of reserves below the proved category.
 - iii. Similarly, further 5 m depth is considered for possible category of reserves below the Probable category.
 - iv. Bulk Density of Stone and associated minor minerals is taken as 2.5 tones /m³.
- Based on the mining of Stone Quarrying in nearby the allotted area, the total recovery of Stone along with associated minor minerals as considered 95% and rest 5% as mineral rejects.

(a) Reserve estimation: -

Considering the above parameters and exposures observed in the existing pits in the allotted area, the surface geological plan and geological cross-sections & longitudinal section are prepared on a scale 1:2000. Accordingly, the reserves for Stone along with associated minor minerals have been estimated on cross-sectional area method.

(b) Calculation of Geological Reserve & Mineable Reserve under proved, probable, & Possible category

Geological reserve

Proved Reserve					
Section	Section Area	Influence length	Volume	Bulk density	Tonne
A-A'	20592.59843	148	3047704.568	2.5	7619261.42
B-B'	7514.941392	53	398291.8938	2.5	995729.7344
C-C'	20923.73394	70	1464661.376	2.5	3661653.439
D-D'	14558.64749	117	1703361.756	2.5	4258404.39
				Total	16535048.98
Probable Reserve					
Section	Section Area	influence length	Volume	Bulk density	Tonne
A-A'	4076.0544	148	603552.0512	2.5	1508880.128
B-B'	1426.9472	53	75628.3016	2.5	189070.504
C-C'	3888.7296	70	272211.072	2.5	680527.68
D-D'	2688.73472	117	314581.9622	2.5	786454.9056
				Total	3164933.218
Possible Reserve					
Section	Section Area	Influence length	Volume	Bulk density	Tonne
A-A'	1019.5136	148	150888.0128	2.5	377220.032
B-B'	356.7368	53	18907.0504	2.5	47267.626

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C-C'	972.1824	70	GRDS: 768	2.5	170131.92
D-D'	622.18369	117	78645.49056	2.5	196613.7264
				Total	791233.3044

Total Geological Reserve = (Proved+ probable & possible)
 = (16535048.98 + 3164933.218 + 791233.3044) = 20491215.51 tonne

Mineable Reserve

Mineable reserves have been estimated by excluding the reserves blocked under 7.5 statutory barriers and due to formation of systematic benches up to Ultimate Pit Limit. The proposed mining is slicing of general surface level by open cast fully mechanized method.

Proved Reserve					
Section	Section Area	Influence length	Volume	Bulk density	Tonne
A-A'	14773.45195	148	2186470.889	2.5	5466177.222
B-B'	1819.009472	53	96407.502	2.5	241018.755
C-C'	14415.56782	70	1009089.748	2.5	2522724.369
D-D'	8629.454369	117	1009646.161	2.5	2524115.403
				Total	10754035.75
Probable Reserve					
Section	Section Area	Influence length	Volume	Bulk density	Tonne
A-A'	1937.950896	148	286816.7326	2.5	717041.8315
B-B'	0	53	0	2.5	0
C-C'	1638.181888	70	114672.7322	2.5	286681.8304
D-D'	427.40208	117	50006.04336	2.5	125015.1084
				Total	1128738.77
Possible Reserve					
Section	Section Area	Influence length	Volume	Bulk density	Tonne
A-A'	433.5319519	148	64162.72888	2.5	160406.8222
B-B'	0	53	0	2.5	0
C-C'	358.589616	70	25101.27312	2.5	62753.1828
D-D'	55.89472	117	6539.68224	2.5	16349.2056
				Total	239509.2106

Total Mineable Reserve = (Proved+ probable)
 = (10754035.75 + 1128738.77)
 = 11882774.52 tonne

The mineral reserves are computed as per UNFC. The reserves are as follows:

Total Mineral Resources (A+B)	Code	Reserves in tonne
a. Mineral Reserves		
Proved Mineral Reserves	111	10754035.75
Probable Mineral Reserves	121 & 122	1128738.77

b. Remaining Mineral		
Feasibility Mineral Resources	211	0 MT
Prefeasibility Mineral Resources	221 & 222	8698440.985 MT
Measured Mineral Resources	311	Nil
Indicated Mineral Resources	332	Nil
Inferred Mineral Resources	333	Nil

Details of UNFC classification

UNFC is a three-digit code-based system, the economic viability axis representing the first digit, the feasibility axis the second digit and the geological axis the third digit. Each digit provided. Codes 1, 2 and 3 in decreasing order. The highest category of resources under UNFC system has code (111) and for lowest category the code is (334).

Code (111): This code is provided for the economically mineable part of the measured mineral resources (proved category reserves).

Code (121): This code is provided for the economically mineable part of the indicated mineral resources (probable category reserves).

Code (211): The part of the measured mineral resources (proved category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 45 meters from permanent structure.

Code (222): The part of the indicated mineral resources (probable category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 45 meters from permanent structure.

Code (333): Tonnage, Grade and mineral contents can be estimated with low level of confidence and resources are also inferred from geological.

Life of mine

Total mineable reserve for life of mine is **11882774.52 MT (Proved + Probable)**

The Average Annual Production is

The Total Production of First Five Years will be **11479793.73 MT of ROM.**

Remaining Mineral = Mineable reserve – Production for the First

= 11882774.52 MT - 11479793.73 MT = 402980.8 MT

Production of Mine after the first five year will be 10,00,000 MT & will help the Mine to last for 4 more years.

Hence the total life of Mine will be 5+4= 9 years.

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4.0 METHOD OF MINING

4.1 Present Method of Mining: -

It is a case of fresh mining lease area. The actual mining will be allowed to commence only after getting Environment Clearance from the Competent Authority. Presently There is no mining activities carried out by the LOI holder.

4.2 Proposed Year wise development for five Years: -

It is proposed to work the deposit for winning the Stone along with associated minor minerals by open cast fully mechanized method of mining. The mining is proposed by working from top of the general surface level by slicing in the form of bench of 10m height 7.5 m width. The year wise mine development has been proposed from top to bottom working, so that at the last stage almost complete area will be worked to recover maximum mineral and to restore the land to its optimum reclamation for future use as water reservoir. The year wise plan & sections and position of the benches at the end of each year have been prepared and given in Plate No. 5 (5A to 5E).

- During the period of first year, the work will be carried out between the sections, A-A' & B-B' at 338-310 mRL for benches as shown on Plate No. 5. The details of total quantity of mineral raised during this year are given in Table 4.0.
- During the period of second year, the work will be carried out between Sections, A-A' & B-B' at 310-290 mRL for benches shown on Plate 5. The details of total quantity of mineral raised during this year are given in Table 4.0.
- During the period of third year, the work will be carried out between the sections, A-A', B-B' & C-C' at 290-270 mRL for bench as shown on Plate 5. The details of total quantity of mineral raised during this year are given in Table 4.0.
- During fourth year, the work will be carried out between sections A-A', B-B' & C-C' at 270-250 mRL for bench as shown on Plate 5. The details of total quantity of mineral raised during this year are given in Table 4.0.
- During fifth year, the work will be carried out between sections A-A', B-B' & C-C' at 250-230 mRL for benches as shown on Plate 5. The details of total quantity of mineral raised during this year are given in Table 4.0.

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1st Year Proposed Production

Section	Section Area	Influence length	Volume	Bulk Density	Tonne
A-A'	6156.177	148	511111.1	2.5	1277777.29
B-B'	1000.002	53	50000.0	2.5	125000.00
C-C'	7000.000	70	210000.0	2.5	525000.00
D-D'	250.000	117	272250.0	2.5	680625.00
			1000000.0	Total	3056000.00

2nd year Proposed Production

Section	Section Area	Influence length	Volume	Bulk Density	Tonne
A-A'	5116.054	148	520677.1	2.5	1301680.128
B-B'	1000.842	53	53256.65	2.5	133141.6307
C-C'	3889.71	70	272779.7	2.5	680699.2192
D-D'	1100.23	117	128726.9	2.5	321817.2048
			974935.2731	Total	2437338.183

3rd year Proposed Production

Section	Section Area	Influence length	Volume	Bulk Density	Tonne
A-A'	3140.303	148	464764.8	2.5	1161912.083
C-C'	1766.561	70	123659.3	2.5	309148.154
D-D'	1955.871	117	228837	2.5	572092.4009
			817261.0552	Total	2043152.638

4th year Proposed Production

Section	Section Area	Influence length	Volume	Bulk Density	Tonne
A-A'	2814.186	148	416499.5	2.5	1041248.666
C-C'	7728.534	70	190997.4	2.5	477493.4164
D-D'	1629.754	117	190681.2	2.5	476703.0778
			798178.0641	Total	1995445.16

5th year Proposed Production

Section	Section Area	Influence length	Volume	Bulk Density	Tonne
A-A'	2488.008	148	368234.1	2.5	920585.2488
C-C'	3322.331	70	231933.7	2.5	579832.876
D-D'	1721.161	117	201325.9	2.5	503439.6276
			801503.101	Total	2003857.752

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4.4 YEAR WISE OPENCAST DEVELOPMENT

Sr. No	Year	Bench in RL	Bulk Density of Mineral (BDZ)	Top Soil Volume (Length x Width x Height) (m ³)	ROM Volume (Length x Width x Height) (m ³)	ROM Quantity (t)	Recovery (%)	Production Minn (t)
1	Year 1	330-310	2.5	62001.82	1200000	3000000	95%	2850000.0
2	Year 2	310-290	2.5	0	974935.273	2437338.18		2315471.3
3	Year 3	290-270	2.5	0	817261.055	2043152.62		1940995.0
4	Year 4	270-250	2.5	0	798178.064	1995445.16		1895672.9
5	Year 5	250-230	2.5	0	801543.101	2003857.75		1903664.9

The Kachha road passing through the lease has been proposed along the north east side of the lease boundary and is shown in Yearwise development plan & section.

4.5 DESCRIPTION FOR THE MINING LAYOUT: -

Considering 300 working days in a year;

Production per day = 10000 Tonne/day

Proposed bench height = 10m

Bulk Density of Mineral = 2.5m³/Tonne

Volume to be broken per day = $\frac{\text{Production per day}}{\text{Bulk Density of mineral}}$
 $= \frac{10000}{2.5}$

= 4000 m³

Area to be broken per day = $\frac{\text{Volume}}{\text{Bench Height}}$
 $= \frac{4000}{10}$
 $= 400 \text{ m}^2 / \text{day}$



To produce 4000 m³/ day of the mineral, it is proposed to work in three shifts of 8 hours (effective 6hr) each by using heavy earth moving machineries like Shovel/ excavator - dumper combination.

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The best match for production of 10000 MT/ day a cycle of operation by time management of Shovel/ excavator -dumper combination has been considered on the experience of such high producing mines in India as follows:-

Cycle time for Excavator:-

Excavator:-

Capacity of excavator = 1.5 m³

$$\begin{aligned} \text{Fillability} &= \text{Bucket capacity} \times \% \text{ of filling} \\ &= 1.5 \times 0.9 = 1.35 \text{m}^3 \end{aligned}$$

Swell factor for Stone is considered 1.2

$$\begin{aligned} \text{Bucket Factor} &= \frac{\text{Fillability}}{\text{Swell factor}} \\ &= \frac{1.35}{1.2} \\ &= 1.15 \text{ m}^3 = 2.8 \text{MT} \end{aligned}$$

Capacity of dumper:-24 Tonne

No. of pass required to fill one dumper = 8 Passes

Cycle time for excavator:-

$$\begin{aligned} &= \text{Spotting time of dumper} + \text{Swing time} + \text{discharge time} + \text{spotting time} \\ &= 30 \text{sec} + 20 \text{sec} + 15 \text{sec} + 15 \text{sec} = 90 \text{sec} \\ &= 1.25 \text{ minutes} \end{aligned}$$

No. of pass required to fill one dumper = 8

Total time to fill up the dumper = 8 minutes,

So in one hour there will be = 60/10 = 7 dumpers

Hence, hourly production will be = 140 Tonne

And Production / shift of 6 hours (effective) = 140 x 6 = 980 Tonne

So, production from one excavator, in two shifts working in a day will be,

$$= 980 \times 2 = 1960 \text{ Tonne/day}$$

So, no. of excavators required to produce 10000 tonne/day = 10000 / 1960

$$= 5 \text{ Say } = 5 \text{ excavators}$$

Standby excavator = 1,

So, total requirement of excavator will be = 5 + 1 = 6 excavators

Requirement of Dumpers to produce 10000 TPD Stone:-

Daily Production = 10000 Tonne

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No. of production shifts = 2 (effective 6 hours).
 Production / hour = $\frac{10000}{2 \times 6} = 830$
 MT

Dumper capacity = 24 tonne

Cycle time for Dumper: -

= Spotting time of dumper + Loading + travel time with load + unloading + return time with no load + waiting time for loading.

= 30sec + 450sec + 720sec + 120sec + 240sec + 240sec = 1800sec = 30 minutes

No. of trips per dumper / per shift = $6 \times 2 = 12$ trips

Handling of tonnage per dumper = Dumper capacity \times No. of trips/dumper

= $24 \times 12 = 288$

Total No. of dumpers require to handle 10000 tonne/day = $\frac{10000}{288}$
 = 34.7 = Say 35 Dumpers

Drilling and Blasting: -

Daily 400 m² area has to be broken to obtain the requisite production of 10000 Tonne / day of mineral Stone,

No. of holes required = Surface area required / Spacing \times Burden

= $400 \div 4 \times 2.5$

= 40 holes / day

Total meterage to be drilled = Total no. of holes \times length of holes

(including 10 % sub grade drilling)

= 40×11

= 444 m

Considering rate of penetration of drill holes in Stone = 20m / hour

So, in one shift of 6 effective hours meterage to be drilled = 120 m

No. of drill machines required = $444 \div 120 = 3.7$, say = 4

Total No. of drill machine required = 3 + 1 = 4

Blasting: -

Total quantity of explosive required per day = Proposed daily production / Powder factor

= $10000 / 15.35$

= 666.67 Say = 667 kg/day

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4.6 EXTENT OF MECHANIZATION

Presently no mining is carried out in the allotted area, so there is no machinery deployed for mining operations. To achieve the desired productivity, as proposed in the five-year mining plan period, the following machinery is proposed to be deployed for stone mining. The Machinery to be deployed and their Specifications are as follows –

The Proposed Mining Machinery is as follows:-

S. No.	Machine	No's	Make	Capacity
1.	Excavator	5+1*	L&T	1.85 m ³
2.	Dozer Crawler Mounted	1	BEML- BD355	416 hp
3.	Dumper	35+4*	Ashok Leyland	30 Tonne
4.	Wagon Drill with inbuilt Compressors	4+1*	Atlas Copco	100mm dia
5.	Air Compressor	3	Farm track	500-cfm
6.	Rock Breaker	5+1*	L&T	1.2 m ²
7.	Diesel Operated Pump	2	Kirloskar	5.0 H.P. Motor
8.	Generator	1	---	---
9.	Explosive Van	1	----	----
10.	Mini bus	1	Tata	30 Seater
11.	Bolero Jeep	1	Mahindra	7 Seater
12.	Maintenance Van	1	----	----

Standby machinery to be used in case of any breakdown.

This is a normal Practice that dumper not belonging to lessee are also allowed in the lease area for loading of the mineral stone along with associated minor minerals and dispatched to the end users. The same practices will be used in the proposed mines for dispatch of the minerals. In such a circumstances the number of dumper deployed will increase from 48 to 68, and the capacity of dumper may also change depending upon demand.

Other equipment's to be required:-

1. Jack hammer drills - 4
2. Water sprinkler - 1
3. Potable Workshop containing all the equipments for repairing including portable electric welding sets, Gas cutting arrangements, electrical equipments, such as insulators, conductors, transformers, oil circuit breaker, protective fuses & relays, control cables, flexible cables etc.
4. Exploders, circuit testers etc.

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5. Safety appliances such as fire extinguisher, safety helmets, shoes, goggles, fluorescent jackets etc.
6. Equipment & medical appliances for first aid
7. Office equipments such as computers, Xerox machine, plotter, surveyor equipments & tools, various monitoring equipments such as RDS (Respirable Dust Sampler), Sound level meter, Lux meter, Vibrometer etc.
8. A small workshop along with necessary machines & equipments for repair, maintenance and over hauling of heavy earth moving & other mining machinery.

4.7 PROPOSED RATE OF PRODUCTION WHEN MINE IS FULLY DEVELOPED:

The maximum rate of production is around 3000000 MT of Stone along with associated minor minerals. The required target is planned & will be achieved during each year & maintained thereafter.

4.8 MINERAL RESERVE AND ANTICIPATED LIFE OF MINE: -

Total mineable reserve for life of mine is 11882774.52 tons. The maximum annual production for next five year period is 3000000 tons. After completion of five year the remaining reserve will be will be utilized for next five year.

4.9 PROPOSED METHOD OF MINING: -

The method of mining will be open cast fully mechanized means in two production shifts & one maintenance shift, each of 8 hrs. Under the supervision of qualified 1st class mines manager/ mining engineer. The drilling will be continued in all the three shifts to achieve the total meter age required.

To begin with / starting of mining, any bushes/ grasses present over the site of the proposed quarry will be removed by use of dozer. The allotted area does not have any type of vegetation. Hence, cutting of tree will not arise. Ground will be first scarified and after scarification is over, all the loose scree material/ rock will be dozed with the help of Dozer so that the site will be cleaned & ready to work.

A haul road will be made from top to bottom of the general surface level for transportation of men, mining machinery and mineral. The width of the haul road will be 6 meter Maximum width of the machine plying over the haul road Haul road is to be made by drilling & blasting method. Mucking & transporting of mineral stone along with associated minor minerals with the help of excavator & dumper combination along with Dozer.

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There is negligible top soil cover in the allotted area. The height of the bench will be kept 10m and the width of the bench will be of 5m. The height and width of benches may be changed with the due permission from Director General of mines Safety. The statutory barrier along the mining lease boundary will be kept 7.5 m. as shown in Plate No's- 4, 5 & 6.

There is no habitation; permanent building or structure of permanent nature not belonging to owner which lies within 500 meter periphery of the lease area. One crusher is within 500m from periphery of the mine and permission from competent authority will be obtained before the blasting operation is performed.

The Mining of Stone along with associated minor minerals will include drilling, charging with explosive and blasting of the hole to extract the mineral. The excavated material will be loaded to the dumpers after proper sizing with the help of rock breaker. The loaded blasted material will be fed to the crusher for further preparation. Two gates (Entry gate and Exit gate) with computerized weigh machines are also proposed in the allotted area, which are shown in Plate No. 5.

Code of practice for use of heavy earth moving machinery: -

Shovel/ excavator: -

- a) Shovel/ excavator will be provided with efficient warning devices, front & rear lights and efficient brakes.
- b) Shovel/ excavator will be under the charge of a competent person authorized in writing by the manager designated as operator.
- c) No person other than the operator or his helper if any will ride on the excavator or even enter the excavator's cabin.
- d) No person will be permitted to ride in the bucket of a Shovel/ excavator.
- e) No inflammable material will be stored in the excavator housing or cab.
- f) Shovel/ excavator dippers will be lowered to the ground during greasing operation.
- g) When a Shovel/ excavator is to be moved from one point to another its boom shall be kept in strict alignment with direction of travel while the bucket/ dipper shall be held in above the ground.
- h) No Shovel/ excavator will be operated in the position where any part of the machines, suspended loads or lines are brought closer than 3 m to the exposed high voltage line.
- i) Every movement of a Shovel/ excavator shall be preceded by warning signals.

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- j) When not in use, the Shovel/ excavator will be moved to and stored on stable ground, the bucket shall be kept resting on stable ground and will never be left hanging.
- k) The Shovel/ excavator will be so spaced that there will be no danger of accident from flying & falling objects.
- l) Safety appliances, booms will be examined thoroughly once in a year.
- m) Emergency switches, safety limit switches will be examined and tested once in four months.
- n) All brakes will be tested for their operation worthiness once in a week.

The following signboards will be carried in and around the machine: -

- i. "Warning— Do Not Enter The Working Range Of The Machine".
- ii. "Lubricating Prohibited While the Machine In Running Condition"

Duties of Shovel/ excavator operator: -

- a) At the commencement of every shift the operator will personally inspect and test the machine, paying special attention to the following details: -
- b) The brakes and every warning device are in working order.
- c) Lights are in working order.
- d) The operator will neither take out the machine for work nor will he work the machine unless he is satisfied that it is mechanically sound and in efficient working order.
- e) The operator will maintained a record of every inspection made in a bond pagged book, kept for the purpose and shall sign every entry made there in.
- f) The operator will keep the cab window clean so as to ensure clear vision at all times.
- g) The operator will not operate the machine when persons are in such proximity as to be endangered.
- h) Before leaving the machine, the operator will lower the bucket to the ground.
- i) The operator will not leave his machine during the shift. Whenever, he finishes his work, he will hand over the machine to his relief or lock the excavator's cab.
- j) The operator will not allow any unauthorized person to ride on the machine.

Dumper: -

- a) Every dumper will be provided with efficient brakes.
- b) Efficient audible warning devices will be provided with the dumpers.
- c) The dumper, if required to work after daylight hours, efficient headlights and taillights will be used.

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- d) Every dumper will be under the charge of a competent person, authorized in writing by the manager.
- e) No person, other than the driver or his helper, if any, will ride on a dumper.
- f) No person will be permitted to ride in the running board of a dumper.
- g) The loaded dumpers will not be reversed on gradients.
- h) Sufficient stop blocks will be provided at every tipping point and these will be used on every occasion when material is dumped.
- i) Standard traffic rules shall be adopted and followed during movement of all dumpers. They shall be prominently displayed at relevant places in the opencast workings and haulm roads.
- j) When not in use, every dumper will be moved to and stood on proper parking places.
- k) No person will be permitted to work on a chassis of a dumper, with the body in rest position, until after the dumper body has been securely blocked in position.
- l) The mechanical wised mechanism will not be depended upon to whole the body of a dumper in a rest position.
- m) No unauthorized person will be permitted to enter or remain in any turning points.
- n) While inflating tyres, suitable protective cages shall be used.
- o) Tyres will never be inflated by sitting either in the front or on the top of the same.
- p) While the vehicle is being loaded / unloaded on gradient, the same will be secured stationary by the parking brake, and other means suitably designed stopper block, which could be placed below the tyres.
- q) At least once in every two weeks the brakes of every dumper will be tested as below: -
 - (i) Service Brake test: - The brake will be tested on a specified gradient and speed when the vehicle is fully loaded. The vehicle should stop within the specified distance when the brake is applied.
 - (ii) Parking brake test: - The parking brake shall be capable to hold the vehicle when it is fully loaded and placed at the maximum gradient. Maximum gradient of the roadway, which is permitted only for a period of at least 10 minutes.
 - (iii) A record of such test will be maintained in a bound paged book and will be signed by the competent person carrying out the test. These records will be counter signed by the engineer and manager.
 - (iv) All vehicles shall be tested and examined once at least in every 6 months.

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(vi) A notice shall be displayed outside every vehicle that "No Unauthorized Traveling".

Duties of dumper operators: -

- a) At the commencement of every shift, the operator shall personally inspect and test the machine, paying special attention to the following details:
 - b) Tyre pressure, brakes, horns and the lights are in working order.
 - c) The driver will neither take out the machine for work nor will he work the machine unless he is satisfied that it is mechanically sound and in efficient working order
 - d) The driver will maintained a record of every inspection made in a bound paged book, kept for the purpose and shall sign every entry made there in.
 - e) The driver will keep the cab window clean so to ensure clear vision at all times.
 - f) Driver will ensure that the gear is in neutral position before stopping the engine. He will park the vehicle:
 - g) In reverse gear, on level roads and down gradients.
 - h) In low gear, on up gradients.
 - i) The driver will negotiate downhill gradients in low gear, so that minimum of braking is required.
 - j) The driver will not drive too fast, avoid distractions and drive defensively.
 - k) Before crossing a road / railway line he will reduce his speed looking both directions along the road or railway line and will proceed across the road or line only if it is safe to do so.
 - l) The driver will not operate the dumper in reverse unless he has a clear view of the area behind the vehicle
 - m) The driver will see that: -
 - n) The vehicle is not overloaded.
 - o) The material is not loaded in a dumper so as to project horizontally beyond the sides of its body.
 - p) The driver will not allow any unauthorized person to ride on the vehicle.
 - q) When there is a poor visibility, the speed of a vehicle will be restricted in a manner that the braking distance is maintained shorter the distance of visibility.
 - r) The driver will not leave his machine during the shift. When he finishes his work, he will hand over the machine to his reliever or lock the excavators cab.
 - s) Code of practice for drilling machine: -

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- t) Drilling machine has to rest on leveled ground so that its crawler tracks are at least 3 meter from the edge of the bench.
- u) Before drilling is commenced the machine frame shall be brought in to horizontal position.
- v) No person will be allowed to stand behind or in front of the machine when the mast is being raised or lowered.
- w) The operator will hand over the charge to his reliever.
- x) Before a machine is moved to a new position, the ground shall be leveled off.
- y) The drilling machine and its workplace shall be well illuminated.
- z) The drilling machine shall be furnished with suitable types of fire extinguisher both inside and outside the cab.

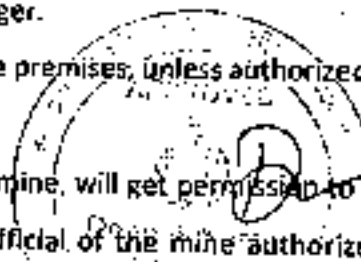
Code of practice for Dozers: -

- a) At the commencement of every shift, the operator will personally inspect and test the machine, paying special attention to the following details:
 - b) Brakes, horn and the Lights are in working order.
 - c) The driver will neither take out the machine for work nor will he work the machine unless he is satisfied that it is mechanically shown and in efficient working order.
 - d) The driver will maintained a record of every inspection made in a bound paged book, kept for the purpose and shall sign every entry made there in.
 - e) The driver will keep the cab window clean so as to ensure clear vision at all times.
 - f) No riding will be permitted on the plates of arm of dozer.

Model traffic rules: -

Rule 1: Procedure

- g) No person will drive or operate a vehicle in or about the mine unless authorized to do so for that vehicle or class of vehicle by mines manager.
- h) A private vehicle will not be driven within the mine premises, unless authorized by mines manager.
- i) Any driver, not regularly working in or about the mine, will get permission to enter the mine premises from the mine manager, or an official of the mine authorized for the purpose, prior to driving a vehicle within the mine premises, which will be prominently delineated.



Rule 2: Speed Limits

- j) Permanent or temporary speed limits, set by the mine manager, for any area of the mine or any vehicle or class of a vehicle will be adhered to
- k) Where visibility or road conditions are poor, a driver shall reduce the speed of his vehicle to the extent necessary to maintain effective control.

Rule 3: Right of Way (Traffic Management)

- l) At intersections, which are not controlled by traffic signs, all drivers should give way to the vehicle on the right, except as stated below: -
- m) All drivers will give way to emergency vehicles showing a flashing red light.
- n) Vehicles being used for grading, rolling, watering and repair of roads have right of way over all vehicles except emergency vehicles. These vehicles will show an amber flashing light.
- o) Light vehicles will at all times give way to haul dumpers and other heavy vehicles.
- p) The driver of a vehicle, having right of way over another vehicle, will not endanger himself or others through insistence on that right, if this is likely to cause a collision.

Rule 4: Parking and Standing

- q) A driver will not park or stand his vehicle in a position that will endanger other traffic on the mine premises.
- r) {A driver will not park or stand a vehicle opposite another vehicle on haul road.
- s) A driver will not park or stand his vehicle within 30 meters of the working area of the mobile equipment, or where his vehicle cannot be clearly observed.
- t) A driver will not park or stand his vehicle within the area of swing of the dragline, without first obtaining permission from the operator.
- u) A driver, before leaving his vehicle, shall ensure that the vehicle is secure, that parking brakes have been applied, and that all implements have been lowered. If circumstances dictate that a heavy vehicle must be parked on a grade, then the wheels should be chocked, and the steering turned off centre.
- v) A driver of a vehicle will, before moving from a parked position, ensure that its path is free of any obstruction and/ or personnel.
- w) A driver of a light vehicle will observe the following rules while parking his vehicle: -
 - Stop engine;
 - Leave vehicle in first or reverse gear;

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- Apply load back.
- Not park in front of or behind the loading area.
- Not park within 10 meters of the shaft or fan shaft.
- If, for essential reasons, an operator is required to park adjacent and in close proximity to a building, the following conditions shall be observed: that the driver of light vehicle challenge that the operator of the heavy unit or shovel excavator is fully and clearly aware of his intentions, and has his permission to proceed.
- Check the wheels, if parked fencing is up or down a slope.

Rule 5: General

- Vehicles will not be driven over electric cables, air hoses or water lines unless these are properly protected.
- Seat belt will be provided for the operators' personnel safety. They are to be worn at all times while the vehicle is operating.
- Passenger will not be carried on any vehicle, unless seated in approved seating, or where authorized for training purposes by the mine manager.
- A caution sign or hazard lights are to be placed at the front and rear of any vehicle which is being towed, or which has been broken down and is obstructing the roadway.
- Operators and drivers are responsible for cleanliness, oil and water checks, tyres, and fuel, for the machines and vehicles under their control.
- Operators and drivers are responsible for ensuring that their vehicle is correctly illuminated during hours of darkness.
- Headlights are to be dipped when approaching other traffic or mobile equipment in working areas.
- All earth moving equipment's will sound blast horn before moving off from parked position.
- No smoking or naked lights are permitted during re-fuelling and the checking of batteries.
- Dumpers are to be loaded in such a manner that spillage is minimized. Loads should be centralized to maximize stability. Loads, which have an excess of 1.2 meters, shall be clearly marked by a red flag during day and red light at night. All loads will be made secure for travel.

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- The driver will make sure that the vehicle has adequate clearance, particularly when reversing, parking, passing other vehicles and units, or passing stationary and static equipment.

Rule 6: Overtaking

The driver of the vehicle may overtake another vehicle with due caution, provided that

The speed limit is not exceeded.

There is sufficient visibility of the road ahead

The vehicles are clear of any road intersection or junction

No overtaking will be permitted in the vicinity of road dividers

While driving behind the lead truck the driver will ensure that he is visible in the rear view mirror until he puts off or overtake.

Rule 7: Signs

- All signs are to be obeyed.
- Temporary signs will be removed immediately after their use is over.
- Warning signs are to be noted at all times.

Rule 8: Mechanical condition of vehicles

- The drivers of each heavy vehicle in use will at least, daily examined his machine to ensure that it is in safe working order and make a written record of his observations of such examinations.
- The driver of any vehicle will report, to his supervisor, any defect in the vehicle as well as any damage to the vehicle or injury to himself arising out of a vehicle incident of the mine.

During Mine Operation

Total Capacity of Mine	: 30,00,000
No. of working days	300
Extraction and transportation of mineral	: 10000 MT/day
Working hour per day	24
Truck Dumper Capacity	: 24 Tonnes

Conclusion

Not much impact will be there on the local transport as only 24 no. x 35 trips / day x 2 (up/down) = 1680 dumpers/ day will be required for transport of minerals from mine. The LOS value from the proposed mine may be "Good" for all three state highways. So, the additional load on the carrying capacity of the concern roads is not likely to have any significant adverse effect.

Fencing: -

1. Fencing will be erected & maintain around the excavation.

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2. Opencast workings, which is temporarily or permanently out of use and any place in or about the excavation which is dangerous, shall be completely filled in or kept securely fenced.
3. Where, any haulage road passes over a public road, suitable gates shall be provided to prevent danger from hauling equipment's. Every such gate shall be fitted with a danger signal & when a natural light will be sufficient, it will also have the warning lamps.

Pumping & Drainage System: -

Presently, the excavation is proposed for top surface level cutting which is above ground level, accordingly during the 1st year working, the mining operations are restricted to 337 mRL by slicing of general surface level, hence no pumping will be required. Mining is not proposed below the water table. Hence, the requirement of pumping will be from 2nd year onwards for rainy water. Average rainfall of the area is 420mm for about 22 days.

Average, total water accumulated per day during the monsoon will be around 1500m³ / day. Hence, the capacity of the sump shall also be around 1500m³. The pump in this case is proposed to be multistage centrifugal pump. The lowest point in the mine is slanted in such a manner that water is accumulated at a corner point at the bottom most place from where water will be pumped out.

Conceptual Mining plan

The conceptual Mining Plan has been prepared. It is proposed to work the deposit by forming benches of the general surface level during the first year of mining and till the end of lease contract to exploit the mineral to its fullest extent. Accordingly, in the beginning of the lease period for the first five years as give in the para 5.3, the proposed maximum planned production is 3000000 MT/Annum.

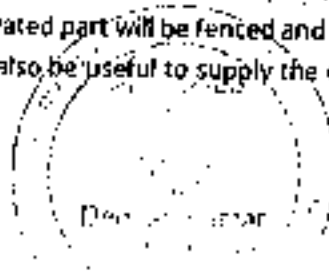
Ultimate Pit Limits

It is proposed to work the deposit from the top to bottom of the general surface level. Accordingly, the Ultimate Pit Limit has been drawn up to the 730 mRL (refer Plate No. 3)

Ultimate size of the pit: -

S. No.	Length (In m)	Width (In m)	Depth (In m)
1.	365	170	130 (from ground level)

Proposed ultimate pit angle is 70 degree as the rock is competent enough to make the slope stable. There is no overburden or mineral rejects. Excavated part will be developed as water reservoir, which will recharge the ground water table. Excavated part will be fenced and secured to stop the inadvertent entry. Accumulated rainwater will also be useful to supply the drinking water to the nearby residents & for agricultural purposes.



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CHAPTER- 5**BLASTING**

The mineral is hard and will require drilling & blasting. It is proposed to produce boulders of medium size for which the holes of 110mm diameter will be drilled by wagon drills. The blast blasting parameters are as under :-

Burden :-

Burden is defined as the shortest distance to relief at the time the hole is detonated in any blasting operation. It is the most critical parameter. If burden is very little, the rock will be thrown to a considerable distance from the face, air blast level will be high and excessive fines will be produced. Too much burden will produce severe back break, hanging of face and shattering of the rock wall.

Therefore, Spacing shall be 1.5 times the Burden.

So, Spacing will be = $2.5 \times 1.5 = 4m$.

Subgrade drilling is proposed 10% of the bench height therefore total drilling will be 10 meter (Bench height) + 1 meter (Subgrade) = 11 meter

1. Spacing	:	4 m
2. Burden	:	2.5 m.
3. Depth of hole	:	11 m.
4. No. of row	:	2
5. No. of hole per round	:	40
6. Charge per hole	:	16.67 Kg
7. Wt. of Cartridge	:	2.78 kg.
8. No. of Primary Cartridge / hole	:	1
9. No. of round per day	:	1
11. Powder Factor	:	15.35 tonnes /Kg

The parameters are considered for the variable annual production of Stone along with associated minor mineral during the first five years. The deck charging of 2 to 3 deck is proposed for better fragmentation by double row blast and single blast in a day.

TYPE OF EXPLOSIVE TO BE USED

- Slurry Explosive
- Emulsion Explosive
- Electric Delay Detonator

STORAGE OF EXPLOSIVE

The mining Operations will require regularly 667 Kgs of explosives for blasting of 40 holes. Not more than 40 holes will be blasted at a time in one shot.. Therefore, the requirement of

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explosives will be made with permission of Chief Controller of Explosives. There is no proposal to have Magazine of explosives at the mine site because the complete area is mineralized so in the interest of mineral conservation and its full utilization, the proposed explosive magazine will be constructed outside the lease area as approved by the competent authorities. Following precautions will be taken while transporting the explosive in bulk:-

Transportation of the explosives from the magazine to priming station or the site of blasting will not be done except in the daylight, and in the original packing cases. The quantity of explosives transported at one time, in the site of blasting, will not exceed the actual quantity required for use in one round of shots, and not more than 30 minutes before the commencement of charging of the hole.

No mechanically propelled vehicle will be used for the transport of the explosives, unless it is of a type, approved in writing by the Chief Inspector, provided that a Jeep or such type of approved vehicle is to be used for the transport of detonators from the magazines to the priming stations, subject to the following conditions:-

- Not more than 200 detonators are transported in a vehicle at a time;
- The detonators are to be packed suitably in a wooden box.
- The wooden box, containing detonators, is to be placed inside an outer metal case of a construction approved by the Chief Inspector.
- The outer metal case will be suitably bolted to the floor of the vehicle, or otherwise fixed in a wooden frame, so that the container is not displaced while the vehicle is in motion.
- No person will ride on the rear portion of the vehicle.
- Vehicles, used for transporting explosives, will be substantially constructed, in good working order and have tight beds, to prevent the explosives from falling off the vehicles.
- Every vehicle, used for the transport of explosives, will be marked or placarded, on both sides and ends, with the word EXPLOSIVES in red letters, not less than 15 cm high, on a white background.
- Every mechanically propelled vehicle, transporting explosives, will be provided with not less than two fire extinguishers (One of Carbon Tetra Chloride type, for petroleum fire, and other of Carbon Dioxide under pressure type, for electrical fire), suitably placed for immediate use.
- The vehicle, used for the transport of explosives, will not be overloaded, and in no case will the explosive cases be piled higher than the sides of its body.
- Explosives and detonators will not be transported in the same vehicle.
- The metal parts of every vehicle, carrying explosives that may come in contact with containers of explosives will be suitably covered with wood, tarpaulin, or other suitable material.
- Explosives, carried on vehicles, will be so secured /fastened as to prevent any part of the load from becoming dislodged.
- No person, other than the driver and his helper (not below 18 years of age) will ride on a mechanically propelled vehicle, used for the transport of explosives.
- A vehicle, loaded with explosives, will not be left unattended.

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- The engine of a vehicle, transporting explosives, will be stopped, and the brakes set securely, before it is loaded or unloaded or left standing.
- The transfer of the explosives from the magazine will be so arranged that no undue delay will occur between the time the explosives leave the magazine and the time they are properly stored in the designated storage places, or distributed to the point of use.
- A vehicle, transporting explosives, will not be driven at a speed exceeding 25 km/hr.
- A vehicle, loaded with explosives, will not be taken into a garage or repair shop, and will not be parked at a congested place.
- A vehicle, transporting explosives, will not be refueled except in emergencies, even when its engine will be stopped, and other precautions taken to prevent accidents.
- No trailer will be attached to a vehicle, transporting explosives.
- Every vehicle, used for transporting explosives, will be carefully inspected once in every 24 hours by a competent person to ensure that: -
 - Fire extinguishers are filled and are in place.
 - The electric wiring is well insulated and firmly secured.
 - The chassis, engine, and body are clean and free from surplus oil & grease.
 - The fuel tanks & feed lines are not leaking.
 - Lights, brakes and steering mechanics are in good working order.
- A report of every inspection, made under (a) above, will be recorded in a bound paged book, kept for the purpose, and will be signed and dated by the competent person making the inspection.
- All operations, connected with the transport of the explosives, will be conducted under the personal supervision of an foreman, solely placed in charge of the blasting operations in the mine.
- The shotfirer / blaster will personally search every person engaged in the transport of explosives, and will satisfy himself that no person so engaged has, in his possession, any cigar, cigarette, biri or other smoking material, or any match or any other apparatus of any kind, capable of producing a light, flame or spark.

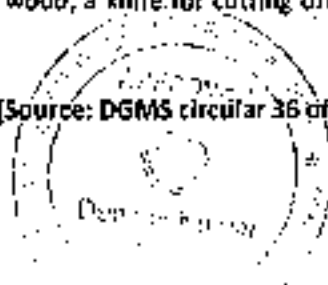
SAFETY PRECAUTIONS:-

- The position of every deep- hole to be drilled will be distinctly marked by the foreman so as to be readily seen by the drillers
- No drilling will be commenced in an area, where shots have been fired, until the blaster has made thorough examination at all places, including remaining butts of the old deep-holes, for unexploded charges that the drill may strike.
- No drill or bore rod or pick will be inserted in the butts of old deep- holes, even if the examination under clause (a) has failed to reveal the presence of explosives.
- Drilling and charging of deep- holes will be carried out in the same area at the same time.
- Drilling operations will not be carried on simultaneously on two benches, at places directly one above the other.

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- Shots shall not be fired except during hours of day – night.
- Shotfiring shall be carried out during the rest interval.
- Before a shot is charged, stemmed or fired, it is ensured that all the persons have taken proper shelter & also take suitable steps to prevent any person approaching the shot.
- Siren will be blown over the entire area falling within a radius of 500m from the place of firing.
- Two persons will be posted, one in either direction at the two extreme points of the road lying within the danger zone.
- **During the approach and progress of an electric storm. The following precautions shall be taken: -**
 - No explosives, particularly detonators, shall be handled.
 - If charging operations have been commenced, the work shall be discontinued until the storm has passed.
 - All exposed wires shall be coiled up and if possible placed in the mouth of the holes, or kept by something other than a metal plate.
 - All wires shall be removed from contact with the steel rails or a haulage track so as to prevent the charge being exploded prematurely by a local strike in the lightning.
 - The preparation of charges and the charging & stemming of holes will be carried out by or under the personnel supervision of a competent person – blasters.
 - The manager shall fix, from time to time, the maximum number of shots that a blaster may fire in any 1 shift.
 - The number of detonators issued to, and in the position of, a blaster during his shift shall not exceed the maximum number of shots that he is permitted to fire.
 - Shot firing tools such as electric lamp or torch, a tool made entirely of wood suitable for charging and stemming. A Scraper made of brass or wood, a knife for cutting off fuses, Crimpers, pickers shall be provided by the owner.

(Source: DGMS circular 36 of 1972)



CHAPTER- 6**MINE DRAINAGE**

The allotted area is flat terrain with some undulations and country rock is hard so the runoff water will be fast and percolation of water will be less. All the surface water will flow down towards North Eastern direction to its natural slope. During the first five years period the working will go beyond surface level but will not reach to the water table. The proposed Mining will start from top of the general surface level at 347 mRL to 338 mRL at the end of contract period, so there will be accumulation of rain water in the pit, which will be pumped out, and it will not affect the ground water table. The general ground water table in the area is between 130-140 m below the surface level.

CHAPTER - 7**DISPOSAL OF WASTE****7.1 Nature of waste: -**

Top soil is 0.5 m depth mixed with scree is present virgin area of M.L. which will be removed before mining activity & stacked separately in boundary barrier.

7.2 Disposal of Waste**Nature of Waste**

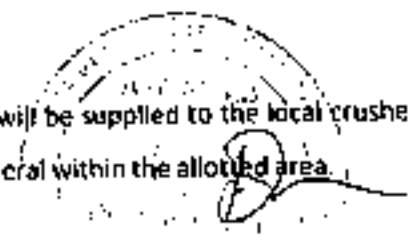
There is no generation of waste in the proposed mining; hence no measures will be taken.

CHAPTER- 8**USE OF MINERAL**

The Stone along with associated minor minerals as mined will be used as masonry stone, whereas the mineral rejects of about 1 to 2 % will be used for making haul road, hence there will be no need of its separate stacking. As the mineral rejects is also having market so it will also be sold. Thus, there will be no mineral rejects at the end of life of mine.

CHAPTER- 9**MINERAL BENEFICIATION**

The mineral produced will be in the boulders form, so it will be supplied to the local crushers. Hence, there will be no storage & beneficiation of the mineral within the allotted area.



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CHAPTER- 10**SURFACE TRANSPORT**

Mode of Transport of Mineral to the Dispatch Point:-

During the first five years mining plan period, the mineral produced will be loaded into trucks/dumpers, for onward transport to the consumer as well as to the crusher unit nearby the allotted area. The mine is situated very close to the link road connecting Narnaul, Dadri to Mahendergarh.

CHAPTER- 11**SITE SERVICES**

The complete lease area is mineralized so it is proposed to provide site services outside the lease area for which, land will be acquired adjoining to the lease area either on hire or on permanent basis. About 1 hectare of area will be quite sufficient to develop the site services in a building.

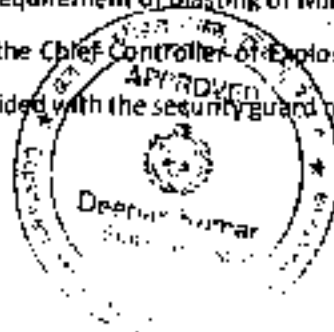
The building is proposed for following site services:-

- Mines manager's office for supervision and up keeping of records.
- A rest shelter for labours to rest during lunch period.
- Water hut of drinking water.
- A store room for keeping necessary tools.
- Vocational Training Centre.
- Canteen.
- First aid room.
- Washroom etc.

Open space for maintenance of mining machinery etc.

Two weigh bridges each of 30 tonne capacity are also proposed within the lease hold area as shown on the year wise development plan Plate No.-5A. The loaded trucks will be weighed, checked and further transported for onward dispatch. These two weigh bridges will be quite sufficient for this proposed level of production.

Magazine of the required sizes will be provided to fulfill the requirement of blasting of Mineral. The design of the Magazine shall be as per the approval of the Chief Controller of Explosives, Govt. of India. The magazine shall be properly fenced and provided with the security guard round the clock.

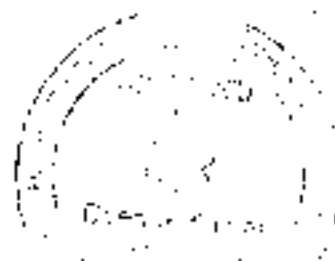


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CHAPTER- 12**DETAILS OF EMPLOYMENT**

Requirement of Technical and other supervisory staff will be as follows for the proposed systematic and scientific mining:-

Sr. No.	Designation	Number
1	First Class Mine Manager	2
2	Second class Mines Manager	3
3	Mechanical Engineer	1
4	Electrical Engineer	1
5	Medical Officer	1
6	Security Officer	1
7	Mines Foremen	4
8	Mines Mate	3
9	Electrician	3
10	Blaster	2
11	H.E.M. Operators	120
12	Skilled Workers	15
13	Semiskilled Workers	30



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CHAPTER - 13**ENVIRONMENT MANAGEMENT PLAN****(A) BASELINE INFORMATION****(i) EXISTING LAND USE PATTERNS**

The existing land use of the area is barren land of a hill having no top soil and vegetation.

The existing land use due to mining carried out by the previous lessee is as follows

S. No.	Particular	Present Area in Hectare
1	Area Excavated due to Mining	0.0
2	Dump of Ore/Waste/Overburden	0.0
3	Infrastructure, Roads, Building, Electric line etc.,	0.0
4	Backfilled Area	0.00
5	Area under Plantation	0.0
6	Undisturbed Area	4.65
	Total	5.26

Note: 7.5 m. safety barrier zone is include in undisturbed area.

(ii) WATER REGIME

Natural water courses do not exist in the allotted area.

a) Surface Water

There is no surface water body in the allotted area and hence there will be no effect on surface water due to mining activities.

b) Ground Water

The water table in the area is low as 130-140m from surface. The proposed excavation will reach only up to 205mRL, so it will be much above from water table.

(iii) FLORA & FAUNA

Few local bushes can be seen in the area. Moreover there is no demarcated/protected forest close to the allotted area. The protected wildlife animal in & around the allotted area is also not present.

(iv) CLIMATIC CONDITION

The climate of the Mahendragadh district is classified as tropical steppe, semi-arid and hot which is mainly dry with very hot summer and very cold winter except during monsoon season when

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moist air of oceanic origin penetrates into the district. The hot weather season starts from mid March to last week of June followed by the South-West monsoon which lasts up to September. The transition period from September to October forms the post-monsoon season. The winter season starts late in November and remains up to first week of March.

The normal annual rainfall of the district is 420mm which is unevenly distributed over the area for about 22 days. The South West monsoon sets in from last week of June and withdraws in end of September, contributed about 85% of annual rainfall. The months of July and August are the wettest. Rest 15% rainfall is received during non-monsoon period in the wake of Western disturbances and thunder storms. Generally rainfall in the district increases from South West to North East.

(v) HUMAN SETTLEMENT

The proposed mining activities will be carried out far away from the human settlement of village Jainpur, so there will be no impact on human settlement by the proposed mining activities. In the proposed mining, the workers will be employed from the villages surrounding within 5 km area so there will be no human settlement proposed in the allotted area.

(vi) PUBLIC BUILDING, PLACES AND MONUMENTS

No such buildings, places and monuments exist in and around the allotted area.

(vii) QUALITY OF AIR & WATER

QUALITY OF AIR

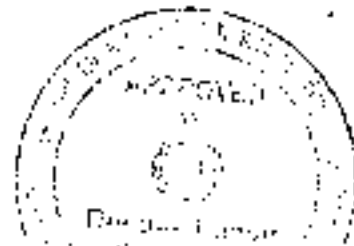
The quality of air at the allotted area is reported as fresh & Respirable.

QUALITY OF WATER

Natural watercourses exist out of the allotted area. These are serving the purpose of conveying rainwater into pond. The water table is at about 130-140m from surface in the area.

(viii) WHETHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT 1974

The whole Haryana comes under Water Act 1974.



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13.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

Impact of mining and beneficiation on environment

The land in the allotted area will degrade by proposed mining activities like pitting etc.

The degradation in the first five years is expected as follows: -

S. No.	Particular	Present Area in (Ha.)	At the end of Mining Lease
1	Area Excavated due to Mining	0.0	4.65
2	Dump of Ore/Waste/Overburden	0.0	0.0
3	Infrastructure: Roads, Building, Electric line etc.,	0.0	0.61
4	Backfilled Area	0.00	0.0
5	Area under Plantation	0.0	0.0
6	Undisturbed Area	5.26	0.0
	Total	5.26	5.26

Note:

- Plantation is proposed approx. 1.53 ha. Area (7.5 m, safety barrier zone & outside of the lease area.)
- At the end of mining lease area no virgin area remains proposed pit is converted in to water reservoir.

(I) AIR QUALITY

Due to proposed five years mining activities the air pollution will take place by drilling and blasting operation, running of transport machinery like dumpers & excavators. To reduce air pollution proposal for water spraying has already been made.

(II) WATER QUALITY

In the proposed five years mine working, there will be no proposal to utilize any surface or ground water. The water table is at 130m- 140m below the surface level in the area, whereas the proposed mining will be only up to 205mRL. So, there will be no water pollution. The water quality of the allotted area will not be affected by the mining operations. So, the quality of water will remain the same during the proposed five years mining.

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(iii) NOISE LEVEL

During the proposed mining operations there will be noise pollution due to following activities:-

- Drilling of holes and running of compressors.
- Excavation by use of excavator.
- Transportation of material by use of dumper and excavator.
- To control the noise due to above activities, regular weekly, fortnightly, quarterly & annual maintenance will be carried out for all these machineries. The operators & helpers will be provided with earplugs.

(iv) VIBRATION LEVELS

- Blasting has been proposed for the mineral excavation. Vibration due to blasting will take place but these vibrations are momentarily.

(v) WATER REGIME

There is no source of surface water in and around the allotted area. Natural water courses exist out of the allotted area. These are serving the purpose of conveying rainwater into pond. The water table is at about 130-140 m from surface in the area.

(vi) SOCIAL AND DEMOGRAPHIC PROFILE

The applicant shall spend 1% of profit for the development of the area. He donates money in the school, to poor for treatment, temple and other social work.

(vii) HISTORICAL MONUMENTS

No public building, places of monuments are exists in or nearby the allotted area, so there will be no effect by mining activities on any public building, places and monuments.

13.3 ENVIRONMENTAL MANAGEMENT PLAN**(i) Storage & Preservation of top soil**

Top soil of 0.5 m depth mixed with scree is present virgin area of M.L. which will be removed before mining activity & stacked separately in boundary barrier. Year wise proposal for reclamation of land affected by mining activities during and at the end of mining. The proposed five years mining is for slicing of Stone along with associated minor minerals. At a top of the general surface level. So there will be no reclamation and rehabilitation during the first five years of mining. (Refer Plate No. 6 & 7).

After the complete excavation of the mineral, the worked out pit will be developed as water reservoir due to absence of any filled material.

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13.4 Program of afforestation, year wise for the initial five years indicating number of plants with name of species to be afforested under different areas in hectares.

PROGRAMME FOR PLANTATION

The area is mostly rocky with very poor density of vegetation. Plantation will be carried out around the mine, to arrest the dust at source. The total allotted area is 5.26 hectare out of which 33% of the total area i.e. 1.7358 hectare has to be covered under plantation during the lease period. Accordingly, 0.35 hectare area has to be covered under plantation every year. The applicant will plant 210 saplings per year.

Schedule of plantation for the five year:

S. No.	Year of Plantation	Area in Ha.	Target of Plantation
1	I Yr.	0.35	210
2	II Yr.	0.35	210
3	III Yr.	0.35	210
4	IV Yr.	0.35	210
5	V Yr.	0.35	210

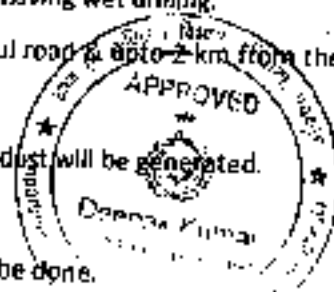
Place of proposed plantation:-

Plantation shall be done in the statutory barrier of 7.5m and piece of land that will be purchased by the applicant for the purpose of plantation.

13.5 MEASURES FOR DUST SUPPRESSION

Control of Air Pollution Due To Dust, Exhaust Emissions or Fumes During Mining or Processing Operations For Minor Mineral & Related Activities And Containing the Same Within Permissible Limits Specified Under :-

- The proposed drilling will be carried out by machines having wet drilling.
- Water spray will be done thrice in a day over the haul road upto 2 km from the end point of the mining lease during the working hours.
- Sharp edges bits will be used for drilling, so minimum dust will be generated.
- Dust respirators will be provided to the drillers.
- Proper care & frequent maintenance of machines will be done.
- At every work place where, the air borne dust generated, to be sampled and the concentration of the respirable dust will be determined semester. If any measurement at any workplace, source the concentration in excess of 50% or 75% of the available



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concentration of permissible limit. Measurements shall be carried on, at intervals not exceeding 3 months or 1 month respectively.

- Silencers will be fitted to the dumpers

National Ambient Air Quality Standards

S. No.	Pollutants	Time weighted Average	Concentration of Ambient Air	
			Industrial, Residential, Rural and Other Areas	Ecologically Sensitive Area (notified by central Government)
1.	2.	3.	4.	5.
1	Sulphur Dioxide (SO ₂), µg/m ³	Annual*	50	20
		24 hours**	80	80
2	Nitrogen Dioxide (NO ₂), µg/m ³	Annual*	40	30
		24 hours**	80	80
3	Particulate Matter (Size less than 10 µm) or PM ₁₀ , µg/m ³	Annual*	60	60
		24 hours**	100	100
4	Particulate Matter (Size less than 2.5 µm) or PM _{2.5} , µg/m ³	Annual*	40	40
		24 hours**	60	60
5	Ozone (O ₃), µg/m ³	8 hours**	100	100
		1 hours**	180	180
6	Lead (Pb), µg/m ³	Annual*	0.50	0.50
		24 hours**	1.0	1.0
7	Carbon Monoxide (CO), mg/m ³	8 hours**	02	02
		1 hours**	04	04
8	Ammonia (NH ₃), µg/m ³	Annual*	100	100
		24 hours**	400	400
9	Benzene (C ₆ H ₆), µg/m ³	Annual*	05	05

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10	Residential (D) (Day & Night)	Annual*	01	01
11	Residential (D) (Day & Night)	Annual**	05	05
12	Residential (D) (Day & Night)	Annual**	20	20

Annual: arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week, 24 hourly at uniform intervals.

- ** 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be compiled with 98% of the time in a year. 2% of the time, they may exceed the limits but not on to two consecutive days of monitoring.

[Source: CPCB notification Dated 18th November 2009]

13.6 MEASURES TO BE TAKEN TO MINIMIZE THE NOISE POLLUTION: -

Standards In Respect Of Noise

Area Code	Category of Area	Limits in db (A) Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

13.7 MEASURES TO CONTROL IMPACTS OF NOISE:-

- All the machineries including transport vehicles will be properly maintained to minimize generation of noise.
- Silencers in the machineries will be provided to reduce generation of noise.
- Drilling with sharp edges bits will minimize generation of noise.
- Control blasting will be done with proper charge of explosive to minimize noise during blasting.
- Noise source will be isolated.
- Attenuation between source & receivable points will be increased.
- Noise will be kept as a prime consideration while purchasing the machines.

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- Dense plantation in mining area will also reduce propagation of noise outside the core zone
- Optimal blast hole geometry charge will be reused
- To coincide with times of high ambient noise level, the regular blasting will be done.
- Rock breakers will be used instead of secondary blasting as far as possible.
- Blasting will be avoided under unfavorable atmospheric conditions

STABILISATION AND VEGETATION OF DUMPS

There will be no waste generation from the proposed mining of Stone along with associated minor minerals, so stabilization of waste will not be required.

TREATMENT AND DISPOSAL OF WATER FROM MINE AND BENEFICIATION PLANT

The proposed mine workings will be above the ground water table thus no measures will be required. There will be no treatment of mineral to produce effluent hence it will not require any management.

MEASURES FOR MINIMISING ADVERSE EFFECTS ON WATER REGIME

No impact will take place due to proposed mining activities on water quality also neither the mineral nor any toxic substance will be discharged to the ground water.

AFFORESTATION OF TAILING PONDS

As there is no beneficiation so tailing ponds are not proposed, hence afforestation of tailing ponds will not be required.

PREPARATION OF DUMPING GROUND FOR STACKING TOXIC MINERAL SUBSTANCE

There will be no generation of toxic substances, due to the proposed mining. So, neither the mineral nor any waste will require dumping ground for stacking the toxic mineral / substance.



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CHAPTER-14

ANY OTHER INFORMATION

Mr. Arun Kumar Yadav (Mining Engineer) assisted in the preparation of this Mining plan with Mine Closure Plan.

Place: Jaipur

Date:

Arun Kumar
ROP-21
Valid upto-21/05/23

(Arun Kumar Yadav)

ROP/AJM/242/2003/A

Validity-21 May 2023



M/s. Govinda Gopal Infra Solution Private Limited (Area- 5,26)

PROGRESSIVE

MINE



CLOSURE PLAN

M/s. Govinda Gopal Infra Solution Private Limited (Area- 5.26).

INTRODUCTION

M/s Govinda Gopal Infra Solutions Private Limited, through shri Sachin Kumar, 212 DLF Corporate greens, SPK Rd, sector-74A, Gurgram-122004 offered the highest bid through the e-auction held on 25/03/2022. The Director General, Mines and Geology Haryana, accepted the highest bid in respect of minor mineral mine of stone at village "Jainpur" having tentative area of 5.26 ha. offered by the applicant M/s Govinda Gopal Infra Solutions Private Limited.

Letter of intent was issued on dated 20.04.2022 with letter vide no. Memo no. DGM/HY/ML/Jainpur/2022/2711 in favour of M/s. Govinda Gopal Infra Solutions Private Limited. (Annexure-II)

The mining lease area falls in Khasra No. 11//6,7,8,9,12,13,14,15,16,17,18,19, 12//9,10,11,12 of village Jainpur, District-Mahendragarh and having an area of 5.26 Hectare.

The period of the contract shall be 10 year and the same shall commence were the date of grant of environmental clearance by the competent authority and the Consent to operate (CTO) by state pollution control Board whichever is later or on expiry of the period of 12 months from the date of issue of LOI whichever is earlier.

As per provision of Haryana Minor Minerals Concession, Stocking, Transportation of mineral & prevention of Illegal Mining Rules-2012 and also as required under Para 3(XVI). of Letter of Intent, the allottee has appointed and authorized Shri Arun Kumar Yadav (RQP) to prepare a Mining Plan including Progressive Mine Closure Plan.

DGPS & Drone Survey was carried on dated 30.06.2022 and collected the relevant data for prepare the Mining Plan including progressive mine closure plan. Mining Plan is being prepared for the next five year.



M/s. Govinda Gopal Infra Solution Private Limited (Area- 5.26),


CHAPTER-2

2.1 Geology of the area

(i) Regional Geology

The rocks of Delhi Super group constitute a part of the main Aravalli Range originating from Gujarat in the southwest to Haryana in the northeast. This supergroup comprises thick pile of meta-sediments having a cumulative thickness of 6000 m which is divided into an older Alwar Group and younger Ajabgarh Group. The Alwar Group is dominantly arenaceous with argillaceous intercalations while the Ajabgarh Group is dominantly argillaceous with arenaceous and calcareous components. The demarcation between the groups, in the absence of any unconformity, is based on facies variation, structural discontinuity and lithological characteristics in the rocks exposed in the adjacent state of Rajasthan. The rocks of both these groups are intruded by acid and basic intrusives. The rocks of Alwar Group in Haryana are represented by Bayal- Panchnota Formation, after the type locality in Bayal and Panchnota villages, which is equivalent to Pratap garh Formation, the youngest formation of Alwar Group in Rajasthan. The rocks belonging to this group are exposed in two sectors in south western and southeastern Haryana. In the southwestern sector these rocks are exposed as linear NE - SW trending ridges consisting of quartzite. These ridges are exposed in Bayal-Panchnota, Sareli-Tehla- Mukundpura, Ruppursarai - Narhedi, Sohla, Nimbi, Narnaul, Khodana and Kaliana areas. In the southeast, prominent exposures are found around Khori Khurd, Khori Kalan and Shikarpur. The regional strike varies from N150E-5150W to N450E-5450W with vertical to steep dips to the NW or SE. The metapelitic rocks exposed in Tosham area are associated with rhyolite and granite, and are tentatively clubbed under undifferentiated Ajabgarh Group, till further classification. The detailed stratigraphic sequence of the Delhi Super group of rocks in Haryana is given in Table -I.

Table I.0: Geological Section of the area



Super Group	Group	Formation	Lithology
		Tasing Formation	Slate with minor phyllite Phyllite, carbonaceous phyllite,

M/s. Govinda Gopal Infra Solution Private Limited (Area- 5,25).

Devi Synergism	District	Alwar	Formation	Quartzite with mica-schist	
				Phyllite, mica-schist, quartzite, biotite	
				Quartzite with mica-schist	
				Phyllite	
				Quartzite with mica-schist and phyllite	
			Thangapuri Formation	Carbonaceous phyllite with ash/truff. bands	
			Deola- Dantal Formation	Brecciated quartzite interbedded with schist and phyllite	
		Alwar Group	Golwa- Gangutana Formation	F	Quartzite, amphibole quartzite and mica-schist
	E			Impure marble, calc amphibole-schist and amphibole quartzite	
	D			Tremolite marble with quartzite, K-feldspar biotite-schist and magnetite quartzite	
	C			K-feldspar mica-schist	
	B			Garnet-schist, Kyanite-schist, banded marble and calc-silicate	
			A	K-feldspar biotite schist, marble, amphibole quartzite, biotite schist	
			Bayal- Panchota Formation	Cross bedded ripple marked quartzite Massive, Feldspathic, gritty, quartzite, amphibolite, amphibole-quartzite, minor Marble,	

(ii) Local Geology of the area

Geologically, rocks of the allotted area are belonging to Alwar Group. Quartzite is the major litho-unit in the area. It belongs to the Bayal-Panchota Formation which is mainly comprised of quartzite with intercalation of mica-schist, amphibole-quartzite, Minor kyanite-schist, garnet-

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2.3 More details are given in chapter 3 of mining Plan.

2.3.1 Mining Method

Mining will be done by open cast mechanized method. Heavy earth moving machinery will be deployed. More details are given in chapter 4 of Mining Plan.

Mineral Beneficiation

No mineral beneficiation / processing of any kind will be undertaken at mine site. So, this chapter is not applicable.

CHAPTER -3

REVIEW OF IMPLEMENTATION OF MINING PLAN INCLUDING FIVE YEAR PROGRESSIVE CLOSURE PLAN UP TO THE FINAL CLOSURE OF MINE.

This is a freshly allotted area, so review of implementation of Mining Plan including five year Progressive Closure Plan up to the final closure of mine is not applicable.



M/s. Govinda Gopal Infra Solution Private Limited (Area- 5,26).

CHAPTER -4

Closure Plan

4.1 Mined out land

This is freshly allotted area so mining activities will take place after Environmental Clearance certificate is obtained by the LOI holder.

4.2 Water Quality Management

In the proposed five years mine working, there will be no proposal to utilize any surface or ground water. The water table is at 130 m to 140 m below from the surface level, whereas the proposed mining will be only upto 205 mRL. So, there will be no water pollution. The water quality of the allotted area will not be affected by the mining operations. So, the quality of water will remain the same during the proposed five years mining.

More details will be given in chapter 13 of Mining Plan.

4.3 Air Quality management

Scientific Mining has been proposed to minimize the effect of air pollution. Sharp edges bits will be used for drilling so that minimum dust will rise. Water suppression has been proposed on the places where formation of dust can take place like, vehicular movement, drilling & blasting.

4.4 Waste management

There is no generation of waste from the mineral. More details are given in Chapter 7 of Mining Plan.

4.5 Top Soil Management

Top surface is covered with top soil their thickness is approx. 0.5m and top soil management have been discussed under para 4.4, if an

4.6 Infrastructure

Postal, S.T.D. and Telephone facility are available at Nangal Chaudhary (10.5Km), road for transportation is available up to the allotted area. Educational facilities are available at Narnaul.

M/s. Govinda Gopal Infra Solution Private Limited (Area- 5.25)

4.7 Disposal of Mining Machinery

Mining is proposed for open cast mechanized mining. Details are given in Chapter 4 of Mining Plan

4.8 Safety & Security

Safety measures to be implemented to prevent access to surface opening excavations will be taken as per Mines Act 1952, M.M.R. 1961, Mines Rule 1955 and Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012. Sides of the excavation shall be adequately benched and sloped as per regulation 106 of MMR 1961, to prevent fall of sides.

4.9 Disaster Management and Risk Assessment

If any accident takes place at mine site, workers will be immediately provided the first aid by a trained worker. It is proposed that first Aid Box will always be provided to the mining mate/ mine supervisor to attend minor injuries and one vehicle will always be present at the mines site.

4.10 Care and Maintenance during temporary discontinuance

This area is freshly granted mining lease area and all the precaution laid down in the statute during temporary discontinuance will be followed.

CHAPTER-5

ECONOMIC REPERCUSSIONS OF CLOSURE OF MINE AND MANPOWER RETRENCHMENTS.

5.1 **Number of local residents employed:** - During five years mining in allotted area generate employment potential and general financial status and socio economic conditions of approx. 50 to 60 Labour will be improved.

5.2 **Compensation:** - During five years compensation will be given as per rules.

5.3 **Satellite Occupation connected with mining industry:** Satellite occupations are not connected to the Mining operation.

5.4 **Continued engagement of employees in the rehabilitated status of mining lease area and any other remnant activities:** - Continued engagement of employees for certain mandatory activities.

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CHAPTER - 6TIME SCHEDULING FOR ABANDONMENT:

In any case, if the mine is closed due to unforeseen reasons then tentatively abandonment will be 12 months for closure.

CHAPTER - 7ABANDONMENT COST

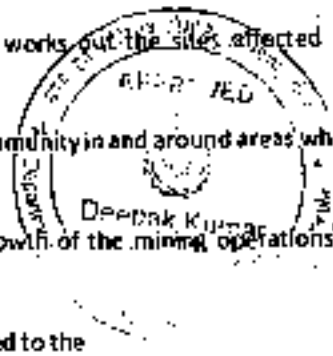
Abandonment is not proposed during five years of Mining operation. But implementation of waste management like retaining wall and afforestation is proposed as continuous process. Cost of these is around 70,000 to 80,000 Rs. Per year.

CHAPTER - 8Financial Assurance

The financial assurance depends on the category of mine. The have to give financial assurance @ Rs 15000/- per hectare of lease area put to use. The area put to use in this mine up to final closure i.e. when the mine reaches the ultimate pit limit the pit area is 4.65 hectares and the total amount of assurance works out to be Rs 69750/-. The lessee shall provide the financial assurance in the form of surety bond in consultation with appropriate Government department.

Apart from this financial assurance, a fund namely 'Mines and Mineral Development, Restoration and Rehabilitation Fund' will be established in order to meet the following objectives:-

1. Funding for restoration, reclamation or rehabilitation works out the sites affected by mining operations.
2. Provisions of the common facilities for the benefit of community in and around areas where mining activities are undertaken
3. Development of Infrastructure facilities for orderly growth of the mining operations and allied activities e.g. roads, estates, water supply etc.
4. Funding of the studies commissioned or activities related to the Mining sector e.g. survey, exploration and prospecting of minerals, procurement of equipment and machinery required to support such activities.

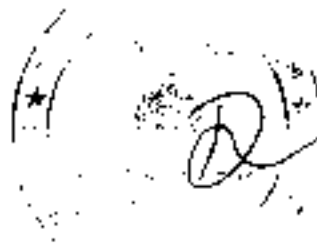


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5. Education, awareness and the training of the mineral concession holder and the staff of the department through field visits and exposure to the best mining practices.
6. Funding of expenditure incurred on implementation of any scheme of incentives that the state government may frame for recognition and awards for scientific mining undertaken with highest regards to mineral conservation, rehabilitation measures along environmental safeguards and other measures.
7. The proposed amount for Mines and Mineral Development, Restoration and Rehabilitation Fund will be equal to ten percent of the dead rent or royalty or contract money to be paid to the state Gov. in the nature of 'other charges' charges in the form of restoration and rehabilitation works and credited to the fund in addition to the amount payable to the Government on account of such dead rent or royalty or contract money.
8. The contribution shall be remitted by the mineral concession holder in instalments of dead rent or royalty or contract money, as the case may be. Such amount shall be reconciled at the close of the financial year and any differential of the amount due shall be adjusted or paid on reconciliation.
9. The Government shall also set apart and contribute five percent of the amount received by it on account of the dead rent or royalty or contract money in a financial year to the Fund in the manner decided in consultation with the Financial Department of the State.
10. The Department shall maintain complete account of receipts to the Fund and the expenditure there from and shall invest the progressive accumulated corpus in a manner so as to earn secure there from.
11. The amount available in the Fund shall be utilized strictly for fulfillment of the objectives for which the Fund is being set up and on the terms and conditions as may be stipulated by the committee constituted under rule 80.
12. The expenditure on restoration and rehabilitation of the mining sites shall remain the first charge on the fund.
13. Every mineral concession holder, before undertaking the restoration and rehabilitation works as part of his progressive mine closure plan, shall get his expenditure on such works duly certified by a registered Chartered Accountant. The mineral concession holder shall be entitled to get the expended amount reimbursed out of the Fund to the extent of actual expenditure subject to such reimbursement being limited to the amount contributed by him. Any expenditure incurred over and above this limit shall have to be borne by the mineral concession holder from his own account.
14. A mineral concession holder operating the mine at the time of its final closure shall be responsible for execution of the restoration and rehabilitation works as per the final mine closure plan. He shall

M/s. Govinda Gopal Infra Solution Private Limited (Area- 5,26)

- submit the estimates for implementation of the final restoration and rehabilitation plan to the Director, for approval of the estimates
15. The Director, shall approve such estimates, with or without any modifications, and reimburse the expenditure actually incurred on the site by the implementation agency in a phased manner out of the Fund. The amount so reimbursed shall not exceed the total amount received from the mineral concession holders in respect of that site less than the expenditure already incurred earlier.
 16. The Director may require the mineral concession holder to engage an independent agency for implementation of the restoration and rehabilitation works and evolve a system of monitoring the deliverables through an independent agency.
 17. Any or all proposals for expenditure from out of the Fund shall be approved by a committee of officers headed by the Principle Secretary of the department and consisting of representatives from the department of mines and geology, finance, environment, forests, health, education, Panchayat & Development.
 18. The mode and method of collection, remittance and utilization of these 'other charges' shall be notified separately by the department.



M/s. Goyinda Gopal Infra Solution Private Limited (Area- 5.26).

CHAPTER -9**9.0 PLANS, SECTIONS**

All relevant plans & sections have been enclosed.

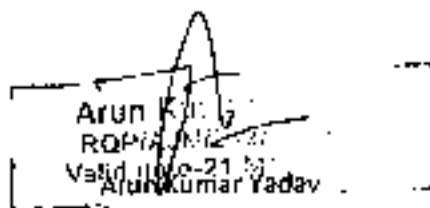
1. Key Plan
2. Location Plan
3. Surface Plan & Sections
4. Surface Geological Plan & Section
5. Year Wise Development Plan (1st to 5th year)
6. Progressive Mine Closure Plan Surface
7. Conceptual Plan
8. Environment Plan

ANY OTHER INFORMATION

Mr. Arun Kumar yadav (Mining Engineer), have assisted in preparation of this Mining Plan including Progressive Mine Closure Plan, Including Plans & Sections, Assessment of Reserves, Year Wise Development Plan, Conceptual Plan & Environment Plan etc.

Place: - Jaipur

Date: -



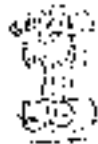
RQP/AJM/242/2003/A

Validity up to 21st May 2023

M/s. Savinda Gopal Infra Solution Private Limited (Area- 5,26).

Annexure-1

CERTIFICATE OF ROP



भारत सरकार द्वारा जारी किए गए
योग अधिनियम के रूप में
प्रमाणित किया गया है



भारत सरकार
भारत सरकार द्वारा जारी किए गए
योग अधिनियम के रूप में
प्रमाणित किया गया है
Controller of Mines (Earth)
भारतीय खान भंडार
Indian Bureau of Mines

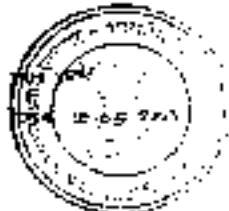
(भारतीय खान भंडार अधिनियम 1950 के विध्व 22(ख) के अंतर्गत)

श्री अशोक कुमार यादव
का श्री श्री यदुनन्दन प्रसाद यादव
के आन व साइट - आनर, लामा - चम्पडी, गीसा - जयगंज

का अर्जी संख्याओं को अनुसूची का क्रमिक क्रमांक प्रस्तुत करने के अन्तर्गत
अधिनियम विध्व 22(ख) के अंतर्गत अर्ज प्रस्तुत करने
के लिए योग्य करने हेतु योग्य अधिनियम के रूप में प्रमाणित किया गया है।

आन अधिनियम संख्या 2726204/2023/Estt.Br 6।
आन अधिनियम संख्या 2726204/2023/Estt.Br
आन अधिनियम संख्या 2726204/2023/Estt.Br के अंतर्गत

आन अधिनियम संख्या 2726204/2023/Estt.Br



भारत सरकार
भारत सरकार द्वारा जारी किए गए
योग अधिनियम के रूप में
प्रमाणित किया गया है
Controller of Mines (Earth)
भारतीय खान भंडार
Indian Bureau of Mines
Retrieved up to 01.05.2023

दिनांक 18.5.2023 को जारी किया गया है।
श्री अशोक कुमार यादव
का श्री श्री यदुनन्दन प्रसाद यादव
के आन व साइट - आनर, लामा - चम्पडी, गीसा - जयगंज
का अर्जी संख्याओं को अनुसूची का क्रमिक क्रमांक प्रस्तुत करने के अन्तर्गत
अधिनियम विध्व 22(ख) के अंतर्गत अर्ज प्रस्तुत करने
के लिए योग्य करने हेतु योग्य अधिनियम के रूप में प्रमाणित किया गया है।
आन अधिनियम संख्या 2726204/2023/Estt.Br
भारत सरकार द्वारा जारी किए गए
योग अधिनियम के रूप में
प्रमाणित किया गया है
Controller of Mines (Earth)
भारतीय खान भंडार
Indian Bureau of Mines

आन अधिनियम संख्या 2726204/2023/Estt.Br

1. The subject matter of the contract is as follows:-

- 4.1 The bidder shall be responsible for the cost of the purchase of the land/area of the plot and the cost of the construction of the building on the land/area of the plot. The bidder shall also be responsible for the cost of the construction of the building on the land/area of the plot. The bidder shall also be responsible for the cost of the construction of the building on the land/area of the plot.
- 4.2 No request regarding increase in bid amount on account of increase in land/area of the Maharaj Block/Una, on any other account including that of change in description of Khata numbers, change in use of the land/area, or any ground. This shall also include any cost incurred on the actual mining for work of compliance of applicable laws and norms for mining on part of the leased area had already been operated at the post. Bidders must state that this also includes the changes, if any, as per condition no. 10 of the auction notice.
- 4.3 You offered bid after having gone through the terms and conditions of the contract and also the applicable Acts and Rules for mining on part of the leased area. Government shall not be responsible for any legal issues relating to the bid of the bidders/lessee on any account of the Khata numbers and area of the land/area of the plot including on account of reduction of land/area of the plot on account of permission for mining on part area of the leased area on account of any subject stipulated for reduction of mining block on account of any other reason.
- 4.5 The amount of the highest bid is Rs. 17,50,00,000/- (Seventeen Crores Only) Lacs only) per annum shall be the Annual Dead Rent payable by you as the Dead Rent in the manner prescribed in the Form ML-1 to be extracted in Form ML-1 appended to State Rules.
- 4.6 The above said Annual Dead Rent shall be paid in ten equal instalments on the completion of each block of three years. Accordingly, the details of the amount of the annual Dead Rent shall be as per details given below:-

Sr. No.	Year of the contract Period	Annual Dead Rent (in Rs.)
1	First Year	18,30,00,000
2	Second Year	18,70,00,000
3	Third Year	19,30,00,000
4	Fourth Year	20,13,00,000
5	Fifth Year	20,13,00,000
6	Sixth Year	20,13,00,000
7	Seventh Year	22,14,30,000
8	Eighth Year	22,14,30,000
9	Ninth Year	22,14,30,000
10	Tenth Year	24,05,00,000

APPROVED
19
19 October 2023

- 4.7 As per the terms and conditions of the grant, you are liable to pay Rs. 1,57,50,000/- i.e. equal to 25% of the annual bid amount as per the contract which you have already deposited an amount of Rs. 1,04,00,000/- (Rs. One Crore and Four Lacs Only) as the Earnest Money Deposit.

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- 1. Extension of further period up to 3 months: On payment of a non-refundable fee at the rate of one percent per month of the annual bid fee for each month of requested extension period.
- 2. Extension for a second period up to 3 months: On payment of a non-refundable fee at the rate of one percent per month of the annual bid fee for each month of requested extension period.

Note: Extension shall be allowed only in months following the period less/part of the month shall be summarily assessed and shall apply along with advance amount of the bid for extending period of extension.

4.8 You are directed to execute the Lease Deed in Form ML-1 appended to the State Rules, 2012 within a period of 90 days from the date of order of issuance of this bid.

NOTE: 90 days period for execution of lease deed. Lease deed is attached to the draft agreement along with all relevant documents possibly within 45 days. Lease agreement could be executed within 90 days after completion of all formalities of scrutiny and verification.

4.9 In case of the Partnership Deed (where bidding entity is a partnership firm), Articles of Association (where bidding entity is a registered Company), or Affidavit (where bidding entity is a sole proprietorship firm and the person participating as an individual), no transfer or addition or deletion of Partners/Directors will be permissible before execution of the agreement.

4.10 The Lease Deed executed shall be got duly registered under relevant laws with concerned Registering Authority and you will be liable to pay applicable stamp duty and registration fee etc. as per the applicable rates and as mandated by the Registering Authority/Revenue Department at the time of registration.

4.11 In case of failure to execute the lease deed, after issuance of this acceptance bid/LOI within the prescribed period of 90 days, this bid shall be deemed to have

... shall be submitted in support of bid/offer of the ...
 ... shall be submitted in support of bid/offer of the ...
 ... shall be submitted in support of bid/offer of the ...

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... shall be submitted in support of bid/offer of the ...
 ... shall be submitted in support of bid/offer of the ...
 ... shall be submitted in support of bid/offer of the ...

- 4.13 All cash/cheques deposited either before commencement of the mining operations or before expiry of the term allowed, if any, as per condition No. 4.10, on account of failure to deposit the balance 15% amount towards security deposit as per clause 4.12, upon the acceptance of bid/assistance of last successful bidder shall be deemed to have been revoked and 10% amount deposited towards security deposit under shall be charged from participants in any future auctions/bids or competitive bidding process in respect of any lease for extraction of minerals/concession in the State for a period of 5 years.
- 4.14 You shall be liable to deposit the lease money in advance at monthly intervals as per provisions of Lease Deed i.e. from the date of commencement of the lease period.
- 4.15 You shall also deposit/pay an additional amount equal to 7.5% of the monthly rent along with the monthly instalments towards the MInes and Mines Development, Restoration and Rehabilitation Fund.
- 4.16 You shall also deposit/pay an additional amount equal to 2.5% of the dry lease rent along with the monthly instalments towards the District Mineral Lease.
- 4.17 You shall also be liable to pay advance Income Tax as per provisions of Section 206(c) of Income Tax Act in addition to contract money, payable as per terms and conditions of contract agreement.
- 4.18 On enhancement of the dead rent with the expiry of every three years period, you shall deposit the balance amount of security so as to update the security amount equal to 10% of the revised annual dead rent as applicable for the year with respect to the next block of three years. No interest, whatsoever, shall be payable on the security amount deposited under the prescribed security bond to the government.
- 4.19 You shall prepare a Mining Plan along with the Mining Lease (Mining Operation Final) from the Recognized Qualified Person as per Chapter 10 of the Mines Act, 2012 for the 'Mining Unit' and shall not commence mining operations unless

... shall be held to pay the following to the landowners to meet the mining operations:

4.21 You will also be liable to pay the following to the landowners to meet the mining operations:

- (a) Annual rent in respect of the land area blocked under the mining lease not being operated, and
- (b) Rent Plus compensation in respect of the area used for actual mining operations.

4.22 The amount of annual rent and the compensation shall be settled mutually between the landowner and the mining lessee. In case of any difference in rent and compensation the same shall be decided by the District Collector concerned in accordance with the provisions contained in Section 207 of the Mines Act, 2012.

4.23 The total mineral excavated and carried by the concessory holder within the area granted on mining lease shall not exceed the maximum of the average annual production of the approved Mineral Plus and the quantity approved under Environmental Clearance, at any point of time.

4.24 The mining lease shall not stock any minerals outside the concession area granted on mining contract, without obtaining a valid Mineral Dealer Licence as per provisions contained in Chapter 14 of the State Rules, 2012.

4.25 The lessee shall not carry out any mining operations in any reserved forest or any area prohibited by any law in force in the area or prohibited authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal or permission not authority or officer authorised in this behalf, lessee(s) shall not be entitled to claim any relief in payment of dead rent on this account.

4.26 No mining operation shall be allowed in the proposed zone of area notified to Town and Country Planning Department. Further in case of the agriculture zone notified by Town and Country Planning Department mining shall be permissible only after obtaining prior permission from the competent authority.

4.27 The lessee shall not undertake any mining operation in the area granted on mining lease without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant law.

Handwritten signature and stamp

Accordingly, you are advised to submit the Draft Lease Deed along with the requisite documents (including a subject certificate) for a sum equal to the amount of the annual bid for execution of the agreement, within a period of 90 days from the date of issue of this and a certificate letter and the bid.

[Signature]
 Joint Mining Officer
 Joint Director General, Mines & Geology,
 Chandigarh, Punjab

Speed/Registered Post

Encls. No DMG/IV/11/10000/2022

2712

Dated 20-04-22

A copy is being sent to the following for information and necessary action please:-

1. The Principal Secretary to Government Haryana, Mines and Geology Department
2. The Chairman, Haryana State Pollution Control Board, Panchkula
3. The Deputy Commissioner, Mahendragarh
4. The Mining Officer, Mines & Geology Department, Mahendragarh. He is directed to ensure that proper and complete 'Draft Lease Deed Documents' as required are submitted within stipulated period.

[Signature]
 State Mining Officer
 Joint Director General, Mines & Geology,
 Haryana, Chandigarh

2726204/2023/Estt.Br

OVERSEAS TEST HOUSE & RESEARCH CENTRE PVT. LTD.

(An ISO 9001:2015, 14001:2004, DHSAS 18001:2007 Certified & NABL Accredited Laboratory)

Regd. Address: 5th, 5th Floor, Apex Tower, Tonk Road, Jaipur-302015.

Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.omtc@gmail.com

TEST REPORT

1	Name & Address of Client: M/s. Govinda Gopal Infra Solutions Pvt.Ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004 (Harayana)	
2	Monitoring Period: - December to February 2023	3. Sampling Location: MINI SITE
4	Sample Drawn By: OTH&RC Team	5. Reporting Date: 10/03/2023
6	Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂	7. Season: WINTER

TEST RESULTS

Ambient Air Quality Analysis

S.NO	Date	Parameters				
		PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	Free silica($\mu\text{g}/\text{m}^3$)
1.	05-06/12/2022	68.52	28.56	15.92	12.34	1.77
2.	06-07/12/2022	66.28	29.82	15.67	11.28	1.68
3.	12-13/12/2022	61.32	26.54	14.52	12.82	1.62
4.	13-14/12/2022	62.34	26.52	14.28	12.92	1.60
5.	19-20/12/2022	59.28	27.82	14.76	11.82	1.58
6.	20-21/12/2022	60.38	28.47	15.26	10.28	1.62
7.	26-27/12/2022	66.28	31.26	14.22	11.42	1.61
8.	27-28/12/2022	62.34	30.28	14.26	17.34	1.66
9.	02-03/01/2023	66.25	28.42	15.82	11.28	1.62
10.	03-04/01/2023	64.22	31.26	18.27	12.34	1.61
11.	09-10/01/2023	62.42	31.24	16.37	13.28	1.67
12.	10-11/01/2023	62.34	30.76	16.82	12.82	1.60
13.	16-17/01/2023	60.37	31.28	16.32	12.67	1.58
14.	17-18/01/2023	62.34	30.24	17.28	11.28	1.56
15.	23-24/01/2023	62.42	28.42	15.28	12.34	1.54
16.	24-25/01/2023	62.34	29.44	16.24	12.34	1.50
17.	29-30/01/2023	62.38	31.82	16.34	13.20	1.48
18.	30-31/01/2023	66.34	28.42	15.92	12.42	1.52
19.	01-02/02/2023	62.32	26.56	14.52	10.28	1.52
20.	02-03/02/2023	61.82	26.57	17.66	11.28	1.54
21.	08-09/02/2023	62.37	28.42	15.28	12.38	1.67
22.	09-10/02/2023	62.38	29.56	14.82	11.28	1.62
23.	22-23/02/2023	62.42	28.47	13.28	12.88	1.60
24.	23-24/02/2023	62.44	26.54	13.82	13.76	1.62

IAS-ANZ



Lab Address: 119, Subhash Colony, Kalwar road Jhotwara, Jaipur - 302012,
E-mail: overseastesthouse@gmail.com,



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(An ISO 9001:2015, I4001:2004, OHSAS 18001:2007 Certified & NABL Accredited Laboratory)

Regd. Address: 501, 5th Floor, Apex Tower, Tonk Road, Jaipur-302015,Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.umtc@gmail.com*[Handwritten signature]*

Analyst:

Authorized Signatory:

Remarks:

1. MoEF&C New Delhi recognition under the Environment (Protection) Act 1986. Vide gazette notification No...
2. Complaint Register is available in Lab/ Email ID overseastesthouse@gmail.com
3. The results listed refer only to the tested sample(s) and parameter(s). Endorsement of product is neither inferred nor implied
4. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing
5. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified
6. Discrepancy in any test results should be reported within 15 days

IAS-ANZ



Lab Address: 09, Subhash Colony, Kalwar road Jhotwara, Jaipur - 302012,
E-mail: overseastesthouse@gmail.com,



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Regd. Address: 501, 5th Floor, Apex Tower, Tonk Road, Jaipur-302015.Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.omtc@gmail.com**TEST REPORT**

1. Name & Address of Client: - M/s - Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004 (Harayana)		3. Sampling Location: -JAINPUR,tehsil-Narnaul,district:Mahendragarh(HKI)	
2. Monitoring Period: December to February 2023		5. Reporting Date: 10.03.2023	
4. Sample Drawn By: OTH&RC Team		7. Season: WINTER	
6. Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂ std ₂			

TEST RESULTS**Ambient Air Quality Analysis**

S.NO	Date	Parameters				
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	NO ₂ (µg/m ³)	SO ₂ (µg/m ³)	FreeSilica (µg/m ³)
1.	05-06/12/2022	58.42	26.34	19.62	10.24	1.62
2.	06-07/12/2022	56.48	25.34	21.34	9.98	1.58
3.	12-13/12/2022	55.28	24.58	18.24	10.32	1.56
4.	13-14/12/2022	52.34	24.62	17.62	10.28	1.48
5.	19-20/12/2022	56.82	25.62	18.52	9.64	1.52
6.	20-21/12/2022	50.28	24.82	17.22	10.28	1.62
7.	26-27/12/2022	54.32	23.56	18.44	9.88	1.60
8.	27-28/12/2022	56.72	24.52	19.52	11.28	1.62
9.	02-03/01/2023	55.38	25.34	18.34	10.92	1.64
10.	03-04/01/2023	54.82	23.46	18.52	10.28	1.56
11.	09-10/01/2023	52.34	24.62	17.52	11.34	1.52
12.	10-11/01/2023	52.32	24.54	18.52	10.28	1.42
13.	16-17/01/2023	53.68	24.62	17.82	11.34	1.38
14.	17-18/01/2023	52.42	22.34	18.56	10.82	1.32
15.	23-24/01/2023	56.28	24.56	18.32	10.28	1.56
16.	24-25/01/2023	54.88	23.42	19.52	10.82	1.52
17.	29-30/01/2023	52.34	24.58	19.22	9.96	1.42
18.	30-31/01/2023	52.42	22.34	18.42	10.12	1.62
19.	01-02/02/2023	51.84	24.58	17.82	10.24	1.28
20.	02-03/02/2023	52.42	22.34	20.34	9.98	1.32
21.	08-09/02/2023	54.82	23.42	18.42	9.96	1.44
22.	09-10/02/2023	52.40	24.38	18.52	10.42	1.42
23.	22-23/02/2023	51.40	26.42	18.62	10.24	1.44
24.	23-24/02/2023	54.28	26.42	17.32	9.68	1.60



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 Tel: +91-141-2744509, Mobile: +91-9460223084, E-mail: arun.gupta@gmail.com



1/1/2023



Analyst:

Authorized Signatory:

Remarks:

1. MoEF&CC New Delhi recognition under the Environment (Protection) Act 1986. Vide gazette notification No.....
2. Complaint Register is available in 1st/ Email ID overseas-testhouse@gmail.com.
3. The results listed refer only to the tested sample(s) and parameter(s). Endorsement of product is neither inferred nor implied.
4. This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law and should not be used in any advertising media without our special permission in writing.
5. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
6. Discrepancy in any test results should be reported within 15 days.

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Lab Address: Plot No -09, Gali NO-011, Subhash Colony, Kalwar Road Jhotwara, Jaipur - 302012,
 E-mail: overseastesthouse@gmail.com.



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TEST REPORT

1.	Name & Address of Client: M/s. Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004 (Hararyana)	
2.	Monitoring Period: December to February 2023	3. Sampling Location: Near Village -Dholera tehsil-Narnau, District -Mahendragarh(HR)
4.	Sample Drawn By: OTH&RC Team	5. Reporting Date: -10.03.2023
6.	Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ &	7. Season: WINTER

TEST RESULTS

Ambient Air Quality Analysis

S.NO	Date	Parameters				
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	NO ₂ (µg/m ³)	SO ₂ (µg/m ³)	Free silica(µg/m ³)
1.	05-06/12/2022	56.72	24.72	16.52	9.54	1.44
2.	06-07/12/2022	51.25	25.64	15.42	10.14	1.40
3.	12-13/12/2022	52.51	22.34	16.52	10.32	1.38
4.	13-14/12/2022	56.82	21.36	15.92	9.72	1.36
5.	19-20/12/2022	51.32	22.34	15.32	10.32	1.32
6.	20-21/12/2022	54.74	22.42	17.42	11.24	1.38
7.	26-27/12/2022	52.42	21.62	16.52	10.36	1.42
8.	27-28/12/2022	54.28	25.42	15.24	9.82	1.42
9.	02-03/01/2023	51.42	24.82	16.32	10.78	1.46
10.	03-04/01/2023	54.24	22.34	15.92	9.92	1.48
11.	09-10/01/2023	52.42	25.48	14.94	10.42	1.42
12.	10-11/01/2023	52.74	22.38	15.24	9.94	1.48
13.	16-17/01/2023	56.52	25.42	15.34	10.28	1.46
14.	17-18/01/2023	54.32	23.82	16.32	10.12	1.44
15.	23-24/01/2023	54.64	22.42	15.62	9.54	1.42
16.	24-25/01/2023	55.24	24.38	17.52	9.62	1.44
17.	29-30/01/2023	52.34	24.82	16.52	10.16	1.42
18.	30-31/01/2023	56.52	24.50	16.32	10.24	1.40
19.	01-02/02/2023	54.38	21.34	15.38	9.52	1.42
20.	02-03/02/2023	56.28	24.38	16.52	9.62	1.44
21.	08-09/02/2023	54.30	24.62	16.52	9.36	1.46
22.	09-10/02/2023	55.42	24.34	17.42	9.62	1.44
23.	22-23/02/2023	56.34	23.48	17.82	9.62	1.48
24.	23-24/02/2023	55.74	26.82	18.46	10.24	1.46

Analyst:



Authorized Signatory:

MS-ANZ

 Lab Address Plot No -09, Gall NO-01, Subhash Colony, Kalwar Road Jhohwara, Jaipur - 302012.
 E-mail: overseastesthouse@gmail.com


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Regd. Address: 501, 5th Floor, Apex Tower, Tonk Road, Jaipur-302015,Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.omtc@gmail.com**TEST REPORT**

1. Name & Address of Client:- M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004	3. Sampling Location: Nangal Chaudhari Tehsil-Narnaul,district-Mahendragarh(HR)
2. Monitoring Period: December to February 2023	5. Reporting Date:- 10.03.2023
4. Sample Drawn By: OTH&RC Team	7.7.0 Season:- WINTER
6. Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂ , SiO ₂	

TEST RESULTS**Ambient Air Quality Analysis**

S.NO	Date	Parameters				
		PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	Free silica ($\mu\text{g}/\text{m}^3$)
1.	05-06/12/2022	54.32	26.42	17.91	10.24	1.32
2.	06-07/12/2022	53.48	27.46	18.22	9.88	1.38
3.	12-13/12/2022	54.24	26.24	17.43	11.24	1.36
4.	13-14/12/2022	55.34	27.82	16.15	11.26	1.34
5.	19-20/12/2022	54.28	27.26	16.22	10.20	1.32
6.	20-21/12/2022	54.34	26.56	15.40	9.56	1.28
7.	26-27/12/2022	52.42	27.42	16.26	9.54	1.30
8.	27-28/12/2022	54.34	26.52	16.71	9.24	1.36
9.	02-03/01/2023	54.28	27.42	17.25	9.88	1.32
10.	03-04/01/2023	52.34	27.56	16.24	9.56	1.34
11.	09-10/01/2023	52.34	27.82	17.58	10.12	1.30
12.	10-11/01/2023	54.28	28.42	16.14	9.98	1.34
13.	16-17/01/2023	53.42	26.28	17.55	10.22	1.44
14.	17-18/01/2023	54.28	27.22	15.57	10.14	1.40
15.	23-24/01/2023	52.34	27.46	16.21	10.22	1.38
16.	24-25/01/2023	54.28	27.24	16.27	9.88	1.36
17.	29-30/01/2023	54.32	28.56	19.26	10.24	1.42
18.	30-31/01/2023	53.28	27.42	18.56	11.20	1.44
19.	01-02/02/2023	54.22	26.42	17.54	10.22	1.32
20.	02-03/02/2023	53.28	27.46	16.87	9.88	1.46
21.	08-09/02/2023	51.28	27.88	17.48	10.10	1.38
22.	09-10/02/2023	55.62	27.56	16.23	9.96	1.36
23.	22-23/02/2023	56.92	27.42	15.44	10.04	1.32
24.	23-24/02/2023	55.56	27.62	16.53	9.94	1.36

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Lab Address: Plot No-09, Gali NO-01, Subhash Colony, Kalwar Road Jhotwara, Jaipur - 302012,
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Authorized Signatory:

Analyst:

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Tel: +91-141-2714500, Mobile: +91-9460221084, E-mail: arun.omtc@gmail.com



TEST REPORT

1. Name & Address of Client: M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004 (Harayana)	
2. Monitoring Period: December to February 2023	3. Sampling Location: Sirohi Bahali, Tehsil- Narnaul, district-Mahendragarh(HR)
4. Sample Drawn By: OTH&RC Team	5. Reporting Date: 10.03.2023
6. Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂	7. Season:- WINTER

TEST RESULTS

Ambient Air Quality Analysis

S.NO	Date	Parameters				
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	NO ₂ (µg/m ³)	SO ₂ (µg/m ³)	Free silica(µg/m ³)
1.	08-09/12/2022	57.12	26.98	14.26	9.84	1.31
2.	09-10/12/2022	55.22	25.98	14.64	9.12	1.42
3.	15-16/12/2022	55.38	25.20	15.21	9.56	1.44
4.	16-17/12/2022	53.92	25.26	14.93	8.14	1.32
5.	22-23/12/2022	55.28	26.88	14.88	9.24	1.30
6.	23-24/12/2022	55.26	26.22	14.92	8.12	1.28
7.	29-30/12/2022	56.12	26.28	14.27	8.52	1.26
8.	30-31/12/2022	56.28	26.28	14.27	8.42	1.30
9.	05-06/01/2023	56.28	25.24	14.27	8.62	1.32
10.	06-07/01/2023	55.88	26.20	14.28	9.24	1.34
11.	12-13/01/2023	55.25	25.92	13.04	9.12	1.42
12.	13-14/01/2023	55.28	26.92	14.65	8.62	1.40
13.	19-20/01/2023	56.28	25.88	15.89	9.62	1.38
14.	20-21/01/2023	55.62	26.52	15.62	9.68	1.36
15.	26-27/01/2023	55.26	26.24	14.28	9.42	1.34
16.	27-28/01/2023	56.28	25.82	14.24	9.12	1.28
17.	04-05/02/2023	55.28	25.24	13.28	9.12	1.26
18.	05-06/02/2023	57.98	25.98	15.27	8.56	1.28
19.	11-12/02/2023	55.28	25.24	14.85	9.12	1.26
20.	12-13/02/2023	55.62	27.28	14.63	9.24	1.24
21.	25-26/02/2023	55.88	26.02	14.58	8.56	1.22
22.	26-27/02/2023	56.52	26.24	13.27	9.56	1.26
23.	01-02/03/2023	55.25	25.92	13.04	9.12	1.30
24.	02-03/03/2023	55.28	26.92	14.65	8.62	1.28

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Date: _____

Analyst: _____

Authorized Signatory: _____

Remarks:-

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2. Complaint Register is available in Lab/ Email ID overseas.testhouse@gmail.com.
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TEST REPORT

1. Name & Address of Client:- M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004 (Harayana)		3. Sampling Location: Niyaz Alipur Tehsil-Narnaul,district-Mahendragarh(HR)	
2. Monitoring Period: December to February 2023		5. Reporting Date: 10.03.2023	
4. Sample Drawn By: OTH&RC Team		7. Season- WINTER	
6. Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂			

TEST RESULTS

Ambient Air Quality Analysis

S.NO	Date	Parameters				
		PM ₁₀ (ug/m ³)	PM _{2.5} (ug/m ³)	NO ₂ (ug/m ³)	SO ₂ (ug/m ³)	Free silica(ug/m ³)
1.	08-09/12/2022	53.12	22.28	12.52	9.92	1.30
2.	09-09/12/2022	52.38	22.24	13.94	10.26	1.28
3.	15-10/12/2022	55.12	22.54	13.20	10.48	1.26
4.	16-10/12/2022	52.12	22.22	13.42	10.04	1.24
5.	22-10/12/2022	53.55	23.82	11.36	10.26	1.26
6.	23-10/12/2022	52.32	22.44	12.74	10.22	1.30
7.	29-10/12/2022	55.82	20.74	13.28	10.24	1.32
8.	06-11/12/2022	55.82	22.32	14.52	11.12	1.20
9.	05-09/01/2023	51.25	20.66	13.28	12.86	1.26
10.	06-07/01/2023	51.16	22.62	10.66	11.92	1.24
11.	12-13/01/2023	53.58	20.03	12.66	11.80	1.28
12.	13-14/01/2023	55.65	22.22	11.12	11.76	1.30
13.	19-20/01/2023	55.22	23.56	12.52	10.22	1.34
14.	20-21/01/2023	53.15	22.26	12.56	10.16	1.36
15.	26-27/01/2023	55.52	22.84	11.54	9.98	1.32
16.	33-28/01/2023	52.35	23.92	21.10	10.34	1.26
17.	04-05/02/2023	52.52	22.22	13.84	10.24	1.24
18.	05-06/02/2023	55.25	22.66	12.84	10.92	1.26
19.	11-02/02/2023	52.56	22.22	13.46	9.96	1.28
20.	12-13/02/2023	52.62	22.42	11.24	10.46	1.30
21.	25-26/02/2023	51.26	22.92	11.42	12.93	1.26
22.	26-27/02/2023	51.52	22.46	13.32	10.26	1.22
23.	07-02/03/2023	52.56	22.34	12.26	10.52	1.28
24.	02-03/03/2023	55.25	23.52	12.36	9.98	1.26

Lab Address: Plot No-09, Gali NO-01, Suthash Colony, Kalwar Road Jhotwara, Jaipur - 302012,
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for info



Analyst:

Authorized Signatory:

Remarks:

1. MoEF&CC New Delhi recognition under the Environment (Protection) Act 1986, Vide gazette notification No.....
2. Complaint Register is available in Lab Email ID overseastesthouse@gmail.com.
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1. Name & Address of Client:- M/s:- Govinda Gopal Infra Solutions Pvt.Ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004 (Harayana)		3. Sampling Location: Salarpur Tehsil-Narnaul,district-Mahendragarh(HR)	
2. Monitoring Period: December to February 2023		4. Sample Drawn By: DTH&RC Team	
4. Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂		5. Reporting Date: 10.03.2023	
6. Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂		7. Season- Winter	

TEST RESULTS**Ambient Air Quality Analysis**

S.NO	Date	Parameters				
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	NO ₂ (µg/m ³)	SO ₂ (µg/m ³)	Free silica(µg/m ³)
1.	08-09/12/2022	52.12	23.52	11.52	10.42	1.32
2.	09-10/12/2022	50.62	24.62	11.84	10.14	1.28
3.	15-16/12/2022	51.48	22.68	10.62	10.36	1.26
4.	16-17/12/2022	55.32	21.56	12.54	11.80	1.24
5.	22-23/12/2022	55.34	22.58	11.44	11.46	1.22
6.	23-24/12/2022	56.36	21.56	11.36	10.34	1.26
7.	29-30/12/2022	56.44	22.54	11.64	11.05	1.24
8.	30-31/12/2022	56.34	21.58	12.54	9.66	1.22
9.	05-06/01/2023	51.54	21.56	12.52	10.24	1.26
10.	08-07/01/2023	55.44	22.86	11.52	10.50	1.24
11.	12-13/01/2023	54.32	21.14	11.54	9.42	1.22
12.	13-14/01/2023	56.16	22.53	12.52	9.10	1.26
13.	19-20/01/2023	54.41	21.52	11.50	9.52	1.22
14.	20-21/01/2023	53.62	20.86	11.12	10.12	1.20
15.	26-27/01/2023	55.26	22.54	12.54	9.56	1.26
16.	27-28/01/2023	52.42	22.52	12.58	9.44	1.22
17.	04-05/02/2023	54.14	22.86	10.52	10.58	1.26
18.	05-06/02/2023	55.16	21.74	11.50	9.26	1.24
19.	11-12/02/2023	52.84	21.66	10.52	9.68	1.26
20.	12-13/02/2023	53.62	21.54	11.54	8.16	1.22
21.	25-26/02/2023	52.24	22.12	10.12	9.82	1.20
22.	26-27/02/2023	52.44	21.80	11.62	10.84	1.26
23.	01-02/03/2023	54.14	22.64	12.62	9.14	1.26
24.	02-03/03/2023	52.16	21.84	10.34	9.56	1.24

Lab Address: Plot No -09, Gali NO-01, Subhash Colony, Kalwar Road Jhotwara, Jaipur - 302012,

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Analyst:

Authorized Signatory:

Remarks:

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2. Complaint Register is available in Lab' Email ID overseastesthouse@gmail.com.
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TEST REPORT

1. Name & Address of Client: M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004 (Harayana)		3. Sampling Location: Golwa Tehsil-Narnaul, district-Mahendragarh(HR)	
2. Monitoring Period: December to February 2023		5. Reporting Date: 10.03.2023	
4. Sample Drawn By: OTH&RC Team		7. Season: WINTER	
6. Test Requirement: PM ₁₀ , PM _{2.5} , SO ₂ & NO ₂			

TEST RESULTS

Ambient Air Quality Analysis

S.NO	Date	Parameters				
		PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	Free silica($\mu\text{g}/\text{m}^3$)
1.	08-09/12/2022	53.24	22.34	10.48	10.24	1.24
2.	09-10/12/2022	52.34	23.42	11.24	10.10	1.20
3.	15-16/12/2022	50.26	24.62	10.38	10.38	1.24
4.	16-17/12/2022	54.62	22.42	12.34	11.82	1.20
5.	22-23/12/2022	53.88	22.41	11.26	11.32	1.18
6.	23-24/12/2022	52.34	23.48	11.28	10.24	1.34
7.	29-30/12/2022	54.62	22.38	11.52	10.96	1.36
8.	30-31/12/2022	54.82	22.54	12.10	9.82	1.34
9.	05-06/01/2023	52.34	21.38	12.38	10.26	1.32
10.	06-07/01/2023	53.82	23.14	11.52	10.52	1.30
11.	12-13/01/2023	52.34	22.34	11.54	9.62	1.28
12.	13-14/01/2023	52.38	21.56	12.66	9.24	1.22
13.	19-20/01/2023	51.48	22.34	11.52	9.62	1.24
14.	20-21/01/2023	52.84	22.31	12.34	10.24	1.30
15.	26-27/01/2023	54.28	23.42	12.44	9.62	1.26
16.	27-28/01/2023	53.48	23.42	12.36	9.42	1.28
17.	04-05/02/2023	55.32	22.38	10.38	10.56	1.26
18.	05-06/02/2023	54.62	22.34	12.34	9.26	1.24
19.	11-12/02/2023	55.24	22.34	10.32	9.64	1.22
20.	12-13/02/2023	54.62	22.32	11.28	8.12	1.24
21.	25-26/02/2023	52.26	22.46	10.26	9.62	1.25
22.	26-27/02/2023	54.28	21.82	11.42	10.84	1.24
23.	01-02/03/2023	56.34	22.66	12.34	9.14	1.24
24.	02-03/03/2023	54.28	21.82	11.82	9.24	1.22

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Analyst:

Authorized Signatory:

Remarks:

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5. The sample will be destroyed after 15 days from the date of issue of test certificate unless otherwise specified.
6. Discrepancy in any test results should be reported within 15 days.

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TEST REPORT

1.	Name & Address of Client: - M/s - Govinda Gopal Infra Solutions Pvt Ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram.-122004		
2.	Sample ID: 015MAR23NS01	3.	REPORTING DATE: 10/03/2023
4.	Location: - Mine site		
5.	Monitoring Date: - 05.06/02/2023	6.	Season: WINTER
7.	Instrument Used: Sound Level Meter	8.	Instrument Calibration Status: Calibrated
9.	Meteorological condition during monitoring: Clear Sky	10.	Sample Collected By: OTHRC Team
11.	Category of Area: Industrial Area	12.	Sampling Duration: 24 Hours
13.	Surrounding Activity: Human & MINING, Vehicular Activities	14.	Sampling & Analysis Protocol: CPCB Guidelines/IS 9919

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1.	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00 PM)	66.8	dB(A)
2.	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00 AM)	44.4	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leg

Category of Area/Zone	Requirement (as CPCB Guidelines Limit in dB(A) Leg	
	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40

[Signature]

Analyst:



Authorized Signatory:

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TEST REPORT

1.	Name & Address of Client - M/s :- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: - 015MAR23NS02	3.	REPORTING DATE -10/02/2023
4.	Location :- Near village Jainpur Tehsil-Narmad, district-Mahendragarh(HR)		
5.	Monitoring Date: 08-09/02/2023	6.	Season: WINTER
7.	Instrument Used: Sound Level Meter	8.	Instrument Calibration Status: -Calibrated
9.	Meteorological condition during monitoring: Clear Sky	10.	Sample Collected By: OTHRC Team
11.	Category of Area: Residential Area	12.	Sampling Duration: 24 Hours
13.	Surrounding Activity: Human & Vehicular Activites	14.	Sampling & Analysis Protocol: CPCB Guidelines/IS 9989

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00PM)	51.4	dB(A)
2.	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00AM)	40.2	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leq

Category of Area/Zone	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40

[Signature]
 Analyst:

[Signature]
 Authorized Signatory:

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TEST REPORT

1	Name & Address of Client:- M/s :- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004		
2	Sample ID :- 015MAR23NS03	3	REPORTING DATE: 10/03/2023
4	Location: Near village Dholera, Tehsil-Narnaul, District-Mahendragarh(HR)		
5	Monitoring Date: 10-11/02/2023	6	Season: WINTER
7	Instrument Used: Sound Level Meter	8	Instrument Calibration Status: Calibrated
9	Meteorological condition during monitoring: Clear Sky	10	Sample Collected By: OTHRC Team
11	Category of Area: Residential Area	12	Sampling Duration: 24 Hours
13	Surrounding Activity: Human & Vehicular Activities	14	Sampling & Analysis Protocol: CPCB Guidelines/IS 9989

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00 PM)	52.1	dB(A)
2	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00 AM)	41.6	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leq

Category of Area/Zone	Requirement (as CPCB Guidelines Limit in dB(A) Leq	
	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40



Analyst:

Authorized Signatory:

NOTE:

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TEST REPORT

1.	Name & Address of Client: - M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: 015MAR21NS04	3.	REPORTING DATE: 10/02/2023
4.	Location: Near village:- Nangal Chaudhary, Tehsil-Narnaul,district-Mahendragarh(HR)		
5.	Monitoring Date: 13-14/02/2023	6.	Season: WINTER
7.	Instrument Used: Sound Level Meter	8.	Instrument Calibration Status: Calibrated
9.	Meteorological condition during monitoring.	10.	Sample Collected By: OTHRC Team
	Clear Sky		
11.	Category of Area: Residential Area	12.	Sampling Duration: 24 Hours
13.	Surrounding Activity: Human & Vehicular Activities	14.	Sampling & Analysis Protocol: CPCB Guidelines/IS 9989

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1.	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00PM)	52.8	dB(A)
2.	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00AM)	40.6	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leq

Category of Area/Zone	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40

Analyst:

Authorized Signatory:

NOTE :

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 Tel: +91 141-2744509, Mobile: +91-9460221084, E-mail: arun.omec@gmail.com

TEST REPORT

1.	Name & Address of Client: M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram -122004		
2.	Sample ID: 015MAR23NS03	3.	REPORTING DATE: 10/03/2023
4.	Location: N/V :- Sirohi Bahali, Tehsil-Nurmaid, district-Mehendragarh(HR)		
5.	Monitoring Date: 14-15/02/2023	4.	Season: WINTER
7.	Instrument Used: Sound Level Meter	8.	Instrument Calibration Status: Calibrated
9.	Meteorological condition during monitoring: Clear Sky	10.	Sample Collected By: OTHR& Team
11.	Category of Area: Residential Area	12.	Sampling Duration: 24 Hours
13.	Surrounding Activity: Human & Vehicular Activities	14.	Sampling & Analysis Protocol: CPCB Guidelines/IS 9989

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1.	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00 PM)	50.1	dB(A)
2.	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00 AM)	41.2	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leq

Category of Area/Zone	Requirement (as CPCB Guidelines Limit in dB(A) Leq	
	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40

Analyst:

Authorized Signatory:

NOTE:

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TEST REPORT

1.	Name & Address of Client: M/s :- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004		
2.	Sample ID: 015MAR23NS06	3.	REPORTING DATE: 10/03/2023
4.	Location: Near village Niyaz Alipur, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Monitoring Date: 16-17/02/2023	4.	Season: WINTER
7.	Instrument Used: Sound Level Meter	8.	Instrument Calibration Status: Calibrated
9.	Meteorological condition during monitoring: Clear Sky	10.	Sample Collected By: OFHRC Team
11.	Category of Area: Residential Area	12.	Sampling Duration: 24 Hours
13.	Surrounding Activity: Human & Vehicular Activities	14.	Sampling & Analysis Protocol: CPCB Guidelines/IS 9989

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1.	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00 PM)	53.8	dB(A)
2.	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00 AM)	42.6	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leq

Category of Area/Zone	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40



Analyst:

Authorized Signatory:

NOTE

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TEST REPORT

1	Name & Address of Client: M/s :- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2	Sample ID: 015MAR23NS07	3	REPORTING DATE: 10.03.2023
4	Location: Near village Salarpur, Tehsil-Narnaul, district-Mahendragarh(HR)		
5	Monitoring Date: 20-21/02/2023	4	Season: WINTER
7	Instrument Used: Sound Level Meter	8	Instrument Calibration Status: - Calibrated
9	Meteorological condition during monitoring: Clear Sky	10	Sample Collected By: OTHRC Team
11	Category of Area: Residential Area	12	Sampling Duration: 24 Hours
13	Surrounding Activity: Human & Vehicular Activities	14	Sampling & Analysis Protocol: CPCB Guidelines/IS 9989

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1.	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00PM)	52.4	dB(A)
2.	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00AM)	41.6	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leq)

Category of Area/Zone	Requirement (as CPCB Guidelines Limit in dB(A) Leq)	
	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40

Arjun



Analyst:

Authorized Signatory:

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TEST REPORT

1.	Name & Address of Client: M/s :- Govinda Gopal Infra Solutions Pvt. Ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004		
2.	Sample ID: 015MAR23NS08	3.	REPORTING DATE: 10.03.2023
4.	Location:- Near village Golwa, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Monitoring Date: 20-21/02/2023	4.	Season: WINTER
7.	Instrument Used: Sound Level Meter	8.	Instrument Calibration Status: Calibrated
9.	Meteorological condition during monitoring: Clear Sky	10.	Sample Collected By: OTIHC Team
11.	Category of Area: Residential Area	12.	Sampling Duration: 24 Hours
13.	Surrounding Activity: Human & Vehicular Activities	14.	Sampling & Analysis Protocol: CPCB Guidelines/IS 9909

TEST RESULTS (NOISE REPORT)

S.NO.	Parameter	Result	Unit
1.	EQUIVALENT NOISE LEVEL (6:00 AM TO 10:00PM)	53.4	dB(A)
2.	EQUIVALENT NOISE LEVEL (10:00 PM TO 6:00AM)	42.6	dB(A)

Requirement (as CPCB Guidelines Limit in dB(A) Leq)

Category of Area/Zone	Requirement (as CPCB Guidelines Limit in dB(A) Leq)	
	Day Time	Night Time
A. Industrial Area	75	70
B. Commercial Area	65	55
C. Residential Area	55	45
D. Silence Zone	50	40



Analyst:

Authorized Signatory:

NOTE:

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1.	Name & Address of Client: M/s : Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram.-122004	
2.	Sample ID: 015MAR23GWD1	3. Reporting Date: 10/03/2023
4.	LOCATION: MINE Site, Tehsil-Narnaul, district-Mahendragar h(HR)	
5.	Sampling Date: 25/02/2023	6. SAMPLE DRAWN BY: OTH&RC TEAM
7.	Analysis Commenced Date: 05/03/2023	B. Analysis completed on: 10/03/2023
9.	Sample Category: Ground Water	10. Packing Condition & Quantity: Packed bottle & 3 Ltr.

TEST RESULTS(Ground Water)

S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.74	6.5-8.5	-	APHA: 4500-H+ H 23 rd Edition
2.	Conductivity	mS/m	44.0	--	-	APHA: 2510 B 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	COD	mg/l		--	-	APHA: 5220 B 23 rd Edition
6.	Total Dissolved Solids	mg/l	278	500	2000	APHA: 2540 C 23 rd Edition
7.	Dissolved Oxygen (D.O)	mg/l		--	-	APHA: 4500 O-C 23 rd Edition
8.	Alkalinity	mg/l	166.0	200	600	APHA: 2320 B Alkalinity 23 rd Edition
9.	Chloride	mg/l	96.0	250	1000	APHA: 4500-Cl B 23 rd Edition
10.	Sulphate	mg/l	88.0	200	400	APHA: 4500-SO ⁴ B 23 rd Edition
11.	Fluoride	mg/l	0.58	1.0	1.5	APHA: 4500-F 23 rd Edition
12.	Sodium	mg/l	88.4	--	-	APHA: 3500-Na B 23 rd Edition
13.	Potassium	mg/l	42.4	--	-	APHA: 3500-K B 23 rd Edition
14.	Total Hardness	mg/l	272.0	200	-	APHA: 2340 C 23 rd Edition
15.	Ca. Hardness	mg/l	196.0	-	-	APHA: 3500-Ca B 23 rd Edition
16.	Calcium as Ca	mg/l	78.56	75	200	APHA: 3500-Ca II 23 rd Edition
17.	Mg. Hardness	mg/l	76	--	-	APHA: 3500-Mg B 23 rd Edition
18.	Magnesium as Mg	mg/l	1.47	30	100	APHA: 3500 - Mg B 23 rd Edition
19.	Amn. Nitrogen	mg/l	0.62	--	-	IS 3025 (Part 34):1988 (RA 2014)
20.	Nitrate	mg/l	2.64	45	100	IS 3025 (Part 34)(3) 1988 (RA 2014)

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Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arpu.omtc@gmail.com

S. No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
21.	Phosphate	mg/l	2.52	--		APHA: 4500-PC 23rd Edition
22.	Cadmium	mg/l	<0.1	0.003	0.01	APHA: 3111 B 23rd Edition
23.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 B 23rd Edition
24.	Iron	mg/l	0.42	0.3	1.0	APHA: 1500 Fe-B 23rd Edition
25.	Lead	mg/l	<0.15	0.01	.	APHA: 3111 B 23rd Edition
26.	Manganese	mg/l	<0.03	0.1	0.3	APHA: 3111 B 23rd Edition
27.	Zinc	mg/l	1.22	5	15.0	APHA: 3111 B 23rd Edition

Arpu Omte
Analyst:

Authorized Signatory:



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TEST REPORT

1.	Name & Address of Client: - M/s:- Govinda Gopal Infra Solutions Pvt.Ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram.-122004		
2.	Sample ID: 015MAR23GW02	3.	Reporting Date: 10/03/2023
4.	Location: N/V - Jaipur, Tehsil-Narnaul, District-Mahendragarh(HR)		
5.	Sampling Date: 26/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Sample Category: Ground Water	10.	Packing Condition & Quantity: Packed bottle & 3 ltr.

TEST RESULTS(Ground Water)

S.No.	Parameters	Unit (SI)	Results	Specification/ SPCR Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.80	6.5-8.5	-	APHA: 4500 H ⁺ H 23 rd Edition
2.	Conductivity	mS/m	34.0	--	-	APHA: 2510 H. 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	Total Dissolved Solids	mg/l	222	500	2000	APHA: 2540 C 23 rd Edition
6.	Alkalinity	mg/l	92.0	200	600	APHA: 2320 B Alkalinity 23 rd Edition
7.	Chloride	mg/l	64.0	250	1000	APHA: 4500-Cl B 23 rd Edition
8.	Sulphate	mg/l	26.0	200	400	APHA: 4500-SO ₄ E 23 rd Edition
9.	Fluoride	mg/l	0.54	1.0	1.5	APHA: 4500-F 23 rd Edition
10.	Sodium	mg/l	40.4	--	-	APHA: 3500-Na B 23 rd Edition
11.	Potassium	mg/l	18.6	--	-	APHA: 3500-K B 23 rd Edition
12.	Total Hardness	mg/l	122.0	200	-	APHA: 2340 C 23 rd Edition
13.	Ca. Hardness	mg/l	90.0	--	-	APHA: 3500-Ca B 23 rd Edition
14.	Calcium as Ca	mg/l	36.07	75	200	APHA: 3500-Ca B 23 rd Edition
15.	Mg. Hardness	mg/l	32.0	--	-	APHA: 3500-Mg B 23 rd Edition
16.	Magnesium as Mg	mg/l	7.79	30	100	APHA: 3500 - Mg B 23 rd Edition
17.	Amn. Nitrogen	mg/l	0.52	--	-	IS 3025 (Part 34) 1988 (RA 2014)
18.	Nitrate	mg/l	0.24	45	100	IS 3025 (Part 34) 1988 (RA 2014)
19.	Phosphate	mg/l	1.12	--	-	APHA: 4500-PO 23 rd Edition
20.	Cadmium	mg/l	<0.1	0.003	0.01	APHA: 3111 B 23 rd Edition
21.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 H 23 rd Edition



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S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
22.	Iron	mg/l	0.54	0.3	1.0	APHA- 3500 Fe-P 23 rd Edition
23.	Lead	mg/l	<0.15	0.01	.	APHA- 3111 B 23 rd Edition
24.	Manganese	mg/l	<0.03	0.1	0.3	APHA- 3111 B 23 rd Edition
25.	Zinc	mg/l	1.18	5	15.0	APHA- 3111 B 23 rd Edition



Analyst:

Authorized Signatory:

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**TEST REPORT**

1.	Name & Address of Client: -- M/s - Govinda Gopal Infra Solutions Pvt.ltd	
	212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004	
2.	Sample ID: 015MAR23GW03	9. Reporting Date: 10/03/2023
3.	Location: Near village Dholera, Tehsil-Narnaul, district-Mahendragarh(HR)	
5.	Sampling Date: 26/02/2023	6. Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8. Analysis completed on: 10/03/2023
4.	Sample Category: Ground Water	10. Packing Condition & Quantity: Packed bottle & 3 Ltr.

TEST RESULTS(Ground Water)

S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.66	6.5-8.5	-	APHA: 4500-H ⁺ B 23 rd Edition
2.	Conductivity	ms/cm	35.0	--	--	APHA: 2510 B 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	Total Dissolved Solids	mg/l	218.0	500	2000	APHA: 2540 C 23 rd Edition
6.	Alkalinity	mg/l	90	200	600	APHA: 2320 B Alkalinity 23 rd Edition
7.	Chloride	mg/l	70.0	250	1000	APHA: 4500-Cl-B 23 rd Edition
8.	Sulphate	mg/l	28.4	200	400	APHA: 4500-SO ⁴ -E 23 rd Edition
9.	Fluoride	mg/l	0.66	1.0	1.5	APHA: 4500-F-D 23 rd Edition
10.	Sodium	mg/l	52.4	--	-	APHA: 3500-Na H 23 rd Edition
11.	Potassium	mg/l	22.6	--	-	APHA: 3500-K B 23 rd Edition
12.	Total Hardness	mg/l	230.0	200	-	APHA: 2340 C 23 rd Edition
13.	Ca. Hardness	mg/l	124.0	--	-	APHA: 3500-Ca H 23 rd Edition
14.	Calcium as Ca	mg/l	49.70	75	200	APHA: 3500-Ca B 23 rd Edition
15.	Mg. Hardness	mg/l	106.0	--	-	APHA: 3500-Mg B 23 rd Edition
16.	Magnesium as Mg	mg/l	25.82	30	100	APHA: 3500-Mg B 23 rd Edition
17.	Amm. Nitrogen	mg/l	0.66	--	-	IS 3025 (Part 34) 1988 (RA 2014)
18.	Nitrate	mg/l	0.34	45	100	IS 3025 (Part 34) 1988 (RA 2014)
19.	Phosphate	mg/l	1.18	--	-	APHA: 4500-PO 23 rd Edition
20.	Cadmium	mg/l	<0.1	0.003	0.01	APHA: 3111 B 23 rd Edition
21.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 B 23 rd Edition
22.	Iron	mg/l	0.32	0.3	1.0	APHA: 3500-Fe-B 23 rd Edition
23.	Lead	mg/l	<0.15	0.01	-	APHA: 3111 B 23 rd Edition

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S. No.	Parameters	Unit (SI)	Results	Specification/SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
24.	Manganese	mg/l	<0.03	0.1	0.3	APHA: 3111 B 23 rd Edition
25.	Zinc	mg/l	1.14	5	150	APHA: 3111 B 23 rd Edition



[Signature]

Analyst:

Authorized Signatory:

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1.	Name & Address of Client - M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: 015MAR23GW04	3.	Reporting Date: 10/03/2023
4.	Location: Near village Nangal Chaudhari, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Sampling Date: 25/02/2023	6.	Sample Drawn By: OTI&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Sample Category: Ground Water	10.	Packing Condition & Quantity: Packed bottle & 3 Ltr.

TEST RESULTS(Ground Water)

S.No	Parameters	Unit (SI)	Results	Specification/SPCE Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.76	6.5-8.5	-	APHA: 4500-H ⁺ D 23 rd Edition
2.	Conductivity	µS/cm	360	-	-	APHA: 2510 B 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	Total Dissolved Solids	mg/l	228	500	2000	APHA: 2540 C 23 rd Edition
6.	Alkalinity	mg/l	102.0	200	600	APHA: 2320 B Alkalinity 23 rd Edition
7.	Chloride	mg/l	68.0	250	1000	APHA: 4500-Cl B 23 rd Edition
8.	Sulphate	mg/l	56.0	200	400	APHA: 4500-SO ₄ E 23 rd Edition
9.	Fluoride	mg/l	0.52	1.0	1.5	APHA: 4500-FI J 23 rd Edition
10.	Sodium	mg/l	48.0	-	-	APHA: 3500-Na B 23 rd Edition
11.	Potassium	mg/l	20.0	-	-	APHA: 3500-K B 23 rd Edition
12.	Total Hardness	mg/l	226.0	200	-	APHA: 2340 C 23 rd Edition
13.	Ca. Hardness	mg/l	124.0	-	-	APHA: 3500-Ca B 23 rd Edition
14.	Calcium as Ca	mg/l	49.70	75	200	APHA: 3500-Ca B 23 rd Edition
15.	Mg. Hardness	mg/l	102.0	-	-	APHA: 3500-Mg D 23 rd Edition
16.	Magnesium as Mg	mg/l	24.84	30	100	APHA: 3500 - Mg B 23 rd Edition
17.	Amn. Nitrogen	mg/l	1.62	-	-	IS 3025 (Part 34) 1988 (RA 2014)
18.	Nitrate	mg/l	1.32	45	100	IS 3025 (Part 34)(3) 1988 (RA 2014)
19.	Phosphate	mg/l	1.16	-	-	APHA: 4500-PC 23 rd Edition
20.	Cadmium	mg/l	<0.1	0.03	0.01	APHA: 3111 B 23 rd Edition
21.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 H 23 rd Edition
22.	Iron	mg/l	0.32	0.3	1.0	APHA: 3500 Fe-B 23 rd Edition
23.	Lead	mg/l	<0.15	0.01	-	APHA: 3111 B 23 rd Edition
24.	Manganese	mg/l	<0.03	0.1	0.3	APHA: 3111 B 23 rd Edition

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S. No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
25.	Zinc	mg/l	1.24	5	15.0	APHA: 3111 B 23 rd Edition



Analyst:

Authorized Signatory:

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1.	Name & Address of Client: M/s - Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram.-122004	
2.	Sample ID: 015MAR23GW05	9. Reporting Date: 10/03/2023
3.	Location: Near village Sirohi Bohali, Tehsil-Narnaul, district-Mahendragarh(HR)	
5.	Sampling Date: 25/02/2023	6. Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8. Analysis completed on: 10/03/2023
4.	Sample Category: Ground Water	10. Packing Condition & Quantity: Packed bottle & 3 Ltr.

TEST RESULTS(Ground Water)

S. No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.56	6.5-8.5	-	APHA: 4500-H ⁺ B 23 rd Edition
2.	Conductivity	mS/cm	52.0	..	-	APHA: 2510 B. 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	Total Dissolved Solids	mg/l	324.0	500	2000	APHA: 2540 C. 23 rd Edition
6.	Alkalinity	mg/l	114.0	200	600	APHA: 2320 B Alkalinity 23 rd Edition
7.	Chloride	mg/l	74.0	250	1000	APHA: 4500-Cl ⁻ B 23 rd Edition
8.	Sulphate	mg/l	58.0	200	400	APHA: 4500-SO ⁴ E 23 rd Edition
9.	Fluoride	mg/l	0.36	1.0	1.5	APHA: 4500-F D 23 rd Edition
10.	Sodium	mg/l	36.4	..	-	APHA: 3500-Na H 23 rd Edition
11.	Potassium	mg/l	24.8	..	-	APHA: 3500-K B 23 rd Edition
12.	Total Hardness	mg/l	254.0	200	-	APHA: 2340 C 23 rd Edition
13.	Ca. Hardness	mg/l	182.0	..	-	APHA: 3500-Ca B 21 st Edition
14.	Calcium as Ca	mg/l	72.94	75	200	APHA: 3500-Ca H 23 rd Edition
15.	Mg. Hardness	mg/l	72.0	..	-	APHA: 3500-Mg B 23 rd Edition
16.	Magnesium as Mg	mg/l	17.53	30	100	APHA: 3500 - Mg B 23 rd Edition
17.	Ammon. Nitrogen	mg/l	0.42	..	-	IS 3025 (Part 34) (3) 1988 (RA 2014)
18.	Nitrate	mg/l	1.44	45	100	IS 3025 (Part 34) (3) 1988 (RA 2014)
19.	Phosphate	mg/l	1.62	..	-	APHA: 4500-PO 23 rd Edition
20.	Cadmium	mg/l	<0.1	0.003	0.01	APHA: 3111 B 23 rd Edition
21.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 H 23 rd Edition

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S. No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
22.	Iron	mg/l	0.34	0.3	1.0	APHA: 3500 Fe-B 23 rd Edition
23.	Lead	mg/l	<0.15	0.01	-	APHA: 3111 B 23 rd Edition
24.	Manganese	mg/l	<0.03	0.1	0.3	APHA: 3111 B 23 rd Edition
25.	Zinc	mg/l	1.28	5	15.0	APHA: 3111 B 23 rd Edition



Arup Omte
 Analyst:

Authorized Signatory:

Remarks:

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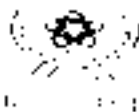
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**TEST REPORT**

1.	Name & Address of Client: M/s - Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: 015MAR23GW06	9	Reporting Date: 10/03/2023
3.	Location: Near village Niyaz Alipur, Tehsil-Narnaul,district-Mahendragarh(HR)		
5.	Sampling Date: 26/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
4.	Sample Category: Ground Water	10.	Packing Condition & Quantity: Packed bottle & 3 Ltr.

TEST RESULTS(Ground Water)

S.No	Parameters	Unit (SI)	Results	Specification/ SPCB Norvus/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.70	6.5-8.5	-	APHA: 4500-H ⁺ B 23 rd Edition
2.	Conductivity	µS/cm	54.0	-	-	APHA: 2510 H. 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	Total Dissolved Solids	mg/l	356.0	500	2000	APHA: 2540 C 23 rd Edition
6.	Alkalinity	mg/l	110.0	200	600	APHA: 2120 B Alkalinity 23 rd Edition
7.	Chloride	mg/l	68.0	250	1000	APHA: 4500-Cl B 23 rd Edition
8.	Sulphate	mg/l	42.0	200	400	APHA: 4500-SO ₄ B 23 rd Edition
9.	Fluoride	mg/l	0.30	1.0	1.5	APHA: 4500-F 13 23 rd Edition
10.	Sodium	mg/l	22.6	-	-	APHA: 3500-Na B 23 rd Edition
11.	Potassium	mg/l	14.8	-	-	APHA: 3500-K B 23 rd Edition
12.	Total Hardness	mg/l	210.0	200	-	APHA: 2340 C 23 rd Edition
13.	Ca Hardness	mg/l	174.0	-	-	APHA: 3500 Ca B 23 rd Edition
14.	Calcium as Ca	mg/l	69.73	75	200	APHA: 3500-Ca B 23 rd Edition
15.	Mg Hardness	mg/l	36.0	-	-	APHA: 3500-Mg B 23 rd Edition
16.	Magnesium as Mg	mg/l	8.76	30	100	APHA: 3500 - Mg B 23 rd Edition
17.	Amn. Nitrogen	mg/l	1.56	-	-	IS 3025 (PP 34) 1988 (RA 2014)
18.	Nitrate	mg/l	1.68	45	100	IS 3025 (Part 34) 1988 (RA 2014)
19.	Phosphate	mg/l	1.74	-	-	APHA: 4500-PO 23 rd Edition
20.	Calcium	mg/l	<0.1	0.003	0.01	APHA: 3111 B 23 rd Edition
21.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 B 23 rd Edition

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 Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.ogtc@gmail.com

S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
22.	Iron	mg/l	0.56	0.3	1.0	APHA: 3500 Fe-8 23 rd Edition
23.	Lead	mg/l	<0.15	0.01	-	APHA: 3111 B 23 rd Edition
24.	Manganese	mg/l	<0.03	0.3	0.3	APHA: 3111 B 23 rd Edition
25.	Zinc	mg/l	1.26	5	15.0	APHA: 3111 B 23 rd Edition

Arun Ogta

Analyst:

Authorized Signatory:



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TEST REPORT

1.	Name & Address of Client: - M/s:- Govinda Gopal Infra Solutions Pvt. Ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004	
2.	Sample ID: 015MAR23GW07	9. Reporting Date: 10/03/2023
3.	Location: Near village Salarpur, Tehsil-Narnaul,district-Mahendragarh(HR)	
5.	Sampling Date: 26/02/2023	6. Sample Drawn by: OTI&RC Team
7.	Analysis Commenced Date: 05/03/2023	8. Analysis completed on: 10/03/2023
4.	Sample Category: Ground Water	10. Packing Condition & Quantity: Packed bottle & 3 Ltr.

TEST RESULTS(Ground Water)

S. No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.64	6.5-8.5	-	APHA: 4500-H ⁺ B 23 rd Edition
2.	Conductivity	mS/m	54.0	--	-	APHA: 2510 B 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-B Visual Comparison Method 23 rd Edition
5.	Total Dissolved Solids	mg/l	354.0	500	2000	APHA: 2540 C 23 rd Edition
6.	Alkalinity	mg/l	112.0	200	600	APHA: 2320 B Alkalinity 23 rd Edition
7.	Chloride	mg/l	66.0	250	1000	APHA: 4500-Cl B 23 rd Edition
8.	Sulphate	mg/l	50.0	200	400	APHA: 4500-SO ₄ E 23 rd Edition
9.	Fluoride	mg/l	0.32	1.0	1.5	APHA: 4500-F D 23 rd Edition
10.	Sodium	mg/l	21.4	--	-	APHA: 3500-Na B 23 rd Edition
11.	Potassium	mg/l	11.3	--	-	APHA: 3500-K B 23 rd Edition
12.	Total Hardness	mg/l	216.0	200	-	APHA: 2340 C 23 rd Edition
13.	Ca. Hardness	mg/l	114.0	--	-	APHA: 3500-Ca B 23 rd Edition
14.	Calcium as Ca	mg/l	73.74	75	200	APHA: 3500-Ca B 23 rd Edition
15.	Mg. Hardness	mg/l	32.0	--	-	APHA: 3500-Mg B 23 rd Edition
16.	Magnesium as Mg	mg/l	7.80	30	100	APHA: 3500-Mg B 23 rd Edition
17.	Amn. Nitrogen	mg/l	1.24	--	-	IS 3025 (Part 34) 1988 (RA 2014)
18.	Nitrate	mg/l	1.44	45	100	IS 3025 (Part 34)(3) 1988 (RA 2014)
19.	Phosphate	mg/l	1.56	-	-	APHA: 4500-PC 23 rd Edition
20.	Cadmium	mg/l	<0.1	0.003	0.01	APHA: 3111 B 23 rd Edition
21.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 B 23 rd Edition

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S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible limit in the absence of alternate source	Method Used
22.	Iron	mg/l	0.34	0.3	1.0	APHA: 3500 Fe-B 23 rd Edition
23.	Lead	mg/l	<0.15	0.01	.	APHA: 3111 B 23 rd Edition
24.	Manganese	mg/l	<0.03	0.1	0.3	APHA: 3111 B 23 rd Edition
25.	Zinc	mg/l	1.24	5	15.0	APHA: 3111 B 23 rd Edition

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Analyst:



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1. Name & Address of Client: - M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004	9. Reporting Date: 10/03/2023
2. Sample ID: 015MAR23GW08	10. Packing Condition & Quantity: Packed bottle & 3 Ltr.
3. Location: Near village Golwa, Tehsil-Narnaul, district-Mahendragarh(HR)	
5. Sampling Date: 26/02/2023	6. Sample Drawn By: OTH&RC Team
7. Analysis Commenced Date: 05/03/2023	8. Analysis completed on: 10/03/2023
4. Sample Category: Ground Water	

TEST RESULTS(Ground Water)

S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
1.	pH		7.68	6.5-8.5	-	APHA: 4500-H ⁺ H 23 rd Edition
2.	Conductivity	mS/cm	58.0	-	-	APHA: 2510 II. 23 rd Edition
3.	Turbidity	NTU	<1.0	1	10	APHA: 2130 B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	25	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	Total Dissolved Solids	mg/l	412.00	500	2000	APHA: 2540 C 23 rd Edition
6.	Alkalinity	mg/l	116.0	200	600	APHA: 2320 B Alkalinity 23 rd Edition
7.	Chloride	mg/l	74.0	250	1000	APHA: 4500-Cl ⁻ H 23 rd Edition
8.	Sulphate	mg/l	62.0	200	400	APHA: 4500-SO ⁴ F 23 rd Edition
9.	Fluoride	mg/l	0.92	1.0	1.5	APHA: 4500-F D 23 rd Edition
10.	Sodium	mg/l	26.4	-	-	APHA: 3500-Na B 23 rd Edition
11.	Potassium	mg/l	16.4	-	-	APHA: 3500-K B 23 rd Edition
12.	Total Hardness	mg/l	310	200	-	APHA: 2340 C 23 rd Edition
13.	Ca. Hardness	mg/l	192.0	-	-	APHA: 3500-Ca B 23 rd Edition
14.	Calcium as Ca	mg/l	77.66	75	200	APHA: 3500-Ca B 23 rd Edition
15.	Mg. Hardness	mg/l	118.0	-	-	APHA: 3500-Mg B 23 rd Edition
16.	Magnesium as Mg	mg/l	28.74	30	100	APHA: 3500-Mg B 23 rd Edition
17.	Amm. Nitrogen	mg/l	1.32	-	-	IS 3025 (Part 34) 1988 (RA 2014)
18.	Nitrate	mg/l	1.48	45	100	IS 3025 (Part 34) 1988 (RA 2014)
19.	Phosphate	mg/l	1.52	-	-	APHA: 4500-PO 23 rd Edition
20.	Cadmium	mg/l	<0.1	0.003	0.01	APHA: 3111 B 23 rd Edition
21.	Copper	mg/l	<0.03	0.05	1.5	APHA: 3111 B 23 rd Edition

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S. No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Permissible Limit in the absence of alternate source	Method Used
22.	Iron	mg/l	0.66	0.3	1.0	APHA: 3500 Fe-B 23 rd Edition
23.	Lead	mg/l	<0.15	0.01	.	APHA: 3111 B 23 rd Edition
24.	Manganese	mg/l	<0.03	0.1	0.3	APHA: 3171 D 23 rd Edition
25.	Zinc	mg/l	1.24	5	15.0	APHA: 3111 B 23 rd Edition

Arun Omte

Analyst:

Authorized Signatory:

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TEST REPORT

1. Name & Address of Client: M/s :- Govinda Gopal Infra Solutions Pvt.ltd	2. Sample ID: 015MAR23SW01
3. Location: (Kishanwan, River Hupwind)	4. Sample Category: Surface Water
5. Sampling Date: 22/02/2023	6. Sample Drawn by: OTHRC Team
7. Analysis Commenced Date: 05/03/2023	8. Analysis Completed on: 10/03/2023
9. Reporting Date: 10/03/2023	10. Packing Condition & Quantity: Packed bottle & 3 Ltr.

TEST RESULTS(SURFACE WATER)

S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Method Used
1.	pH	-	7.54	6.5-8.5	APHA: 4500 H-23 rd Edition
2.	Conductivity	mS/cm	42.0	--	APHA: 2510 B-23 rd Edition
3.	Turbidity	NTU	<1.0	1	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	COB	mg/l	32.0	--	APHA: 5220 B-23 rd Edition
6.	Total Dissolved Solids	mg/l	310.0	500	APHA: 2540 C-23 rd Edition
7.	BOD	mg/l	128.0	--	APHA: 4500 D-C-23 rd Edition
8.	Alkalinity	mg/l	116.0	200	APHA: 2320 D-Alkalinity 23 rd Edition
9.	Chloride	mg/l	92.0	250	APHA: 4500-Cl B-23 rd Edition
10.	Sulphate	mg/l	64.0	200	APHA: 4500-SO ₄ B-23 rd Edition
11.	Fluoride	mg/l	0.58	1.0	APHA: 4500-F-D-23 rd Edition
12.	Sodium	mg/l	511.4	--	APHA: 3500-Na B-23 rd Edition
13.	Potassium	mg/l	14.8	--	APHA: 3500-K B-23 rd Edition
14.	Total Hardness	mg/l	224	200	APHA: 2340 C-23 rd Edition
15.	Ca. Hardness	mg/l	176.0	--	APHA: 3500-Ca B-23 rd Edition
16.	Calcium as Ca	mg/l	70.54	75	APHA: 3500-Ca B-23 rd Edition
17.	Mg. Hardness	mg/l	48.00	--	APHA: 3500-Mg B-23 rd Edition
18.	Magnesium as Mg	mg/l	11.69	30	APHA: 3500 - Mg B-23 rd Edition
19.	Amn. Nitrogen	mg/l	1.24	--	IS 3025 (Part 34) 1988 (RA 2014)
20.	Nitrate	mg/l	1.52	45	IS 3025 (Part 34)(3) 1988 (RA 2014)
21.	Phosphate	mg/l	1.66	--	APHA: 4500-P-23 rd Edition

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22.	Cadmium	mg/l	<1.0	0.003	APHA: 3111 B 23 rd Edition
23.	Copper	mg/l	0.03	0.05	APHA: 3111 B 23 rd Edition
24.	Iron	mg/l	0.62	0.4	APHA: 3500 Fe-B 23 rd Edition
25.	Lead	mg/l	<0.15	0.01	APHA: 3111 B 23 rd Edition
26.	Manganese	mg/l	<0.04	0.1	APHA: 3111 B 23 rd Edition
27.	Zinc	Mg/l	1.30	5	APHA: 3111 B 23 rd Edition



Analyst:

Authorized Signatory:

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1. Name & Address of Client: - M/s. Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004	4. Sample Category: Surface Water
2. Sample ID: 015MAR23SW02	6. Sample Drawn by: OTHRC Team
3. Location: (Krisinawati River) (downwind)	8. Analysis completed on: 10/03/2023
5. Sampling Date: 26/02/2023	10. Packing Condition & Quantity: Packed bottle & 3 Ltr.
7. Analysis Commenced Date: 05/03/2023	
9. Reporting Date: 10/03/2023	

TEST RESULTS(SURFACE WATER)

S.No.	Parameters	Unit (SI)	Results	Specification/ SPCB Norms/BIS Standards	Method Used
1.	pH	-	7.62	6.5-8.5	APHA: 4500-H-B 23 rd Edition
2.	Conductivity	µS/cm	400	--	APHA: 2510 B. 23 rd Edition
3.	Turbidity	NTU	<1.0	1	APHA: 2130-B Nephelometric Method 23 rd Edition
4.	Colour	Pt-Co	<5.0	5	APHA: 2120-b Visual Comparison Method 23 rd Edition
5.	COD	mg/l	142.0	--	APHA: 5220 B 23 rd Edition
6.	Total Dissolved Solids	mg/l	324	500	APHA: 2540 C 23 rd Edition
7.	BOD	mg/l	32.0	--	APHA: 4500 O-C 23 rd Edition
8.	Alkalinity	mg/l	118.0	200	APHA: 2320 B Alkalinity 23 rd Edition
9.	Chloride	mg/l	112.0	250	APHA: 4500-Cl B 23 rd Edition
10.	Sulphate	mg/l	84.4	200	APHA: 4500-SO ₄ E 23 rd Edition
11.	Fluoride	mg/l	1.24	1.0	APHA: 4500-F-D 23 rd Edition
12.	Sodium	mg/l	86.0	--	APHA: 3500-Na H 23 rd Edition
13.	Potassium	mg/l	54.2	--	APHA: 3500-K B 23 rd Edition
14.	Total Hardness	mg/l	262	200	APHA: 2340 C 23 rd Edition
15.	Ca Hardness	mg/l	184.0	--	APHA: 3500-Ca H 23 rd Edition

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16.	Calcium as Ca	mg/l	73.74	75	APHA: 3500-Ca B 23 rd Edition
17.	Mg. Hardness	mg/l	70.6	..	APHA: 3500-Mg B 23 rd Edition
18.	Magnesium as Mg	mg/l	19.00	30	APHA: 3500 - Mg B 23 rd Edition
19.	Amo. Nitrogen	mg/l	1.54	..	IS 3025 (Part 34) 1988 (RA 2014)
20.	Nitrate	mg/l	2.56	45	IS 3025 (Part 34) 13 1988 (RA 2014)
21.	Phosphate	mg/l	1.82	..	APHA: 4500-PO 23 rd Edition
22.	Cadmium	mg/l	<1.0	0.003	APHA: 3111 B 23 rd Edition
23.	Copper	mg/l	<0.03	0.05	APHA: 3111 B 23 rd Edition
24.	Iron	mg/l	0.64	0.3	APHA: 3500 Fe-B 23 rd Edition
25.	Lead	mg/l	<0.15	0.01	APHA: 3111 B 23 rd Edition
26.	Manganese	mg/l	0.64	0.1	APHA: 3111 B 23 rd Edition
27.	Zinc	Mg/l)	172	5	APHA: 3111 B 23 rd Edition

Analyst:

Authorized Signatory:

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TEST REPORT

1.	Name & Address of Client: M/S. Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: 015MAR23SS01	3.	Reporting Date: 10/03/2023
4.	Location: Mine site, Tehsil-Narwaal, district-Mahendragarh(HR)		
5.	Sampling Date: - 20/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Season: Winter	10.	Packing Condition & Quantity: 2.0 kg

TEST RESULTS

SOIL REPORT

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		7.76	IS 2720 (part-26)1987(RA-2011)
2.	Conductivity	mS/cm	42.0	IS :14767-2000 (RA-2010)
3.	Moisture content	%	5.52	IS:2720 (part-2)1971 (RA-2010)
4.	WFC	%	34.28	LAB-SOP-049
5.	Specific Gravity	-	2.64	IS:2720 (part-3)
6.	Porosity	%	37.12	IS 2720 (part-7)1980(RA-2010)
7.	Bulk density	gm/ml	1.66	IS:1462-1985(RA-2006)
8.	Available sodium	kg/ha	116.0	LAB-SOP-059
9.	Available potassium	kg/ha	96.0	LAB-SOP-060
10.	Available calcium	mg/100g	124.0	LAB-SOP-061
11.	Available Magnesium	mg/100g	22.34	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.072	14636-1999(RA-2014)
13.	Total Phosphate	kg/ha	44.52	LAB-SOP-063
14.	Cadmium	Mg/kg	1.92	USEPA3050B
15.	Copper	Mg/kg	172.34	USEPA3050B
16.	Lead	Mg/kg	0.92	USEPA3050B
17.	Manganese	Mg/kg	7.42	USEPA3050B
18.	Zinc	Mg/kg	94.0	USEPA3050B
19.	Iron	Mg/kg	1682	USEPA3050B
20.	Boron	Mg/kg	<0.5	LAB-SOP-96
21.	CEC(Cationexchange Capacity)	Meq/100gm	20.14	LAB-SOP-045
22.	Organic Carbon	%	0.02	IS:2720 (part-22)
23.	Available Nitrogen	%	1.32	LAB-SOP-95
24.	Available phosphorus	Kg/ha	34.28	LAB-SOP-94

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25	ESP(Exchangeable Sodium Percentage)	%	6.42	LAB MH-065
26	Texture:		Clay loamy Soil	Is :- 2720(part-4)
27	SAND	%	18.90	Is :- 2720(part-4)
27	silt	%	16.52	Is :- 2720(part-4)
28	clay	%	64.58	Is :- 2720(part-4)

27/11/23



Authorized Signatory:

Analyst:

Remark :-

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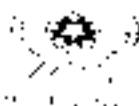
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**TEST REPORT**

1.	Name & Address of Client: - M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: 015MAR23SS02	3.	Reporting Date: 10.03.2023
4.	Location N/V: Jaipur, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Sampling Date: 21/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Season: WINTER	10.	Packaging Condition & Quantity: 2.0 kg

TEST RESULTS**SOIL REPORT**

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		6.42	Is 2720 (part-2)1973(RA-2010)
2.	Conductivity	ms/m	42.0	Is:14767-2000 (RA-2010)
3.	Moisture content	%	5.12	Is 2720 (part-2)1973 (RA-2010)
4.	WBC	%	32.48	LAB-SOP-049
5.	Specific Gravity	-	2.64	Is:2720 (part-3)
6.	Density	%	34.84	Is 2720(part-7)1980(IA-2010)
7.	Bulk density	gm/ml	1.72	Is:1462-1985(RA-2006)
8.	Available sodium	kg/ha	110.24	LAB-SOP-059
9.	Available potassium	kg/ha	92.0	LAB-SOP-060
10.	Available calcium	mg/100g	82.0	LAB-SOP-061
11.	Available Magnesium	mg/100g	17.44	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.034	14614:1999(RA-2014)
13.	Total Phosphate	kg/ha	42.34	LAB-SOP-063
14.	Cadmium	Mg/kg	1.24	USEPA1050B
15.	Copper	Mg/kg	156.0	USEPA3050I
16.	Lead	Mg/kg	1.28	USEPA3050B
17.	Manganese	Mg/kg	2.11	USEPA3050B
18.	Zinc	Mg/kg	172.0	USEPA3050B
19.	Iron	Mg/kg	2042	USEPA3050B
20.	Boron	Mg/kg	<0.5	USEPA3050B
21.	CEC (Cation Exchange Capacity)	Meq/100gm	21.46	LAB-SOP-96
22.	Organic Carbon	%	0.10	LAB-SOP-085
23.	Available Nitrogen	%	1.24	Is:2720 (part-22)
24.	Available phosphorus	Kg/ha	28.46	LAB-SOP-95
				LAB-SOP-94

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LAB SOP-085

25	ESP (Exchangeable Sodium Percentage)	%	6.43	Is:-2720(part-4)
26	Texture:		Sandy loam	Is:-2720(part-4)
27	SAND	%	66.48	Is:-2720(part-4)
27	silt	%	24.56	Is:-2720(part-4)
28	Clay	%	14.54	Is:-2720(part-4)

Int 5 101



Analyst:

Authorized Signatory:

Remark :-

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Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.omtc@gmail.com**TEST REPORT**

1	Name & Address of Client:- M/s :- Govinda Gopal Infra Solutions Pvt.ltd		
	212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2	Sample ID: 015MAR23SS03	3.	Reporting Date: 10/03/2023
4	Location: Near village Dholera, Tehsil-Narnaul, district-Mahendragurh(HR)		
5	Sampling Date: 25/02/2023		
7	Analysis Commenced Date: 05/03/2023		
6.	Sample Drawn By: OTH&RC Team		
8.	Analysis completed on: 10/03/2023		
9	Season: - Winter		
10.	Packing Condition & Quantity: 2.0 kg		

TEST RESULTS**SOIL REPORT**

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		7.74	IS 2720 (part 2)1987(RA-2011)
2.	Conductivity	mS/m	40.0	IS:14767-2000 (RA-2010)
3	Moisture content	%	4.28	IS-2720 (part-2)1973 (RA-2010)
4.	WHC	%	31.42	LAB-SOP-049
5.	Specific Gravity	-	2.60	IS:2720 (part-3)
6.	Porosity	%	35.90	IS 2720 (part-7)1989(ISA 2010)
7.	Bulk density	gm/ml	1.64	IS:1462-1985(RA-2006)
8.	Available sodium	kg/ha	178.6	LAB-SOP-059
9.	Available potassium	kg/ha	92.4	LAB-SOP-060
10.	Available calcium	mg/100g	102.4	LAB-SOP-061
11	Available Magnesium	mg/100g	32.48	LAB-SOP-062
12	Nitrate Nitrogen	%	0.041	14684:1999(RA-2014)
13	Total Phosphate	kg/ha	41.56	LAB-SOP-063
14	Cadmium	Mg/kg	1.48	USEPA3050B
15	Copper	Mg/kg	138.0	USEPA3050B
16	Lead	Mg/kg	1.16	USEPA3050B
17	Manganese	Mg/kg	3.20	USEPA3050B
18	Zinc	Mg/kg	32.42	USEPA3050B
19	Iron	Mg/kg	1974	USEPA3050B
20	Boron	Mg/kg	<0.5	LAB-SOP-96
21	CEC(Cationexchange Capacity)	Meq/100gm	21.46	LAB-SOP-085
22	Organic Carbon	%	0.66	IS:2720 (part-22)
23	Available Nitrogen	%	1.26	LAB-SOP-95
24	Available phosphorus	Kg/ha	32.42	LAB-SOP-94
25	ESP(Exchangeable)	%	5.62	LAB-SOP-085

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Sodium Percentage)		Loamy soil		Is - 2720(part-4)
26	Texture:			Is - 2720(part-4)
27	SAND	%	18.40	Is - 2720(part-4)
27	silt	%	66.42	Is - 2720(part-4)
28	clay	%	15.16	Is - 2720(part-4)

4-13-23



Authorized Signatory:

Analyst:

Remarks:-

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TEST REPORT

1.	Name & Address of Client: M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: OISMAR235504	3.	Reporting Date: 10/03/2023
4.	Location: Near village Nangal Chaudhari, Tehsil-Narnaul,district-Mahendragarh(HR)		
5.	Sampling Date: 21/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on : 10/03/2023
9.	Season: WINTER	10.	Packing Condition & Quantity: 2.0 kg

TEST RESULTS**SOIL REPORT**

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		7.82	Is:2720 (part-20)1987(RA-2011)
2.	Conductivity	mS/m	42.0	Is:14767-2000 (RA-2010)
3.	Moisture content	%	4.12	Is:2720 (part-2)1973(RA-2010)
4.	WVIC	%	32.42	LAB-SOP-049
5.	Specific Gravity	-	2.62	Is:2720 (part-3)
6.	Porosity	%		Is:2720 (part-7)1989(RA-2010)
7.	Bulk density	gm/ml	1.68	Is:1462-1985(RA-2006)
8.	Available sodium	kg/ha	114.0	LAB-SOP-059
9.	Available potassium	kg/ha	76.0	LAB-SOP-060
10.	Available calcium	mg/100g	114.0	LAB-SOP-061
11.	Available Magnesium	mg/100g	28.4	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.052	14684-1999(RA-2014)
13.	Total Phosphate	kg/ha	46.28	LAB-SOP-063
14.	Cadmium	Mg/kg	1.42	USEPA3050B
15.	Copper	Mg/kg	224.0	USEPA3050B
16.	Lead	Mg/kg	1.16	USEPA3050B
17.	Manganese	Mg/kg	2.26	USEPA3050B
18.	Zinc	Mg/kg	142.0	USEPA3050B
19.	Iron	Mg/kg	2018	USEPA3050B
20.	Boron	Mg/kg	<0.5	USEPA3050B
21.	CEC [Cationexchange Capacity]	Meq/100gm	64.82	LAB-SOP-96
22.	Organic Carbon	%	0.78	LAB-SOP-085
23.	Available Nitrogen	%	1.26	Is:2720 (part-22)
24.	Available phosphorus	kg/ha	38.42	LAB-SOP-95
				LAB-SOP-94

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25	ESP (Exchangeable Sodium Percentage)	%	5.12	LAB SOP-085
26	Texture:		Sandy Clay loam	Is:-2720(part-4)
27	SAND	%	66.54	Is:-2720(part-4)
27	silt	%	16.24	Is:-2720(part-4)
28	clay	%	17.22	Is:-2720(part-4)



1/11/23

Analyst:

Authorized Signatory:

Remarks:

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1.	Name & Address of Client: - M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: 015MAR23SS05	3.	Reporting Date: 10/03/2023
4.	Location: Near Village Sirohi Bahali, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Sampling Date: 22/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Season: - WINTER	10.	Packing Condition & Quantity: 2.0 kg

TEST RESULTS**SOIL REPORT**

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		7.58	Is: 2720 (part-2)1987(RA-2011)
2.	Conductivity	ms/cm	42.0	Is: 14767-2000 (RA-2010)
3.	Moisture content	%	4.28	Is: 2720 (part-2)1973 (RA-2010)
4.	WHC	%	32.48	LAB-SOP-049
5.	Specific gravity	-	2.64	Is: 2720 (part-3)
6.	Porosity	%	32.48	IS 2720 (part-7)1989(RA-2019)
7.	Bulk density	gm/cm ³	1.78	Is: 1462 1985(RA-2006)
8.	Available sodium	kg/ha	118.0	LAB-SOP-059
9.	Available potassium	kg/ha	92.0	LAB-SOP-060
10.	Available calcium	mg/100g	112.0	LAB-SOP-061
11.	Available Magnesium	mg/100g	20.42	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.056	14684:1999(RA-2014)
13.	Total Phosphate	kg/ha	38.42	LAB-SOP-063
14.	Calcium	Mg/kg	1.82	USEPA3050B
15.	Copper	Mg/kg	162.0	USEPA3050B
16.	Lead	Mg/kg	1.12	USEPA3050B
17.	Manganese	Mg/kg	1.18	USEPA3050B
18.	Zinc	Mg/kg	206.4	USEPA3050B
19.	Iron	Mg/kg	2148	USEPA3050B
20.	Boron	Mg/kg	<0.5	LAB-SOP-96
21.	CEC(Cationexchange Capacity)	Meq/100gm	24.42	LAB-SOP-085
22.	Organic Carbon	%	0.18	Is: 2720 (part-22)
23.	Available Nitrogen	%	0.98	LAB-SOP-95
24.	Available phosphorus	Kg/ha	24.82	LAB-SOP-94

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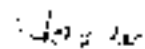
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25	ESP (Exchangeable Sodium Percentage)	%	4.82	LAB SOP-085
26	Texture	Clay loamy Soil		Is :- 2720(part-4)
27	SAND	%	19.04	Is :- 2720(part-4)
27	silt	%	18.42	Is :- 2720(part-4)
28	clay	%	62.54	Is :- 2720(part-4)



Analyst:



Authorized Signatory:

Remarks :

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1.	Name & Address of Client:- M/s:- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram,-122004		
2.	Sample ID: 015MAR23SSUS	3.	Reporting Date: 10/03/2023
4.	Location :- NEAR village Niyaz Alipur, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Sampling Date: 22/03/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Season :- WINTER	10.	Packing Condition & Quantity: 2.0 kg

TEST RESULTS**SOIL REPORT**

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		7.66	IS 2720 (part 26)1987(RA-2011)
2.	Conductivity	mS/cm	36.42	IS:14767-2000 (RA-2010)
3.	Moisture content	%	3.64	IS:2720 (part 2)1973 (RA-2010)
4.	WUTC	%	31.74	LAB-SOP-049
5.	Specific Gravity	-	2.66	IS:2720 (part-3)
6.	Porosity	%	32.48	IS 2720 (part-7)1980(RA-2010)
7.	Bulk density	gm/ml	1.70	IS:1462-1985(RA-2006)
8.	Available sodium	kg/ha	119.0	LAB-SOP-059
9.	Available potassium	kg/ha	92.0	LAB-SOP-060
10.	Available calcium	mg/100g	98.0	LAB-SOP-061
11.	Available Magnesium	mg/100g	20.48	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.042	14684:1999(RA-2014)
13.	Total Phosphate	kg/ha	42.34	LAB-SOP-063
14.	Cadmium	Mg/kg	1.02	USEPA3050B
15.	Copper	Mg/kg	192.0	USEPA3050B
16.	Lead	Mg/kg	1.28	USEPA3050B
17.	Manganese	Mg/kg	1.24	USEPA3050B
18.	Zinc	Mg/kg	216.0	USEPA3050B
19.	Iron	Mg/kg	2162	USEPA3050B
20.	Boron	Mg/kg	<0.5	LAB-SOP-96
21.	CEC (Cation exchange Capacity)	Meq/100gm	22.14	LAB-SOP-085
22.	Organic Carbon	%	0.74	IS:2720 (part-22)
23.	Available Nitrogen	%	0.92	LAB-SOP-95
24.	Available phosphorus	Kg/ha	20.42	LAB-SOP-94

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25	ESP (Exchangeable Sodium Percentage)	%	6.28	LAR SOP-085
26	Texture:		Sandy Clay loam	Is - 2720 (part-4)
27	SAND	%	68.42	Is - 2720 (part-4)
27	silt	%	16.42	Is - 2720 (part-4)
28	clay	%	15.16	Is - 2720 (part-4)

Lab No. 12



Analyst:

Authorized Signatory:

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6. Discrepancy in any test results should be reported within 15 days.

IAS-ANZ

Lab Address: Plot No -09, Gali NO-01, Subhash Colony, Kalwar Road, Jhotwara, Jaipur - 302012,
E-mail: overseastesthouse@gmail.com

2726204/2023/Estt.Br

OVERSEAS TEST HOUSE & RESEARCH CENTRE PVT. LTD.

[An ISO 9001:2015, 14001:2004, OHSAS 18001:2007 Certified & NABL Accredited Laboratory]

Regd. Address: 501, 5th Floor, Apex Tower, Tonk Road, Jaipur-302015,Tel: +91 141-2744509, Mobile: +91-9460221084, E-mail: arug.omtc@gmail.com**TEST REPORT**

1.	Name & Address of Client: M/s :- Govinda Gopal Infra Solutions Pvt.ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004		
2.	Sample ID: 015MAR23S07	3.	Reporting Date: 10.03.2023
4.	Location :- Near village Salarpur, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Sampling Date: 22/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Season: -- WINTER	10.	Packaging Condition & Quantity: 2.0 kg

TEST RESULTS**SOIL REPORT**

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		7.54	Is 2720 (part-26)1987(RA-2011)
2.	Conductivity	mb/m	520	Is:14767-2000 (RA-2010)
3.	Moisture content	%	4.52	Is:2720 (part-2)1973 (RA-2010)
4.	WHC	%	33.24	LAB SOP-049
5.	Specific Gravity	-	2.64	Is:2720 (part-3)
6.	Porosity	%	37.67	Is 2720 (part-7)1980(RA-2010)
7.	Bulk density	gm/ml	1.64	Is:1462:1985(RA-2006)
8.	Available sodium	kg/ha	192	LAB-SOP-059
9.	Available potassium	kg/ha	172	LAB-SOP-060
10.	Available calcium	mg/100g	234	LAB-SOP-061
11.	Available Magnesium	mg/100g	24.51	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.044	14684:1979(RA-2014)
13.	Total Phosphate	kg/ha	36.42	LAB-SOP-063
14.	Cadmium	Mg/kg	1.32	USEPA3050B
15.	Copper	Mg/kg	106	USEPA3050B
16.	Lead	Mg/kg	1.28	USEPA3050B
17.	Manganese	Mg/kg	1.30	USEPA3050B
18.	Zinc	Mg/kg	128	USEPA3050B
19.	Iron	Mg/kg	1982	USEPA3050B
20.	Boron	Mg/kg	<0.5	USEPA3050B
21.	CEC (Cation exchange Capacity)	Meq/100gm	21.42	LAB SOP-96
22.	Organic Carbon	%	0.68	LAB SOP-085
23.	Available Nitrogen	%	0.056	Is 2720 (part-72)
24.	Available phosphorus	Kg/ha	25.42	LAB SOP-95 LAB SOP-94

AS-ANZ

Lab Address: Plot.No -09, Gali.No-01, Subhash Colony, Kalwar Road Jhotwara, Jaipur - 302012,
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 Tel. +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.omtc@gmail.com

25	CSP Exchangeable Sodium Percentage]	%	9.24	LAB SOP-085
26	Texture.		loamy Soil	Is:-2720(part-1)
27	SAND	%	19.38	Is:-2720(part-1)
27	silt	%	60.24	Is:-2720(part-1)
28	clay	%	20.30	Is:-2720(part-1)

for 12



Authorized Signatory:

Analyst:

Remarks:

1. MoEF&CC New Delhi recognition under the Environment (Protection) Act 1986. Vide gazette notification No.
2. Complaint Register is available in Lab. Email ID overseastesthouse@gmail.com.
3. The results listed refer only to the tested sample(s) and parameter(s). Endorsement of product is neither inferred nor implied.
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IAS-AMZ Lab Address: Plot No -09, Gali NO-01, Subhash Colony, Kalwar Road Jhotwara, Jaipur - 302012,
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 Tel: +91-141-2744509, Mobile: +91-9460221084, E-mail: arun.omtc@gmail.com

TEST REPORT

1.	Name & Address of Client: M/s - Govinda Gopal Infra Solutions Pvt.Ltd 212 DIF Corporate Green SPR Road Sector 74A Gurugram, -122004		
2.	Sample ID: 015MAR23SS08	3.	Reporting Date: 10/03/2023
4.	Location: Near village Golwa, Tehsil-Narnaul, district-Mahendragarh(HR)		
5.	Sampling Date: 22/02/2023	6.	Sample Drawn By: OTH&RC Team
7.	Analysis Commenced Date: 05/03/2023	8.	Analysis completed on: 10/03/2023
9.	Season: WINTER	10.	Packing Condition & Quantity: 2.0 kg

TEST RESULTS

SOIL REPORT

S.No	Parameters	Unit (SI)	Results	Method Used
1.	pH		7.66	IS 2720 (part-26)1987(RA-2011)
2.	Conductivity	mcS/cm	60.0	IS:14767-2000 (RA-2010)
3.	Moisture content	%	5.62	IS:2720 (part-2)1973 (RA-2010)
4.	WHC	%	34.22	LAB-SOP-049
5.	Specific Gravity	-	2.66	IS:2720 (part-3)
6.	Porosity	%	39.09	IS 2720 (part-7)1980(RA-2010)
7.	Bulk density	gm/cm ³	1.62	IS:1462 1085(RA-2006)
8.	Available sodium	kg/ha	196	LAB-SOP-059
9.	Available potassium	kg/ha	170	LAB-SOP-060
10.	Available calcium	mg/100g	236	LAB-SOP-061
11.	Available Magnesium	mg/100g	26.54	LAB-SOP-062
12.	Nitrate Nitrogen	%	0.046	146H4:1999(RA-2014)
13.	Total Phosphate	kg/ha	36.24	LAB-SOP-063
14.	Cadmium	Mg/kg	1.34	USEPA3050B
15.	Copper	Mg/kg	108	USEPA3050H
16.	Lead	Mg/kg	1.30	USEPA3050F
17.	Manganese	Mg/kg	1.12	USEPA3050R
18.	Zinc	Mg/kg	134	USEPA3050H
19.	Iron	Mg/kg	2042	USEPA3050R
20.	Boron	Mg/kg	<0.5	LAB-SOP-96
21.	CEC(Cation exchange Capacity)	Meq/100g	21.34	LAB-SOP-083
22.	Organic Carbon	%	0.66	IS:2720 (part-22)
23.	Available Nitrogen	%	0.058	LAB-SOP-95
24.	Available phosphorus	Kg/ha	26.54	LAB-SOP-94

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 E-mail: overseastesthouse@gmail.com



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25	ESU(Exchangeable Sodium Percentage)	%	0.28	LAB 509-085
26	Texture:		LOAMY SOIL.	Is :- 2720(part-4)
27	SAND	%	20.34	Is :- 2720(part-4)
27	silt	%	66.34	Is :- 2720(part-4)
28	clay	%	13.32	Is :- 2720(part-4)



Analyst:

Authorized Signatory:

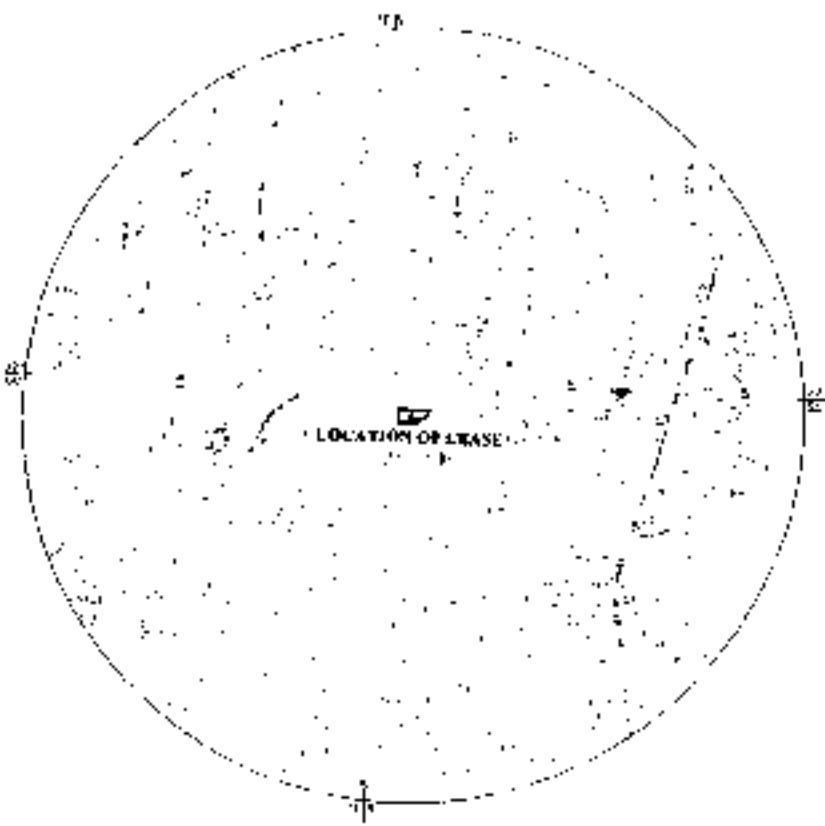
Remark :-

1. MoEF&CC New Delhi recognition under the Environment (Protection) Act 1986, Vide gazette notification No...
2. Complaint Register is available in Lab Email ID overseastesthouse@gmail.com.
3. The results listed refer only to the tested sample(s) and parameter(s), Endorsement of product is neither inferred nor implied.
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IAS-ANZ Lab Address: Plot No -09, Gali No-01, Subhash Colony, Kalwar Road (hotwara, Jaipur - 302012, E-mail: overseastesthouse@gmail.com



Part of Topo Sheet No.- 54 A/E



INDEX	
1	LEASE TERRITORY
2	UNIMPLED ROAD
3	CART TRACK
4	CONTOUR LINES
5	VILLAGE
6	TEMPLE
7	WATER HOLES
8	WELL



PLATE NO. 1

JAINPUR STONE MINE (MINOR MINERAL)

NEAR VILLAGE - JAINPUR, DISTRICT - BHILAINPUR,
DISTRICT - NARMADAPUR, STATE - MADHYA PRADESH

LEASE AREA - 1.14 HECTARE

APPLICANT - M/S. JAINPUR STONE MINE, LTD.

SCALE - 1 CM = 100 M. DATE - 30-04-2023

This is certified that the plan is prepared based on the lease map authenticated by the State Govt and are correct to the best of my knowledge.

[Signature]
 State Surveyor

[Signature]
 State Surveyor

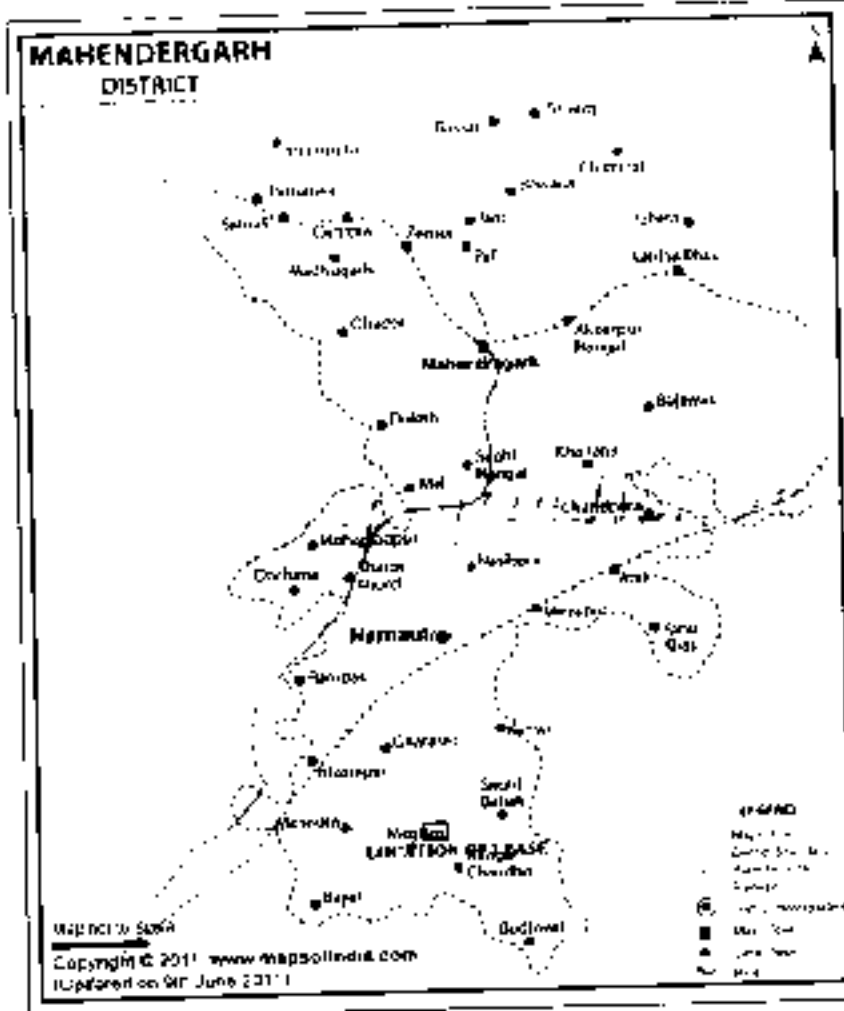


PLATE NO. 2

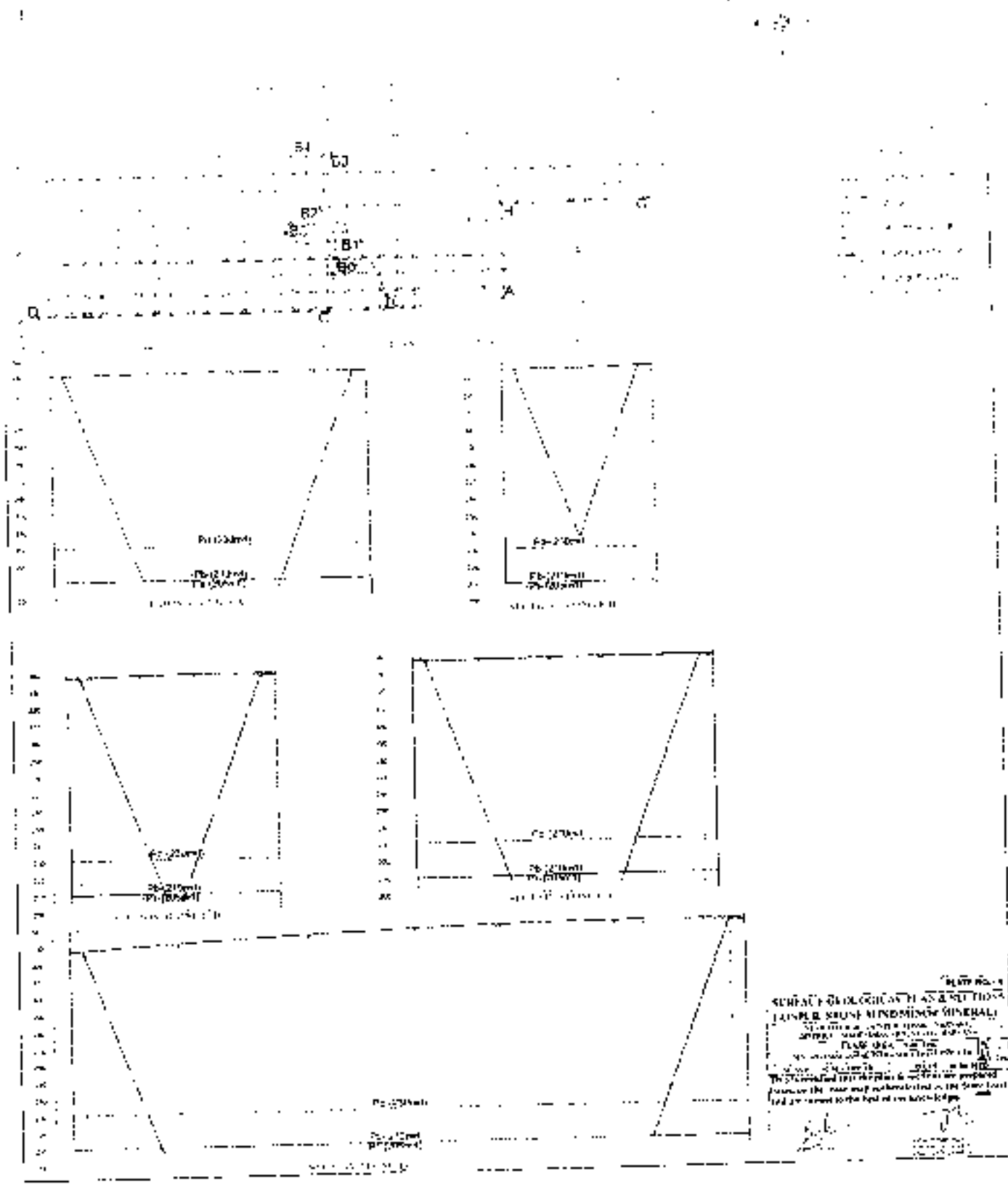
LOCATION PLAN
JAINER STONE MINING MINERAL

NEAR VILLAGE - JAINER
DISTRICT - MAHENDERGARH
LEASE AREA - 100 HECTARE
NOTIFICATION NUMBER - 1000/2023

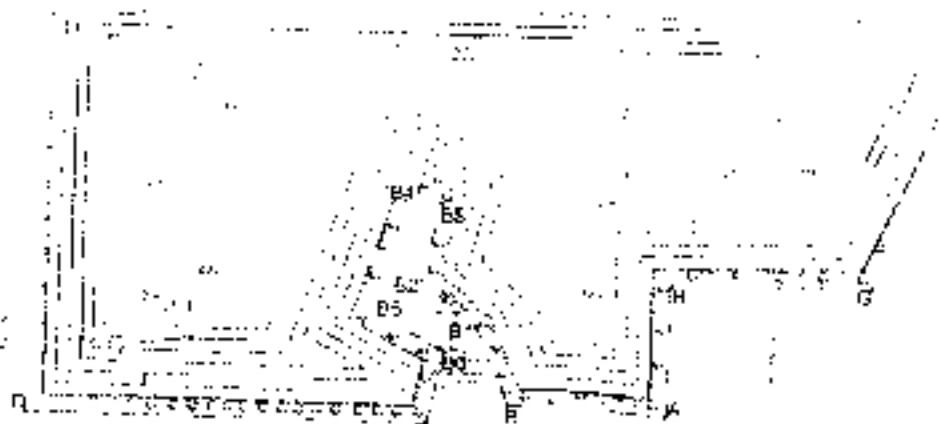
SCALE - NOT TO SCALE
This is certified that the plan is prepared based on the frame map authenticated by the State Govt. and are correct to the best of my knowledge.

[Signature]
T. S. SINGH
T. S. SINGH

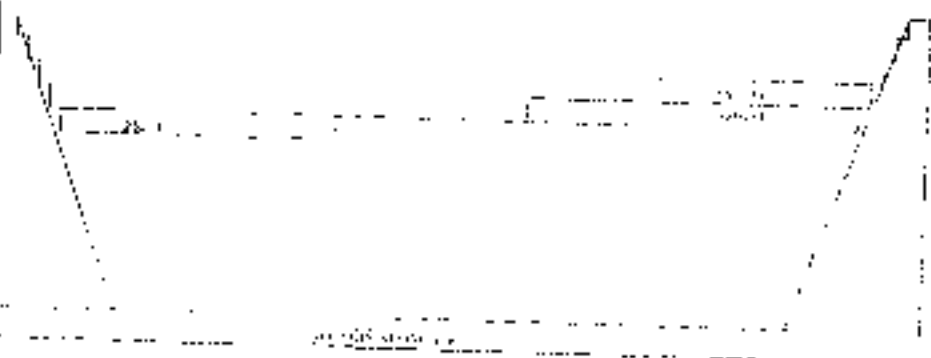
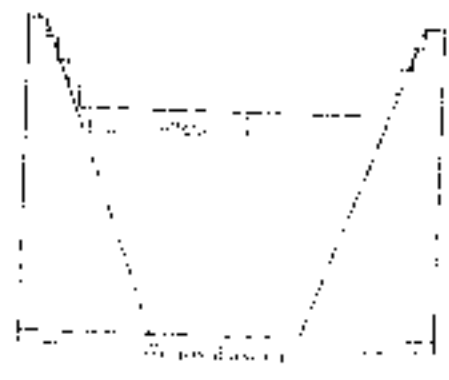
[Signature]
T. S. SINGH
T. S. SINGH

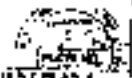


Sheet No. 1



1	Proposed Building
2	Proposed Road
3	Proposed Drainage
4	Proposed Utility
5	Proposed Fencing
6	Proposed Landscaping
7	Proposed Parking
8	Proposed Access
9	Proposed Retention Wall
10	Proposed Stormwater Management
11	Proposed Security
12	Proposed Signage
13	Proposed Lighting
14	Proposed Fire Protection
15	Proposed Safety
16	Proposed Maintenance
17	Proposed Energy
18	Proposed Water
19	Proposed Air
20	Proposed Noise
21	Proposed Vibration
22	Proposed Pollution
23	Proposed Climate Change
24	Proposed Biodiversity
25	Proposed Cultural Heritage
26	Proposed Socio-Economic
27	Proposed Health
28	Proposed Education
29	Proposed Employment
30	Proposed Community
31	Proposed Governance
32	Proposed Transparency
33	Proposed Accountability
34	Proposed Integrity
35	Proposed Ethics
36	Proposed Values
37	Proposed Principles
38	Proposed Standards
39	Proposed Best Practices
40	Proposed Innovation
41	Proposed Leadership
42	Proposed Collaboration
43	Proposed Partnership
44	Proposed Stakeholder Engagement
45	Proposed Risk Management
46	Proposed Crisis Management
47	Proposed Business Continuity
48	Proposed Resilience
49	Proposed Sustainability
50	Proposed Social Responsibility





 I, **MR. [Name]**, a Professional Engineer, do hereby certify that the above is a true and correct copy of the original drawings as submitted to me for my review and approval.

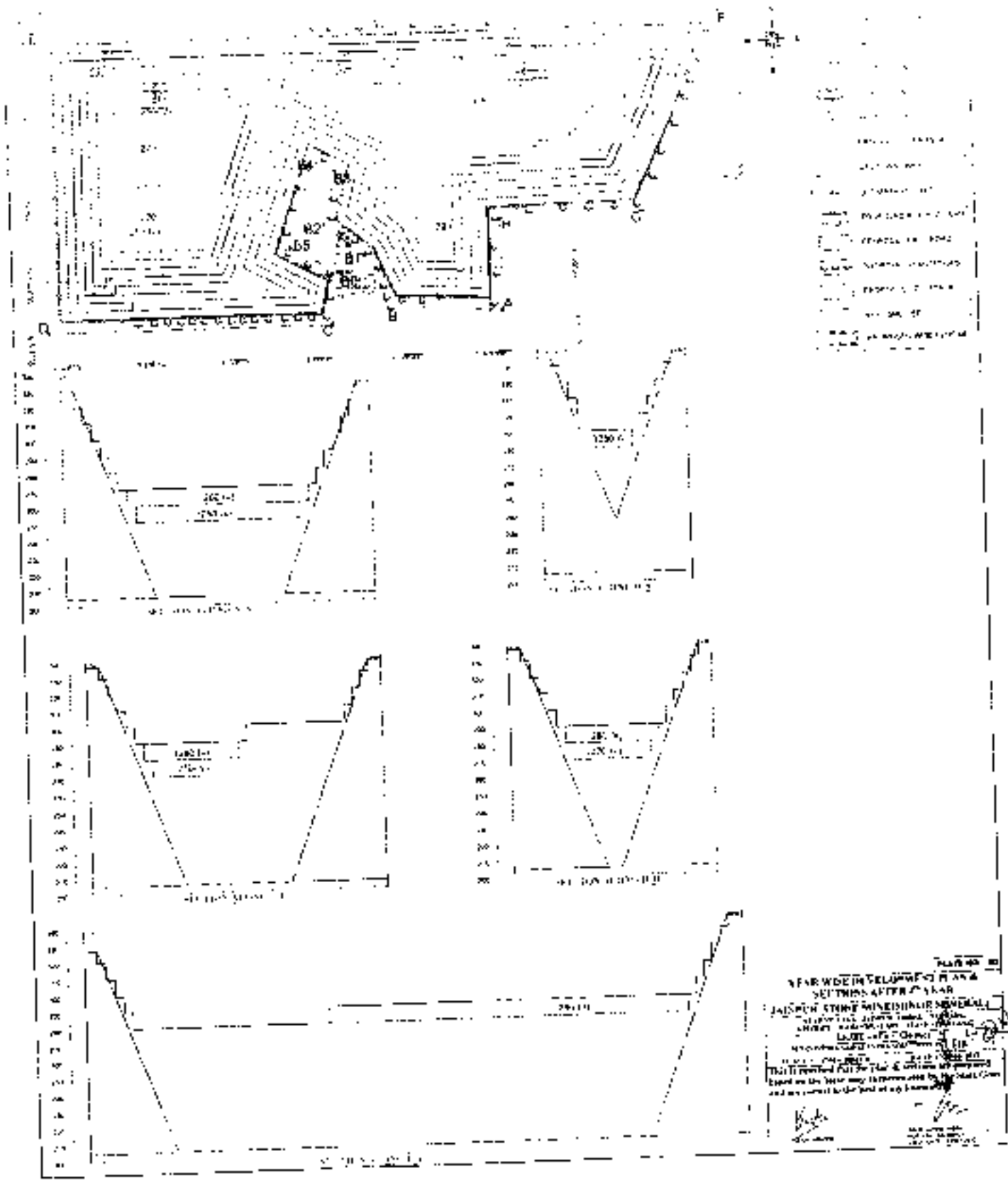
Date: **15/05/2023**

Signature: **[Signature]**

Title: **Professional Engineer**

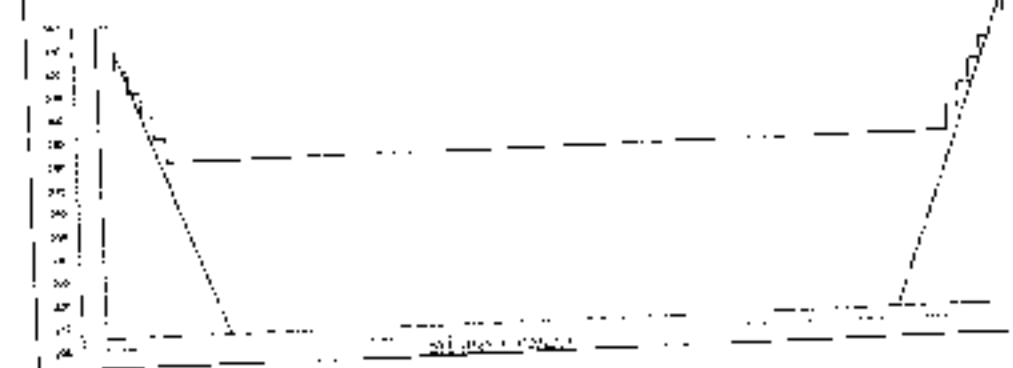
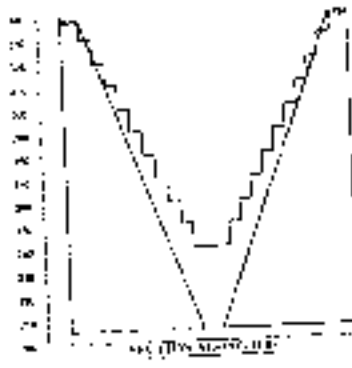
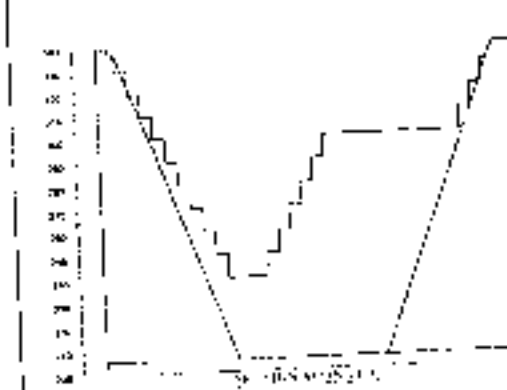
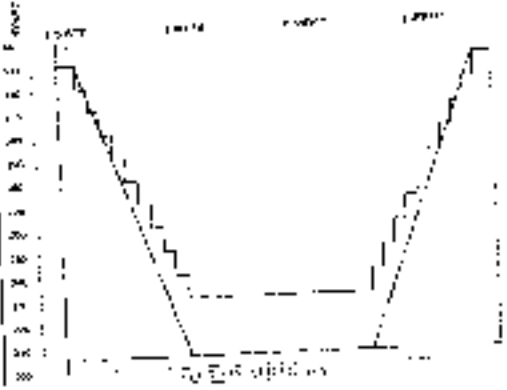
Registration No: **[Number]**

FIGURE 5

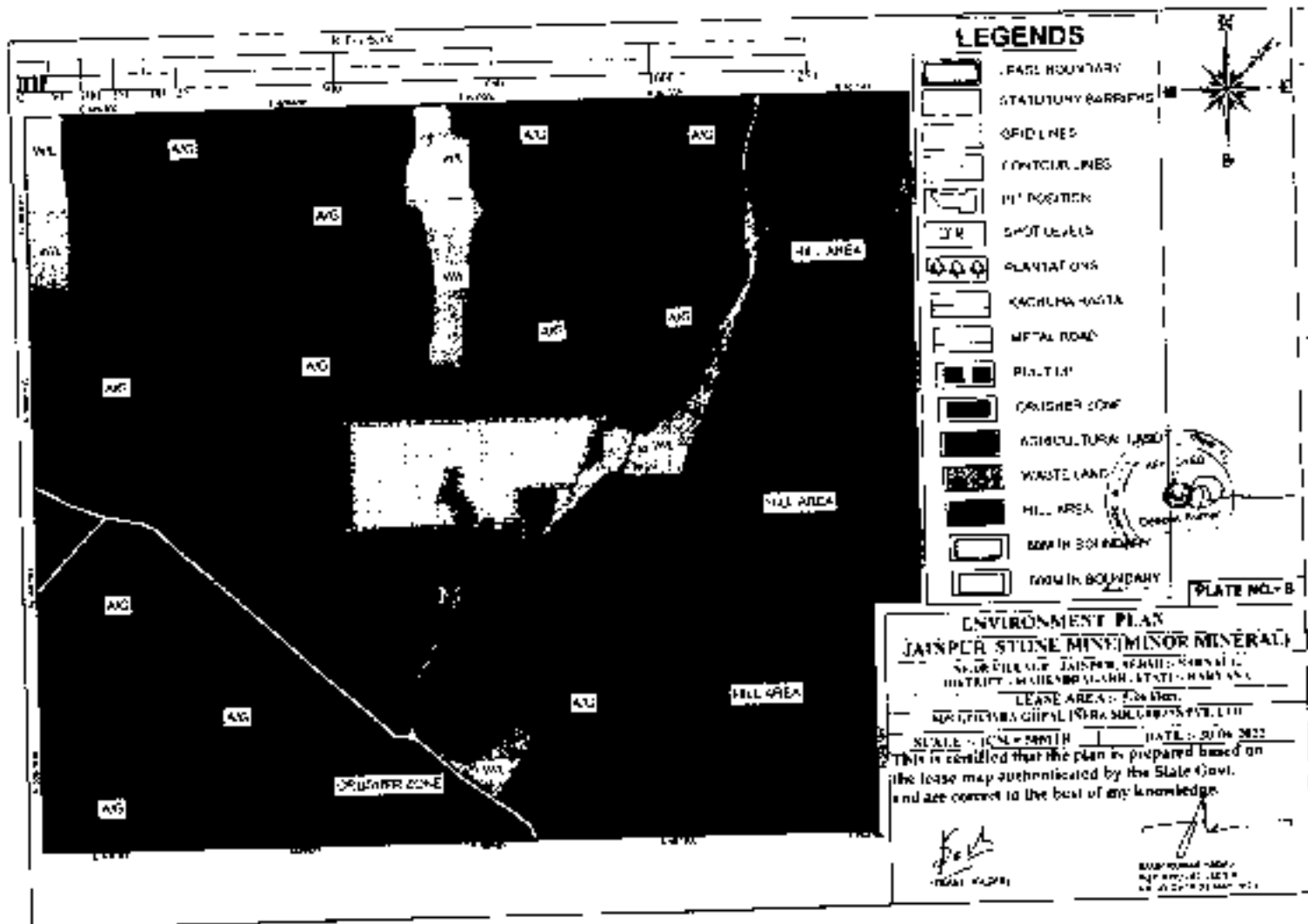


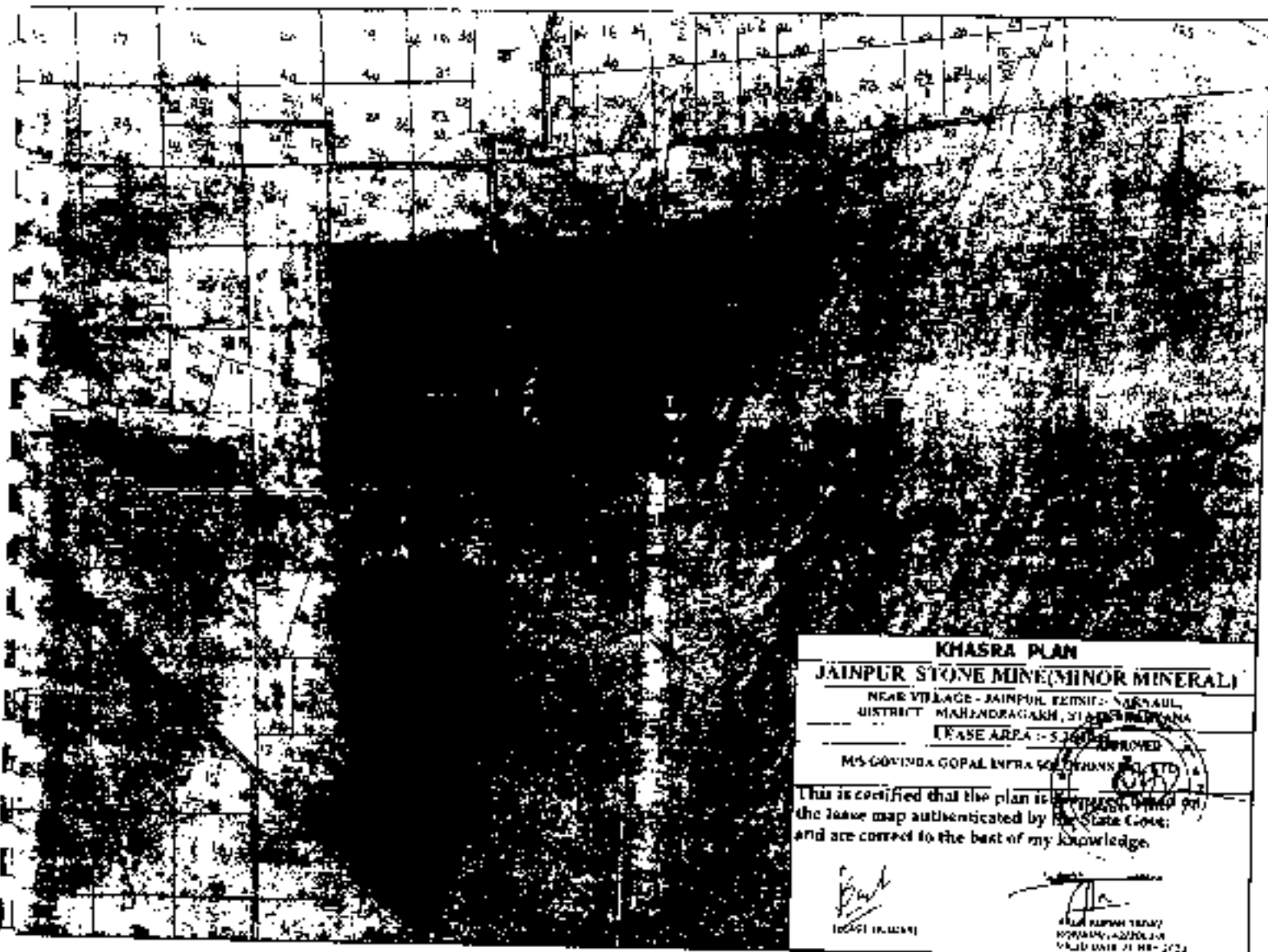
LEGENDS

- PROPOSED
- EXISTING
- PROPERTY LINE
- EASEMENT
- UTILITY
- FENCE
- DRIVEWAY
- DRIVE
- SIDEWALK
- CURB
- GROUND SURFACE
- PROPOSED GROUND SURFACE
- PROPOSED DRIVEWAY
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- PROPOSED CURB
- PROPOSED UTILITY
- PROPOSED EASEMENT
- PROPOSED PROPERTY LINE



PROPOSED SIDEWALK CROSS SECTION
 SECTION 1
 JAMES STREET WIDENING PROJECT
 STATE OF MISSISSIPPI
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 MISSISSIPPI
 DATE: 10/10/2023
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 APPROVED BY: [Signature]





KHASRA PLAN

JAINPUR STONE MINE(MINOR MINERAL)


NEAR VILLAGE - JAINPUR TEHSIL - NARSUL,
DISTRICT - MAHENDRAGARH, STATE - HARYANA


LEASE AREA - 5.20 HECTARE

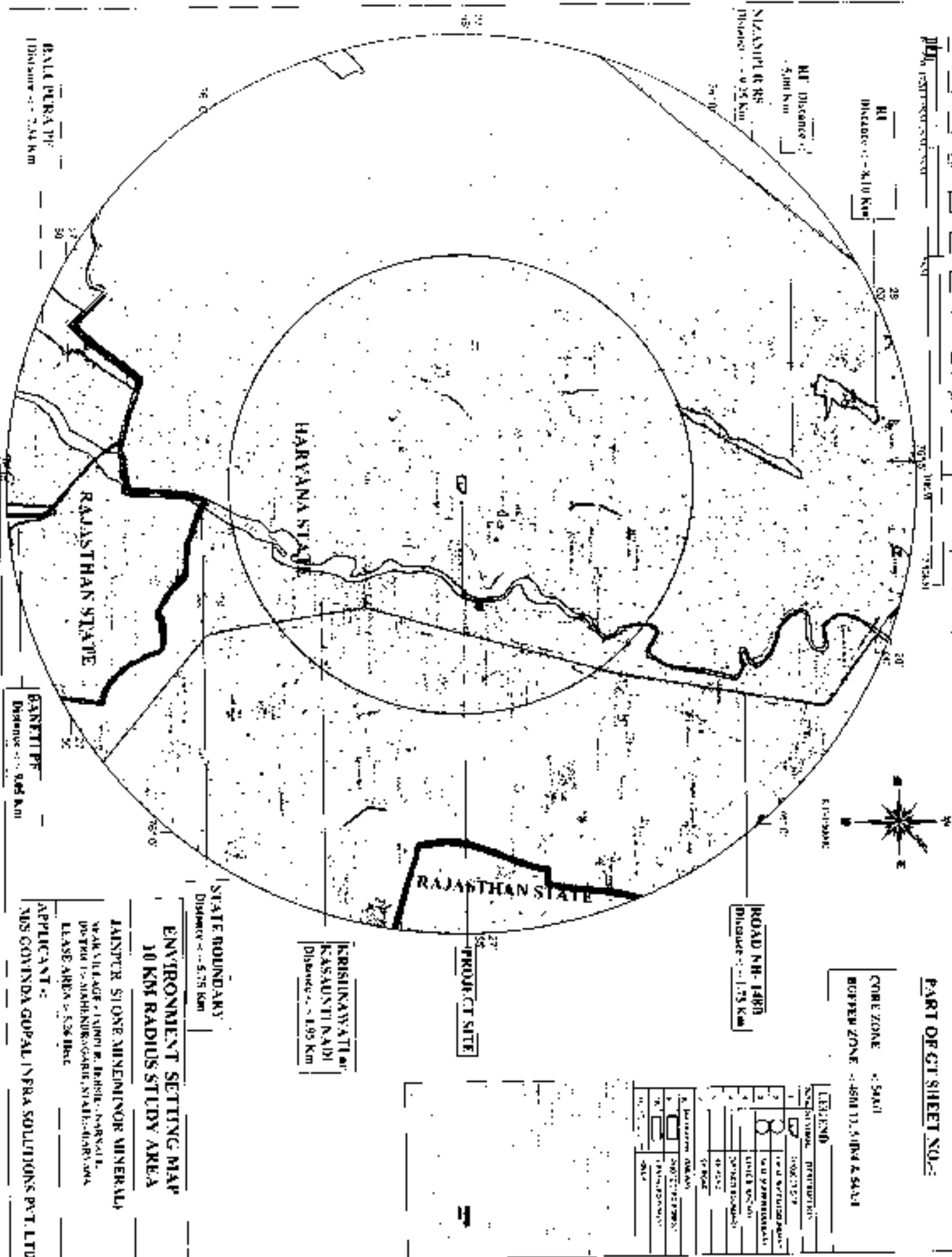
M/S GOVINDA GOPAL INFRA SOLUTIONS PVT. LTD.

APPROVED

This is certified that the plan is prepared based on the lease map authenticated by the State Govt. and are correct to the best of my knowledge.


 (Surveyor)


 (Officer)
 VALID DATE 21.08.2023



PART OF CT SHEET NO.:-

CORE ZONE :- 500 FT
BUFFER ZONE :- 45M TO 1.5 KM & 500 FT

LEGEND

1	STATE BOUNDARY
2	PROJECT SITE
3	CORE ZONE
4	BUFFER ZONE
5	RAJASTHAN STATE
6	HARYANA STATE
7	RAJASTHAN STATE
8	RAJASTHAN STATE
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47	RAJASTHAN STATE
48	RAJASTHAN STATE
49	RAJASTHAN STATE
50	RAJASTHAN STATE

STATE BOUNDARY
Distance :- 5.75 Km

ENVIRONMENT SETTING MAP
10 KM RADIUS STUDY AREA

LANDPAC STONE MINING/ORE MINERAL

NEAR VILLAGE :- JINORI B. BERSI, BARWALI

DISTRICT :- MAHENDRAGARH, SIKAHIMDRARA

LEASE AREA :- 538 Hect

APPLICANT :-
M/S GOVINDA GOPAL INFRA SOLUTIONS PVT.LTD

BANTLI TP
Distance :- 9.95 Km

BALLI PURA TP
Distance :- 2.34 Km

ROAD NH-148B
Distance :- 1.75 Km

KHERISUNAWATI or
KASAUTI NADI
Distance :- 1.95 Km

NIZAMPUR R/S
Distance :- 9.25 Km

RI Distance :-
5.00 Km

RI Distance :-
8.10 Km

RI Distance



RAJASTHAN STATE

RAJASTHAN STATE

HARYANA STATE

RAJASTHAN STATE

PROJECT SITE

Executive Summary
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
REPORT

JAINPUR STONE MINE AT VILLAGE JAINPUR,
TEHSIL NARNAUL, DISTRICT MAHENDRAGARH, STATE HARYANA
 ToR No. SIA/HIR/MIN/406219/2022

LEASE AREA OF 5.26 HA
 PRODUCTION QUANTITY: 30,00,000 TPA
 MINERAL QUANTITY: 28,50,000 TPA
 WASTE QUANTITY: 1,50,000 TPA

Submitted to:
HARYAN POLLUTION CONTROL BOARD,
SECOND FLOOR BAYS NO. 55-58, PRAYATAN BHAWAN,
SECTOR-2, PANCHKULA, HARYANA
 PROJECT PROPONENT



GG INFRA
 A way to success

M/S GOVINDA GOPAL INFRA SOLUTIONS PRIVATE LIMITED
 212 DLF Corporate Greens, SPR Road Sector 74 A, Gurugram,
 Gurgaon-122004, Haryana
Email: gginfra0008@gmail.com
 Phone Number: 7678168863

Base line Data collection from December 2022 to February 2023

Project Cost: 4 crores

Prepared by:



OVERSEAS MIN TECH CONSULTANTS
APEX TOWER, 501, 5TH FLOOR, LALKOTHI, TONK ROAD, JAIPUR. PIN - 302015
RAJASTHAN

Email: omtejaiipur@gmail.com

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAMPUR, TEBSEL NARNAUL,
DISTRICT: MAHENDERGARH, HARYANA**

EXECUTIVE SUMMARY AND CONCLUSIONS

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STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAIPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

EXECUTIVE SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSIONS

1.1 Justification of the project implementation

The mining lease area is Government Agriculture Waste land near Village-Jainpur, Tehsil-Narnaul and District- Mahendergarh (Haryana); this is a project with production capacity of 30,00,00 TPA (Stone: 28,50,000 TPA and Mineral Rejects: 1,50,000)TPA of Stone.

Most part of Haryana is hilles cover & 75% of Mahendergarh District is covered under Hills. There are no other major industries except mining of Stone. Therefore it becomes important for the region to operate the mine to generate employment opportunities for local people and improves livelihood as well as lifestyle of people.

The project will prove beneficial in terms of socio-economic development as it will provide employment to locals. Further, the average income level, which is the indicator of socio-economic status of households, is expected to increase, which will ultimately result in better standard of living of the local people.

1.2 Technical details of the project

The mining lease area is Government waste land (Gair munkin pahar) of Toposheet No. 54 A/01. The salient feature of proposed project shown in *Table 1-1*.

Table 1-1: Salient Feature of Project

S. No	Particulars	Details		
A.	Nature of the Project	Jainpur Stone (Minor mineral) mining		
B.		Size of the Project		
1.	Mine area	5.26 ha		
2.	Proposed Production Capacity	30,00,00 TPA (Stone: 28,50,000 TPA and Mineral Rejects: 1,50,000) TPA		
C.		Location Details		
1.	Village	Jainpur		
2.	Plot No.	11,6,7,8,9,12,13,14,15,16,17,18,19,12,9,10,11,12		
2.	Tehsil	Narnaul		
3.	District	Mahendergarh		
4.	State	Haryana		
		Pillar	Latitude	Longitude
		1	27° 54' 44.66"	76° 05' 12.905"
		2	27° 54' 45.097"	76° 05' 11.457"
		3	27° 54' 44.506"	76° 05' 11.308"
		4	27° 54' 44.552"	76° 05' 3.083"

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JADPUR, TEBBIL, NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

EXECUTIVE SUMMARY AND CONCLUSIONS

S. No	Particulars	Details		
		5	270° 54' 50.459"	7605' 3.106"
		6	270° 54' 50.387"	7605' 17.839"
		7	270° 54' 46.446"	7605' 15.371"
		8	270° 54' 46.46"	7605' 12.916"
6.	Toposheet No.	S4 A/01		
D	Environmental Settings of the Area			
	No National Park, Wild Life Sanctuary, Biosphere Reserve, Tiger Reserve, Wildlife Corridor, Reserved Forest fall within 15 km radius of the lease area.			
	I. Ecological Sensitive Areas	S. No.	P.F./R.F.	Distance
		1.	Balupura Protected Forest	7.34 km
		2.	Baneri Protected Forest	9.05 km
		3.	Khargo P.F.	10 km
		4.	Protected Forest	10.0 km
		5.	Protected Forest	13.20 km
		6.	Protected Forest	13.15 km
		7.	Protected Forest	13.00 km
		8.	Reserve Forest	5.00 km
		9.	Reserve Forest	8.10 km
			Direction	
				South
				South
				SW
				West
				WSW
				WSW
				NW
				North
				North
2.	River / water body	Krishnawati or Kasauti Nadi is 1.95 km in N & Chandrawati River is 13.33 km in W.		
3.	Nearest Town / City	Narnaul - 13.5 Km, North.		
4.	Nearest Railway Station	The nearest railway station is Nizampur which is about 18 Km, north from mine site.		
5.	Nearest Airport	Delhi Airport, at a distance of around -120 km in SE direction from Mining Lease area.		
6.	State Boundary	No State boundary passes through the project site.		
7.	Seismic Zone	Zone - III [as per IS 1893 (Part-I): 2002]		
D	Cost Details			
1.	Total Project Cost	Capital Cost: Rs. 4 crore +/-		
E	Requirements of the Project			
1.	Water Requirement	12.0 KLD		
2.	Man Power Requirement	186 (Skilled and unskilled persons)		

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAIMPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDRAGARH, HARYANA

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Present and Proposed Method of Mining

The Stone mine will be developed by open cast mechanized method of mining, by forming benches of 10.0 meter height and more than 10.0 meter width and benches sloping at 60° with horizontal.

Open Cast Mining/ Bench Parameters

- Bench or Bank or high wall height 10.0 meter.
- Bench width not less than the bench height.
- Bench slope angle from horizontal, about 60° from horizontal.
- Ultimate Pit Slope 60°.
- All benches to be equipped with road edge barrier.
- Transportation of the mineral from mine to end users will be done by trucks/dumpers.

Salient Features of Mining Method

The salient features of proposed mining method are:-

- The mining will be done from top to bottom forming benches, with wagon drills and blasting.
- Overall slope during mining operation 60°.
- Ultimate pit slope is 60° horizontal after reaching final depth of the mineral and starting backfilling.
- Transportation of the mineral from mine to end users will be done by trucks/dumpers.

1.3 Impact Identification

S. No.	Process Activity	Environmental parameters	Environmental Impact	
			Significant	Insignificant
Pre-operational phase				
1.	Selection of mine lease area, site preparation	Land Use/ Land Cover Social Habitation Biological Road/Rail/river/canal/ lake in the selected areas	LU (-) Potential change in landuse / land cover of the mining lease area; EB (-): Ecology & Biodiversity is affected due to mining because the total lease area is forest land.	SE (+). Compensation to Government against lease
2.	Excavation	Air Noise Water Land Biological Socio-Economic	LU (+) Creation of pit will change the existing Landuse. THD (-) Due to excavated area topography of the lease area will change. SC (-) Loss of Soil cover	AQ (-) Dust emission due to mining activities like use of JCB, vehicular movement and use of dewatering pump NV (-) Due to use of machineries for mining activities. SW, GW (-) use of water for

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAMPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

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S. No.	Process Activity	Environmental parameters	Environmental Impact	
			Significant	Insignificant
			OH (-) Due to generation of dust particle health risk to the mine workers	dust suppression, domestic purpose and Greenbelt development EB (-) dust emission, and generation of noise SE(+/-) generation of employment/ nuisance due to mine workers
Operational Phase				
3	Separation of Overburden, Collection & Storage	Air Noise Water Land Biological Socio-Economic	LU (-) Creation of pit and mineral stacking SC (-) Loss of Soil cover	AQ (-) Dust emission from the mineral stack. NV (-) Due to use of machineries for stacking activities. SW, GW (-) Potential damage due to mine runoff THD (-) Due to mineral stacking topography of the lease area will change, EB (-) dust emission, and generation of noise OH (-) Due to generation of dust particle health risk to the mine workers
4	Transportation of minerals	Air Noise Water Land Biological Socio-Economic	AP (-) Dust emission due to transportation of mineral, OB and waste OH (-) Due to generation of dust particle health risk to the mine workers.	NV (-) Due to use of transportation of mineral, OB and waste EB (-) dust emission, and generation of noise SE(+) generation of employment in transport industry SW (-) Potential damage due to mine runoff & dust generation due to transportation.
Post Operation Phase				
5	Restoration / Reclamation of Abandoned mine	Land Water	LU (-) some areas will be converted to water reservoir	AQ(-): Dust emission due to leveling/ Backfilling EB (+) : Some area will be converted to water reservoir and green belt development SE (1): creation of water

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JADPUR, TEHSIL: NARNALI,
DISTRICT MAHENDERGARH, HARYANA**

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S. No.	Process Activity	Environmental parameters	Environmental Impact	
			Significant	Insignificant
				reservoir. SC (+). Soil generated can be utilized for greenbelt development.
6	Plantation		EB (+) : Some area will be converted to water reservoir and green belt development	EB (-) : Some area will be converted to water reservoir and green belt development SC (+): Soil generated can be utilized for greenbelt development.

**STONE MINE, PRODUCTION CAPACITY 30,00,000 TPA, AT NEAR VILLAGE: JADPUR, TERBEL, NARNAUL,
DISTRICT: MAHENDRAGARH, HARYANA**

EXECUTIVE SUMMARY AND CONCLUSIONS

I.4 Environment Management Plan

S. No	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
Environment Management Plan for Land Environment									
1.	Land Lease/ Purchase	Change in Land Use	Before the start of Work/ Pre Operation Phase	<ul style="list-style-type: none"> All the activities shall be restricted within M.L. area. Plantation activities to be initiated simultaneously. 	Mine Site	Site inspection	Monthly	Mines Manager	To be included in Six monthly compliance report
2.	Mining Activities	Change in Land Use	Operation Phase	<ul style="list-style-type: none"> Overburden will be dumped at the demarcated area within the lease. 	Mine Site	Site Inspection/ Visual Observation	Daily	Mines Manager	Daily Record Register of waste dump height and area.
3	Mine Closure/ Reclamation	Change in Land Use	Mine Closure	<ul style="list-style-type: none"> Filling of Voxds Spreading the top soil on the backfilled area Plantation on the backfilled area. The mined out pit will be used as water reservoir which will provide water to villagers for agricultural purpose, fencing of water reservoir 	Mine site	Site Inspection	Weekly	Mines Manager Environmental Officer	To be included in Six monthly compliance report
Environment Management Plan for Air Environment									
1.	Site Preparation	Impact on health due to fugitive dust emissions Impact on health due to exhaust gas emission	Pre Operation Phase	<ul style="list-style-type: none"> Water sprinkling on the internal roads Adhering to strict maintenance schedules for all equipment and transport vehicle to minimize gaseous emissions like CO and NOx. Improved maintenance of 	Mine Site	Site Inspection, Record Keeping and Visual Inspection	Monthly	Mines manager	Monthly Progress report

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE-JADEPUR, TEHSIL-NARMAUL,
DISTRICT: MAHENDERGARH, HARYANA**

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S. No	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
2.	Generation of Fugitive Dust emissions Air emission impact along the access road Loading/ Unloading of mineral/waste and OB	Impact on health due to fugitive dust emissions	Operation Phase	<ul style="list-style-type: none"> machinery for reducing gaseous and noise pollution Restriction on vehicle speed. sprinkling of water on unpaved roads. Through the project life cycle, engage on-road and off-road vehicles equipment that are compliant to prevailing emissions standards of CPCB/Central Motor Vehicle Act/Rule and have valid PUC certificates; Make dumper and other vehicle operator/maintenance department responsible for periodically inspecting the vehicles engaged in the project for oil and grease leaks, spills and seeps from any of its parts etc. Prohibit the practice of attending to break-down maintenance along roadside; Frequent water spraying / sprinkling on the roads, stock-piles, waste dumps and transfer points where dust is generated; Provision of dust mask to workers working at highly dust prone and affected areas. 	Mine Site, Approach roads	Site Inspection, Visual Observation, Record keeping	Monthly	Mines manager, Environment officer, Safety Officer, Maintenance department	Monthly Progress report

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JADPUR, TEBSEL NARMAUL,
DISTRICT MAHENDERGARH, BIARYANA**

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S. No	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
3.	Emission due to Combustion engine	Impact on health due to dust emission Impact on health due to exhaust gas emission	Operation Phase	<ul style="list-style-type: none"> Control fugitive dust emission in the mining area by controlling the dust at source. Some of the strategies include: keep the traffic allowed carriageway free of excavation materials, clear excavated waste from roadside; sprinkle water on dust source; If any increase of pollutants is reported from monitoring, necessary control measures would be taken; Follow up of the conditions as stipulated in the Consent from SPCH Adhering to strict maintenance schedules for all equipment and transport vehicle to minimize gaseous emissions like CO and NOx. Improved maintenance of machinery for reducing gaseous pollution. Use of low Sulphur HSD fuel oil (with maximum 1% Sulphur content) to restrict SO₂ emission; If any increase in level of pollutants are reported from 	Mine Site	Site Inspection, Visual Observation, Record keeping	Monthly	Mines manager, Environment officer, Safety Officer, Maintenance department	Monthly Progress report

**STONE MINE, PRODUCTION CAPACITY 36,00,00 TPA, AT NEAR VILLAGE-JADUPUR, TERBEL, NARNAUL,
DISTRICT-MAHENDERGARH, HARYANA**

EXECUTIVE SUMMARY AND CONCLUSIONS

S. No	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
Environment Management Plan for Noise Environment									
1.	Noise Emission from excavation work, haul trucks along the mine access service road, and material handling activities at the ROM and spoil areas and auxiliary and support equipment	Noise Pollution	Operation Phase	<ul style="list-style-type: none"> The operator's cabin of equipment like dumpers, loaders, etc. to be made sound proof Use of improvised plant and machinery designs, with inbuilt mechanism to reduce sound emissions like improved silencers, mufflers and closed noise generating parts Where noise level is more the workers to be provided with ear plugs. Reducing the exposure time of workers to high noise levels by arranging time bound rotation of individuals Green belt will be enhanced by additional plantation in and around the M.L area. Periodic ambient noise monitoring near sensitive receptors in the vicinity of lease area. 	Mine Site	Site Inspection, Visual observation and monitoring records	Monthly	Mines Manager, Environmental officer, Safety officer	Half Yearly reporting to MoEF&CC

**STONE MINE, PRODUCTION CAPACITY 300000 TPA, AT NEAR VILLAGE: JANTUN, TERSEL: NARNAUL,
DISTRICT: MAHENDRAGARH, HARYANA**

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S. No	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
Environment Management Plan for Soil Environment									
1.	Removal of topsoil;	Soil erosion Loss of fertile Top soil Soil Compaction	Operation Phase	<ul style="list-style-type: none"> Proper earland to be constructed around the waste dump; Identify areas where topsoil could be utilized for landscape prior to stripping of top soil; Heavy machinery movement will be limited to access roads; the disturbed areas and soil stock piles will be kept moist to avoid wind erosion of soil Topsoil removed shall be stored separately, protected and reused for landscape development within the project area. The routes for movement of dumper and tractor shall be designated to avoid the soil compaction in other areas 	Mine Site	Record Keeping, Surprise Site Inspection, Visual Observation	Monthly	Mines Manager	Monthly Progress Report
2.	Soil Contamination due to spillage of Diesel and Lubricant	Soil Contamination	Operation Phase	<ul style="list-style-type: none"> Ensure hazardous waste oil lubricant from maintenance of machinery and oil soaked tags are properly labeled and stored onsite provided with impervious surface, shed and secondary containment system; Ensure routinely disposal of hazardous waste (within 90 days) 	Mine Site	Quantification of waste generated. Site inspection and visual observation	Quarterly	Mines Manager	Six monthly EHS report

STONE MINE, PRODUCTION CAPACITY 3000.00 TPA, AT NEAR VILLAGE JADOLIN, VEHOTIL: MAZNAUL, DISTRICT: MAJLISBERGAKH, HARYANA

EXECUTIVE SUMMARY AND CONCLUSIONS

S. No	Project Activity	Impact/Issue	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
				through approved registered recyclers and records are properly documented as per HW Rules. • Ensure used oil is stored on impervious floor					
Environment Management Plan for Water Environment									
1.	Surface Run-off from waste dump, OB dump and mineral stack, wastewater generated from mine office	Impact on surface water quality	Operation Phase	<ul style="list-style-type: none"> Waste dump will be provided with bunding and gulland drain Waste water generated from office building will be diverted to septic tank followed by soak pit 	Mine site	Site inspection and Visual observation	Monthly	Mines Management	Monthly Progress report
2.	Surface Run-off from waste dump, OB dump and mineral stack,	Impact on surface water quality	Operation Phase	<ul style="list-style-type: none"> Waste dump will be provided with bund and gulland drain OB waste as well as mineral are non-hazardous in nature Quarterly monitoring of groundwater level and quality to be carried out by establishing network of existing well and piezometers. 	Mine site and nearby area	Site inspection, Visual observation and monitoring records	Quarterly	Mines Management Environment officer	Half Yearly reporting to MoEP&CC
Environment Management Plan for Ecological Environment									
1.	Site clearing activities	Impact on Flora and Fauna	Pre Operation Phase	<ul style="list-style-type: none"> Damage to the natural topography and landscape will be minimized. General awareness regarding 	Mine Site	Site inspection, training	Once during the project	Mines Management	Once during the project phase

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DISTRICT: MAHENDRAGARH, HARYANA**

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S. No	Project Activity	Impact/Issue	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
2.	Mining activities (Plying of Vehicles)	Impact on vegetation and green belt due to dust deposition	Operation Phase	<ul style="list-style-type: none"> wildlife will be enhanced through trainings, posters etc. among the staff and mine workers; Traffic speed within the activity area will be regulated. Extensive plantation on the statutory boundary will increase the floral diversity of the area Sufficient availability of water will be ensured for green belt The green belt area once marked will not be disturbed during life of mine Water sprinkling will be done twice during the day on haul road and connecting mine to State Highway. also water sprinkling will be done on waste dump. OB dump 	Mine site	Site records, visual assessment Site inspection, Visual observation by expert, Assessment of survival rate	Quarterly	Mines manager/ Environment officer	Half Yearly reporting to MoEF&CC
Environment Management Plan for Occupational Health and Safety									
1.	Mining Activities	Fugitive dust emission could have potential impact on human health	Operation Phase	<ul style="list-style-type: none"> Persons working in dusty area to be provided with protective gears such as helmets, dust masks, ear muff etc.; Regular water sprinkling at dust generating areas, haul roads. Occupational health checkup of all workers working in mine, and Pulmonary function test for 	Mine site	Site inspection, Visual Assessment, medical test reports and FHS audit	Monthly audit and site inspection, Annual medical checkup	Mines manager/ Safety officer	Monthly Progress report

**STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAMPUR, TEHRI, NARNAUL,
DISTRICT: MAHENDRAGARH, RAJASTHAN**

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S. No	Project Activity	Impact/Issues	Project Stage	Mitigation Measures	Location	Means of Verification	Frequency of Monitoring	Responsibility	Reporting Requirement
2.	Mining Activities	Continuous exposure to high level of noise will cause health illness in the workers, such as annoyance, fatigue, hypertension and high blood cholesterol; Long term continuous exposure to higher noise may cause permanent hearing loss.	Operation Phase	<p>workers working in dusty areas.</p> <ul style="list-style-type: none"> Workers continuously exposed to higher noise levels will be provided ear muffs/ear plugs; Company management will ensure that no personnel is exposed to noise level greater than 85 dB (A) for a duration of more than 8 hours per day without PPF's as recommended by DGMS. Use of Personal Protective equipment like ear plugs, ear muffs by mine workers. Regular health checkup of all the workers working in mine. 	Mine Site	Site inspection, Visual Assessment, medical test reports and FHS audit	Monthly audit and site inspection, Annual medical checkup	Mines manager, Safety officer	Monthly Progress report
3.	Natural Hazard during mining operation	Safety Hazard, natural hazard can impact the surrounding population	Operation Phase	<ul style="list-style-type: none"> Provision of warning system for any emergency due to natural hazard A well-rehearsed emergency management plan shall be in place to deal with emergency situations. 	Mine site	Site Inspection	As and when required	All the workers in the mine	Reporting of Emergency

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JADPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA
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1.5 Project Benefits

The project activity and the management will provide assistance for the development of public amenities in the region.

The mine management will recruit semi-skilled & unskilled eligible workers from the nearby villages.

The overall effect will improve the buying power of employees and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Housing, transport, medical, educational and other civic amenities will get betterment in the future. This is envisaged as a major positive benefit.

1.6 Cost Benefit Analysis

M/s. Govind Gopal Infra solution Private Limited will operate the mining activities for the extraction of Stone to supply to the various consumers in the state and outside the state. This will encourage the industries mainly steel industries to enhance or improve their capacity for the end users which will support the economic growth and industrial improvement.

As a consequence of rapid industrialization in India, minerals like stone are needed at a rapid rate and for widening the gap between supply and demand. Mineral supply is internationally recognized as preferred alternative for transport of minerals from the point of view of economic growth of the individual country and there by the more industrial development.

The cost of the project is estimated to be Rs. 4 crore/- for the production of 30,00,00 TPA with a total reserve capacity of 11882774.52,MT. Mining of Stone has been practiced since ancient times in central India. The stone is a basic building construction material for constructing houses, bridges and roads. Thus, keeping in mind this requirement, mining of Stone is necessary for durability and to beautify by carving as per the requirement of the consumer.

1.7 Health Safety & Environment (HSE) Management

Occupational health and safety (OHS) is a Cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. The goal of all occupational health and safety programs is to foster a safe work environment.

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The mining operations will be carried out with all the safety measures laid down in Mining Laws. Regular Medical checkup of workers will be done to check occupational disease, if any, and respective records will be maintained at the mine.

By formation of a medical team consisting of medical practitioners having experienced in industrial disease supported by local Panchayat and mine owner and expenses to be borne by mine owner.

1.8 Cost of Environment Management Plan (EMP)

The budget for environmental activities is given in *Table 1-4*.

Table 1-4: Budget for Environmental Management

S. No.	Description of Item	Recurring Cost (in Rs)
1	Air Pollution Control – Water Sprinkling	1,50,000/-
2	Environmental Monitoring and Management	2,50,000/-
3	Green Belt Development	2,00,000/-
Total		6,00,000/-

1.9 CSR Activities proposed with budgetary provision

CSR activities proposed with budgetary provision are given in *Error! Reference source not found. 1.5*

Table 1-5: Proposed Action Plan for CSR

S. No.	CSR Activity	Proposed Budget (in Rs)
1.	Safe Drinking water, Sanitation Facility	
2.	Health facility	
3.	Education for Children (Books and Uniform for Children)	
4.	Personal Protective equipment such as Goggles, Helmet, safety Shoes, Face Mask and Hand Gloves	
5.	Insurance cover for quarry Worker	
Total		

1.10 Environmental Policy of Proponent

For protection of environment and sustainable development, the [Giovind Gopal Infra solution Private Limited] is committed to abide by environmental norms and various conditions imposed

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JADPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDERGARH, HARYANA

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by the Government during approval of project(s) at the central as well as at the state levels. In addition to this, [Govind Gopal Infra solution Private Limited] acknowledges the importance of the concept of inter-dependence of all sections of the society. In particular, its focus revolves around the community residing in the immediate vicinity of its Mining of Stone (M.L Area: 5.26ha) with production capacity of 30,00.00 TPA Village- Jaiapur, Tehsil: Narnaul, District: Mahendergarh (Haryana) where it seeks to actively assist in improving the quality of life.

In line with its abiding concern for preservation of the ecological balance and safeguarding the health and environment of the community, [Govind Gopal Infra solution Private Limited] has always actively demonstrated its firm resolve to protect the environment and is deeply committed to Environmental Protection and professional style of management with the best in business ethics.

Keeping in view environmental commitments and also the guidelines on norms and directives of different State and Central Government of India, [Govind Gopal Infra solution Private Limited] has formulated the following Environmental Policy for effective implementation across the organization.

The monitoring of implementation and review shall be at the level of the Director and the guidance shall be communicated to all concerned in writing for compliance. Together these shall comprise the Environmental Performance Report, and shall be included in the Organization's Annual Report.

Standard Operating Procedures (SOPs) have been framed for each component of mining operations like drilling, loading and transport operations. These are available with the Mine Office.

Environment protection will be responsibility of all the employees. Any employee, who notices any discharge of effluents, leakage from engine, machinery, abnormal emission of any pollutants, noise from any place, machinery or moving part of any machinery or security fence which is broken or any unhygienic condition within the mining lease or near to the mining lease, shall inform the Environment Management cell immediately. No employee shall willfully damage the plantation done/green belt developed by the company within the project premises.

Grant of Environmental Clearance along with conditions attached to it shall be prominently displayed on the web site of the company, office premises, Labour Union Office, Attendance office etc.

Environment Management Officer will directly report to the Mines Manager and no constraint whether financial or Administrative shall come in the way of compliance of all the environment norms. Human resource and technological resource as required for compliance of environmental norms shall be made available to Environment Management Cell.

STONE MINE, PRODUCTION CAPACITY 30,00,00 TPA, AT NEAR VILLAGE: JAIPUR, TEHSIL: NARNAUL, DISTRICT: MAHENDGARH, HARYANA
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4.11 Conclusion

As discussed, it is safe to say that the collection of minor mineral from the proposed lease area is not likely to cause any significant impact on the ecology of the area as the mineral is and waste generated is non-toxic and does not harm the surrounding environment.

Adequate measures will be taken to control the fugitive emissions to be generating during mining operation. Green belt development in the vicinity of river banks, approach roads, Govt. buildings, Schools also proposed with the help of local Govt. department and local people as social forestry in the area for betterment of environment.