By Speed Post

No. J-11015/310/2013-IA.II (M)
Government of India
Ministry of Environment, Forest & Climate Change
Impact Assessment Division
***

Indira Paryavaran Bhavan,
Vayu Wing, 3rd Floor, Aliganj,
Jor Bagh Road, New Delhi-110 003'

Dated: 13th July, 2015

To,

M/s Mangal Singh Solanki
13, Shiv Nagar, Jaipur,
Rajasthan

Sub.: Mining of Mineral – River Sand (Bajri) with production capacity of 28.05 Lakh TPA (ROM) by M/s Mangal Singh Solanki, located at Revenue villages of Tehsil – Sheoganj, District – Sirohi, Rajasthan (1414 ha)- Information/ Clarification regarding.

Sir,

This has reference to your above mentioned proposal for environmental clearance. The Proposal of EC was appraised by the Reconstituted Expert Appraisal Committee in its 34th Meeting held during May 27-29, 2015. The Committee **has not received the copy of EIA/EMP Report on time**. The Committee noted that the EIA/EMP Report has not addressed all baseline as well as other environmental parameters adequately. The EIA/EMP Report has not been prepared in-line with the Annexure-III of EIA Notification, 2006. There are several deficiencies viz. (i) PP has not done the replenishment study; (ii) List of flora/fauna and endangered species are not accurate; (iii) There are Schedule I species, however the conservation plan has not prepared; (iv) The EIA/EMP Report has different contents than the presentation made during the EAC; (v) Online EIA/EMP Report and hard copy submitted are different; (vi) Organization Structure is not adequate; (vii) Action Plan along with budgetary provisions on the issues raised during Public Hearing are not prepared adequately; (viii) There is no page numbers mentioned in the EIA/EMP Report; (ix) Forest land and Aravali NOC has not submitted; (x) Geological profile of the area does not have the required details (and may have to be furnished afresh); (xi) Traffic management study has not made and cumulative joint traffic study is to made as the other mines are located nearby; (xii) Questionnaire' has not adequately addressed w.r.t. s. no. 4 and 28.2 etc.; and (xiii) details of Action Plan for occupational health of the workers has not been furnished.

2. The Committee **concluded *that the Project Proponent needs to revise the EIA/EMP report and also set right the* above said deficiencies**. The Committee therefore **rejected** the proposal as submitted, and will reconsider the Proposal only after a revised *EIA/EMP report is received*. The revised EIA/EMP Report must mention all the details in due compliance with Manuals, Standards, Office Memoranda and Guidelines issued by the Ministry from time to time. The Committee was also of the

view that the Consultant has not followed the Manuals, Standards, Office Memoranda and Guidelines in preparing the EIA/EMP Report and in submitting documents to EAC members. The EAC members have found it difficult to appraise the Project. The Committee observed that the Consultant and also the Project Proponent should not have submitted such a deficient Proposal causing delay in appraisal of Proposal and wasting the time of the Committee.

3. The matter was examined in the Ministry and the undersigned is hereby directed to say that your proposal has been rejected as the EIA/EMP report is not as per provision of EIA Notification, 2006. Keeping these in view, you are requested to submit the revised EIA/EMP report to the Ministry of Environment, Forests & Climate Change, Indira Paryavaran Bhawan, 3rd Floor, Vayu Wing, Aliganj, Jor Bagh Road, New Delhi-110003 for further necessary action on the matter.

Yours faithfully,

(Dr. U. Sridharan)
Director (S)

Copy to:-

The Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector "H", Aliganj, Lucknow – 226020.

(Dr. U. Sridharan)
Director (S)

MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No. – 0141-2333907

Ref.:

Date: 25/08/2015

To

The Director-IA Division
(Non Coal Mining)
Ministry of Environment & Forest and Climate Change
Indira Paryavaran Bhawan, Jor Bag Road,
New Delhi

Subject: **Submission of information /clarification** regarding the issues raised by the Expert Appraisal Committee for consideration of Environmental Clearance Proposal for River sand mine(minor mineral) Lease area-1414 ha Tehsil- Sheoganj, District-Sirohi with production capacity 28.05 lakhs TPA owned by **M/s Mangal Singh Solanki** during the 34th EAC meeting held on 27-29 May 2015.

Ref.: Vide MoEF Letter no. J-11015/310/2013-IA.II (M) Dated 13th July, 2015.

Dear Sir,

We are thankful to you for providing the desired clarification/information. The matter was examined in **34th Meeting of the Expert Appraisal Committee of MoEF May 27-29, 2015.** Point wise information is below:

S .No	Point Raised	Reply
1	EIA/EMP report has not been prepared in-line with the Annexure-III of the EIA Notification, 2006. There are several deficiencies viz. PP has not done the replenishment study.	The EIA/EMP report has been revised as per the guidelines mentioned in the Annexure-III of the EIA Notification, 2006. Replenishment study has been done and enclosed as Annexure no.-12
2	List of flora/fauna and endangered species are not accurate.	Revised List of flora/fauna and endangered species are enclosed as Annexure No.-15 And also incorporated in chapter- 3, section- 3.6 of EIA/EMP report.
3	There are schedule-I species, however the conservation plan has not prepared.	Conservation plan of schedule-I species prepared and submitted to DFO Sirohi. Submission receipt and conservation plan enclosed as Annexure no.-14
4	The EIA/EMP report has different contents than the presentation made during the EAC.	The EIA/EMP report has been corrected and presentation will be made as per EIA/EMP report which we are submitting.
5	Online EIA/EMP report and hard copy submitted are different.	The hard copy of EIA/EMP report will be same as per online submitted revised report.
6	Organization structure is not adequate.	Revised organization structure incorporated in chapter 6 Figure 6.1 of EIA/EMP report. Also enclosed as Annexure-9C

MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No. – 0141-2333907

7	Action plan along with budgetary provision on the issue raised during public hearing are not prepared adequately.	Detailed action plan for the issues raised under Public Hearing has been prepared along with the Budgetary allocation. Details are attached in **Annexure No. 5B.** And also incorporated in Chapter 7 of EIA/EMP report.
8	There is no page numbers mentioned in the EIA/ EMP report.	Proper page numbers mentioned in Revised EIA/EMP report.
9	Forest land and Aravali NOC has not been submitted.	Forest NOC enclosed as Annexure no.-7. Aravali NOC enclosed as Annexure no.-6
10	Geological profile of the area does not have required details (and may have to be furnished afresh)	Detailed geological profile of the study area incorporated in chapter- 2, section- 2.6 of EIA/EMP report.
11	Traffic management study has not been made and cumulative joint traffic study is to made as other mines are located nearby.	Traffic management study has been made and incorporated in chaptere-4, section- 4.8. Cumulative joint traffic study as other mines are located nearby has been made. Enclosed as Annexure no.-16
12	Questionnaire has not adequately addressed w.r.t.s. no. 4 and 28.2 etc.	Questionnaire has properly revised and enclosed separately with EIA/EMP report.
13	Details of action plan for occupational health of the workers has not been furnished.	Revised Occupational Health & Safety Management Plan has been provided in **Annexure No.-17,** also incorporated in chapter- 9, section- 9.9 of EIA/EMP report.

We are once again thankful to the Hon'ble members of committee for providing us guidance in the matter. You are kindly requested to take up our case for **Re- consideration** of EC earliest possible.

Thanking You

Yours Sincerely

Mangal Singh Solanki

(Project Proponent)

MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)
Contact No. – 0141-2333907

Ref.:

Date: 25/08/2015

To,

The Director-IA Division
(Non Coal Mining)
Ministry of Environment & Forest and Climate Change
Indira Paryavaran Bhawan, Jor Bag Road,
New Delhi

Subject: -Appointment of New Consultant for Environment Clearance of River Sand mining project Lease area-1414 ha Tehsil- Sheoganj, District-Sirohi with production capacity 28.05 lakhs TPA owned by M/s Mangal Singh Solanki.

Ref: TOR vide letter No. J-11015/310/2013-IA.II (M) Dated 22nd November, 2013.

Sir,

With reference to above mentioned subject this is to inform you that we have appointed M/s. Perfact Enviro Solutions Pvt. Ltd. New Delhi as our consultant for environmental clearance for above mentioned project. Earlier our consultant was M/s. Ramji Mine Envirotech, Jaipur. Kindly do needful and oblige us.

Sincerely Yours

(Mangal Singh Solanki)
Authorized Signatory

Shri Mangal Singh Solanki
R/o 13, Shiv Nagar,
Jaipur (Rajasthan)
E-Mail: mangalsinghsolanki1414@gmail.com

ENVIRONMENT IMPACT ASSESSMENT REPORT

&

ENVIRONMENT MANAGEMENT PLAN

{TOR No. J-11015/310/2013-IA.II (M)}

LEASE AREA - 1414 Ha. (CAT. 'A')

TEHSIL - SHEOGANJ

DISTRICT - SIROHI (RAJASTHAN)

STUDY PERIOD - (DECEMBER 2013 TO FEBRUARY 2014)

LEASE VALIDITY - 5 YEAR

PROJECT COST - 4.0 CRORE

NAME OF MINERAL - RIVER SAND (BAJRI) (MINOR MINERAL)

PROPOSED PRODUCTION CAPACITY- 28.05 LAC TPA

(MECHANIZED OPENCAST MINING)

OBJECTIVE- FOR ENVIRONMENTAL CLEARANCE

||APPLICANT||

M/s. Mangal Singh Solanki

C/o 13, Shiv Nagar, Jaipur, Rajasthan
Contact No.:0141-2333907
E-Mail: sharma.op985@gmail.com

||PREPARED BY||

Perfact Enviro Solutions Pvt. Ltd.

501 – 507, 5th Floor, Front Wing, NN Mall
Sector- 3, Rohini, New Delhi - 110085
Phone: +91-11-47528467/ 47021086/ 65280483
Fax: +91-11-47528434

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Government of National Capital Territory of Delhi

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Certificate No.	:	IN-DL71094486004325N
Certificate Issued Date	:	21-Feb-2015 10:16 AM
Account Reference	:	IMPACC (IV)/ dl897903/ DELHI/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL89790339175912750519N
Purchased by	:	PERFACT ENVIRO SOLUTIONS PVT LTD
Description of Document	:	Article 4 Affidavit
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	PERFACT ENVIRO SOLUTIONS PVT LTD
Second Party	:	Not Applicable
Stamp Duty Paid By	:	PERFACT ENVIRO SOLUTIONS PVT LTD
Stamp Duty Amount(Rs.)	:	10 (Ten only)

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GOVT. OF INDIA

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Undertaking

We Perfact Enviro Solutions Pvt. Ltd., 505, 5th floor, NN Mall, Mangalam Place, Sector- 3, Rohini (New Delhi), Environment Consultants of ***M/s. Mangal Singh Solanki,*** having its residence cum office 13, Shiv Nagar, Jaipur, Rajasthan has a mining lease (M.L. Area -1414 Ha.) of River sand (Bajri) under Rajasthan minor minerals concession rules 1986,

Perfact Enviro Solutions Pvt. Ltd.

Statutory Alert:

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near village- Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil- Sheoganj, District-Sirohi (Rajasthan) give this undertaking to the effect that the terms of reference prescribed by MoEF&CC, New Delhi - vide letter no. J-11015/310/2013-IA.II (M) Dated 22nd November, 2013 has been complied with, and the data submitted are factually correct.

Place:

Date:

For & On Behalf of Perfact Enviro Solution Pvt. Ltd.

NOTARY
GOVT. OF INDIA
ATTESTED
NOTARY PUBLIC
26 AUG 2015

MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No. – 0141-2333907

Ref.: **Date:**

Undertaking

I, Mangal Singh Solanki, project proponent of River Sand (Bajri) mining Project give this undertaking to the effect that the conditions laid down in Terms of Reference prescribed by MoEF, New Delhi vide letter No. - J-11015/310/2013-IA.II (M)} Dated 22.11.2013 for proposed River Sand (Bajri) Mining Project (Lease Area – 1414 Ha.) Near Villages – Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan) have been complied with, and the data submitted and the information presented in this report are factually correct.

Place:

Date:

For

Mangal Singh Solanki

(Project Proponent)

QUESTIONNAIRE

OF

28.05 LAC TPA RIVER SAND (BAJRI)

PRODUCTION

At

Near Villages Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Lease Aera – 1414 Ha. (Cat. ‘A’)

OF

M/s. Shri Mangal Singh Solanki

PROFORMA FOR ENVIRONMENTAL APPRAISAL OF MINING PROJECTS
(MINING SECTOR PROJECTS)

Note 1: All information to be given in the form of Annex/s should be properly numbered and form part of reply to this proforma.

Note 2: Please enter √ in appropriate box where answer is Yes/No

Note 3: No abbreviation to be used - **Not available** or **Not applicable** should be clearly mentioned.

Note 4: **Core Zone** is the mining lease area.

Buffer zone in case of ML area up to 25 ha. is to be considered as **5 km** all around the periphery of the core zone and for ML area above 25 ha. an area **10 km** all around the periphery of the core zone.

Note 5: Adopt **Scoping process** in carrying out EIA study.

Note 6: Please indicate source of data.

1. General Information

(a) Name of the project : M/s. Mangal Singh Solanki

Name of the proponent : M/s. Mangal Singh Solanki

Mailing Address : S/o Shri Lakshman Singh Solanki,
R/o-13, Shiv Nagar, Jaipur (Rajasthan)

E-mail : sharma.op985@gmail.com

Telephone : 0141-2333907

Fax No. : --

(b) Objective of the project : Mining of River Sand (Bajri) @ 28.05 lac TPA (Max.) For meeting the huge demand of construction material for Roads,Bridges, Precasted structures , metro pillars and Highways.

(c) Location of mine (s) : Mine lease area has been sanctioned in Govt. Khasra land of Gair mumkin nadi in 18 Revenue villages in 263 Khasras total admeasuring area is 1414 ha. Details of Khasra nos. is annexed with EIA as annexure no.1 with LOI.

Village(s)	Tehsil	District	State
Akhapura Khuni, Bar Gaon ….Ummedgarh	Sheoganj	Sirohi	Rajasthan

(d) Does the proposal relate to

(i)	New mine	Yes	√	No	
(ii)	Expansion	Yes		No	√
➢	Increase in ML area	Yes		No	√
➢	Increase in annual production	Yes		No	√
(iii)	Renewal of ML	Yes		No	√
(iv)	Modernisation	Yes		No	√

(e) Site Information

(i) Geographical Location

➢ Latitude	24°59’33.19” N to 25°09’43.14” N
➢ Longitude	73°02’50.44” E 72°59’28.53” E
➢ Survey of India Topo sheet number	45 C/12, 45 C/16, 45 G/4
➢ Elevation above Mean Sea Level	Sukri River 297 mRL-254mRL, Jawai River 275 mRL-252 mRL, Khari Nadi 196 mRL- 220 mRL
➢ Total mining lease area (in ha.)	1414 Ha.

(ii) Dominant nature of terrain

➢	Flat	Yes		No	√
➢	Undulated	Yes	√	No	
➢	Hilly	Yes		No	√

2. Land usage of the mining lease area (in ha.)

(a)	Agricultural	Nil
(b)	Forest	Nil
(c)	Gair Mumkin Nadi/Nallah	1414
(d)	Grazing	Nil
(e)	Surface water bodies (Seasonal)	Nil
(f)	Others (Specify)	Nil
	Total	**1414**

3. Indicate the seismic zone in which ML area falls. In case of zone IV & V, details of earth quakes in last 10 years.

(a) Severity (Richter Scale) -Zone II

(b) Impact *i.e.* Damage to

➢ Life	Yes		No	√
➢ Property	Yes		No	√
➢ Existing mine	Yes		No	√

4. Break-up of mining lease area (in ha.) as per Approved Conceptual Plan:

Purpose	Mining Lease Area				Total	Area acquired				Area to be acquired			
	Government		Private			Government		Private		Government		Private	
	Forest	Others	Agri.	Others		Forest	Others	Agri.	Others	Forest	Others	Agri.	Others
1. Area to be excavated	-	311	-	-	311	-	3.0	-	3.0	-	308	-	-
2. Storage for top soil	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Overburden / Dumps	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Mineral storage	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Infrastructure (Workshop, Administrative Building)	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Roads	-	5.5	-	-	5.5	-	-	-	5.5	-		-	-
7. Railways	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Green Belt	-	5.0	-	-	5.0	-	-	-	-	-	5.0	-	-
9. Tailings pond	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Effluent treatment plant	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Coal handling plant / mineral separation plant	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Township area	-	-	-	-	-	-	-	-	-	-	-	-	-
13. Other (Specify)-Undisturbed	-	1092.5	-	-	1092.5	-	-	-	-	-	-	-	-
TOTAL	**-**	**1414**	**-**	**-**	**1414**	**-**	**3.0**	**-**	**8.5**	**-**	**313**	**-**	**-**

(Source: Approved Mining Plan)

5. Township (outside mining lease)

(a)	Total area (in ha)	Not Applicable
(b)	No. of dwelling units	Not Applicable
(c)	Distance from mine site	Not Applicable

6. Distance of water bodies (in km)

Distance from	River Bank *	Other Water bodies * Sea/creek/lake/nalla etc.(specify)
Mining lease boundary	Distance is nil in respect of Sukri and Jawai river as the project lies on river bed	Jawai dam is located in SE direction at a distance of 6.0 km from river Jawai.
Ancillary facilities		

[* From highest flood line/high tide line]

7. For projects falling within the Coastal Regulation Zone (CRZ) Not Applicable

Whether the mineral to be mined is of rare nature and not available outside CRZ? Yes [ ] No [√]

if yes, annex a scaled location map showing low tide line (LTL), high tide line (HTL) duly demarcated by one of the authorized agencies* [*Director, Space Application Centre, Ahmedabad: Centre for Earth Sciences Studies, Thiruvananthapuram: Institute of Remote Sensing, Anna University, Chennai: Institute of Wetland Management & Ecological Designs, KolKata: Naval Hydrographers's Office, Dehradun: National Institute of Oceanography, Panjim, Goa: and National Institute of Ocean Technology, Chennai], boundary of mining lease area, distance of ML area from LTL and HTL CRZ boundary and CRZ classification of the project area as per the approved Coastal Zone Management Plan, and settlements, sand dunes, mangroves, forest land/patches, turtles breeding and nesting sites etc., if any, in the project area.

8. Indicate aerial distance from the periphery of core zone/area from the periphery of the buffer zone to the boundary of following (up to 10 km):

S.No.	Areas	Name	Aerial distance from (in km.) Core * Zone	Buffer* Zone
1.	National Park/Sanctuary	None	Not Applicable	
2.	Biosphere Reserve/Tiger Reserve/Elephant Reserve/ any other Reserve	None	Not Applicable	
3.	Forest (RF/PF/unclassified)	➢ Rewara Reserve forest in NW direction from Sukri Nadi. ➢ Protected forest near village Alpa in West direction from Sukri Nadi. ➢ Chotila protected forest		7.5 km 7.5 km 0.25 km

		in south direction. ➢ Palri Reserve forest in South direction. ➢ Darla Jod Reserve forest in South direction from Sukri River. ➢ Machhal protected forest in West direction from Sukri River.	0.25 km 6.0 km 8.0 km
4.	Habitat for migratory birds	None	Not Applicable
5.	Corridor for animals of schedule I & II of the Wildlife (Protection) Act, 1972	None	Not Applicable
6.	Archaeological sites * Notified * Others	None	Not Applicable
7.	Defence Installation	None	Not Applicable
8.	Industries/Thermal Power Plants	None	Not Applicable
9.	Other Mines	Nil	Nil
10.	Airport	Udaipur Airport	-
11.	Railway Lines	There is no railway station within 10 km radius of lease area as well as Tehsil headquarter Sheoganj	Not Applicable
12.	National / State Highways	NH-14 passes through the lease area.	Crosses the lease area

[*Buffer zone in case of ML area up to 25 ha. is to be considered as **5 km** all around the periphery of the core zone and for ML area above 25 ha. an area **10 km** all around the periphery of the core zone].

9. Description of flora & fauna separately in the core and buffer zones.*

[* Consult the Wildlife (Protection) Act, 1972 as amended subsequently and list species with (1) Common name (2) Scientific name and (3) under which schedule of the Wildlife (Protection) Act the identified species fall. Get the list authenticated by an Expert in the field / credible scientific institute / University / Chief Wildlife Warden office. **Information to be based on field survey.**]

A. Flora	**Core Zone**	**Buffer Zone**
1. Agricultural crops	None	**Kharif Crops**-Maize, Pearl Millet, Sesame, Castor, Green gram, Fennel, & Cluster Beans etc. **Rabi Crops**-Wheat, Mustard, Gram & Cumin etc.
2. Commercial crops	None	Mustard and Cumin
3. Plantation	Nil	Nil

4. Natural vegetation/forest type	*Calotropis procera* *Capparis decidua* *Ricinus communis* *Zyzipus nummularia* *Argemone mexicana* *Amaranthus spinosus* *Aerva tomentosa* *Acalypha indica* *Datura metel* Launaea nudicaulis *Indigofera cordifolia* *Lantana camara* *Tephrosia purpurea* *Pedalium murex* *Aristida depressa* *Cynodon dactylon* *Saccharun spontaneum*	*Albizia lebbeck* *Ailanthus excelsa* *Acacia senegal* *Acacia leucophloea* *Acacia nilotica* *Azadirachta indica* *Butea monosperma* *Cassia siamea* *Cassia fistula* *Dalbergia sissoo* *Delonix regia* *Ficus religiosa* *Ficus benghalensis* *Eucalyptus globulus* *Ficus racemosa* *Mangifera indica* *Phoenix sylvestris* *Pithecellobium dulce* *Pongamia pinnata* *Polyalthia longifolia* *Prosopis juliflora* *Terminalia arjuna* *Syzygium cumini* *Salvadora persica* *Ziziphus mauritiana* *Holoptelea integrifolia* *Bougainvillea sp.* *Calotropis procera* *Capparis decidua* *Hibiscus rosa-sinensis* *Euphorbia neriifolia* *Grewia tenex* *Opuntia elatior* *Tecoma stans* *Ziziphus nummularia* *Plumeria alba* *Ricinus communis* *Nerium oleander* *Argemone mexicana* *Amaranthus spinosus* *Aerva tomentosa* *Acalypha indica* *Catharanthus roseus* *Cucurbita pepo* *Trichosanthes cucumerina* *Datura metel* *Launaea nudicaulis* *Indigofera cordifolia* *Lantana camara* *Ocimum tenuiflorum* *Tephrosia purpurea* *Pedalium murex* *Ipomoea nil* *Aristida depressa* *Chloris dolichostachys* *Cynodon dactylon* *Cenchrus biflorus* *Eragrostis tremula* *Saccharum spontaneum*

5. Grass lands	None	None
6. Endangered species	None	Yes ➢ *Melursus ursinus* (Sloth Bear) ➢ *Panthera pardus* (Panther) ➢ *Pavo cristatus* (Indian Peafowl)
7. Endemic species	None	None
8.Others (Specify)	None	None
B. Fauna		
1. Total listing of faunal elements	**Mammals** *Lepus nigricollis* *Funambulus pennant* **Avifaunal** *Ploceus philippinus* *Francolinus pondicerianus* *Merops orientalis* *Streptopelia enegalensis* *Bubulcus ibis* *Dicrurus macrocercus* *Saxicoloides fulicata* *Pycnonotus cafer* *Turdoides striatus* *Prinia socialis* **Reptiles** *Mabuya carinata* *Calotes versicolor*	**Mammals** *Boselaphus tragocamelus* *Presbytis entallus* *Macana mulatta* *Canis aureus* *Lepus nigricollis* *Rattus rattus* *Herpestes edwardsii* *Funambulus pennant* *Pteropus giganteus* *Melursus ursinus* *Panthera pardus* **Avifaunal** *Pavo cristatus* *Mycteria leucocephala* *Actitis hypoleucos* *Ceryle rudis* *Ardeola grayii* *Fulica atra* *Ardea cinerea* *Vanellus cinereus* *Ploceus philippinus* *Francolinus pondicerianus* *Upupa epops* *Merops orientalis* *Centropus bengalensis* *Psittacula krameri* *Halcyon smyrnensis* *Apus affinis* *Columba livia* *Streptopelia enegalensis* *Streptopelia decaocto* *Streptopelia tranquebarica* *Egretta garzetta* *Bubulcus ibis* *Corvus splendens* *Dicrurus macrocercus* *Saxicoloides fulicata* *Sturnus contra* *Acridotheres tristis* *Pycnonotus cafer* *Corvus macrorhynchos* *Turdoides striatus* *Nectarinia asiatica*

		Passer domesticus *Motacilla maderaspatensis* *Motacilla flava* *Microcarbo niger* *Himantopus himantopus* *Saxicola caprata* *Prinia socialis* *Chrysocola ptes festivus* *Amaurornis phoenicurus* *Dendrocitta vagabunda* *Anas poecilorhyncha*
		Reptiles *Eryx johnii* *Mabuya carinata* *Calotes versicolor* *Hemidactylus flaviviridis* *Naja naja* **Amphibians** *Hoplobatrachus* tigerinus *Fejervarya limnocharis* **Pisces** *Cyprinus carpio* *Channa punctatus* *Catla catla* *Gambusia affinis*
2. Endangered species	None	➢ *Melursus ursinus* ➢ *Panthera pardus* ➢ *Pavo cristatus*
3. Endemic species	None	None
4. Migratory species	None	None
5. Details of aquatic fauna, if, applicable		**Fish species** *Cyprinus carpio* *Channa punctatus* *Catla catla* *Gambusia affinis*

10. Details of mineral reserves (as per approved Mining Plan)

		Quantity (in million tonnes)
(a)	Proved	62.86
(b)	Indicated	-
(c)	Inferred	-
(d)	Mineable reserves	50.29

11. Major geological formation/disturbances in the mining lease area

(a)	Geological maps submitted	Yes	√	No	
(b)	Geological sections submitted	Yes	√	No	
(c)	Contour map submitted	Yes	√	No	
(d)	Whether the presence, if any, noted of				
					√

(i)	Faults	Yes		No	
(ii)	Dykes	Yes		No	√
(iii)	Shear Zone	Yes		No	√
(iv)	Folds	Yes		No	√
(v)	Other weak zones	Yes		No	√

(e) Source of data (Indicate): GSI

12. Production of mineral(s) and life of mine

(a) Rated capacity of mine mineral wise (Tonnes / annum): 28.05 Lac TPA

(b) Life of mine at proposed capacity (Years): 18 years as per years

(c) Lease period (Years): 5

(d) Date of expiry of lease (D /M /Y): Lease is yet to be granted

(e) Indicate in case of existing mines

(i) Date of opening of mine: Temporary working permission granted by Hon'ble supreme court

(ii) Production in the last 5 years 1st year to 5th year from year 2004-05 to year 2008-09 in million tonnes.: Production carried out from Dec. 2015 to March. 2015, 253141 Tone

(iii) Projected production for the next 6th to 10th year 5 years from year …… to year …… in million tonnes.: Not Applicable

(iv) Whether mining was suspended after Opening of the mine? Yes [ ] No [√]

If yes, details thereof including last production figure and reason for the same.: Not Applicable

(f) Whether plans & sections provided? Yes [√] No [ ]

13. Type and method of mining operations

TYPE		**METHOD**	
Opencast	√	Manual	

Underground		Semi-mechanised	√
Both		Mechanised	

14. Details of ancillary operations for mineral processing

(a) Existing — None

(b) Additional — None

15. Mine details

(a) Opencast Mine

(i) Stripping ratio (mineral in tonnes to over burden in m^3) — Nil

(ii) Ultimate working depth (in m bgl) — 3m

(iii) Indicate present working depth in case of existing mine (in m bgl) — Nil

(iv) Thickness of top soil (in m.)

- Minimum — Nil
- Maximum — Nil
- Average — Nil

(v) Thickness of overburden (in m.)

- Minimum — Nil
- Maximum — Nil
- Average — Nil

(vi) Mining Plan

- Height and width of the bench in overburden/waste. — Not Applicable
- Height & width of the bench in ore body/coal seam. — Height (~3m), Width (~45m)
- Proposed inclination/slope of the sides of the opencast mine (separately for overburden, coal/ ore and overall slope of the pit sides) both while operating the mine as well as at the time of closure of the mine. — 45°

- Whether transverse sections across the opencast mine at the end of fifth year and at the end of the life of the mine have been submitted? Yes [√] No [ ]

(vii) Type of blasting, if any, to be adopted. [Not Any]

(b) Underground Mine - **Not Applicable**

(i) Seam/Ore body

Min. Depth (m)	Max. Depth (m)	Avg. thickness (m)
Not Applicable	Not Applicable	Not Applicable

Rate of dip in degree	Direction of dip
Not Applicable	Not Applicable

ii) Mode of entry into the mine

- Shaft — Not Applicable
- Adit — Not Applicable
- Incline — Not Applicable

(iii) Details of Machinery

- On surface — Not Applicable
- At Face — Not Applicable
- For transportation — Not Applicable
- Others — Not Applicable

(iv) Method of Stoping (Metalliferrous Mines)

- Open — Not Applicable
- Filled — Not Applicable
- Shrinkage — Not Applicable
- Caving — Not Applicable
- Combination of above — Not Applicable
- Others (Specify) — Not Applicable

(v) Extraction method

- Caving — Not Applicable
- Stowing — Not Applicable

- Partial extraction — Not Applicable

(vi) Subsidence

- Predicted max. subsidence (in m) — Not Applicable
- Max. value of tensile strain (in mm/m) — Not Applicable
- Max. slope change (in mm/m) — Not Applicable
- Whether identified possible subsidence area(s) superimposed on Surface Plan has been submitted? Yes [ ] No [√]
- Major impacts on surface features like natural drainage pattern, houses, buildings, water bodies, roads, forest, etc. Yes [ ] No [√]
- Salient features of subsidence management (monitoring and control). Yes [ ] No [√]

16. Surface drainage pattern at mine site

(a) Whether the pre-mining surface drainage plan submitted? Yes [√] No [ ]

(b) Do you propose any modification/diversion in the existing natural drainage pattern at any stage? If yes, when. Provide location map indicating contours, dimensions of water body to be diverted, direction of flow of water and proposed route/changes, if any i.e. realignment of river/nallah/any other water body falling within core zone and its impact. Yes [ ] No [√]

17. Embankment and/or weir construction

(a) Do you propose, at any stage, construction of

(i) Embankment for protection against flood? Yes [ ] No [√]

(ii) Weir for water storage for the mine? Yes [ ] No [√]

(b) If so, provide details thereof.

(c) Impact of embankment on HFL and settlement around. Not Applicable

(d) Impact of weir on down stream users of water. Not Applicable

18. Vehicular traffic density (outside the ML area)

(a) Existing

Type of vehicles	No. of vehicles per day		
	NH-14	SH-38	MDR
Car/ jeep/ van	289	179	43
Two wheeler,	179	169	78
Trucks	440	220	58
Ttrolleys	188	138	33

(b) After the proposed activity

	NH-14	SH-38	MDR
Car/ jeep/ van	289	179	43
Two wheeler,	179	169	78
Trucks	840	520	108
Ttrolleys	453	338	68

(c) Whether the existing road network is adequate? If no, provide details of alternative proposal?

Yes [√] No [ ]

19. Loading, transportation and unloading of mineral and waste rocks on surface:

(a) Manual — Yes [ ] No [√]

(b) Tubs, mine cars, etc. — Yes [ ] No [√]

(c) Scraper, shovels, dumpers / trucks. — Yes [√] No [ ]

(d) Conveyors (belt, chain, etc.) — Yes [ ] No [√]

(e) Others (specify). — Tippers and Trucks

20. Mineral(s) transportation outside the ML area

	Qty. (in TPD)	Percentage (%)	Length (in km)
(a) Road	8500	100%	
(b) Rail	Nil	Nil	
(c) Conveyors	Nil	Nil	
(d) Rope way	Nil	Nil	
(e) Water ways	Nil	Nil	

(f)	Pipeline	Nil	Nil	
(g)	Others (Specify)	Nil	Nil	
	Total	8500	100%	

21. Baseline Meteorological and Air Quality data

(a) Micro-meteorological data

[Continuous monitoring through autographic instrument for one full season other than monsoon]

(i) Wind rose pattern for one full season (16 points of compass i.e. N, NNE, NE, ---) based on 24-hourly data. For coastal area also furnish day-time and night time data.

- Day time
- Night time
- 24 – hours period

(ii) Site specific monitored data

Month	Temperature(^{o}C)			Humidity (%)			Wind speed (Km/hr)		
	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
1st December – 31st December 2013	25.6	6.1	16.7	93.0	27.0	62.7	19.1	1.1	8.3
1st January – 31st January 2014	26.6	6.7	15.5	97.0	29.0	57.9	20.2	1.0	10.4
1st February – 28th February 2014	28.3	9.7	19.3	95.0	23.0	59.1	25.2	1.08	11.4

* 24-hours rainfall should be reported from 08:30 hrs. IST of previous day to 08:30 hrs. IST of the day.

* Rainy day is considered when 24 hrs. rainfall is ≥ 2.5 mm.

** Visual observations of cloud cover should be recorded four times a day at regular intervals.

(iii) Indicate name and distance of the nearest IMD meteorological station from which climatological data have been obtained for reporting in the EIA report, if any.-

(b) Ambient air quality data* (RPM, SPM, SO_2, and NOx)

[*Monitoring should be carried out covering one full season except monsoon – same season as in 21 (a) (i)]

[*Frequency of sampling: Sampling to be done twice a week for the entire season 24 hourly for SPM & RPM. For gaseous pollutants 24- hourly data be given irrespective of the sampling period.]

(i) Season and period for which monitoring has been carried out.-**Winter Season (December-2013, January-2014 and February-2014)**

(ii) No. of samples collected at each monitoring station: **24**

Name of monitoring equipment used			**SPM**			**PM10**			**SO_2**			**NO_x**			**Pb****		
			-			Respirable Dust sampler APM-860			APM-860			APM-860			-		
Equipment sensitivity			-			5.0			5.0			5.0			-		
Permissible AAQ standard (CPCB)		**R**	-			100			80			80			-		
		I	-			100			80			80			-		
		S	-			100			80			80			-		
Monitoring Location	**No. of Samples Drawn**	**Category* (R, I, S)**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**95% tile**
AAQ1	24	**I**	-	-	-	50.1	66.8	66.43	6.3	8.9	8.81	9.8	13.2	13.06	-	-	-
AAQ2	24	**I**	-	-	-	49.8	62.7	62.61	5.9	8.3	8.25	10.1	13.7	13.61	-	-	-
AAQ3	24	**R**	-	-	-	50.7	61.1	60.50	6.1	8.5	8.45	9.7	12.9	12.76	-	-	-
AAQ4	24	**R**	-	-	-	48.6	65.9	65.39	6.0	8.0	8.15	10.2	13.8	13.66	-	-	-
AAQ5	24	**R**	-	-	-	51.4	61.8	61.48	5.8	8.7	8.56	9.9	13.6	13.55	-	-	-
AAQ6	24	**I**	-	-	-	49.1	59.9	59.85	6.2	8.8	8.71	10.0	13.4	13.26	-	-	-
AAQ7	24	**R**	-	-	-	51.2	69.4	68.99	5.7	8.2	8.15	10.1	13.3	13.16	-	-	-
AAQ8	24	**R**	-	-	-	47.3	65.0	64.59	5.8	8.6	8.51	9.8	13.5	13.36	-	-	-
AAQ9	24	R	-	-	-	48.0	67.4	66.89	6.0	8.5	8.41	10.0	13.4	13.26			
AAQ10	24	R	-		--	47.9	59.1	58.92	5.9	8.4	8.31	9.7	13.3	13.21			

* R = Residential; I = Industrial; S = Sensitive

** Pb for mineral specific sites only.

Annex a location map indicating location of AAQ stations, their direction and distance with respect to project site.

22. Stack and emission details, if any*

Sl. No.	Process / unit of operation (e.g. DG Set, Boiler)	Height of stack (m)	Internal top dia. (m)	Flue gas exit velocity (m/sec)	Emission rate (kg/hr)				Heat emission rate from top of stack (K.cal/hr)	Exhaust / Flue gas			
					SPM	SO_2	NO_x	CO		Temp ^oC	Density	Specific Heat	Volumetric flow rate (m^3/hr.)

23. Details of fugitive emissions during mining operations* -During transportation

24. Air Quality Impact Prediction (AQIP)*

(a) Details of model (s) used for AQIP including grid size, terrain features, and input meteorological data: **ISC-AERMOD View-6.8.6. Details are given in Chapter-5 of EIA/EMP report.**

(b) Maximum incremental GLC values of pollutants based on prediction exercise

Location	Background Concentration PM10 (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) without control measures	Post Project Air Quality PM10 without control measures (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) with control measures	Post Project Air Quality PM10 with control measures (µg/m3)	NAAQS (µg/m3)
Dhanpura	58.66	1.99	60.65	0.22	58.88	100
Chuli	56.70	4.19	60.89	2.51	59.21	100
Chotila ki Bhagli	56.28	0.78	57.06	0.04	56.32	100
Ora	56.92	0.68	57.6	0.05	56.97	100
Alpa	57.27	0.72	57.99	0.07	57.34	100
Jawai River	55.90	0.25	56.15	0.03	55.93	100

Sheoganj	59.95	0.4	60.35	0.06	60.01	100
Khejriya	54.96	0.67	55.63	0.16	55.12	100
Balvana	58.47	0.32	58.79	0.03	58.5	100
Khari River	54.36	0.95	55.31	0.09	54.45	100

(in µg/m^3)

[* Question Number 22, 23 & 24 need not be filled-in for mines having ML area of **25 ha. or less.**]

[**Information on item no. 2 & 3 to be provided in cases with captive power generation of 500 KVA and above]

25. Water requirement (m^3/day)

Purpose	Avg. Demand	Peak Demand
A. Mine site		
1. Mine operation	-	-
2. Land reclamation	-	-
3. Dust suppression	8.0	9.0
4. Drinking	3.0	3.0
5. Green Belt	5.0	7.0
6. Beneficiation	-	-
7. Washeries	-	-
8. Fire Service	-	-
9. Others (specify)	-	-
B. Township		
1. Green Belt	-	-
2. Domestic	-	-
3. Other (specify)	-	-
Total	**16**	**19**

26. Source of water supply*

S.No.	Source	m^3/day
1	River (name)	Nil
2	Ground water (Wells)	16
3	Mine water (sump/pit)	Nil
4	Other surface water bodies (By tankers)	Nil

[*Annex a copy of sanction letter/permission from the concerned authority (Central Ground Water Authority in case of ground water abstraction is from notified area / State Ground Water Board in case of non-notified area/State Irrigation Department for surface water pumping) for drawing water.]

27. Lean season flow in case of pumping from river/nalla (cumecs)

Not Applicable

28. Ground water potential of the study area

28.1. Ground water availability

(a) Range of water table (m bgl)

(i) Pre-monsoon (April/May)

- Core Zone: 10-15
- Buffer zone: 20-25

(ii) Post-monsoon (November)

- Core Zone: 10-12
- Buffer zone: 18-23

(b) Total annual replenishable recharge (million m^3/ year)

- By ground water table fluctuation method — Not Available
- By rainfall infiltration factor method — Not Available

(c) Annual draft excluding estimated draft through mine discharge (million m^3/year) — Nil

(d) Estimated draft through mine discharge (million m^3/ year) — Nil

(e) Net annual ground water availability (million m^3/ year) — Nil

(f) Stage of ground water development in % — Nil

28.2 Water demand - Competing users of the water source

S.No.	Usage	Present Consumption (m^3/day)		Additional proposed as per local plan (m^3/day)		Total (m^3/day)	
		Surface	Ground	Surface	Ground	Surface	Ground
1	Drinking & Domestic Uses	-	-	-	3.0	-	3.0
2	Dust Suppression	-	-	-	8.0	-	8.0
3	Industry	-	-	-	-	-	-
4	Mining	-	-	-	-	-	-
5	Greenbelt	-	-	-	5.0	-	5.0
Total		**-**	**-**	**-**	**16.0**	**-**	**16.0**

29. Water quality*

(a) Annex physico-chemical analysis of water at intake point **-Physico-chemical analysis of water report is given in chapter 3 in table 3.6, page no. 59 of draft EIA/EMP report.

(b) In case of existing mine, annex report on quality of water discharge i.e. complete physico - chemical analysis**

[*For non-discharging mines at least four ground water samples to be taken preferably from downstream direction of the mine in pre-monsoon and post-monsoon periods and analysed. For discharging mines six samples are to be analysed]

**All parameters as per BIS 10500. Indicate name of Methodology, Equipment used for analysis, and Detection Level (DL) for each parameter.

*** Wherever any analytical parameter is below detection level, "BDL" (Below Detection Level) should be written instead of 'NIL'.

30. Impact on ground water regime/stream/lake/springs due to mine dewatering*

(a) Radius of influence (in m)

[To be estimated based on analysis of pumping test data and application of empirical formula]

Not applicable as no Dewatering from mine is involved and the mining activities shall not intersect the ground water table

(b) Whether saline water ingress will take place? Yes [ ] No [√]
(applicable to coastal areas)

(c) Impact on stream/lake/springs

[* Provide a comprehensive hydro-geological assessment report if the average mine dewatering is more than 100 m^3/day and or going below water table in non-monsoon period. The report should be based on preferably latest one year pre-monsoon and post-monsoon baseline data covering information on ground water situation, aquifer characteristics, water level conditions (April – May and November), estimate of ground water resources, predicted impact of the project on ground water regime and detailed remedial / conservation measures such as artificial recharge of ground water etc. The report should be based on actual field inventory out of existing wells, at least 30 observation wells in the buffer zone with supplementary information from secondary sources (mention name). For estimation** of ground water resource (refer question no. 28 above) be designated study area of the buffer zone may be sub-divided into command and non-command areas, watershed-wise (in case of hard rock/consolidated formations)/block-wise/mandal-wise in case of alluvial / unconsolidated formations)**]**

[**For estimating ground water resources in the area follow the Ground Water Estimation Committee recommendations of 1997]

31. Waste Water Management- No waste water will be generated/discharged.

Mine

(a) Daily average discharge (m^3/day) from different sources

Not Applicable as no waste water will be generated from mine

(i) Mine water discharge during

➢ Lean period	Nil
➢ Monsoon period	Nil
(ii) Workshop	Nil
(iii) Domestic (mine site)	Nil
(iv) Beneficiation / Washeries	Nil
(v) Coal Handling Plant	Nil
(vi) Tailings pond	Nil
(vii) Others (Specify)	Nil
Total	Nil

(b) Waste water treatment plant; flow sheet for treatment process attached. Yes [ ] No [√]

(c) Quantity of water recycled/reused/ to be recycled in

(i) Percentage — Nil

(ii) m^3/day — Nil

(d) Point of final discharge

Final Point	Quantity discharged (in m^3/day)
1. Surface (i) Agricultural land (ii) Waste land (iii) Forest land (iv) Green belt	 Nil Nil Nil Nil
2. River / nallah	Nil
3. Lake	Nil
4. Sea	Nil
5. Others (specify)	Nil
Total	**Nil**

(e) Users of discharge water

(i) Human Yes [ ] No [√]

(ii) Livestock Yes [ ] No [√]

(iii) Irrigation Yes [ ] No [√]

(iv) Industry Yes [ ] No [√]

(v) Others (specify) — No sizeable discharge is envisaged

(f) Details of the river /nalla, if final effluent is / will be discharged (cumecs)

(i) Average flow rate — Nil

(ii) Lean season flow rate — Nil

(iii) Aquatic life — Nil

(iv) Analysis of river water 100 meters upstream and 100 meters downstream of discharge point submitted. Yes [ ] No [√]

Township

(a) Waste water generation from township (m^3/day) — Not Applicable

(b) Are you planning to provide sewage treatment plant? — Yes [ ] No [√]

(c) Usage of treated water — No waste water will be generated

32. Attach water balance statement in the form of a flow diagram indicating source (s), consumption (Section-wise) and output.-Details are given in Chapter-3, Table 3.17 of EIA/EMP report.

33. Ambient noise level leq dB(A)

S.No	Location	L_{eq} Day Noise level dB(A)	L_{eq} Night Noise level dB(A)	Day time (6.00 A.M to 10.00P.M) Standard (L_{eq} in dB(A)	Night time (10.00 P.M to 6.00A.M) Standard (L_{eq} in dB(A)
N1	Dhanapura	61.6	48.3	75.0	70.0
N2	Chuli	53.8	43.2	75.0	70.0
N3	Ghotile ki Bhagli	54.1	41.6	55.0	45.0
N4	Ora	62.3	45.3	55.0	45.0
N5	Alpa	60.6	42.1	55.0	45.0
N6	Jawai River	55.1	47.2	75.0	70.0
N7	Shivganj	68.4	48.1	55.0	45.0
N8	Khejriya	54.2	43.4	55.0	45.0
N9	Balvana	60.7	43.1	55.0	45.0
N10	Khari River	55.6	44.0	75.0	70.0

34. Solid Waste- Not Any

(a) Top soil and Solid waste quantity and quality

Name (Lump/fines/slurry/ Sludge/others)	Composition	Quantity (m^3/month)	Method of disposal
Mining activity*			
a) Top Soil	Nil	Nil	Not Applicable
b) Over burden	Nil	Nil	Not Applicable
c) Others (specify)	Nil	Nil	Not Applicable
Effluent Treatment Plant (sludge)	Nil	Nil	Not Applicable
Total	Nil	Nil	Not Applicable

[* Annex layout plan indicating the dump sites.]

(b) (i) Does waste (s) contain any

	Hazardous/toxic substance/ Radioactive materials or Heavy metals?	Yes		No	√
(ii)	If yes, whether details and Precautionary measures provided?	Yes		No	√

(c) Recovery and recycling possibilities.-No

(d) Possible user(s) of the solid waste.

(e) (i)	Is the solid waste suitable for backfilling?	Yes		No	√
(ii)	If yes, when do you propose to start backfilling.	Not Applicable			

(in million m^3)

Solid waste (s)	Already accumulated (A)	To be generated (B)	% of A & B to be backfilled	
			A	B
Over burden	Not Applicable	Nil	Nil	Nil
Others (specify)	Not Applicable	Nil	Nil	Nil

Land reclamation Plan

(f) In case waste is to be dumped on the ground, indicate: Not Applicable

(i) Associated environmental problems: Not Applicable

(ii) Number & type of waste dumps

- No. of external dumps: Nil
- Max. projected height of dumps (in m): Nil
- No. of terraces and height of each stage: Nil
- Overall slope of the dump (degree): Not Applicable
- Proposed reclamation measures: Not Applicable

(iii)	Section of the waste dump in relation to the adjacent ground profile attached.	Yes		No	√

35. Fuel / Energy requirements*

[*To be furnished for mines having ML area more than 25 ha. or captive power generation of 500KVA and above]

(a) Total power requirement

(in MW)

S.No.		Mine Site	Township	Others (specify)	Total
1	Present	Nil	Nil	Nil	Nil
2	Proposed /additional	Nil	Nil	Nil	Nil
Total		Nil	Nil	Nil	Nil

(b) Source of power

(in MW)

S.No.		SEB/Grid*	Captive power plant	DG Sets
1	Present	Nil	Nil	Nil
2	Proposed	Nil	Nil	Nil
Total		Nil	Nil	Nil

[* Annex a copy of the sanction letter from the concerned authority]

(c) Details of fuels

S.No.	Fuel	Daily Consumption (LPD)		Calorific value (Kcals/kg)	% Ash	% Sulphur
		Existing	Proposed			
1	HSD	Nil	2240	-	-	-
2	LSHS	Not Applicable	Not Applicable	Not Applicable	-	-
3	Other (specify)	Not Applicable	Not Applicable	Not Applicable	-	-

36. Storage of inflammable/explosive materials

S.No.	Name	Number of Storages	Consumption (in LPD)	Maximum Quantity at any point of time
1	Fuels	2-4	2240	2500
2	Explosives	Nil	Nil	Nil

37. Human Settlement

	Core Zone	Buffer Zone
Population*	Nil	100502
No. of villages	Nil	38
Number of households village-wise	Nil	20355

[* As per 2011 census record or actual survey]

38. Rehabilitation & Resettlement (R&R) Plan*

[*Provide a comprehensive rehabilitation plan, if more than 1000 people are likely to be displaced, other-wise a summary plan]

(a) Villages falling within the study area

	Villages	
	Number	Name
Core zone	Nil	Not Applicable
500 m from the blasting site (s)	Nil	Not Applicable
Buffer zone	38	List is enclosed and given in Chapter-3, in EIA/ EMP report.
Township site	1	Sheoganj

(b) Details of village(s) in the core zone-**Not Any, as the lease area lies in river channel.**

S.No.	Village Name	Population*		Average Annual Income
		Tribal	Others	
1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
2	Not Applicable	Not Applicable	Not Applicable	Not Applicable
3	Not Applicable	Not Applicable	Not Applicable	Not Applicable

[*As per 2001 census / actual survey]

(c) Population to be displaced and / or Land oustees

Name of village(s) falling within	Number of oustees		
	Land (only)	Homestead (only)	Land and Homestead (both)
Mining Lease 1. 2. None ▪ ▪	Not Applicable	Not Applicable	Not Applicable
Township Site 1. 2. Not Applicable ▪	Not Applicable	Not Applicable	Not Applicable

(d) Whether R & R package has been finalised? If yes, salient features of R&R plan for oustees. - Not Applicable

(i) Site details where the people are proposed to be resettled & facilities existing / to be created. Not Applicable

(ii) Funds earmarked for compensation package. Not Applicable

(iii) Agency /Authority responsible for their resettlement. Not Applicable

(iv) Time of commencement of resettlement of Project Affected People (PAP). Not Applicable

(v) Period by which resettlement of PAP will be over. Not Applicable

39. Lease -wise plantation details

(a) Lease area (in ha.)	Existing mine	New mine
(i) Area broken up	Not Applicable	Nil
(ii) To be broken up	Not Applicable	311
(iii) Area not to be broken-up	Not Applicable	1092.5

(b) Township area (in ha.) | Not Applicable | Nil

(c) Area afforested and proposed (in ha.)

S.No.		Peripheral	Dumps	Roads	Top Soil Dump	Township	Others	Total
(i)	Existing	Nil	Nil	Nil	Nil	Nil	Nil	Nil
(ii)	Proposed	Nil	Nil	Nil	Nil	Nil	*5.0	5.0

*Riparian zone

(d) No. and type of trees planted and proposed

(i) Existing — Nil

- When plantation was started? Month / Year (lease is yet to be granted)

No. of plant species planted	Number saplings (per ha.)
Nil	Nil

- Survival rate % — Not Applicable — D Avg. height — Not Applicable

(ii) Proposed

No. of plant species to be planted	Number of saplings (per ha.)
10-15	1000

40. Environmental health and safety

(a) What major health and safety hazards are anticipated?

(i) Air borne disease
(ii) Noise borne problem
(iii) Accidents

The persons may get injured while working in the mine or suffer from occupational diseases due to air born dust. Therefore measures are being taken to protect the employed persons the safety and hazards.

(b) What provisions have been made/proposed to be made to conform to health and safety requirements?

- Masks will be provided to workers those who are working dust prone areas. Dust suppression is being done by water sprinkling.
- Earplugs have been provided to workers those who are working in near the mining machineries.
- Proper precautions are being taken care of to avoid accidents.
- Regular medical checkup of the employed persons would be done as per provision of Mines Act, 1952.
- A well equipped first aid station will be kept operated all the time of work.

- Group insurance scheme will be implemented to protect the future of mine worker and their families in case of any accident, mishappening while working in the mine.

Table: Budgetary provisions for OHS

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	Regular health check up camps for the workers engaged in mines shall be organized or checked in dispensary	1.0
2.	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed;	1.0
3.	Insurance cover to all workers engaged in mines shall be provided;	2.5
4.	Common vocational training center shall be setup at district level;	1.50
5.	Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.	4.0
	Total	**10.00**

(c) In case of an existing mine

(i) Comprehensive report on health status of the workers as under the Mines Act annexed. Yes [ ] No [√]

(ii) Mineralogical composition of RPM (dust)

- Free silica — Within Limit
- Chromium* (Total as well as Hexavalent) — Not Applicable
- Lead** — Not Applicable

[* Only for Chromite mines]

[**Only for Base Metal mines]

(d) Information on radiation protection measures, if applicable. - Not Applicable

41. Environmental Management Plan

Salient features of environmental protection measures

S.No.	Environmental Issues*	Already practiced, if applicable	Proposed
1.	Air Pollution	-	➢ Water spraying arrangement will be done on haul roads to control dust/fugitive emission. ➢ Air monitoring will be done once in 6

			months. ➢ Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin. ➢ Proper tuning of vehicles will be ensured to keep gas emission from the vehicles within prescribed limits/norms. ➢ Overloading of material will be kept under check. ➢ Plantation of broad leaved vegetation along approach road, riparian zones, erosion prone zone etc.
2.	Water Pollution	-	Mining will confined to 3mts. from surface of river channel or above water level whichever is less. During mining ground water table will not be intersected. During mining no waste water will be generated. Mine will maintain zero discharge status. So there will no chance of water pollution in core & buffer zone.
3.	Water conservation	-	During monsoon, ground water will naturally recharge through seepage of rain water at some extent.
4.	Noise Pollution	-	Proper maintenance & servicing of transport vehicles will be done to minimize the noise.
5.	Solid Waste/ Tailings	-	No waste generated during life of mine so there is no mitigation or management measures are proposed.
6.	Land degradation	-	As the mining area is confined to river channel only no other land will disturbed due to mining.
7.	Erosion & Sediment	-	To control or prevent bank erosion, scientific mining practices will be followed. No mining activity will carried towards concave side of river. Erosional prone zone area will be identified and properly planted to stop further degradation.
8.	Top soil	-	No top soil will be encountered during mining activity so no measures are proposed. All the material is directly marketable.
9.	Ground Vibration	-	No blasting will be carried out during mining so there is no chance of ground vibration.
10.	Wildlife Conservation	--	Mining is strictly confined to river channel only no other land will be disturbed due to mining activities in the area. There is no eco-sensitive area/zones exist within 10 km. radii. No schedule Ist species of animal was found/reported from area.

11.	Forest protection	-	Plantation programme will improve the ecosystem in surrounding area. Afforestion programmes will continue to protect the local biodiversity of the study area.
12.	Others (Specify)	-	For details, environment management plan is given as Chapter-9, in EIA/EMP report.

[* As applicable]

42. Compliance with environmental safeguards (For existing units)

(a)	Status of the compliance of conditions of environmental clearance issued by MoEF, if any, enclosed.	Yes		No	√
(b)	Status of the compliance of 'Consent to Operate' issued by SPCB, if any, enclosed.	Yes		No	√
(c)	Latest 'environmental statement' enclosed.	Yes		No	√

43. Scoping of EIA

	Whether environmental impact assessment of the project has been carried out by following scoping process?	Yes	√	No	
	If yes, a copy of scoping of EIA annexed.	Yes	√	No	

44. Mine closure

(a)	Have you planned mine closure?	Yes		No	√
(b)	Submitted a conceptual mine closure plan.	Yes	√	No	
(c)	If yes, indicate estimated amount for implementing the same (in Rs. lakhs)				Not Applicable

45. Capital cost of the project (in Rs. Lakh) (Based on latest estimate) 4 Crore

46. Cost of environmental protection measures

(in Rs. Lakh)

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1	Pollution Monitoring Air,water,noise	-	4.00
2	Pollution Control Measures (Water Sprinkling & Others)	-	6.00
3	Wire crate around pit	-	4.5
4	Plantation including protection	3.00	6.50
5	Rainwater harvesting in nearby villages	-	3.00

6	Maintenance of Haul Road	-	2.00
	Total	**3.00**	**26.00**

47. Amount earmarked for socio-economic welfare measures for the nearby villages other than R&R plans.-About 26.0 Lakh for various provision in surrounding areas for social welfare measures. Details are given in Chapter-9 of EIA/EMP report.

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	School function, furniture, prize distribution and provision of scholarship for meritorious students in nearby villages.	7.5
2.	Community functions i.e. Dusshera, Holi and sports activities in villages.	3.5
3.	Training and awareness campaign.	4.5
4.	Community hall development, renovation of structure such as temple, school buildings, make drinking water structures etc. in nearby villages.	10
5.	Health Check up camps in villages	0.5
	Total	**26**

48. Public Hearing-

(a) Date of Advertisement: 03.08.2014

(b) Newspapers in which the advertisement appeared: Rajasthan Patrika & Hindustan Times

(c) Date of public hearing (DD/MM/YYYY): 05.09.2014

(d) Public Hearing Panel chaired by & members present: ADM, Regional Officer, Members of RSPCB, Project proponent & residents of nearby villages

(e) No. of people attended the public hearing meeting and number of people from the lease area: 57

(f) Summary/details of public hearing in tabular form.

S.No.	Issues raised by the Public	Response/Commitment of Project Proponents	Suggestions made by the Public Hearing Panel	Budgetary Allocations
1.	Shri Shravan Kumar resident of Jaitpura, asked where will be plantation carried out and who will look after them for which an amount at the rate of ` 5/ton is being deposited to State Govt. And who will replace the dead plants.	Project proponent said that they will do plantation and its care for five year from the date of agreement. Technical advisor told that there is provision for planting 1000 plants per year.	-	To Enhance the Environmental condition of the area Rs. 26.00 Lacs/Year will be spent. out of this Rs. 6.50 Lacs /Year will be spent on plantation. (Ref: chapter – 9, table 9.5
2.	Shri Vijendra Singh resident	-	Shri Mool Singh Devra,	

	of Angaur said that who will utilize the amount that is being deposited to state govt. at the rate of ` 5/ton.		Mining Engineer, Tehsil-Sirohi, said that project proponent and admin committee of Govt. will decide where plantation is to be carried out. Apart from this repairing of transportation route and re-leveling of pits would be done time to time.	of EIA/ EMP Report.)
3.	Shri Mahipal Singh Sarpanch of Morli said that Panchayat is not getting the royalty received on Bajri mining.	-	-	We are paying royalty to state mining department.
4.	Shri M. R. Meena, Tehsildar-Shivganj asked about the safety measures for the workers indulge in Bajri mining.	-	Dr. V.C. Garg, Additional District Collector (Representative District Collector), Sirohi told that Insurance policy facility is provided by the Labour department for their safety in ` 30 card.	Rs. 1.0 Lacs/annum will be spent on Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed; Rs. 2.0 Lacs /Annum will be spent on Insurance cover to all workers engaged in mines shall be provided;
5.	Shri Bhawani Singh resident of Bharela said that large pits forms due to mining and obstruct the flow of water that should be repaired.	-	-	Mining will be carried out up to 3 mtr from surface or above water table whatever is earlier achieved as per state mining rule.
6.	Shri Yogendra Singh resident of Sumerpur said that worker travels in large number from sumerpur to shivganj, so what are the measures for their safety from accident.	Technical advisor Shri Chandra Shekhar Chouhan told that priority for driving will be given only to the licensed person.	-	
7.	Shri Vaarsingh, Subsection Officer, Shivganj said that ground water level will not be intersected while mining. But what should be done if ground water level comes before.	Technical advisor Shri Chandra Shekhar Chouhan told that mining will not be done if ground water level achived.	-	Mining will be carried out up to 3 mtr from surface or above water table whatever is earlier achieved as per state mining rule.

49. Whether the following approvals* (wherever applicable) have been obtained?

(i) Site clearance from MoEF Yes [ ] No [√]

(ii) 'Consent for Establishment' from the

	State Pollution Control Board	Yes		No	√
(iii)	NOC from Atomic Mineral Division	Yes		No	√
(iv)	Mining plan approval from IBM/ Ministry of Coal	Yes	√	No	
(v)	In case of existing mines, mining scheme approval from IBM	Yes		No	√
(vi)	Forestry clearance under FCA, 1980	Yes		No	√
(vii)	NOC from Chief Controller of Explosives	Yes		No	√
(viii)	Commitment regarding availability/ pumping of water from the concerned Authorities	Yes		No	√
(ix)	In case of ML area falling in notified areas of the Central Ground Water Authority, NOC from them.	Yes		No	√

[* Annex copies of approvals and number them]

50. Was/is there any court case relating to the project or related activities? If so, provide details present status. - Yes [ ] No [√]

Verification: The data and information given in this proforma are true to the best of my knowledge and belief.

LOI HOLDER

Date: **Signature of the applicant* with full name & address**

Place: **[* Owner or his authorized signatory]**

Given under the seal of organisation on behalf of whom the applicant is signing

TOR LETTER

By Speed Post

No. J-11015/310/2013-IA.II (M)
Government of India
Ministry of Environment and Forests
IA Division
***

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110 003
Telefax: 011-24364067

Dated: 22nd November, 2013

To

M/s Mangal Singh Solanki
13, Shiv Nagar, Jaipur,
Rajasthan

Sub.: Mineral – River Sand (Bajri) Mine with production capacity of 28.05 Lakh TPA (ROM) by M/s. Mangal Singh Solanki, located at near villages – Akhapura Khuni, Bar Gaon & others, Tehsil – Sheoganj District – Sirohi, Rajasthan (1414 ha)– Prescribing TORs regarding.

This has reference to your letter no. Nil dated 19.08.2013 regarding the proposal for determining the Terms of Reference (TORs) for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the Proponent had submitted information in the prescribed format (Form-1) along with a Pre-feasibility Report. The proposal was considered by the Reconstituted Expert Appraisal Committee in its 12th meeting held during 31st October, 2013 to 01st November, 2013.

2. The mine lease area is located near villages Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan). The proposed production capacity is 28.05 Lakh TPA (ROM). The mine lease area lies on River Khari, Sukri & Jawai River. The mine lease area is between 25°09'43.14"N, 73°02'50.44"E to 24°59'33.19"N to 72°59'28.53"E. The project is located in seismic zone-II. Total lease area of the project is 1414ha. Total length of the rivers allotted for mining is about 58.5 km (Khari River -18.5 km, Sukri River -23.4 km, Jawai River-7.5 km, Nallah-9.1 km).

3. Mining is by semi-mechanized opencast method. Excavation will be carried out up to a maximum depth of 3 meters from surface of sand deposit and not less than one meter from the water level of the River channel whichever is reached earlier. The lease area has been granted vide Rajasthan State Govt. Letter of Intent no. P.8 (15) Khan/Group-2/2013, dated 27-02-2013.

4. Total water requirement of the project will be 16 KLD. This water will be sourced from nearby wells & tube wells through water tankers for drinking, dust suppression and plantation purposes. The total project cost would be around 4.0 Crores.

5. Based on the information content in the documents submitted and the presentation made before the Committee for mining projects, the following TORs are prescribed for undertaking detailed EIA study:-

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.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
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 and mining technology and should be in the name of the lessee.
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 land use and other ecological features of the study area (core and buffer zone).
5) Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt 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 of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.
6) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
7) The study area will comprise of 10 km 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.

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.

9) 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.

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 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 Committees.

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.

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.

13) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

14) 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.

15) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine 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 ecologically 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.

16) 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 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.

17) 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 Minning Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

18) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

19) 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 Village including their R&R and socio-economic aspects should be discussed in the report.

20) One season (non-monsoon) primary baseline data on ambient air quality (PM_{10}, SO_2 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 pre-dominant downwind 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 downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

21) Air quality modelling 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 modelling 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 pre-dominant wind direction may also be indicated on the map.

22) 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.

23) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

24) 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.

25) 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.

26) 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. 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.

27) 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.

28) 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.

29) A time bound Progressive Greenbelt Development 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 commencement of the project.

30) 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.

31) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.

32) 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.

33) A time bound Progressive Greenbelt Development 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 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.

34) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP.

35) 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.

36) Measures of socio economic significance and influence to 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.

37) Detailed environmental management plan to mitigate the environmental impacts which, should 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.

38) Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

39) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.

40) The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.

41) Details of replenishment studies

42) Details of Transportation of mined out materials as per the Indian Road Congress for both the ways (loaded as well as unloaded trucks) load and its impact on Environment;

43) Proper species specific Conservation plan for Schedule–I and II species;

44) Impact of mining on plankton;

45) Details of mining activity to be provided w.r.t Block Wise/ Calendar wise/ Zonal wise, as the mine lease area is having a long stretch,

46) Details of Gradient of river bed to be provided;

47) Details of excavation schedule & sequential mining plan;

48) Mining Plan shall be prepared carefully, dividing lease area into manageable blocks to ensure scientific and systematic mining of minor minerals; and

49) The base line data shall be collected so as to represent the whole mine lease area.

6. 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.
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.
c) Where the documents provided are in a language other than English, an English translation should be provided.
d) The Questionnaire for environmental appraisal of industrial projects as devised earlier by the Ministry shall also be filled and submitted.
e) 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 4th August, 2009, which are available on the website of this Ministry, should also be followed.
f) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the F.R for securing the TOR) should be brought to the attention of MoEF 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 conducting the PH again with the revised documentation.
g) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, you are requested to submit certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment & Forests, if applicable.

7. 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.

8. The prescribed TORs would be valid for a period of two years for submission of the EIA/EMP reports, as per the O.M. No. J-11013/41/2006-IA.II(I) dated 22.3.2010.

9. After preparing the draft EIA (as per the generic structure prescribed in Appendix- III of the EIA Notification, 2006) covering the above mentioned issues, the proponent will get the public hearing conducted and take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

(Dr. Saroj)
Director

Copy to:

1). **The Secretary**, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi

2). **The Secretary**, Department of Mines & Geology, Government of Rajasthan Secretariat, Jaipur.

3). **The Secretary**, Department of Environment, Government of Rajasthan, Secretariat, Jaipur.

4). **The Chief Conservator of Forests**, Central Region, Ministry of Environment and Forests, B-1/72, Sector-A, Aliganj, Lucknow-226020.

5). **The Member Secretary**, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur.

6). **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur - 440 001

7). **The District Collector**, Sirohi District, State of Rajasthan.

8). **Guard File**

9). **MoEF website**.

(Dr. Saroj)
Director

TOR

COMPLIANCE

COMPLIANCE OF TOR VIDES LETTER NO. J-11015/310/2013-IA.II (M) DATE 22nd NOVEMBER, 2013 OF M/S. MANGAL SINGH SOLANKI NEAR VILLAGE - AKHAPURA KHUNI, BAR GAON, CHHIBA GAON, CHOOLI, CHOTEELA, JAITPURA, JOYLA, KHEJARIYA, LOTIWARA BARA, LOTIWARA CHHOTA, MADANI, NARADARA, POSALIYAN, RADBAR, RUKHADA, SAWALI, SUTHARON KA GURHA, UMMEDGARH TEHSIL – SHEOGANJ, DISTRICT – SIROHI (RAJASTHAN)

S.No.	Conditions	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.	This is a new proposal of mining lease for which LOI has been issued by State Government Order No. P.8 (15) Khan/Group-2/2013 Dated 27-02-2013. In order of Interim relief by the Hon'ble Supreme court in interest of public, Temporary working condition is granted from 25/11/2013(Annexure-2). Production from Dec. 2015 to March. 2015 was carried 253141Tonnes only.
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 (Annexure-1) Allotted Revenue villages with Khasra details of lease area (Annexure-1A) .
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 and mining technology and should be in the name of the lessee.	Yes, all the documents are compatible to each other. Proposal is for Production of 28.05 Lac TPA river sand (Bajri), public hearing was also conducted for same production. All the data related to production, waste generation and mining technology are incorporated for proposed production 28.05 Lac TPA. No waste will be generated during mining.
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 land use and other ecological features of the study area (core and buffer zone).	Map with all coordinates of mining lease area has been superimposed on toposheet is enclosed as plate No.-2 of Final EIA/EMP report.
5	Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt 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 of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting	The Project proponent has environmental policy of its own (Annexure-9A). The PP shall comply with the environment norms and conditions set forth in the main environmental clearance of the project and shall submit compliance to the MoEF periodically as warranted under the EC letter. The hierarchical system of the company and the system for reporting non compliance have been given in Annexure no 9C & 9B.

	of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.	
6	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting Study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	All the issues related to Safety of opencast riverbed mining and safeguard measures have been covered section 7.3 and its sub-section.
7	The study area will comprise of 10 km 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	The EIA study has been carried out for 10km radius zone from the periphery of mine lease area. Key plan showing core zone (lease area) and buffer zone of 10 km radii from lease boundary has been incorporated in Plate No. 2. Data regarding mining operations and waste generation have been incorporated in Chapter-2.
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.	Satellite imagery showing the present land use pattern for the Core & Buffer zone (10 km from the Lease Boundary) is enclosed as plate No. 8-9. The same has been incorporated in Chapter-3 of Final EIA/EMP Report. There is no National Park, Wildlife Sanctuary, Migratory routes of fauna falls within the 10 km radius study area.
9	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.	There will be no development of overburden dump and thus no land shall be required for it. Beside this applied lease area is government land and belongs under category of gair mumkin nadi. Also lease has been granted on river bed only, Hence no R & R is 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 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	The Mine lease area is Gair Mumkin Nadi/ Nallah and no forest land is involved in mining operation. details of Khasra No. are annexed as annexure No.-1A

	of the State Forest Department to assist the Expert Appraisal Committees.	
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.	Not Applicable
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.	Not Applicable
13	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	List of RF/PF are given in Chapter-2 in Table No. 2.1 Detailed biological studies are given in Chapter-3 of EIA & EMP Report.
14	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.	A detailed biological study has been carried by EB expert in the study area and impact of the Mining Project on wildlife of the study area, and their mitigative measures with cost implications has been incorporated in Section 3.6 of chapter -3 of EIA report and conservation plan given for sch. I species submitted to DFO Sirohi, Enclosed as annexure no.14 of EIA Report.
15	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km Of the mine 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 ecologically 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.	No eco-sensitive areas such as National Parks, Wildlife Sanctuaries, Biosphere Reserves, Wildlife corridors, Tiger/Elephant Reserves (existing or proposed) etc. falls within the study area (10 km radius of the mine lease boundary). A 10 km radius map is given and annexed as Plate No.- 2
16	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 cating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife	Detailed Biological study for the study area (core zone and buffer zone) has been conducted and same has been incorporated in Chapter-3 section 3.6. Conservation plan for schedule-I species has been prepared and enclosed as Annexure no. 14.

	Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	
17	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.	The mining lease area does not fall in Critically Polluted area and the Aravalli range. NOC from competent authority regarding aravalli range enclosed as Annexure-6. The mining lease area does not fall in Critically Polluted area and the Aravalli range.
18	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applied as ML area does not falls under CRZ.
19	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 Village including their R&R and socio-economic aspects should be discussed in the report.	There is no habitation in the core zone, Lease area allotted for river sand mining. Hence R & R is not applicable
20	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	The Baseline data for winter Season (Dec. 2013, Jan. & Feb. 2014) has been collected in respect of ambient air quality (Section 3.3), water quality (Section 3.2), noise level (Section3.4), soil (Section 3.1), flora and fauna -specific meteorological data. The locations of Ambient Air Quality Monitoring stations were decided on the

	stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind 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 downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	basis of prevailing micro – meteorological conditions (Wind direction & wind speed) of the study area.
21	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 pre-dominant wind direction may also be indicated on the map.	Ambient air quality modeling has been conducted for this mining project through mathematical modeling. The Air dispersion report is enclosed as Annexure- 13.
22	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 mining project will be 16 KLD and supplied by the tanker from bore wells of nearby villages on payment basis. Water balance enclosed as annexure- 10.
23	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	There will be no drawl of water as total water requirement for the proposed mining project will be 16 KLD. Drinking water will be brought by water tanker from nearby villages.
24	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.	The lease area falls in part of river bed. Therefore, water harvesting is not proposed. Natural seepage will recharge the ground water table in the area. Beside this water conservation provision has been made under Budget of EMP (Table 9.5)
25	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.	Impact of the project on the water quality both surface and groundwater along with measures to control water pollution has been given in Chapter 9 of Final EIA Report.
26	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this	Ground water table lies between 10-15 mtr deep in core zone and 20-25 mtr deep in surrounding areas. Ultimate working depth is 3m So, the mine working will not

	regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. 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.	intersect ground water table at any stage of mining.
27	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.	No diversion of stream (seasonal or otherwise) passing through the lease area and there is no modification is proposed.
28	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	Site elevation of Sukri River 297 - 254mRL, Jawai River 275 mRL-252 mRL, and Khari Nadi 196 mRL- 220 mRL and maximum working depth is 3m. Schematic diagram of river sand (Bajri) mining given in chapter-2 of EIA/EMP report.
29	A time bound Progressive Greenbelt Development 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 commencement of the project.	Details regarding plantation and greenbelt development programme are given in Chapter- 9, of EIA/EMP report
30	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.	Detailed transport study has been carried out and incorporated under Section 4.11 of EIA/EMP report.
31	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report	Details regarding infrastructure facilities to be provided to the mine workers are given in chapter-2 of EIA/EMP report.
32	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.	The Conceptual land use is given in Chapter-2 of Final EIA/EMP Report. Conceptual Plan has been annexed as Plate No.-4 in Final EIA/EMP Report.
33	A time bound Progressive Greenbelt Development 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	Details regarding plantation and greenbelt development programme are given in Chapter- 9, Table No.9.1

	same will have to be executed up front 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.	
34	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and Periodical medical examination schedules should be incorporated in the EMP.	Detailed occupational health management plan incorporated Chapter 9 of EIA report.
35	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.	Details regarding public health incorporated in Chapter -9, of Final EIA/ EMP Report.
36	Measures of socio economic significance and influence to 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.	The positive and adverse impact on socio-economic aspect to the local community has been discussed under section 4.9 of EIA report.
37	Detailed environmental management plan to mitigate the environmental impacts which, should 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.	Detailed environmental management plan to mitigate environmental impacts have been incorporated in Chapter-9.
38	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Detailed public hearing proceedings are enclosed as annexure no-5A and 5B.
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	There is no litigation pending against the project.
40	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	Capital Cost of the project is Rs. 4.0 Crore. Capital cost and recurring cost for plementation of EMP have been provided in chapter 9, table 9.5
41	Details of replenishment studies	Replenishment study has been done and details are given in Section 4.13
42	Details of Transportation of mined out	Detailed transport study has been carried out

	materials as per the Indian Road Page 6 of 7 Congress for both the ways (loaded as well as unloaded trucks) load and its impact on Environment.	and incorporated under Section 4.11.
43	Proper species specific Conservation plan for Schedule–I and II species.	Conservation plan for schedule–I species are attached as annexure no. 15 in Final EIA/EMP report.
44	Impact of mining on plankton.	Only Seasonal water bodies have been observed during study. Therefore plankton study has not been carried out.
45	Details of mining activity to be provided w.r.t Block Wise/ Calendar wise/ Zonal wise, as the mine lease area having a long stretch.	Block Wise covered under Section 2.5.6 and Development plan enclosed as plate 5.
46	Details of Gradient of river bed to be provided.	Details of gradient of river bed are given in Chapter-2, Section-2.5.4.
47	Details of excavation schedule & sequential mining plan.	Details covered under Section 2.5.7.
48	The Mining Plan shall be prepared carefully, dividing lease area into manageable blocks to ensure scientific and systematic mining of minor minerals.	Approved mining plan enclosed as Annexure 4.
49	The base line data shall be collected so as to represent the whole mine lease area.	Section 3.1 through 3.5.
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
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
C	Where the documents provided are in a language other than English, an English translation should be provided.	Complied
D	The Questionnaire for environmental appraisal of industrial projects as devised earlier by the Ministry shall also be filled and submitted.	Questionnaire has been filled and enclosed with Final EIA/EMP report.
E	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 4th August, 2009, which are available on the website of this Ministry, should also be followed	Complied
F	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the F.R for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission should be	Not Any

	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 conducting the PH again with the revised documentation.	

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FINAL ENVIRONMENT IMPACT ASSESSMENT REPORT &

ENVIRONMENT MANAGEMENT PLAN

OF

28.05 LAC TPA RIVER SAND (BAJRI) PRODUCTION

At

Near Villages Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Lease Aera – 1414 Ha. (Cat. ‘A’)

OF

M/s. Shri Mangal Singh Solanki

CHAPTER- 1 INTRODUCTION

1.1 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning & design, find ways & means to reduce adverse impacts. By using EIA, both environmental & economic benefits can be achieved. By environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

Rivers are the most important life sustaining system of nature and play a vital role in transport of sediment (material) from one place to other. Total quantity of material transported by rivers, a substantial part is detained within its channels and adjoining environments as fluvial deposits. River sand (Bajri) mining will not create any problem to river ecosystem as the quantity of mining well within the replenishment limits.

To overcome this problem systematic and scientific mining is necessary with a certain depth from surface of river channel. River sand is a product of natural weathering of rocks over a period of millions of years. It is mined from the river bed. Quarrying of river sand is an important economic activity in India as well as in the state of Rajasthan. Rajasthan has varying topographic features though a major part of the state is dominated by ephemeral rivers. Climate of the area is semi-arid type. Precipitation is erratic, scanty and varied place to place. River sand (Bajri) plays a crucial role to the construction industries and infrastructure projects used as a basic raw material in mortars and concrete.

River sand mining has pros and cons of the environment and social well being. In sand mining, river holds more volume of water by deepening the channel. While on other hand some problems is associated i.e. channel widening, bank (riparian) erosion, alteration in channel morphology, local environment change such as dust pollution due to increasing traffic activities etc.

From environment view point, river sand mining is essential because river has an assimilative capacity to retain certain amount of sand in their bed/channel. Due to filling of sand in river channel, river lost their natural passage and morphology. River diverted and flows in downward of both of side create new water channels. River devastate its surrounding land may be agriculture land, habitation, forest, waste land and riparian erosion along both of side of river etc.

Lease area of this mine is 1414 Ha of River Sand (Bajri) (Category 'A'). Proposed production capacity of River Sand (Bajri) @ 28.05 Lac TPA, hence requires appraisal for Environment Clearance from MoEF, New Delhi. As per EIA Notification 14th September 2006 and subsequent amendments as on date, this is a fresh mining project of river sand (Bajri) and requires prior environmental clearance. Lease is yet to be granted for a period of 5 years from the date of agreement.

1.2 GENERAL INFORMATION ON MINING OF MINERALS

LOI has been issued in favour of M/s. Mangal Singh Solanki S/o Shri Lakshman Singh Solanki 13, Shiv Nagar, Jaipur (Rajasthan). Sanctioned mining lease area (1414 ha). The mine lease area, covered under SOI Toposheet no. 45 C/12, 45 C/16, 45 G/4 is linearly stretched under 18 revenue villages 263 Khasara nos. of Tehsil - Sheoganj, District - Sirohi (Rajasthan).

M/s. Shri Mangal Singh Solanki has been granted LOI for mining lease area (1414 ha) of River Sand (Bajri) near village – Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil - Sheoganj, District - Sirohi (Rajasthan). LOI is granted in favour of M/s. Mangal Singh Solanki S/o Shri Lakshman Singh Solanki 13, Shiv Nagar, Jaipur (Rajasthan) for mineral River Sand over an area of 1414 hectares by State Government Order No. P.8 (15) Khan/Group-2/2013 dated 27th February 2013. **(Copy of LOI is enclosed as annexure No-1).** The material produced is of good quality and is suitable for use in all type of civil works and casting of pre casted concrete items such as blocks, polls and various pre casted parts of building. Due to increasing use of

pre-fabricated material and use of locking tiles for pedestrian paths where river sand is used for leveling the under surface for tiles. The use and demand of river sand has substantially increased.

Mining is proposed with semi-mechanized opencast method mining. For the systematic working of opencast mines, benching will be done for 3 mtr by Poclain machine. Maximum permissible depth as conditional permission granted with LOI for digging is 3.0 mtr from surface level of river channel or water level which is achieved earlier. No waste generated during life of mine. All material i.e. sand is loaded into trucks, tippers directly and sold in the market. Working of mine lease is assumed for 11 months. Working will not be carried during flow of water in River. Working days of mine will be 330 as per Mining Plan.

1.3 ENVIRONMENTAL CLEARANCE

Applicant intends to proposed production of River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1414 ha so it comes in Category **'A'** project. Thus the project will be assessed by Expert Appraisal Committee of Ministry of Environment & Forest (MoEF), New Delhi. Therefore, the lessee will have to take environmental clearance from Ministry of Environment & Forest (MoEF), New Delhi as per MoEF Notification of EIA, 2006 and amendments as on date.

1.4 TOR (Terms of Reference)

TOR of this mining project has been issued from Ministry of Environment & Forest (MoEF), New Delhi vide letter no. J-11015/310/2013-IA.II (M) Dated 22nd November, 2013.

1.5 PUBLIC CONSULTATION

Public consultation for this project was conducted on 05/09/2014 at 03:00 P.M. at Office – Subsection Officer, Tehsil - Sheoganj, District - Sirohi (Rajasthan) which was presided over by the ADM-Sirohi and attended by officers of RSPCB, Pali. The public hearing was attended by various entities like local community in surrounding who may have any concern about the project or other specific person/organizations have to express any opinion in the project approval. Requisite publicity through local news papers/ media i.e. in Dainik Bhaskar dated

03.08.2014 and Hindustan Times Dated 03.08.2014 was given at least 30 days in advance of the date fixed for public hearing through the Collector and State Pollution Control Board official in the matter. The views and grievances were listened and resolved. The project proponent has given commitment to fulfill the environmental and social responsibility for development of community of nearby villages. In this report, public hearing proceedings and minutes of public hearing is included in the final EIA/EMP report and submitting to MoEF, New Delhi for Environment Clearance.

1.6 NEED FOR EIA

As per the EIA Notification, 2006, it is mandatory to prepare Environmental Impact Assessment in order to evaluate the potential impacts that would arise due to mining and production of mineral and to delineate management plan to minimize the adverse impacts, if any. TOR for this project has been issued from MoEF, New Delhi Vide letter no. J-11015/362/2013-IA.II (M) Dated 22nd November, 2013. Presentation for TOR was held in 12th Reconstituted Expert appraisal committee during 31st October to 01st November 2013.

Therefore, the environment study (Collection of Primary & Secondary data) has been carried out during Dec. 2013, Jan. 2014, Feb. 2014, as per EIA guidelines laid by Ministry of Environment & Forests (MoEF) and various statutory agencies. The findings of the study carried out during winter season and its impact assessment is incorporated in this report.

1.7 DETAILS OF PROJECT PROPONENT

Name of Project Proponent	:	M/s. Shri Mangal Singh Solanki S/o Shri Lakshman Singh Solanki
Status of Proponent	:	Individual
Residence cum office Address	:	13, Shiv Nagar, Jaipur, Rajasthan
E-mail Address	:	mangalsinghsolanki1414@gmail.com
Contact No.	:	0141-2333907

1.8 BRIEF DESCRIPTION OF THE PROJECT

LOI holder M/s. Mangal Singh Solanki has mining lease area of 1414 hectares for mineral River Sand (Bajri) near village Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara

Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil - Sheoganj, District - Sirohi (Rajasthan). The cost of the proposed project is about 4.0 crore.

Lease area is sanctioned first time by govt. of Rajasthan for mining of mineral river sand (Bajri) by auction of mining lease. In past, mining in river was carried by royalty paid basis by contractors and these were not carried systematic mining so there was leading to more environment degradation and hazards. There are already excavated pits existing in lease area having depth of more than 5 mtr at places. Now state govt. has amended its policy and lease is auctioned for grant. There are certain conditions are fixed and bound to carry mining as given in Table no. 1.2. One important condition is to carry mining only upto depth of 3.0 mtr from surface bed level of lean season. Lease area is part of Jawai River, Khari Nadi, Sukari Nadi and Nallah. Which all are seasonal. Only river flows in rainy season otherwise it remains dry throughout the year. There is huge quantity of sand available in river and there is more demand of sand for construction nearby area. Gradient of Jawai River 275 mRL-252 mRL, Sukari Nadi 297 mRL-254 mRL, Khari Nadi 196 mRL- 220 mRL.

Location of project:

Mine site is well connected with rail and road transport. NH-14 passes middle of the lease area and SH-38 Passes from North West Direction from lease area.Nearest Railway station is Jawai Bandh Railway Station approx. 4.5 km in East direction from Jawai River Lease area on GT Sheet Map as Plate No.1 and 2, respectively.



Figure 1.1 Google image showing Location of River

1.9 Regulatory Compliances

Table 1-1 Environmental Legislations applicable in development sector

Name	Scope and Objective	Key Areas	Operational Agencies/Key Player
Water (Prevention and Control of Pollution) Act, 1974, 1988	To provide for the prevention and control of water pollution and enhancing the quality of water	Control sewage and industrial effluent discharges	Central and State Pollution Control Boards
Air (Prevention and Control of Pollution) Act, 1981, 1987	To provide for the prevention and control of air pollution	Controls emission of air pollutants	Central and State Pollution Control Board
Noise Pollution (Regulation & Control) Rule 2000	Noise pollution control	Control of noise pollution in residential, commercial, industrial and silent zones	Central and State Pollution Control Board
Forest (Conservation) Act, 1980, 1988	To consolidate acquisition of common property such as forest, halt India's rapid deforestation and resulting environmental degradation	Regulates access to natural resources, state has a monopoly right over land, categories forests, restriction on dereservation and using forest for non-forest purpose	State Government and Central Government
Wildlife (Protection) Act, 1972, 1993	To protect wildlife	Creates protected areas (national parks / sanctuaries) categories of wildlife which are protected	Wildlife Advisory Boards, Central Zoo Authorities
Ancient Monuments and Archaeological sites & Remains Act, 1958	To protect ancient monuments of national heritage / importance	Conservation of cultural and historical remains found in India	Archaeological Survey of India
Hazardous Wastes (Management and Handling) Rules, 1989	Health and safety	Assessment of hazardous materials and management	Central and State Pollution Control Board
Biological Diversity Act, 2002	Biodiversity conservation	Disclosure of species survey or collection	MoEF, New Delhi and State Forest Departments

		activities to the National Biodiversity Authority	
Environment (Protection) Act, 1986	To provide for the protection and improvement of environment	An umbrella legislation, supplements pollution laws	Central government nodal agency, MoEF can delegate to state departments of environment
Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	The new legislation will guide all land acquisitions of central and state governments, bringing in stricter norms and increasing landowners' compensation significantly.	Fair compensation to the assets acquired and proper rehabilitation and resettlement of PAFs with improvement in postacquisition social and economic status	Central and State Government
EIA Notification 14th Sep 2006 and amendment 1st Dec 2009	Environment Impact Assessment	Environmental Protection	Project Development, State and Central Government

As per MoEF notification, dated 14th September 2006 and its amendment dated 1st December 2009, Development or construction of a new project or activities or the expansion or modernization of existing projects or activities listed in the schedule to the notification shall be undertaken in any part of India only after the prior environmental clearance from the Central Government in the Ministry of Environment and Forests, New Delhi for matters falling under Category 'A' in the schedule

1.10 Scope of Study

In consonance with the provision, under section-6 of the MoEF notification, dated 14th September 2006, the project proponent has moved an application, to the Ministry of Environment and Forests in the prescribed Form-I duly filled along a copy of the PFR of the project. The first step, required in the environment clearance process is 'Scoping' by which the EAC determines detailed and comprehensive Terms of Reference (TOR) addressing all relevant environment concerns for the preparation of an Environmental Impact Assessment (EIA) Report in respect of the project for which prior environment clearance is being sought. After going through the various aspects of the river bed mining at the proposed site and the related documents like Form – I and the PFR, the EAC, MoEF in its 12th meeting held on 31st October to 01st November 2013 set out the scoping for Environment clearance and issued ToR proposed for environmental impact assessment studies and preparation of environmental management plan for River bed mining and for submission of Final report after Public Hearing. Applicant has conducted EIA and has undergone Public

hearing as per EIA Notification, amendment 2009. Scoping of EIA Study has been carried under guidelines, MoEF memorandam of MoEF and vide state govt. applicable guidelines for river bed mining. There are certain conditions are imposed for river bed mining by state govt. which are mentioned below.

Table 1-2 Conditions imposed by Govt. of Rajasthan under amendment of RMMCR 1986, second amendment 2012

S. No. of Form V i.e. of Mine lease Deed	General Conditions	Precautionary measures inherently covered under mining plan
3a	The mining operations within 45 m of the public works etc. The Lessee/Lessees shall not work or carry on or allowed to be worked or carried on any mining operations at or to any point within a distance of 45 m from any Railway line except with the previous written permission of the railway Administration concerned, or from any reservoir, canal or other public works or buildings or inhabited site except with the previous permission of the Collector or any other officer authorized by the Government in this behalf and other wise than in accordance with such instructions, restrictions, and conditions either general or special as may be attached to such permissions. The said distance of 45 m shall be measured in the case of Railway, reservoir or canal horizontally from the outer toe of the bank or the outer edge of the cutting as the case may be and in case of a building horizontally from the plinth thereof	Within the mine lease area, the prohibited area/no mining zone have been delineated in approved mine plan. The project proponent shall ensure that such areas are precluded from mining activities.
4 (8)	The Lessee/Lessees shall not erect any building or carry or any surface operations on any public pleasure grounds, places of worship, scared graves burial grounds or village sites for houses, public roads or other places which the competent authority may determine as public grounds to bring within this restriction.	The lease area is revenue waste land. The Lessee shall only erect temporary rest shelter, on upper terraces of river bank which has been left as offset, for mine workers. However, the lessee will ensure that such temporary structure is not erected in the graveyard/ cremation ground.
4 (14)	The Lessee/Lessees may erect on the area granted to him/them any building , required for bonafide mining purposes and such building shall be the property of the government after expiry of the lease	The Lessee shall only erect temporary rest shelter, on upper terraces of river bank which has been left as offset, for mine workers. However, these structures shall be dismantled at the expiry of the lease
6 (2)	The Lessee/Lessees shall keep throughout the terms of his /their lease all mines, building, engines, machinery	The lessee shall ensure proper maintenance of rest shelters / toilets. The mining and

	and other mining plants in good repair and working order.	transport equipment's shall be procured on hire / rental basis and the onus of their regular maintenance lies with the owners. However the lessee will ensure that only useful and well maintained equipments are used in mining activities.
6 (8)	The lessee / lessees shall keep open and in no way obstruct any road path or way by any means whatsoever.	The approved mine plan has been prepared considering that no mining operations is carried out within the distance of 45m from any public road.
6 (11)	The lessee / lessees shall not cultivate or use the land save for the purposes of the lease.	The lease area lies in gair mumkin nadi/nala and its designated use as per mine plan is only for the purpose of mining.
6 (13)	The lessee / lessees shall not injure or cause to deteriorate any sources of water power or water supply and shall not in any other way render any spring of streams of water supply and shall not in any other way render any spring of stream of water unfit to be used or do anything to injure adjoining lands, villages or houses.	The approved mine plan has been prepared considering that no mining operations is carried out within the distance of 45m from any source of water supply or stream/spring, canal, reservoir or well.

CHAPTER- 2 PROJECT DESCRIPTION

2.0 GENERAL

NAME OF PROJECT

River Sand (Bajri) mining project located near Village - Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan) Category of Project: **'A'.**

DETAILS OF PROJECT PROPONENT

Name of Project Proponent	:	M/s. Shri Mangal Singh Solanki S/o Shri Mangal Singh Solanki
Residance cum office Address:		13, Shiv Nagar, Jaipur, Rajasthan
E-Mail Address	:	mangalsinghsolanki1414@gmail.com,
Contact No.	:	0141-2333907

M/s. Mangal Singh Solanki, having its Residence cum office 13, Shiv Nagar, Jaipur, (Rajasthan) has a mining lease (M.L.Area- 1414 Ha.) of River sand (Bajri) under Rajasthan minor minerals concession rules 1986, near village Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan).

The area of this lease is 1414 hectares. The cost of the proposed project is around Rs. 4.0 Crore. As per EIA Notification 2006 project proponent has to obtain Environmental Clearance from MoEF, New Delhi for production of River sand (Bajri) 28.05 Lac TPA.

2.1 TYPE & SIZE OF THE PROJECT

This is a fresh mining lease applied for mining of mineral River Sand LOI has been granted. Annual production for minerals River Sand 28.05 Lac TPA over an area of 1414 hectares by State Government vide letter no. F-8(15) Khan/Group-2/2013 Jaipur dated 27th Feb. 2013 (Copy of Letter & Allotted Khasra nos. for mining is enclosed as **Annexure No-1**).

2.2 NEED OF THE PROJECT

Due to new ventures, the requirement for River Sand (Bajri) has been on the rise over the last few years. Mineral river sand is used mainly in construction sector. Sand is used as building material. Its strength and long life makes it suitable for a number of purposes. Mining industry play an important role in economic sector in India. Rajasthan is rich in mineral wealth. The state is endowed with major and minor mineral resources. The region, where the project is situated is mostly dependant on agriculture and mineral resources. The development of mining in the area provides direct and indirect employment opportunities, infrastructure development, communication and socio-economic infrastructure. The important benefits accruing from the project can thus be stated as-boost to local and regional economy, direct contribution to the state exchequer

2.3 LOCATION AND LAYOUT OF THE PROJECT PHYSIOGRAPHIC AND DRAINAGE:

The lease area forms part of G.T. Sheet No. 45 C/12, 45 C/16, 45 G/4. Topographically, the area is undulated. Location of villages granted for River sand mining are Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan). The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges divides the district into two parts. In the western portion, scattered hills are available in each in Reodar tehsil.

Detached hills of the Aravalli range are situated in the south east of the district; Mount Abu is situated at about 1219 meter above sea level. Another important plateau is Oriya in Abu Road tehsil and lies below the main peak of Guru Shikhar which is 1722 meter above the mean sea level.

In general, the district as a whole reveals dendritic drainage pattern which shows general flow direction towards NW and SE respectively. South Easterly flowing streams feeds run off to the Banas River. North Westerly flowing streams feeds run off to River Jawai, Khari, Kapalganga and Krishnawati

whereas, River Sipu receives run off from streams flowing towards North West as well as towards South Easterly.

Jawai is the longest and largest river of North West which eventually joins Luni River. Other important rivers of Sirohi District are Banas, Khari, Sukri, Badi, Kapal Ganga & Krishnawati. All the aforesaid rivers are seasonal rivers i.e., water flows in rivers during rainy season and becomes dry during summer season.



Figure 2.1 Google image Showing Buffer Zone

Transport Connectivity

Mine site is well connected by road network. NH-14 passes through the lease area and SH-38 Passes from North West Direction from lease area. Nearest Railway station is Jawai Bandh Railway Station approx. 4.5 km in East direction from Jawai River Lease area. Nearest Airport is Udaipur Airport approx. 98.0 km in South East direction.

Land Form, Land use and Land ownerships

Total land of mining lease comes under Gair Mumkin Nadi (Government land). The lease area forms part of GT Sheet No. 45 C/12, 45 C/16, 45 G/4. The land detail of lease area is given below:

Table 2-1 Land details of Lease Area

Status of Land	Govt. Land (Gair mumkin Nadi, Nallah)
Total Lease Area	1414Ha.

Period	5 years
Near Village	Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh
Tehsil	Sheoganj
District	Sirohi
State	Rajasthan

2.4 TECHNOLOGY PROJECT DESCRIPTION

2.4.1 PROJECT DESCRIPTION

Table 2-2 Salient Features of the Mine Site & Surrounding

`S.No.	Particulars	Details
A.	**Project Details**	
	Nature of project	River Sand mining Project
	Date of Grant of LOI	27th Feb. 2013
	Validity of applied lease period	5years from agreement of lease
	Life of mine	17 year
B.	**Size of Project**	
	Lease area	1414 Ha.
	Current production capacity	Nil
	Proposed production capacity	28.05 Lac TPA
C	**Project Location**	
	Mine Site Location	Near Village - Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil-Sheoganj, District-Sirohi (Rajasthan).
	Tehsil	Sheoganj,
	District	Sirohi
	State	Rajasthan
	Lease area Coordinates	**Latitudes** 25°09'43.14" N 24°59'33.19" N **Longitudes** 73°02'50.44" E 72°59'28.53" E
	Toposheet No.	
	Core zone	45 C/12, 45 C/16, 45 G/4,
	Buffer zone	45 D/9, 45 D/13,45H/1
	Method of Mining	Semi - Mechanized opencast
	Khasra No. allotted by state govt. for forming mine lease area	**S.No / Village / Khasra No. / Area** 1. Lotiwada Chota 10 — 108.11 2. Lotiwada Bada 1,50,60,163,165,431,440, 449 — 501.48

		3.	Naradara		
				221,229,232,258,297	998.39
		4.	Sawali		
				231,	276.03
		5.	Madani		
				300,	198.19
		6.	Akhapurakhuni		
				1,	130
		7.	Ummedgarh		
				19,31,40,58,113,	567.39
		8.	Cotila		
				1,2,3,8,38,40/1,41,42,49,76,81,101,111,127,131,137,149,156,157,169,175,190,210,218,221,218,235,241,269,271,294,307,316,349,351,361,370,374,383,400	519.16
		9.	Sutharon ka Guda		
				25/170,25/179,25/186,28,29,30,308/27,311/25,312/25,320/27,348/11	233.99
		10.	Rukhada		
				14,17,87,93,101,108/01,116/01,152,155,158,163,165	512.19
		11.	Chuli		
				1,13,53,153,186,287,295,302,305,307,309,311,313,314,316,319,322,323,327,330,338,347,354,414,418,420,422,424,426,463,470,478,484,516,518,547,551,553,561,564,568,573,686,688,716,721/1	171.97
		12.	Radbar		
				2,9/1,74,93,140,149,153,154,156	470.87
		13.	Chibagaon		
				271,299/609,314,375,378,379,391,409,422,423,425,427,433,439,453,460,464,469,474,479,486,505,534,565,573,575,581,588,589,602,43,600,34,36,160,162,176,179	1282.93
		14.	Badgaon		
				14.25,54,157,167/2,169/2,171,174,184,197,218,224,227,231,322,371,434,494,636,649,664,776/2,797,799,814,818,820,822,828,837,839,844,849,408/870	858.08
		15.	Jaitpura		
				118,155,158/346,186,216,221,226,239,335	284.63
		16.	Khejdiya		
				21,48,51,62,64,67/1,93,113,125,169,191,199,201,208,217,290,292,296,303,317,344,360,400,408,442	209.92
		17.	Joyala		
				94/1,97/1,97/2,137/01,449,458/01,461/01,462,392/01	748.81
		18.	Posaliya		
				296,430/2,747,944,938/1,431,434,437	658.99
	Life of Mine	Life of mine @ 28.05 Lac TPA is around 17 years as per reserves but due to replenishment of river, life cannot be ascertained.			

	Operating Days/year	330 Days
	Surface water body	Jawai dam is located in SE direction at a distance of 6.0 km from river Jawai.
	Source of Water	Drinking water will be purchased by water tanker from nearby villages.
	Water Requirement	16 KLD
	Man power requirement	36 Persons
	Area availability (Hectares)	1414 Ha.
	Govt. Gair Mumkin Nadi/Nallah	1414 Ha.
	Topography	Semi Desert Plain
	Seismic Zone	Zone-III
	National Highway / State Highway	NH-14 passes through the lease area
	Nearest Railway Station	Jawai Bandh Railway Station approx. 4.5 km in East direction.
	Nearest village	Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh
	Nearest City / Towns	The district headquarter Sirohi can be approached from Pali through NH 14 which runs from Pali to Palanpur, Gujrat through Sirohi, Pindwara and Abu Road.
	Nearest Industries	None within 10 km of the study area.
	Ecological Sensitive Areas (Wildlife Sanctuaries/ National Parks/Biosphere Reserves etc.)	Not Any in 10 Km radius of the study area.
	Reserve/Protected Forest	➢ Rewara Reserve forest at a distance of 7.5 km in NW direction from Sukri Nadi. ➢ Protected forest near village Alpa at a distance of 7.5km in West direction from Sukri Nadi. ➢ Chotila protected forest at a distance of 0.25 km in south direction. ➢ Palri Reserve forest at a distance of 0.25 km in South direction. ➢ Darla Jod Reserve forest at a distance of 6.0km in South direction from Sukri River. ➢ Machhal protected forest at a distance of 8.0km in West direction from Sukri River.
	Heritage	There is no Heritage within 10 km radii.

2.4.2 MINING TECHNOLOGY

River bed mining is proposed for extracting sand from riverbed of river Sukri River, Jawai River & Khari River. As per RMMC Rules 1986 (amendment 2012), extraction is limited to 3.0 m depth only from the surface area. River bed remains dry for most period of the year except for rainy season and one or two months thereafter during which the mining will not be done. The collective

stretch of the lease area for river has been sub-divided in to five blocks for ease of operation, supervision, management and safety. Dry riverbed mining will be carried out as per the approved production schedule. Light weight excavators will be deployed for extraction in 3.0 m layer only forming one bench. This is as per the digging depth of the equipment. Mineral will be loaded in tippers/trucks (20 tonne). The mining machinery and equipment and transportation vehicles will be on hire/rental basis. Every block will be considered as a unit and will be provided with all facilities like rest shelter, first aid facilities, drinking water arrangement. 3m high bench will advance parallel to the bank of the river in available varying width after secluding 10m wide bank offsets. Mine working will be restricted within the lease area. However, movement of trucks after mineral loading will be towards both sides through approach roads connecting to metalled link road.

2.4.3 Method of Mining

River Sand Mining

In this project of proposed river sand (Bajri) mining will be carried out by open cast semi-mechanized method. All the pollution control measures will be adopted at mine site. Mining will be done in scientific manner with proper care taken of environment & surroundings.

Salient Points on Scientific mining of River Sand (Bajri) are:

1. First thing is to ascertain depth of mining which has been fixed by state Govt. as 3 mtr or above water table whatever is earlier achieved. This is safe working depth for River sand mining as fixed by State Government.
2. Mining will be carried out only in one bench formation of maximum 3 mtr height and formation of Haul roads will be extended upto pits and joined to nearest approach roads. Bench height will not be more than 3mtr at any site.
3. Main Haul road as center line joining all pits will be formed before starting for movement of Heavy duty vehicles with width of Haul road not less than 11 mtr and then it will be connected to nearest Highway through village road.

4. Mineral will be directly filled into tippers, trolleys and trucks and transported through nearest link road to highway. Ramp will be made for this purpose for separate route for transportation. There will no truck passes through village boundary.

5. Mining will be carried out without harm to surrounding environment with Ceasures of water sprinkling on haul roads regularly.

6. conditions mentioned in bid and provisions of Rajasthan Minor Mineral Concession Rules 1986, Second Amendment, 2012 & Lease agreement made with Govt. Authorities strictly.

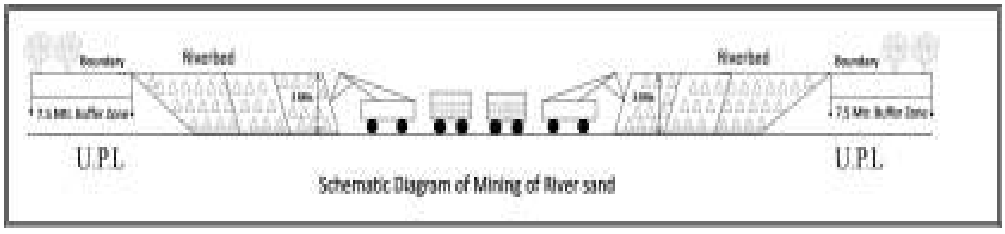
7. Mining will be carried out under supervision of competent person not less than Second class manager of competency holder.

8. 7.5 mtr un-worked buffers will be maintained along the river bank boundary (riparian zone) and vegetation growth generated on meandering boundary to protect further erosion during flooding of water in the River during monsoon.

9. There will be 45mtr unworked zone where any bridges & Anicuts and any other permanent structure as per RMMCR, 1986 second Amendment 2012, are located.

10. No drilling and blasting will be carried for mining of river sand (Bajri). and No Solid Waste will be generated during mining of river sand (Bajri)

11. Mining will be carried by Excavator–Dumper combination as shown below figure:



Schematic Diagram of Mining of River sand

2.4.4 Graph Showing River Gradient

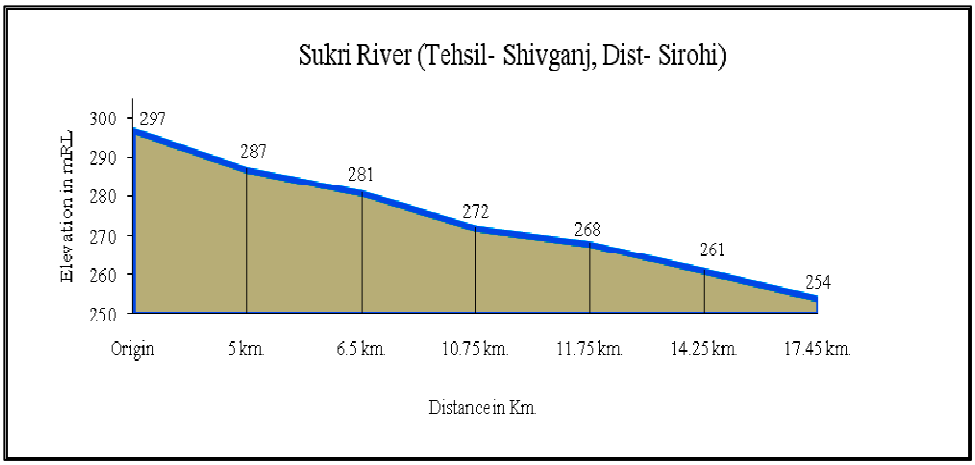


Figure 2.2 Graphs Showing Gradient of Sukri River

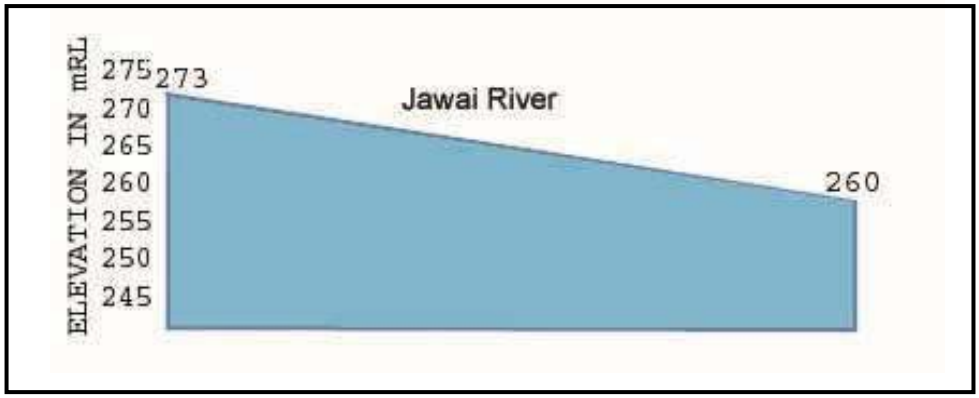


Figure 2.3 Graphs Showing Gradient of Jawai River

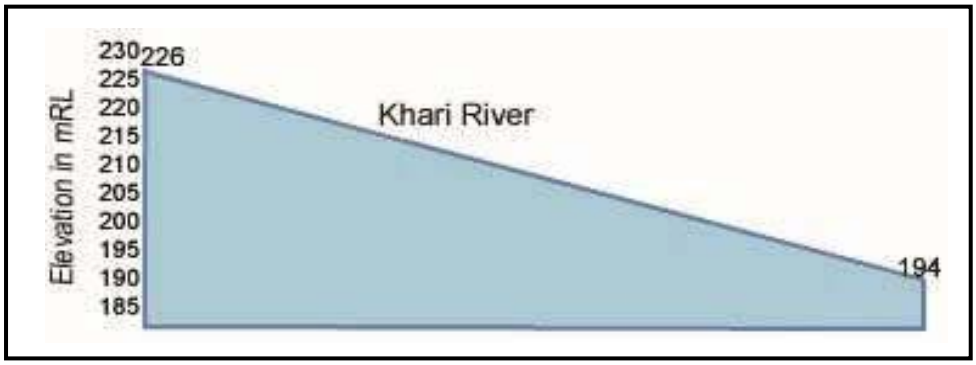


Figure 2.4 Graphs Showing Gradient of Khari River

2.4.5 Production Schedule:

The lease period is only five year. The annual production will be about 28.05 Lakh TPA. During the lease period of 5 year total excavated quantity of sand will be 140.25 lakh Tonne.

Table 2-3 Proposed Production details of River sand (Bajri)

Years	Proposed Production in Tons
First	28.05 Lac Tons
Second	28.05 Lac Tons
Third	28.05 Lac Tons
Fourth	28.05 Lac Tons
Fifth	28.05 Lac Tons
Total	140.25 Lac Tons

2.4.6 Details of Mining Activities with Respect to Block wise, Calendar wise, Zonal wise

The mining lease area has been conceived by considering the Tehsil, drained by river Sukri River, Khari River and Jawai River, Nallah an ephemeral river as one unit. Thus the mining project is unlike a compact polygonal shaped mining area with normal dimensions, having smaller ratio of length and breadth/width, where the mining activities can be implemented with easy control. The current project has vast linear length along Sukri River, Khari River and Jawai River, Nallah as compared to the width of mining. The project is thus necessarily a linear project and so the principle of working from piecemeal to the whole has been adopted in context of its planning and implementation. For facilitating easy operation, supervision and safety, the lease area along river in the concerned Tehsil has been sub divided into 5 blocks. In each block the mining shall be carried u/s to d/s of river by deploying light weight excavators for digging up to 3m bench height, wherever feasible, and with 20m width, the benches will advance parallel to the bank of the river by maintaining stipulated offsets from both banks. The blocks will be worked systematically at the places of dry riverbed and away from the flow section. The mine developmental plan is shown in the approved mining Plan.

2.4.7 Details of Excavation Schedule and Sequential Mining Plan

The year-wise and block wise excavation mining scheduled for 5 years lease period is shown in **Table 2.4.** It is evident from **Table 2.3** that the annually 28.05 lakh (Max.) metric tonne/year shall be mined out from the total lease area (1414 ha). The sequential mining/block wise mining is shown in following table.

Table 2-4 Block – wise yearly production for five years (lakh tonne)

S.No.	Year	(Block-I)	(Block-II)	(Block-III)	(Block-IV)	(Block-V)	(Block-VI)	Total (Million Tonns)
1	I	0.55	0.5	0.4	0.605	0.4	0.35	2.805
2	II	0.65	0.35	0.4	0.615	0.37	0.42	2.805
3	III	0.53	0.56	0.415	0.4	0.5	0.4	2.805
4	IV	0.575	0.45	0.4	0.6	0.41	0.37	2.805
5	V	0.58	0.405	0.52	0.55	0.34	0.41	2.805
Total		2.885	2.265	2.135	2.77	2.02	1.95	14.025

Details has been marked in plate no.6

2.4.8 Extent of Mechanization

Various equipments to be used are as under.

Table 2-5 Proposed Mechanization at Mine Site

Type	Nos.	Size / Capacity	Motive Power
Excavator	8	Bucket capacity (2.5 cum)	Diesel
Water Sprinklers	2	5000Ltr Capacity	Diesel
Jeep	1	For Supervision	Diesel
Road Grader/Compactor	1	For compactness of Haul roads	Diesel
Van cum Ambulance	1	For emergency services	Diesel
Mobile Store Room with necessary tools	1	For maintenance of machinery at site	Diesel
Tippers/Trucks/Dumpers	-	20 Tonne	Diesel

2.4.9 Human Resource

Deployment of man power for Management plan, Technical and other persons to be employed will be as follows:

Table 2-6 Staff Details of Mine Site

S.No.	Designation	Qualification	Requirement
1	Mines Manager	First / Second Class Certificate of Competency holder	1
2	Mine Foreman	Foreman Certificate of Competency	1
3	Mine Mate	Mate certificate holder	2
4	Time Keeper & Chowkidar	Matriculate	2
5	Other supervisory staff	Literate	4
6	Skilled labours	To operate the machineries (Poclain machine)	8
7	Unskilled labour	For loading & unloading material	8
8	Labours	For maintenance of road,	10

		afforestation, Potable water arrangement and miscellaneous works	
Total			**36**

For desired annual production of sand, excavation will have to be mined out daily. The daily requirement considering 25 working days in a month. It is proposed to provide temporary site services as tin shed as mine office cum rest shelter; first aid station; toilet etc. Total persons per day will work around 36 persons. Labours deployment will be given priority for nearby villagers.

2.5 Conceptual Mining Plan

Mining will be started at various points within the river channel confined to lease area @ 28,05,000 Tons per annum. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is replenished in every rainy season hence the life of mine is unlimited and cannot be estimated.

Afforestation in 7.5 mtr buffer zone along River boundary of lease will be carried out in phased manner with local species in the Govt. land only as riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected**.** Lease will be granted for Five year period so that progressive plantation along river bank and haul roads in buffer zone will be carried out.

Blasting: River sand is in loose form so there is no requirement of Blasting.

Mine Drainage: The ground water in this area gets intersected at a depth of more than 10-15 mtr bgl in riverbed and more than 20-25 m in surrounding agricultural fields as seen during field survey. No Mining work will be carried out below the water table. As such there shall be no need for any pumping operations. A drain on the up-slope side of pit will be made so that rainwater does not go into pit during mining operations. No water problem is envisaged during the five years working of lease period.

Table 2-7 Land: Stage Wise Land use Operational and Post Operational Reclamation Area (Ha.)

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.0 Ha.	311 Ha.
2.	Storage of Top Soil	Nil	Nil

3.	Dump/Heaps:	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	5.5 Ha.	5.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	5.0 ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Un-worked Area	1405.5 Ha	1092.5 Ha
Total		**1414 Ha**	**1414 Ha**

2.5.1 Nature of Waste

No waste generated at mine site due except some gravelly stone occurred during mining. No waste dump proposal at mine site at end of life of mine so no impact is anticipated.

2.6 GEOLOGY

2.6.1 Regional Geology

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying Post-Delhi intrusives and extrusives such as Erinpura granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

A generalized stratigraphic succession of Sirohi District after GSI is enumerated here under:

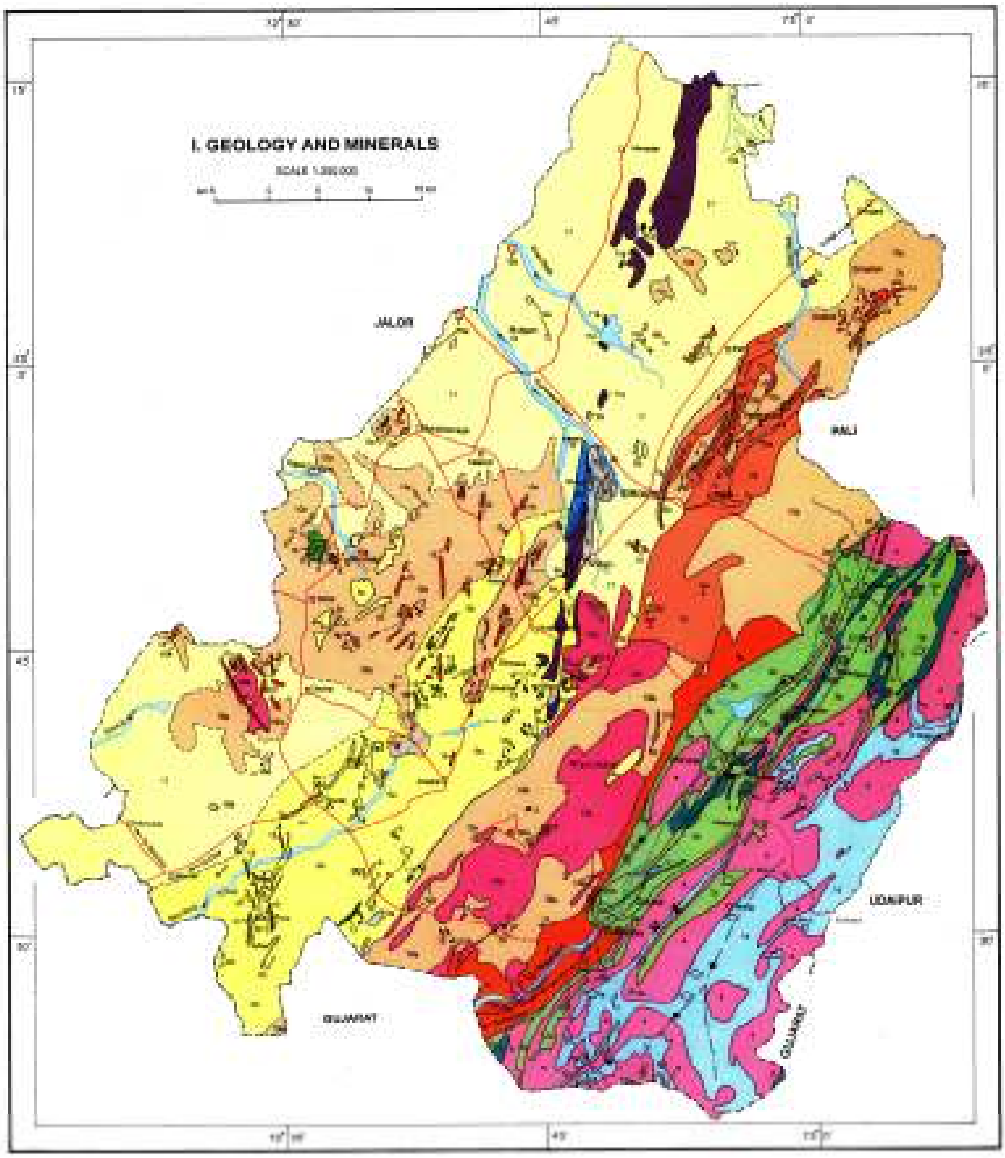


Figure 2.5 Regional map geological map of Rajasthan

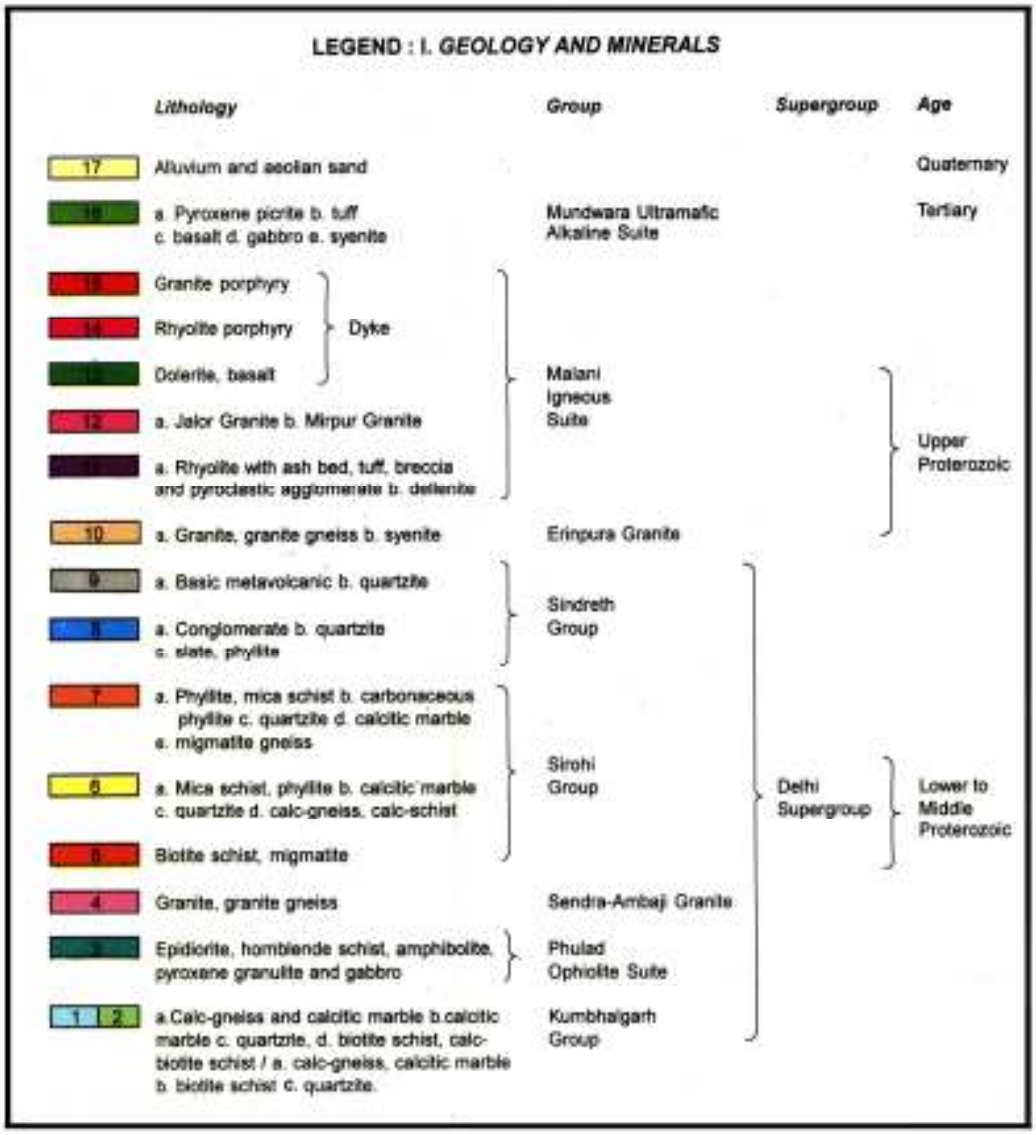


Figure 2.6 Stratigrapic Succession of Sirohi District

2.6.2 Local Geology

The river and surrounding area is by and large undulating plain covered under soil and Alluvium of Recent to Sub-recent age, obscuring the subsurface geology of the area However in the surrounding area of river, few isolated hillocks are revealed which comprises of Limestone of Delhi Super group intruded by Granite of Post Delhi Age

Seismicity

In view point of seismicity, District Sirohi lies in low to moderate damage risk zone. In the seismic zoning map of India, the district comes in a Zone-III (moderate damage risk zone) depicted in Fig. 2.2. No significant earthquakes originated in past history in the district.

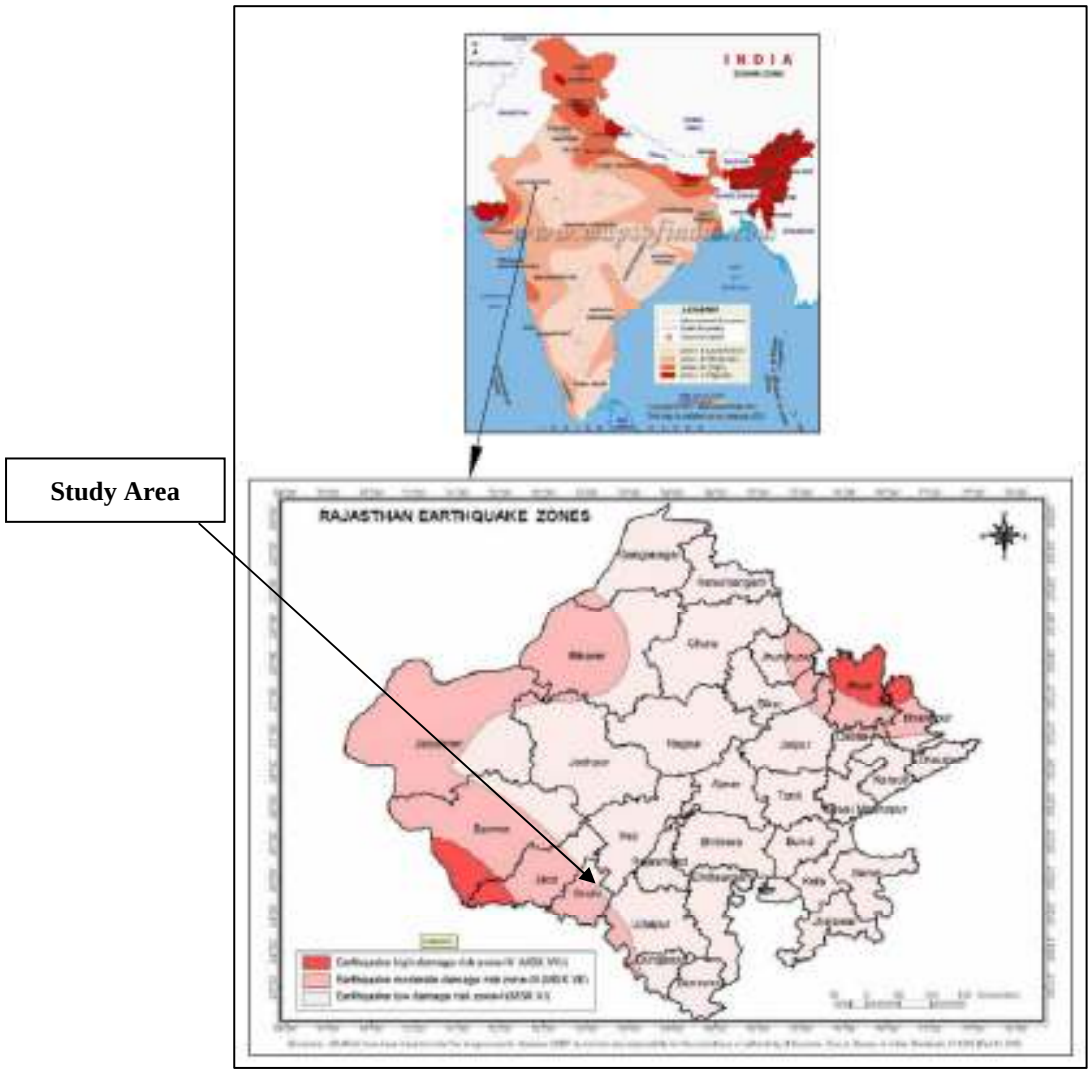


Figure 2.7 Seismic Zoning Map of India & Rajasthan shown study Area

2.7 GEOLOGICAL RESERVES

2.7.1 Exploration carried out in the area

River sand is an incoherent mass of uneven grains deposited by flood waters from upstream side and is naturally deposited when the Water Current in the River slows down. Mineralization is found in the entire riverbed height from surface hence no exploration is warranted.

2.7.2 Estimation of Geological Reserves

River sand is an incoherent mass of uneven grains deposited by water currents from upstream side to downstream side and is naturally deposited when the water current in the River slows down. Mineralization is found in the entire river channel. Based on field survey geological reserves of river sand has been computed for each block village wise by plan area method i.e., surface area has

been taken on the basis of revenue Khasra map, Rajasthan Government under its circulars and Notification and amendment in Rajasthan Minor Mineral Concession Rules vide order Government of Rajasthan Mines (Gr. II) Department No. F-14(1) Mines/ Gr.II/2011 Jaipur Dated 23-05-2012 isssued permission for bajri mining upto 3 mtr depth from Surface level of River bed. It was Gazette notified by MINES (Gr.II) Department Notification; Jaipur dated June 21, 2012 and bulk density has been taken 1.50 as revealed by physical testing

Mineable reserves as per mining plan are as under.

(i) Geological Reserves of River Sand are 62864136 Tons.

(ii) Mineable reserves of river sand = Geological reserves x 80%

= 62864136 x 80% = 50291309 Tons

MINEABLE RESERVES

Mineral is well exposed on surface as well as depth up to 3mts in existing pits. Hence mineable reserves have been considered as Proved Category reserves up to 3mts depth from Surface of the river channel. On either side of the river channel a buffer zone 7.5 mts wide would be left from environmental view point where in no mining will be carried out to prevent the erosion along banks but would be utilized for plantation. Hence, 80% of the Computed geological reserves of river sand have been taken as Mineable Reserves/ Recoverable Reserves = 50291309 Tons.

2.8 LIFE OF MINE

In the proposed project of river sand mining, mining would be carried out @ 28.05 Lac TPA. Life of mine @ 28.05 Lac TPA is around 17 years as per reserves but due to replenishment of river, life cannot be ascertained.

2.9 TRANSPORT FROM MINE HEAD TO THE DESTINATION

From the working face, River sand (Bajri) is transported by trucks/dumpers and then it is transported to customer's destination.

2.9.1 Site Services

Infrastructure facilities such as temporary office building of Tin Shed, first aid center, rest shelter, mobile workshop are proposed for working in the area. No

decommissioning is proposed at this stage. Thus no management measures require in this progressive mine closure plan.

2.9.2 Proposed Infrastructure

A. Industrial Area (Processing Area)

An office-cum-store will be made available near the mine site.

B. Resident Area (Non Processing Area)

No residential area is proposed. All the workers will come from nearby villages by their own conveyance.

C. Green Belt

To improve the environment of the area plantation is proposed along the river side (Riparian zone) of 7.5 m buffer zone (as and when available), erosion prone zone and other unworked area such as schools, Panchayat Bhawan & govt. land etc.

D. Drinking Water Management (Source & supply of water)

Water requirement of 3 KLD will be met through tanker supply from nearby village.

Table 2-8 Water Requirement

S.No.	Activities	Average Demand (m^3/day)
1	Drinking water at mine site	3.0
2	Greenbelt	5.0
3	Dust Suppression	8.0

E. Sewerage System

No sewerage will be generated from the project area. Mobile toilet and lavatories will be made available near mine site.

F. Industrial Waste Management

No Industrial waste will be generated from the project

G. Solid waste Management

No waste will be generated from this mine. All the material will be directly saleable.

H. Power Requirement

Nearby village's area is well electrified. At mine site, diesel operated mine machineries will be used.

2.9.3 Grade and Uses

The sand in the river bed has been found very useful for medium to high quality construction work. The granular coarse grained variety is suitable for concrete work. The size of the sediments varies from 1 MM to about 3 MM and is not uniform. The grains in all sizes, small or large are rounded in shape. The color of sand is grayish fine to coarse grained. These deposits are of good quality and can be used for building industries. SiO_2 and Alumina are the main constituents.

Table 2-9 Characteristics of Mineral

S.No.	Ore type	Chemical constituents in percentage		
1.	River Sand (Bajri)	pH	8.32	-
		Water Holding Capacity	23.12	(%)
		Bulk Density	1.50	gm (cm^3)
		Texture	Sandy	Class
		Specific Gravity	2.03	(%)
		Sand	86	(%)
		Silt	8	(%)
		Clay	6	(%)

2.10 POWER, WATER SUPPLY & OTHER INFRASTRUCTURE REQUIREMENT

Total water requirement in the mine will be about 16.0 KLD for drinking & domestic use, dust suppression and plantation. Drinking water will be brought by water tanker from nearby villages. Diesel is used as motive source of primary energy for mine machinery. Diesel will be used in compressor, JCB, dumpers and tractors. About 1940 liter per day is assumed to be consumed. Diesel will be outsourced from nearby diesel pumps. Nearby villages is well electrified.

CHAPTER- 3 DESCRIPTION OF ENVIRONMENT

3.1 GENERAL

Baseline data generation forms a part of the Environmental Impact Assessment study, which helps to evaluate the predicted impacts on the various environmental attributes in the study area (Core and Buffer Zone) by using scientifically developed and widely accepted environmental impact assessment methodologies. This also helps in preparing an Environmental Management Plan (EMP) outlining the measures for improving the environmental quality and scope of future expansions for environmentally sustainable development. Baseline environmental study also helps to identify the critical environmental attributes, which are required to be monitored after the implementation of project. Baseline data of environment is important to understand region's existing physical, biological, cultural and social environmental characteristics. This chapter describes the existing environmental conditions of the study area, which covers the mining lease area (core zone) and an area falling within distance of 10 km from the boundary of the core zone, also known as buffer zone. The baseline study for environmental attributes has been carried out in core zone and buffer zone, collectively known as study area. The methodology for establishing baseline environmental scenario has been briefly described and details of data generation/collection; analysis and interpretation are presented in the respective sections of this chapter. The main objectives of EIA/EMP studies of River sand mining project are as:

- To establish the existing environmental scenario (Air, Water, Soil, Noise, Flora & Fauna of study area (Core and Buffer Zone of 10km radii).
- To identify the impacts by proposed project of river sand mining operations on environment.
- To suggest mitigative measures to minimize adverse impacts and to maximize beneficial impacts.
- To suggest an environmental monitoring to evaluate the effectiveness of mitigative measures.
- To prepare a detailed environmental management plan with capital and annual recurring cost estimate for successful implementation of mitigation measures as suggested in EIA/EMP report.

This chapter illustrates the description of the existing environmental status of the study area with reference to the prominent environmental attributes. The existing environmental setting is considered to be adjudge the baseline conditions which are described with respect to climate, hydro-geological aspects, atmospheric conditions, water quality, soil quality, vegetation pattern, ecology, socio-economic profile, land use, etc. The environmental monitoring includes meteorological parameters, ambient air quality, water quality, soil quality, noise measurement, flora and fauna of the study area (Core Zone and Buffer Zone of project site). The present report incorporates the data generated for a period of three months *i.e.* **during the period of December-2013, January-2014 & Febuary-2014** and secondary data collected from various government, semi-government and public sector organizations as well as from other studies available on the subject.

3.2 LAND ENVIRONMENT

3.2.1 Land-Use

Land is the vital resource for sustenance of life and degradation of land due to industrialization, urbanization and population growth is a matter of concern. Therefore, it is necessary to establish the existing land use pattern to optimize the land use as well as minimize degradation due to the developmental activities. The basic idea of land use classification for the purpose of EIA study is to define the distribution of the existing land according to its actual use. The land use pattern indicates the manner in which different parts of land in the study area is being utilized or un-utilized. It is an important indicator of environmental health and human activity and a degree of inter-play between these two. Even though the soil quality, water availability and climatic conditions have strong influence on agriculture and vegetation, the human activity may alter the natural environment to a large extent to suit human needs. In mining project, land plays a crucial role. Unplanned development of land often triggers rapid environmental deterioration and disturbs ecological balance *i.e.* flora & fauna).

3.2.2 Land Use-Core Zone

The core zone is devoid of top soil. The area is dominated by sand (Bajri). The lease area is 1414 Ha. The Lease area forms a part of GT Sheet No. 45 C/12, 45

C/16, 45 G/4, . Topographically, the area is almost flat with gentle slope. The breakup of lease area is given below as follows:

Table 3-1 Land Status of Lease Area

Status of Land	Govt. Land (Gair mumkin Nadi, Nallah)
Total Lease Area	1414Ha.
Period	5 years
Near Village	Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh
Tehsil	Sheoganj
District	Sirohi
State	Rajasthan

The details of existing and proposed land use pattern of mining lease area are given in **Table 3.2.**

Table 3-2 Conceptual Land Use-Core Zone

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.0 Ha.	311 Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Dump/Heaps:	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	5.5 Ha.	5.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	5.0 ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Un-worked Area	1405.5 Ha	1092.5 Ha
Total		**1414 Ha**	**1414 Ha**

Reference : approved mining plan

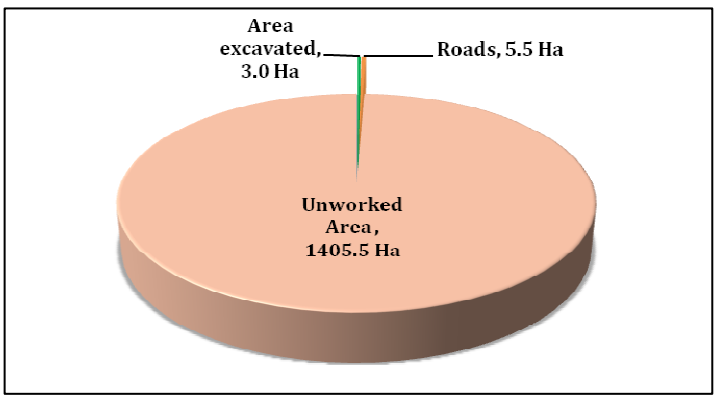


Figure 3.1 Stage wise Conceptual Land Use-Existing

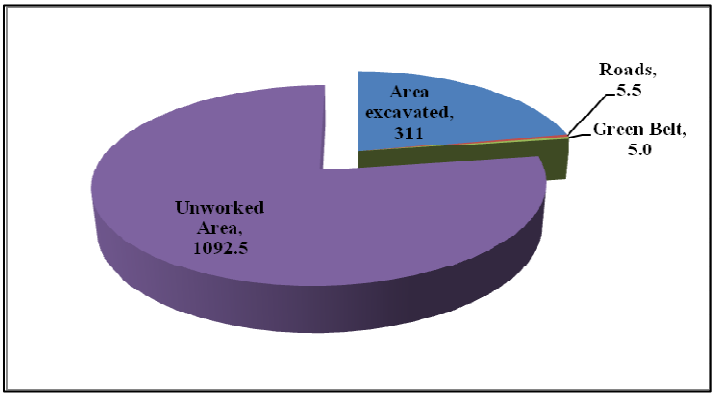


Figure 3.2 Showing Land Use-After Five Years

Land-Use/Land Cover Map of 10km Radius Study Area

S.No.	Class Name	Total Area (Ha.)	% of Area
1	Water Bodies	6693.08	4.14
2	Open Mixed Jingal	2575.89	1.59
3	Stony Area	37157.97	23.00
4	Open Scrub Land	6813.30	4.22
5	Forest Land	11114.47	6.88
6	Plantation/Vegetation	3578.79	2.22
7	Fallow Land	57428.56	35.56
8	Crop Land	33058.93	20.47
9	Human Settlement	2969.84	1.84
10	Mine Quarry	134.08	0.08
Total		**161524.91**	**100.00**

From the above table & figures, it is clear that the minimum part of the area is already broken for various mining activities leaving maximum portion. The objectives of the present study are:

- To map the study area with respect to various land use/land cover categories.
- To identify the sensitive areas within 10 km radius around the project site.

3.2.3 Physiography & Soils

The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges divides the district into two parts. In the western portion, scattered hills are available in each in Reodar tehsil.

Detached hills of the Aravalli range are situated in the south east of the district; Mount Abu is situated at about 1219 meter above sea level. Another important plateau is Oriya in Abu Road tehsil and lies below the main peak of Guru Shikhar which is 1722 meter above the mean sea level.

3.2.4 Selection of Sampling Locations for Soil

Six soil sampling locations were identified based on the local distribution of vegetation and the agricultural practices.

3.2.5 Methodology

The soil samples were collected from the study area. The samples collected from all location are homogeneous representative of each location. Soil was dug from 30cm below the surface. It was uniformly mixed before homogenizing the soil samples. The samples were filled in polythene bags, labeled in the field with number and site name and sent to laboratory for physico-chemical analysis.

3.2.6 Soil Quality Characteristics of Study Area

Soil quality characteristics of the study area have been established through monthly sampling and analysis of the following parameters:

Physical Parameters: Color, Texture (Sand, Silt & Clay), Bulk density & Porosity etc.

Chemical Parameters: pH, Electrical Conductivity, Organic matter, Chloride, Calcium (Ca), Magnesium (Mg), Chloride (Cl^-), Sodium (Na), Potash (K_2O), Available Nitrogen (N) and Available Phosphorus (P_2O_5).

Sampling locations were selected to know the physico-chemical characteristics of the soil in the core zone and buffer zone of the study area.

Table 3-3 Soil Sampling Locations of the Study Area

Station Code	Environmental Sitting	Location	Distance
S1	Buffer	Dhanapura	0.5 km, East
S2	Core	Jawai River	-
S3	Core	Khari River	-
S4	Buffer	Naya Jogpura	2.5 km, North West
S5	Buffer	Khejriya	0.5 km, East
S6	Buffer	Las	8.2 km, North East

Soil Sampling Locations:

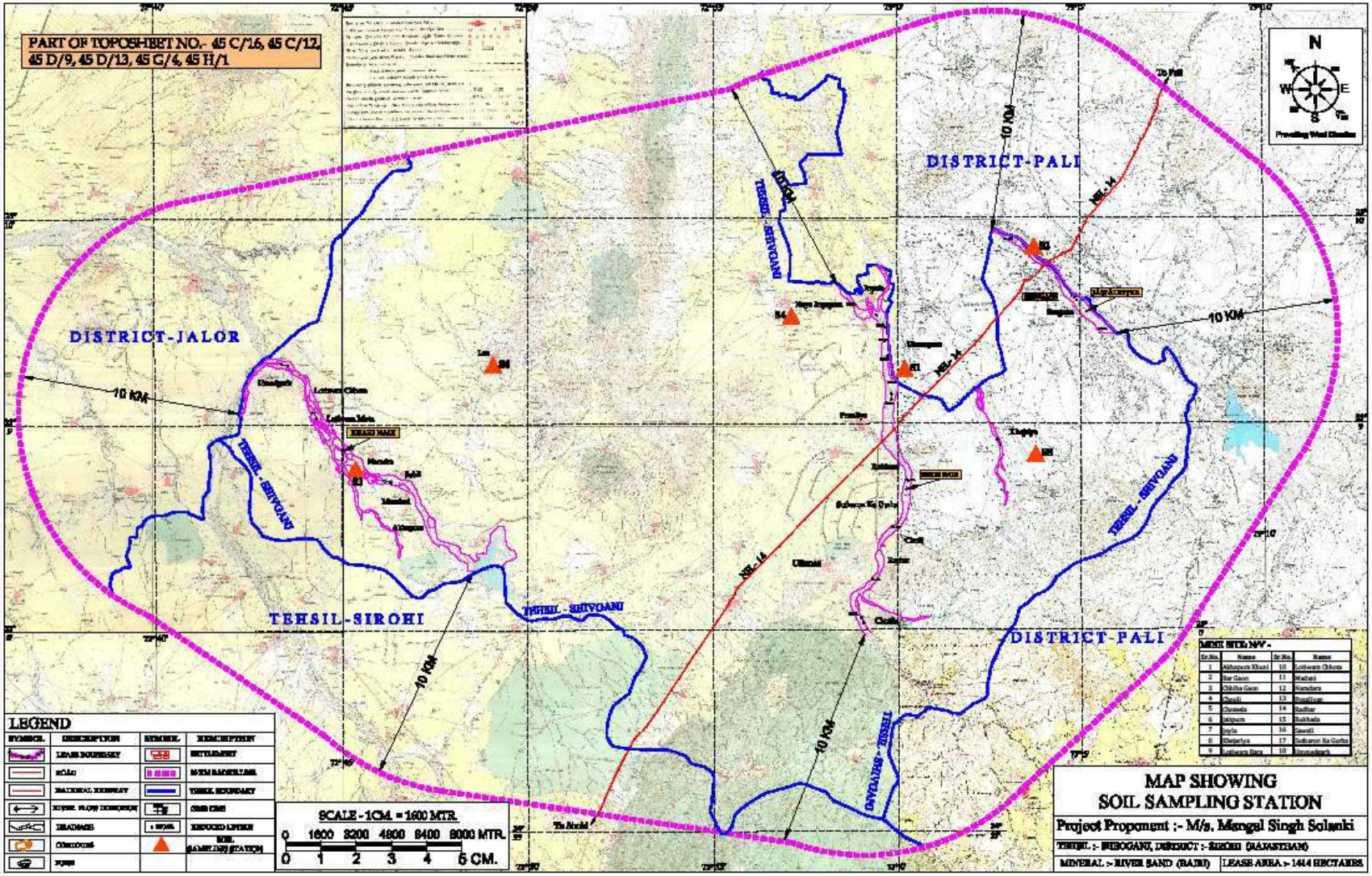


Figure 3.3 Soil Sampling Locations

Table 3-4 Results of Soil Sample

S.No.	Parameter	LOCATION					
		Dhanapura	Jawai River	Khari River	Naya Jogpura	Khejriya	Las
		(S1)	(S2)	(S3)	(S4)	(S5)	(S6)
1.	pH	8.1	8.5	7.8	8.2	8.3	8.1
2.	Conductivity (µS/cm)	30.0	40.0	48.0	70.0	50.0	80.0
3.	Bulk density (gm/cc)	1.55	1.85	1.82	1.8	1.85	1.9
4.	Specific Gravity (gm/cc)	2.5	2.6	2.8	2.7	2.4	2.9
5.	Porosity (%)	39.9	31.2	35.0	34.2	42.3	30.9
6.	Calcium (mg/kg)	28.3	20.0	23.5	28.3	24.0	22.3
7.	Magnesium (mg/kg)	19.3	12.1	16.4	18.4	14.5	16.5
8.	Sodium (mg/kg)	1.1	0.29	1.35	2.5	1.3	3.7
9.	Available Potassium K_2O (mg/kg)	4.5	0.9	4.8	4.4	4.7	3.9
10.	Ava. Phosphorus (mg/kg)	1.6	2.1	1.1	1.2	1.4	1.3
11.	Ava. Nitrogen (mg/kg)	54.5	68.9	52.0	51.0	53.3	49.0
12.	Organic matter (%)	0.22	0.03	0.29	0.20	0.25	0.18
13.	Chloride (mg/kg)	20.3	17.5	19.8	24.5	21.3	24.0
14.	Texture class	Sandy Loam	Sand	Sandy Loam	Sandy Loam	Sand	Sandy Loam
15.	Sand	76.5	96.6	85.5	82.1	90.2	78.2
16.	Silt	9.8	2.7	10.5	8.5	7.4	11.8
17.	Clay	13.6	0.6	3.9	9.4	2.3	9.9

3.2.7 Soil Characteristics in and around the Mining Lease Area

Physical Characteristics

Soil of the region is light brown to brown in color. Generally, soil of the area having varied between sandy loam and sandy in texture. The porosity of the soils varies from 30.9 % to 42.3 % among different sites of study. The bulk density of soils varies from 1.50 gm/cc. to 1.9 gm/cc.

Chemical Characteristics

The pH value of soil samples varies 7.8 - 8.5. The electrical conductivity of soil varied between 30.0 µS/cm to 80.0 µS/cm among different sites of study. Maximum value of EC was recorded at S6 and minimum at S1. The content of chlorides in soil varies between 17.5 mg/kg (S2) to 24.5 mg/kg (S4). Calcium content of soils varies between 20.0 mg/kg (S2) to 28.3 mg/kg (S1 & S4), respectively. The magnesium content of soils varies between 12.1 mg/kg (S2) to 19.3 mg/kg (S1), respectively.

3.2.8 Fertility Status of Soils

The fertility of soil is dependent on its organic carbon content, macro as well as micronutrients. Organic matter plays a vital role in binding of all types of nutrients. Availability of these nutrients is determined by soil pH. During the study period, the value of organic matter varies 0.03% to 0.29% across different sites. Soil of the study area clearly depicts that the soil retains medium content of organic matter. The N, P and K value further tells the macronutrients status of soils of the study area and availability among different site is low. The analysis results of soils are presented in **Table 3-4.**

3.2.9 Photographs of Soil Sampling



DHANAPURA



JAKHERA



JAWAI RIVER



KHEJRIYA



NAYA JOGPURA



UTHAMAN

Fig. 3.4 Photographs showing Soil Sampling in Study Area

3.3 WATER ENVIRONMENT

Surface Water Scenario

Surface water resources are meager in the state. In the buffer zone, some of the seasonal surface water bodies located *i.e.* Sukri Nadi, Khari River, Jawai River and Jawai Dam water body. All the above water bodies are seasonal in nature.

Ground Water Scenario

Ground water quality in Sirohi significantly influenced by semi-arid climate and hydro-geologically diversity-salinity, sodicity and fluoride are the major factors affecting the ground water quality. Ground water is the major source of irrigation in the district.

Geological Setup

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying post-Delhi intrusives and extrusives such as Erinpura granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

Hydro-geology

Depth of ground water level varies from 10 to 30 meters. Parts of Sheoganj block is either critical or over exploited from ground water view point. Abu road block is semi critical from underground point of view. In other parts of the district situation in terms of ground water resources is safe and satisfactory. Important aquifers are alluvium occupying about 982sq.km areas in the district. Calc Schist and Gneiss covering 525 sq.km area in Pindwara block. Phyllites and Schist covering 1543 sq.km area in Abu Road, Pindwara, Revdar, Sheoganj and Sirohi blocks and Granite occupying 1550 sq. km. area in Abu Road, Pindwara, Revdar, Sheoganj and Sirohi blocks.

In various aquifers rate of discharge of ground water varies from 90 to150 cu.mts per day. The area between Sirohi and Revdar shows steep depletion in water level ranging from 10 to 18 meters.

The ground water of the district shows low to medium salinity. The chemical characteristic of ground water in the district also varies from primary bi carbonate type to tertiary chloride type. Fluoride is an important

toxic element present in ground water. Nearly 33 percent water samples of the district have fluoride concentration more than 1.5mg/L. At many places, viz., Anthala in Abu Road; Sangwan in Pindwara; Jirawal and Nimbaj in Revdar; Bithura, Gola, Mochal and Sugarliyain Shivgang and Belagiri, Mirpur and Mahabatnagar in Sirohi block, fluoride concentration has been found to be more than 5.0mg/L. The maximum fluoride value is observed as 11.6mg/L at Gola in Sheoganj block. High fluoride is not confined to shallow aquifers but in deep tube wells too. Many of the tube wells and piezometers drilled under agriculture development programme (ADP) show fluoride value of 3.0mg/L and above. These waters show high fluoride content despite of low salinity.

The purpose of this study is to:

- Assess the physico-chemical characteristics of water for various parameters.
- Evaluate the impacts on agricultural productivity, habitat conditions, recreational resources and aesthetics in the vicinity.
- Prediction of impact on water quality by this project and related activities.

The quality and quantity of ground water differ over an area, as these depend on primarily topographical and hydro-geological characteristics of the area.

Methodology

Ground water and surface water samples were examined for physico-chemical parameters in order to assess the effect of mining and other activities on surface and groundwater. The samples were collected and analyzed as per the procedures specified in "Standard Methods for the Examination of Water and Waste Water" published by American Public Health Association (APHA) and protocols of Indian Standards (IS:10500). Samples for physico-chemical analysis were collected in polyethylene carboys. The selected parameters of physico-chemical have been analyzed for projecting the existing quality of water and its status in the study area.

3.3.1 Water Quality Characteristics of Study Area (Surface and Ground water)

The water quality characteristics of the study area have been established through monthly sampling and analysis of the following parameters:

Physical Characteristics: Color, Odour, Turbidity etc.

Chemical Characteristics: pH, Total Dissolved Solids (TDS), Electrical Conductivity (EC), Chlorides, Total Hardness, Calcium, Magnesium, Alkalinity, Nitrate, Phosphate, Fluoride and Sulphate (SO_4^{2-}) etc.

3.3.2 Water Sampling Locations

Six ground water samples were collected from Hand pump/tube wells which are commonly used for drinking purposes. The status of three surface water bodies shows that all were found dried at the time of monitoring season. Ground water sample were taken as grab samples and were analyzed for various physico-chemical parameters and compared with the standards for drinking water as for IS: 10500 . The water sampling locations are listed below in **Table 3-5 & 3-6**

Table 3-5 Details of Surface and Ground Water Sampling Locations

Station Code	Location	Distance & Direction	Environmental Significance
GW1	Khandra	0.5 km, East	Exisiting Ground water quality of the Area
GW2	Sumerpur	2.5 km, North East	
GW3	Bagsin	6.0 km, West	
GW4	Siyana	4.6 km, North West	
GW5	Fatehpura	2.0 km, North	
GW6	Jawal	5.3 km, South West	

Table 3-6 Details of Surface Water Sampling Locations

Station Code	Location	Distance & Direction	Environmental Significance
SW1	Sukli Nadi*	-	All the surface water locations Found dried at the time of Monitoring
SW2	Jawai River*	-	
SW3	Jawai Dam*	5.5 km, East	
SW4	Khri River*	-	

denote dried ***GW= Ground water, SW=Surface Water***

Locations of Ground & Surface Water Sampling

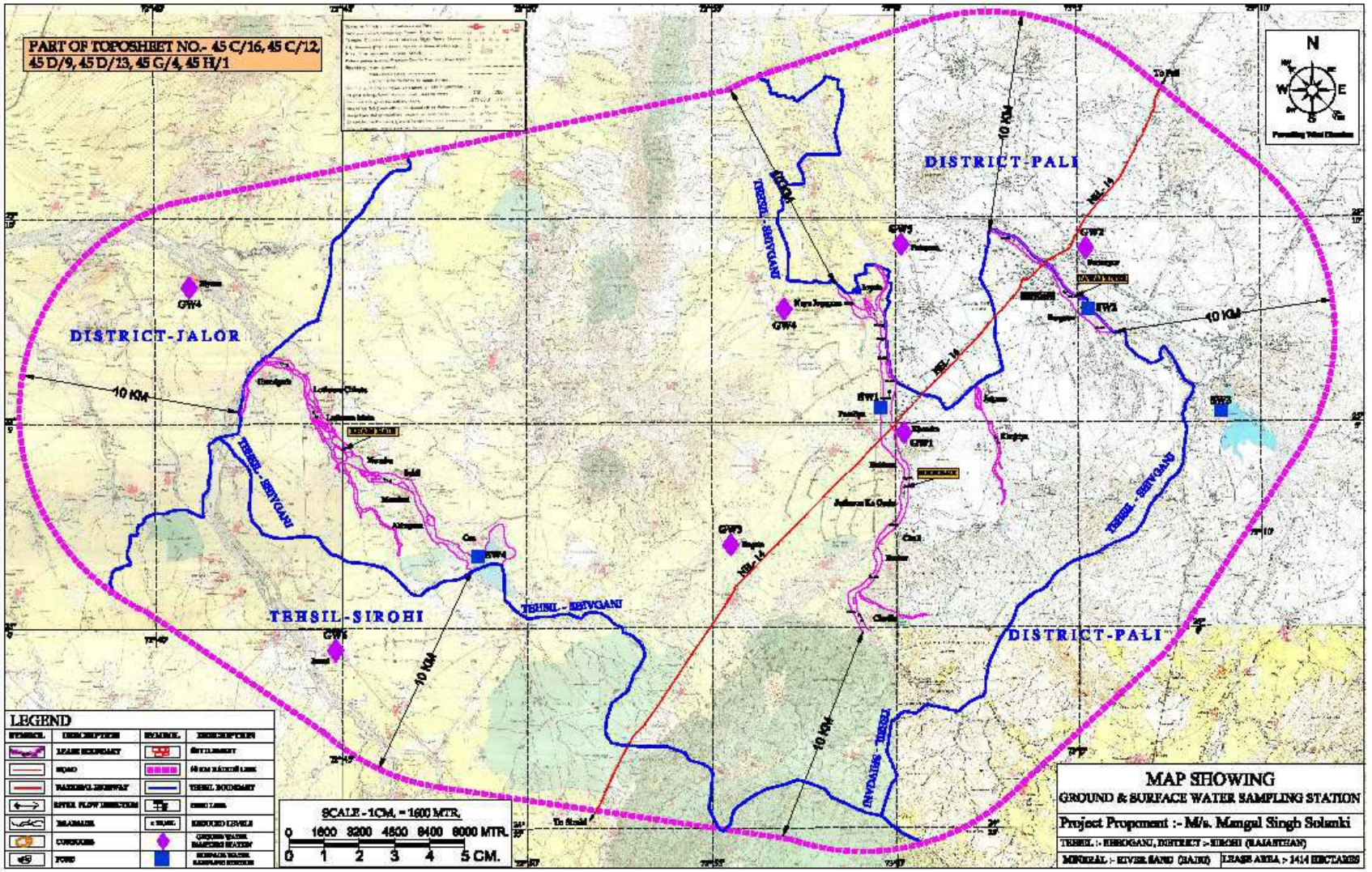


Figure 3-5 Ground Water Sampling Locations

3.3.3 Results of Water Samples

The results of the water samples collected from different sites are given in **Table 3-6.** The results of the water samples collected within the study area and compared with standard limits.

- **Ground water Quality**

Six ground water samples were collected from different sites. pH of these water samples ranged between 7.5 to 8.1 shows normal to slightly alkaline and comes under permissible limits of standards prescribed by IS:10500 is (6.5-8.5). Odour is unobjectionable throughout all sampling stations. The content of total hardness of water samples shows variation among different sites between 185.0 mg/l (GW5) to 728.2 mg/l (GW2).

The results of water samples clearly depicts that the values of total hardness in ground water were within the drinking water satndrad limits except GW2 which is 728.2 mg/l. The content of calcium in ground water varied between 37.8 mg/l (GW6) to 210.5 mg/l (GW2). Chloride values were higher in groundwater. Maximum value of chloride was 280 mg/l at site GW2 and minimum 28.0 mg/l at GW6 location.

Maximum values of TDS 1454 mg/l were found at GW2 and minimum 353 mg/l at GW5. The values of alkalinity ranged between 156 mg/l (GW5) to 557.9 mg/l (GW2). The contents of nitrate in ground water varied between 21.1 mg/l (GW5) to 38.0 mg/l (GW2). The concentrations of fluoride were found in the range of 1.1 mg/l (GW5) – 2.1 mg/l (GW2).

Table 3-6 Results of Ground Water

S.No.	Parameters	GROUND WATER QUALITY RESULTS						
		Khandra GW1	Sumerpur GW2	Bagsin GW3	Siyana GW4	Fatehpura GW5	Jawal GW6	Drinking water standards, IS: 10500 ; 2005 (Permissible Limits)
1	pH	7.8	7.5	7.8	8.0	8.1	8.0	6.5-8.5
2	Conductivity (µmhos/cm)	1236.6	2617.2	1137.6	903.6	635.4	759.6	-
3	Turbidity (NTU)	<1	<1	<1	<1	<1	<1	1
4	Temperature	23.6	23.0	22.9	23.4	22.7	24.0	-
5	Color (HAZEN)	<1	<1	<1	<1	<1	<1	5
6	Odour	**Unobjectionable**	**Unobjectionable**	**Unobjectionable**	**Unobjectionable**	**Unobjectionable**	**Unobjectionable**	**Agreeable**
7	Total Dissolved Solids (mg/l)	687	1454	632	502	353	422	500
8	Chloride (as Cl -) (mg/l)	159	280	124.5	102	83.0	28.0	250
9	Alkalinity (as CaCO3) (mg/l)	228.4	557.9	308.1	258	156	269	200
10	Total Hardness (as CaCO3) (mg/l)	288.6	728.2	361	283	185	315.9	200
11	Calcium (as Ca) (mg/l)	52.4	210.5	72.5	57.4	39.6	37.8	75
12	Magnesium (as Mg) (mg/l)	38.3	49.2	43.7	34.0	20.9	15.6	30
13	Sodium (as Na) (mg/l)	58.0	76.0	24.0	14.0	15.0	17.0	--
14	Potassium (mg/l)	11.2	25.5	5.9	10.6	9.9	7.6	--
15	Fluoride (as F) (mg/l)	2.0	2.1	1.4	1.4	1.1	1.4	1
16	Nitrate Nitrogen (as NO3-) (mg/l)	28.5	38.0	24.0	22.5	21.1	25.4	45
17	Sulphate (as SO42-) (mg/l)	60.2	170.3	52.9	24.5	28.7	46.8	200
18	Iron (mg/l)	<0.3	<0.3	<0.3	1.6	<0.3	<0.3	0.3

(Source: Ground Water Quality Analysis Report)

3.3.4 Conclusion

The result of physico-chemical analysis of water samples reveals that the variations in quality of ground water and surface water are clearly depicted in **Table 3-6** However, all the parameters are well within permissible limits of standards and many are well within the desirable limits of standards.

3.3.5 Photographs of Ground Water and Surface Water Sampling Stations



KHANDRA



SUMERPUR



BAGSIN



SIYANA



FATEHPURA



JAWAL



SUKRI RIVER



JAWAI RIVER



JAWAI DAM



KHARI NADI

Figure 3-6 Ground Water Sampling Locations

***** During the sampling of Surface water, river was dried.

3.4 AIR ENVIRONMENT

3.4.1 Meteorology

Meteorological factors such as wind speed, direction, ambient temperature, humidity etc. play an important role in dispersion and dilution of pollutants. Atmospheric pressure, rainfall and cloud cover also govern this activity. Other factors such as terrain and local topography also take part in atmospheric dispersion of pollutants. The study area is a part of semi arid climatic zone having hot summer, moderately cool winter and moderate monsoon during June to September. The meteorological data recorded during the monitoring period is extremely important for interpretation of the baseline information as well as for input prediction models for air quality dispersion.

3.4.2 Climatology

The climatic conditions of district Sirohi is dry climate with a hot season. The average annual rainfall of the Sirohi district is 496.2 mm. Generally cold season

starts from December and last till February followed by hot season continues up to middle of June, while the period from mid June to mid September is of the South West monsoon, next remaining period till winter is post monsoon. Maximum, minimum and mean temperatures recorded are 37°C, 6°C and 25.5°C respectively.

3.4.3 CLIMATIC CONDITIONS

The proposed project area shall be located in Shivganj, Sirohi, Rajasthan. The important parameters considered are temperature, humidity, wind speed and rainfall. The extract of Maximum, minimum values of above said parameters from Climatological Tables of India, 1971 - 2000 are given below in the tables with graphical representation of it:

(i) Temperature:

The Maximum temperature of the area was recorded as 43.1 in May; whereas the minimum temperature of the area was recorded as 2.2 in January. Data of the maximum and minimum temperature are given below. Graphical representation of maximum & minimum temperature is given below:

Table 3-7; Maximum & minimum Temperature

Temperature (in ^{0}C)		
	Higest Maximium	**Lowest Mininmum**
January	29.1	2.2
February	32.6	3.7
March	37.9	8.9
April	41.2	14.2
May	43.1	19.7
June	42.2	21.7
July	36.1	22.2
August	33.7	21.2
September	35.7	18.4
October	36.0	12.4
November	32.9	7.4
December	29.3	3.1

(***Source***: ***Climatological Tables of India, 1971 - 2000***)

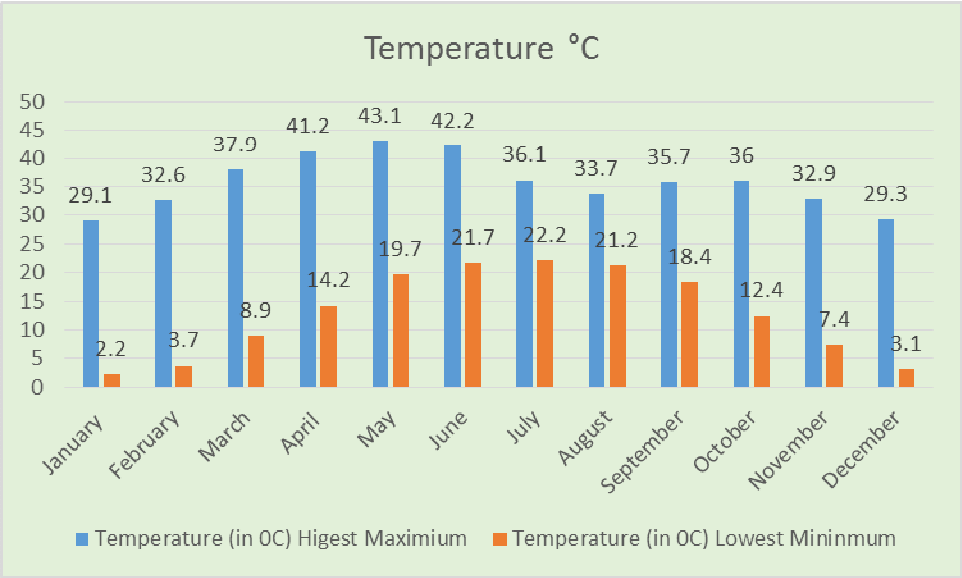


Fig 3- 7; Graphical representation of Minimum & Maximum Temperature

(ii) Relative Humidity

From the below data, the Maximum humidity was recorded as 84 % in August. Minimum relative humidity was recorded as 20 % in April. The humidity figures show that area is semi-arid. **Table-3-9.**

Table 3-8; Maximum & minimum Humidity

Mean Relative Humidity (%)		
	Maximum	**Minimum**
January	69.0	34.0
February	58.0	27.0
March	43.0	21.0
April	35.0	20.0
May	42.0	25.0
June	63.0	44.0
July	80.0	68.0
August	84.0	73.0
September	76.0	59.0
October	62.0	37.0
November	63.0	37.0
December	69.0	38.0

(***Source***: ***Climatological Tables of India, 1971 - 2000***)

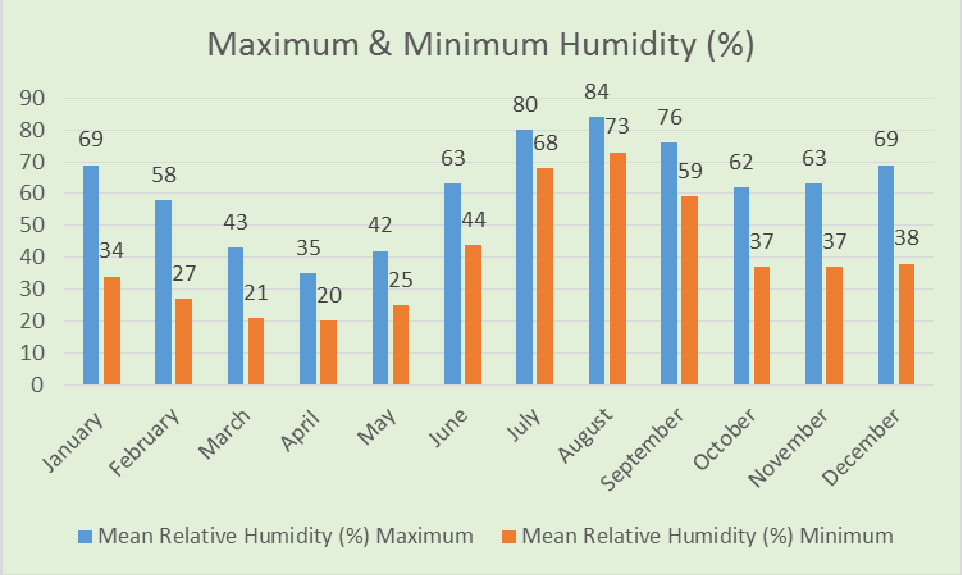


Fig 3- 8; Graphical representation of Minimum & Maximum Temperature

(iii) Wind Direction

The general pattern of wind in study area was observed and the prevailing wind direction shown from West to East direction.

(iv) Rainfall

The mean annual rainfall of the district based on 23 years data (1990-2012), works out to be 496.2 mm. Details are given in **Table 3-10.**

Table 3-9 Year wise Statistics of Rainfall Tehsil - Sheoganj, District – Sirohi (Rajasthan)

S.No.	Year	Rainfall in mm.
1	1990	0.0
2	1991	339.0
3	1992	943.4
4	1993	578.0
5	1994	704.2
6	1995	590.6
7	1996	743.6
8	1997	645.2
9	1998	452.2
10	1999	278.4
11	2000	477.4
12	2001	647.4
13	2002	236.0
14	2003	581.0

15	2004	296.0
16	2005	289.8
17	2006	965.0
18	2007	490.4
19	2008	254.8
20	2009	275.8
21	2010	618.3
22	2011	568.2
23	2012	437.4
Average Annual Rainfall in mm.		**496.2**

(Source: waterresources.rajasthan.gov.in)

3.4.4 MICRO-METEOROLOGICAL DATA (Site Specific Data)

A weather station was installed near the site for hourly monitoring of temperature, humidity, and wind speed and wind direction for the month of December 2013 - February 2014. Average data is given in **Table –3.11**

Table 3-10 ; MICRO - METEOROLOGICAL DATA

Month	Temperature(^{o}C)			Humidity (%)			Wind speed (Km/hr)		
	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
1st December – 31st December 2013	25.6	6.1	16.7	93.0	27.0	62.7	19.1	1.1	8.3
1st January – 31st January 2014	26.6	6.7	15.5	97.0	29.0	57.9	20.2	1.0	10.4
1st February – 28th February 2014	28.3	9.7	19.3	95.0	23.0	59.1	25.2	1.08	11.4

(i) Temperature: Temperature of the area varied from 6.1 ^{0}C to 28.3 ^{0}C. Mean temperature is 15.5 ^{0}C to 19.3 ^{0}C.

(ii) Relative Humidity:

Humidity of the area varied from 23.0 % to 97.0 %. The mean humidity for each month is 57.9 % to 62.7 %.

(iii) Wind Speed:

Wind speed was in the range of 1.0 Km/hr to 25.2 Km/hr. The wind speed was almost close to each other during the whole study period. The average wind speed for month is 8.3 Km/hr to 11.4 Km/hr

WINROSE DIAGRAM FROM DECEMBER 2013 – FEBURARY 2014

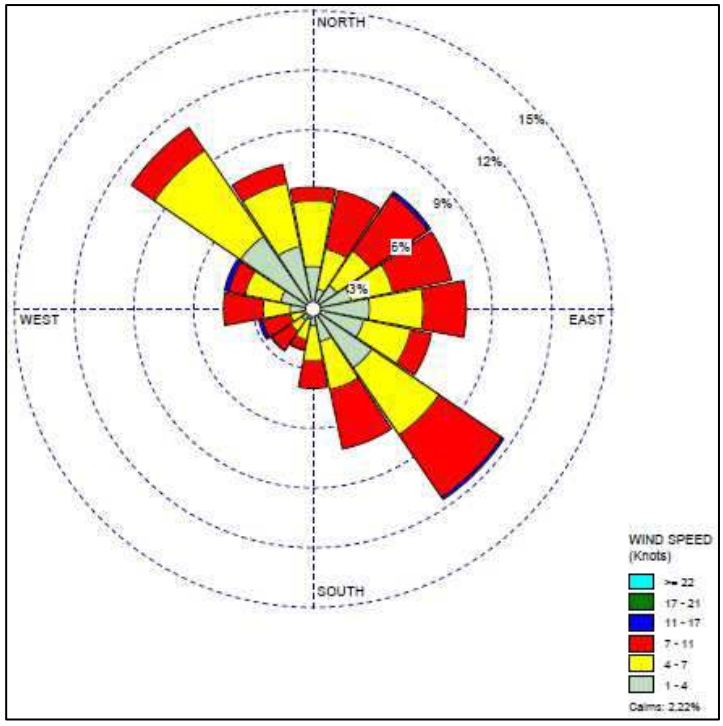


Figure 3.9 Windrose Diagram

3.4.5 Ambient Air Quality

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the project site forms the baseline information. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic fuel burning.

The prime objective of the baseline air quality study was to establish the exiting ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed mine. This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency. The results of ambient air monitoring during the study period (December-2013, January-2014 & February-2014) represent the winter season.

3.4.6 Methodology Adopted and Selection of Sampling Location

The baseline status of ambient air quality has been established through a scientifically design ambient air quality monitoring network and is based on the considerations such as:

- Meteorological conditions at the site
- Topography of the study area
- Representative of the regional background air quality for obtaining baseline status
- Representative of the likely impact area

The ambient air quality monitoring stations (AAQM) were setup at 10 locations with due consideration to the above mentioned points and as per the Ministry of Environment and Forest (MoEF), Government of India (GoI) guidelines of AAQM.

Table 3-11 Ambient Air Quality Monitoring Locations

Station Code	Location	Distance & Direction
AAQ 1	Dhanapura	0.5 km, East
AAQ 2	Chuli	0.5 km
AAQ 3	Chotila ki Bhagli	0.5 km, South
AAQ 4	Ora	0.5 km, East
AAQ 5	Alpa	3.5 km, North west
AAQ 6	Jawai river	-
AAQ7	Sheoganj	0.5 km, South
AAQ8	Khejriya	0.5 km, East
AAQ9	Balvana	6.0 km, West
AAQ10	Khari River	-

Sampling Locations of AAQ

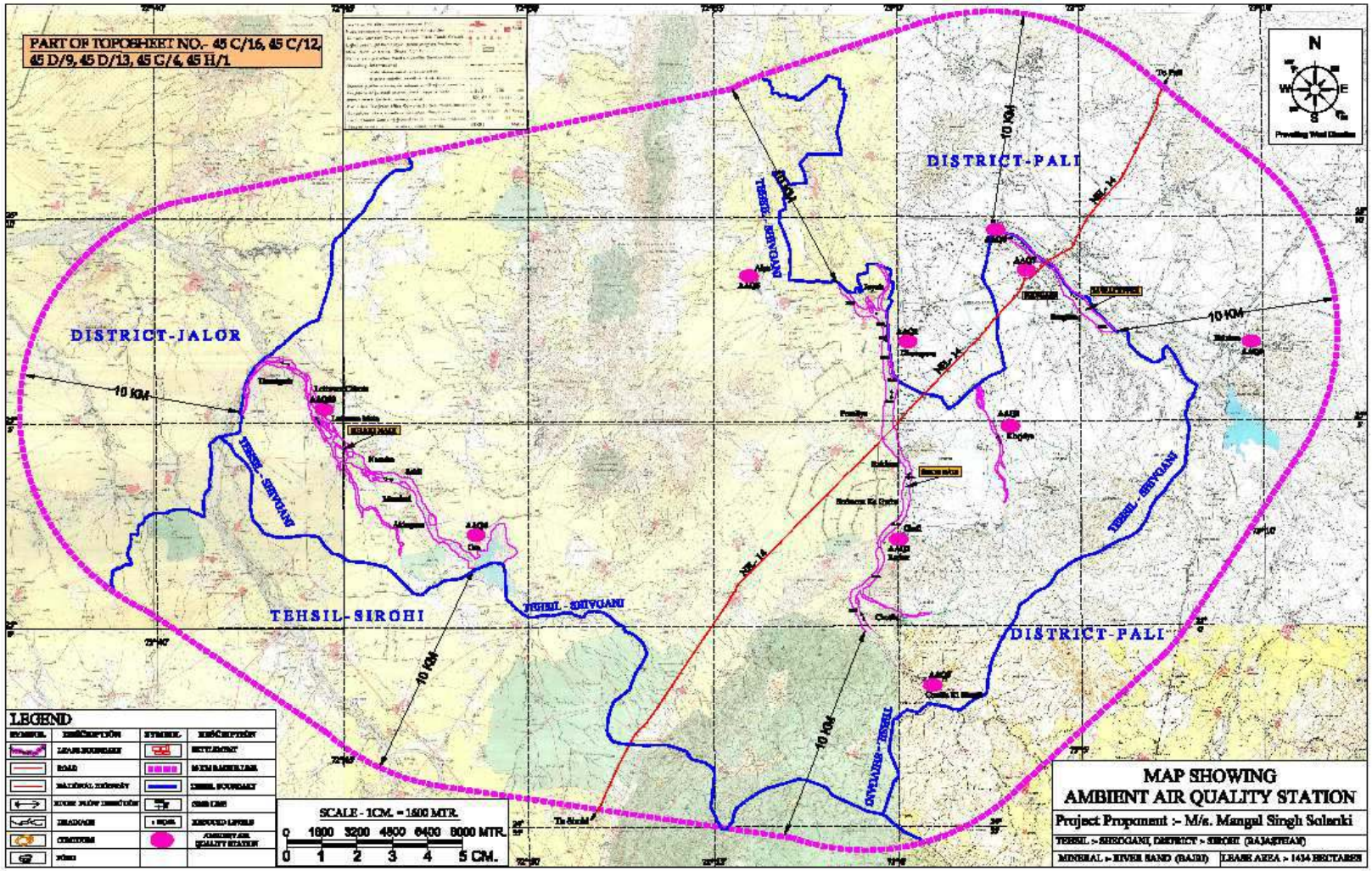


Figure 3.10 Ambient Air Quality Sampling Locations

3.4.7 Frequency and Parameters of the Sampling

The frequency has been adopted for sampling are as follows: Ambient air quality monitoring has been carried out with a frequency of two days per week at ten locations for three months study period. The ambient air quality parameters along with their frequency of sampling are given in **Table 3-13.**

Table 3-12 Details of AAQM Parameters and Frequency of Sampling

Parameter	Frequency
Particulate Matter (PM_{10})	Twice in a Week (24 Hours a day)
Sulphur Dioxide (SO_2)	Twice in a Week (8 Hours a day)
Oxides of Nitrogen (NO_X)	Twice in a Week (8 Hours a day)

3.4.8 Details of Sampling Locations

- **Core Zone- Dhanapura (AAQ1)**

  The location has been selected to assess the air quality levels in the core zone of the mine site. As the site is an open land, therefore no residential buildings in the vicinity. The location was away from the village road and did not experience any frequent vehicular movement. The sampler was placed in the core zone area.

- **Core Zone- Chuli (AAQ2)**

  The location has been selected to assess the air quality levels from mine site. The site is located at 0.5 km downwind direction away from mine site.

- **Chotila ki Bhagli (Buffer Zone, AAQ3)**

  The site is located in south direction about 0.5 km away from mine site. The surroundings comprise residential area.

- **Ora (Buffer Zone, AAQ4)**

  Palri village is located at 5.0 km away from mine site in west direction. This location includes residential and agricultural lands.

- **Alpa (Buffer Zone, AAQ5)**

  The above site is located about 3.5 km in North West direction from mine site. The sampler was placed as per the norms in this area.

- **Jawai River (Core Zone, AAQ6)**

  The location has been selected to assess the air quality levels in the core zone of the mine site. As the site is an open land, therefore no residential

buildings in the vicinity. The location was away from the village road and did not experience any frequent vehicular movement. The sampler was placed in the core zone area.

- **Sheoganj (Buffer Zone, AAQ7)**

  Sheoganj located away about 0.5 km in south direction (downwind) from mine site. The site comes under residential.

- **Khejriya (Buffer Zone, AAQ8)**

  Khejriya is located about 0.5 km in east direction of mine site. The site comes under residential category.

- **Balvana (Buffer Zone, AAQ9)**

  Balvana is located about 6.0 km in West direction of mine site. The site comes under residential category.

- **Khari River (Core Zone, AAQ10)**

  The location has been selected to assess the air quality levels in the core zone of the mine site. As the site is an open land, therefore no residential buildings in the vicinity. The location was away from the village road and did not experience any frequent vehicular movement. The sampler was placed in the core zone area.

3.4.9 Instrument used for the sampling

Respirable Dust Samplers (High Volume Sampler) were used for PM_{10} and gaseous pollutants such as SO_2 and NO_2.

3.4.10 Sampling and Analytical Techniques for PM_{10}, SO_2 and NO_2

I. **Particulate Matter (PM_{10}) (IS: 5182 Part 23:2006):** Particulate Matter (PM_{10}) was carried out by Respirable Dust sampler as per IS: 5182(Part 23):2006. Particulate matter was collected on the GF/A Filter Paper. Particles with aerodynamics diameter less than the cut-point of the inlet are collected by the filter. The mass of these particles is determined by the difference in filter weight prior to and after sampling.

II. **Sulphur dioxide (SO_2) (IS: 5182; Part – II – 2001):** Sulphur dioxide is absorbed by aspirating a measured air sample through a solution of Potassium or

sodium tetrachloromercurate, TCM. This procedure results in the formation of a dichloro sulphite mercurate complex. The Sulphite Ion produced during sampling is reacted with sulphamic acid, formaldehyde and pararosaniline to form an azo dye and then determined colorimetricaly.

III. **Nitrogen Oxides (IS: 5182; Part – VI – 2006):** Nitrogen dioxide is collected by bubbling air through a sodium hydroxide- sodium arsenite solution to form a stable solution of sodium Nitrite. The Nitrite Ion Produced during sampling is reacted with hydrogen peroxide, Sulphanilamide and NEDA to form an azodye and then determined calorimetrically.

The methods and test protocol used for the analysis of the ambient air quality monitoring are mentioned in **Table 3-14.**

Table 3-13 Methods used for Ambient Air Quality Monitoring

Parameters	Methods	Protocols Used
Sulphur dioxide as (SO_2)	West & Gaeke Method	(IS: 5182 Part-II, 1999-2006)
Nitrogen dioxide as (NO_2)	Jacob and Hochhiser	(IS: 5182 Part-VI, 1999-2006)
Respirable Suspended Particulate Matter (PM_{10})	Respirable Dust Sampler (Gravimetric Method)	(IS:5182 Part-23, 2006)

3.4.11 Results of Ambient Air Quality Monitoring

Details of the results of ambient air quality monitoring during the study period of three months *i.e.* from December 2013, January, 2014 & February, 2014. Statistical analysis of all the AAQM stations has been computed and the summary of these results for each location is depicted in **Table 3-15.**

Table 3-14 Summary of Ambient Air Quality Monitoring

Station	Sampling locations	SO_2		NO_2		PM_{10}	
		Min.	Max.	Min.	Max.	Min.	Max.
AAQ1	Dhanapura	6.3	8.9	9.8	13.2	50.1	66.8
AAQ2	Chuli	5.9	8.3	10.1	13.7	49.8	62.7
AAQ3	Chotila ki Bhagli	6.1	8.5	9.7	12.9	50.7	61.1
AAQ4	Ora	6.0	8.0	10.2	13.8	48.6	65.9
AAQ5	Alpa	5.8	8.7	9.9	13.6	51.4	61.8
AAQ6	Jawai river	6.2	8.8	10.0	13.4	49.1	59.9

AAQ7	Sheoganj	5.7	8.2	10.1	13.3	51.2	69.4
AAQ8	Khejriya	5.8	8.6	9.8	13.5	47.3	65.0
AAQ9	Balvana	6.0	8.5	10.0	13.4	48.0	67.4
AAQ10	Khari River	5.9	8.4	9.7	13.3	47.9	59.1

(Unit = µg/m^3)

3.4.12 Monitoring locations

Ambient air quality analysis results for the 10 monitoring locations which were selected to represent baseline conditions of the region are given below:

- **Core Zone- Dhanapura (AAQ1)**

  The location comes under industrial zone.

  PM_{10} was in the range of 50.1 - 66.8 µg/m^3; SO_2 and NO_2 were in the range of 6.3-8.9 µg/m^3, and 9.8-13.2 µg/m^3 respectively.

- **Core Zone- Chuli (AAQ2)**

  The location comes under industrial zone. PM_{10} was in the range of 49.8-62.7 µg/m^3; SO_2 and NO_2 were in the range of 5.9-8.3 µg/m^3, and 10.1-13.7 µg/m^3 respectively.

- **Chotila ki Bhagli (Buffer Zone, AAQ3)**

  The location comes under residential zone. The value of PM_{10} was in the range of 50.7-61.1 µg/m^3, SO_2, and NO_2 were in the range of 6.1-8.5 µg/m^3, and 9.7-12.9 µg/m^3.

- **Ora (Buffer Zone, AAQ4)**

  The location comes under residential zone. The value of PM_{10} was in the range of 48.6-65.9 µg/m^3, SO_2, and NO_2 were in the range of 6.0-8.0 µg/m^3, and 10.2-13.8 µg/m^3.

- **Alpa (Buffer Zone, AAQ5)**

  The location comes under residential zone. The value of PM_{10} was in the range of 51.4-61.8 µg/m^3, SO_2, and NO_2 were in the range of 5.8-8.7 µg/m^3, and 9.9-13.6 µg/m^3.

- **Jawai River (Buffer Zone, AAQ6)**

  The location comes under industrial zone. The value of PM_{10} was in the range of 49.1-59.9 µg/m^3, SO_2, and NO_2 were in the range of 6.2-8.8 µg/m^3, and 10.0-13.4 µg/m^3.

- **Sheoganj (Buffer Zone, AAQ7)**

  The location comes under residential zone. The value of PM_{10} was in the range of 51.2-69.4 $\mu g/m^3$, SO_2, and NO_2 were in the range of 5.7-8.2 $\mu g/m^3$, and 10.1-13.3 $\mu g/m^3$.

- **Khejriya (Buffer Zone, AAQ8)**

  The location comes under residential zone. The value of PM_{10} was in the range of 47.3-65.0 $\mu g/m^3$, SO_2, and NO_2 were in the range of 5.8-8.6 $\mu g/m^3$, and 9.8-13.5 $\mu g/m^3$.

- **Balvana (Buffer Zone, AAQ9)**

  The location comes under residential zone. The value of PM_{10} was in the range of 48.0-67.4 $\mu g/m^3$, SO_2, and NO_2 were in the range of 6.0-8.5 $\mu g/m^3$, and 10.0-13.4 $\mu g/m^3$.

- **Khari River (Core Zone, AAQ10)**

  The location comes under residential zone. The value of PM_{10} was in the range of 47.9-59.1 $\mu g/m^3$, SO_2, and NO_2 were in the range of 5.9-8.4 $\mu g/m^3$, and 9.7-13.3 $\mu g/m^3$.

3.4.13 Photographs of Ambient Air Quality Monitoring Stations



DHANAPURA



CHULI



ORA



CHOTILA KI BHAGLI



ALPA



JAWAI RIVER



SHIVGANJ



KHEJRIYA



BALVANA



KHARI RIVER

Fig. 3.11 Photographs showing Ambient Air Quality Monitoring

The summary of the monitoring results including minimum and maximum are presented in **Table 3-15**. The results obtained were compared for 24 hrs average standards for residential areas prescribed by the National Ambient Air Quality Standards (NAAQS). The analysis results of all the locations carried out during the study period are presented in **Table 3-15.** The National Ambient Air Quality Standards are presented in **Table 3-16.**

Table 3-15 National Ambient Air Quality Standards (NAAQS: 2009)

S.No.	Pollutants	Time Weighted Average	Concentration in Ambient Air		Method of Measurement
			Industrial Area, Residential Rural & Other Areas	Ecologically Sensitive Area (Notified by Central Govt.)	
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2), µg/m^3	Annual Average * 24 hours **	50 80	20 80	Improved West and Gaeke Method. Ultraviolet fluorescence
2	Oxides of Nitrogen as NO_2, µg/m^3	Annual Average * 24 hours **	40 80	30 80	Modified Jacob & Hochheiser (Na - Arsenite) Method Chemiluminescence (Gas phase)
3	Particulate Matter(size less than 10µm) or PM_{10}, µg/m^3	Annual Average * 24 Hours **	60 100	60 100	Gravimetric, TOEM, Beta attenuation.
4	Particulate Matter(size less than 2.5µm) or $PM_{2.5}$, µg/m^3	Annual Average* 24 Hours **	40 60	40 60	Gravimetric, TOEM, Beta attenuation.
5	Ozone (O_3), µg/m^3	8 Hours ** 1 Hours *	100 180	100 180	UV Photometric, Chemilminescence, Chemical Method.
6	Lead (Pb), µg/m^3	Annual Average * 24 Hours **	0.50 1.0	0.50 1.0	AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper. ED-XRF using Teflon filter
7	Carbon MoNO2ide (CO), mg/m^3	8 Hours** 1 Hours	02 04	02 04	Non Dispersive Infrared (NDIR) Spectroscopy
8	Ammonia (NH_3), µg/m^3	Annual Average* 24 hours **	100 400	100 400	Chemiluminescence (Gas phase) Indophenol blue method
9	Benzene (C_6H_6), µg/m^3	Annual Average*	05	05	Gas Chromatography based continuous analyzer, Adsorption and Desorption followed by GC analysis.
10	Benzo(α) Pyrene (BaP) – Particulate Phase only, ng/m^3	Annual Average*	01	01	Solvent extraction followed by HPLC'GC analysis
11	Arsenic (As), ng/m^3	Annual Average*	05	06	AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper.
12	Nickel (Ni), ng/m^3	Annual Average*	20	20	AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper.

*(**Source:** CPCB, New Delhi)*

* Annual Arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

** 24 hourly/8 hourly values should be net 98% of the time in a year. However 2% of the time, it may exceed but not on two consecutive days.

3.5 NOISE ENVIRONMENT

Noise survey was conducted in the study area during Winter season to assess the background noise levels in different areas *viz;* residential, industrial, commercial and silence zones as per the Gazette Notification dated 14.02.2000 of MoEF on ambient noise standards In the present study, Sound Pressure Level (SPL) was measured by a sound level meter make Lutron (Model SL-4010). Since loudness of sound is important by its effects on people, the dependence of loudness upon frequency must be taken into account in environmental noise assessment.

3.5.1 Selection of Monitoring Locations

Noise monitoring has been undertaken for the duration of 24 hrs at each location to cover up all the periods of the day to establish the baseline noise levels and assess the impact of the total noise generated by the operation of the proposed project.

Table 3-16 Details of Noise Measurement Locations

Station Code	Location	Distance & Direction	Category
N1	Dhanapura	0.5 km, East	Industrial area
N2	Chuli	0.5 km	Industrial area
N3	Chotila ki Bhagli	0.5 km, South	Residential area
N4	Ora	0.5 km, East	Residential area
N5	Alpa	3.5 km, North west	Residential area
N6	Jawai river	-	Industrial area
N7	Sheoganj	0.5 km, South	Residential area
N8	Khejriya	0.5 km, East	Residential area
N9	Balvana	6.0 km, West	Residential area
N10	Khari River	-	Industrial area

Locations of Noise Monitoring

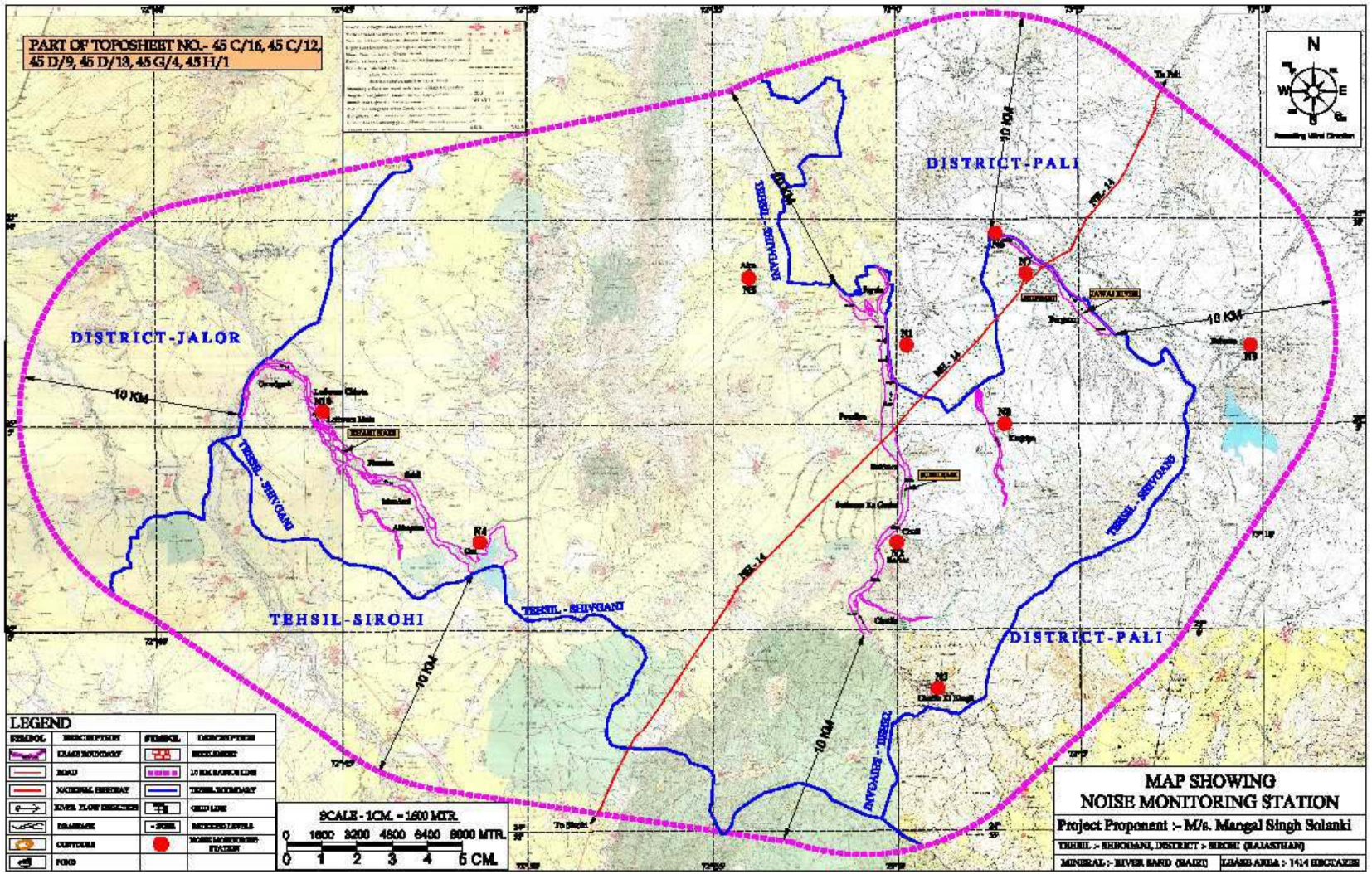


Figure 3-12 Noise Sampling Locations

3.5.2 Instrument Used for Monitoring

Sound pressure level (SPL) measurements were automatically recorded with the help of an Integrated Sound Level Meter to give the equivalent noise level for every hour continuously for 24 hours in a day. There are different types of fields for measuring the ambient noise level, which can be categorized as free field, near field and far field.

Free Field: The free field is defined as a region where sound wave propagates without obstruction from source to the receiver. In such case, the inverse square law can be applied so that the sound pressure level decreases by 6 dB (A) as the distance is doubled near Field.

Near field: The near field is defined as that region close to the source where the inverse square law does not apply. Usually this region is located within a few wavelengths from the source.

Far Field: The far field is defined as that region which is at a distance of more than 1 km from the source.

3.5.3 Measurement of Parameters

The important parameters measured are L_{eq}, L_{day}, and L_{night}.

L_{eq}: Noise monitoring equipments have the facility for measurement of L_{eq} directly.

However, L_{eq} can also be calculated using the following equation:

L_{eq} (hr.ly) = $L_{50} + (L_{10} - L_{90})^2 / 60$

Where, L_{10} (Ten Percentile Exceeding Level) is the level of sound, which exceeds 10% of the total time of measurement. L_{50} (Fifty Percentile Exceeding Level) is the level of sound, which exceeds 50% of the total time of measurement. L_{90} (Ninety Percentile Exceeding Level) is the level of sound, which exceeds 90% of the total time of measurement.

L_{day}: This represents L_{eq} of daytime. L_{day}: is calculated as Logarithmic average using the hourly $L_{eq's}$ for day time hours from 6.00 A.M to 10.00 P.M.

L_{night}: This represents L_{eq} of night time $L_{n.}$ L_{night} is calculated as Logarithmic average using the hourly $L_{eq's}$ for night time hours from 10.00 P.M. to 6.00 A.M.

3.5.4 Results of Ambient Noise

The details of noise level monitoring results are given in the Table 3-18. Equivalent noise levels *viz*. L_{eq} Day and L_{eq} night at the noise monitoring locations are provided in Table 3-17.

Table 3-17 Results of Ambient Noise of Study Area

S.No	Location	L_{eq} Day Noise level dB(A)	L_{eq} Night Noise level dB(A)	Day time (6.00 A.M to 10.00P.M)	Night time (10.00 P.M to 6.00A.M)
				Standard (L_{eq} in dB(A)	Standard (L_{eq} in dB(A)
N1	Dhanapura	61.6	48.3	75.0	70.0
N2	Chuli	53.8	43.2	75.0	70.0
N3	Ghotile ki Bhagli	54.1	41.6	55.0	45.0
N4	Ora	62.3	45.3	55.0	45.0
N5	Alpa	60.6	42.1	55.0	45.0
N6	Jawai River	55.1	47.2	75.0	70.0
N7	Shivganj	68.4	48.1	55.0	45.0
N8	Khejriya	54.2	43.4	55.0	45.0
N9	Balvana	60.7	43.1	55.0	45.0
N10	Khari River	55.6	44.0	75.0	70.0

From the monitoring survey of noise levels it was observed that the day time noise levels were observed in the range of 53.8 dB (A) – 61.6 dB (A). The day time noise shows that the values are within the Industrial area standards i.e 75.0 dB (A). During night time the noise levels were observed in the range of 43.2 dB (A) – 48.3 dB(A) which is found to be within the night time standards i.e 70.0 dB (A). The day time noise levels in residential area were observed in the range 54.1 dB (A) – 68.4 dB (A) which is higher than the ambient air noise quality standards for residential area i.e 55.0 dB (A) except N3 which is 54.1 dB (A) .During Night time the noise level of Residential area were odserved in the range of 41.6 dB (A) - 48.1 dB (A) .The night time noise of N4 & N7 is higher than the ambient air noise quality night time standards for residential area i.e 45.0 dB (A) .Other locations are within the ambient air noise quality nighttime standards .

Table 3-18 Ambient Noise Level Standards

Area Code	Category of Area/ Zone	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

*(**Source:** CPCB, New Delhi)*

- Day time shall mean from 6.00 a.m. to 10.00 p.m.
- Night time shall mean from 10.00 p.m. to 6.00 a.m.

Silence zone is defined as an area comprising not less than 100 meters around hospitals, educational institutions and courts. The silence zones are zones, which are declared as such by the competent authority. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.



CHOTILA KI BHAGLI



ORA



SHEOGANJ



KHEJRIYA



DHANAPURA



CHULI



BALVANA



KHARI RIVER

Fig. 3.13 Photographs showing Ambient Noise Quality Monitoring

3.6 BIOLOGICAL ENVIRONMENT

Plant and animal communities are indicators of the environment. They respond not only to one environmental factor, but also to an interacting group of factors. The plant and animal communities integrates these influences and reacts sensitively to changes in the balance of environmental stresses such as biotic and abiotic factors and anthropogenic activities. Ecological integrity is one of the fundamental factors towards attaining a sustainable ecosystem.

Biodiversity studies comprise the systematic examination of the full array of different kinds of organisms together with the technology by which the diversity can be maintained and used for the benefit of humanity. Current basic research at the species level focuses on the process of species formation the standing level of species numbers in various higher taxonomic categories and the phenomena of hyper diversity and extinction proneness. The major practical concern is the massive extinction rate now caused by human activity which threatens losses in the esthetic quality of the world, in economic opportunity and in vital ecosystem services.

The detailed environmental study was conducted in the project area to assess all possible consequences on the biological environment for river sand mining project. The present study is highlighting the various issues pertaining to floristic diversity and the faunal wealth in and surrounding of river sand mine area in District Sheoganj - Rajasthan

3.6.1 Objectives of Biological Studies

The biological study of the area has been conducted in order to understand the ecological status of the existing flora and fauna to generate baseline information and evaluate the probable impacts on the biological environment.

The present objectives were undertaken with the following objectives:

- To collect the baseline terrestrial biodiversity status regarding flora and fauna in the project area.
- To assess the frequency, density, abundance, Importance Value Index (IVI).
- To evaluate the dominant species of plant and animal. Secondary data also be collected from the local residents and authenticated list of flora and fauna by the Department of Forest, Govt. of Rajasthan, Rajasthan.
- To identify the endangered / threatened / scheduled species in the study area (both flora and fauna). The conservation plan will be given if any wildlife species of schedule I is present there.
- To mark the wetlands and other ecologically sensitive areas such as national parks/ sanctuaries, if present there.
- To provide the conservation plan and suggestion / recommendation for social forestry green belt / plantation.
- To assess the effect of mining on existing ecology.

On the basis of on-site observations a checklist of flora and fauna was prepared.

3.6.2 STUDY APPROACH AND METHODOLOGY

Delineation of the Study Area

The project study area was delineated into two zones for biodiversity inventory. The existing project lease boundary was considered as Core Zone while, the area encompassing 10 km radius from the project boundary was designated as Buffer Zone. Field survey was carried out in all major habitats covering both core and buffer zones.

Methodology:

Floral Study

Floral study is based on extensive field survey of the area. The study has been conducted in winter season. The plant species were identified taxonomically

through available literature, consultation with forest department and local people. A nested quadrate technique was used for sampling the vegetation. The size and number of quadrates needed were determined using the species area curve (Mishra,1968) and running mean method (Kershaw ,1973) .Summarization of previously used method and recommendations led to the use of more than often (10*10 m) quadrates laid out of sampling the tree stratum at different altitudinal gradients and (1*1 m) for herbs and grasses. DBH of trees was also determined. All individuals > 10 cm GBH (Girth at Breast Height) were included in tree category. However, for examining the shrub species 3x3m sample plots were laid out.

The vegetation data collected for biological study were quantitative analyzed for density, Frequency and Abundance according to Curtis and McIntosh (1950). The relative value of frequency, density, and dominance of all the species were summed up to represent Importance Value Index (IVI). The following are the formulae to derive frequency, density, dominance, IVI etc.

$$\text{Frequency} = \frac{\text{Total number of quadrate in which species occurred}}{\text{Total number of quadrate studied}} \times 100$$

$$\text{Density} = \frac{\text{Total number of individuals of a species}}{\text{Total number of quadrate studied}}$$

$$\text{Abundance} = \frac{\text{Total number of individuals of species in all quadrate}}{\text{Total number of quadrate in which species occurred}}$$

$$\text{Dominance} = \frac{\text{Total Basal Area}}{\text{Total area sampled}}$$

$$\text{Relative Frequency} = \frac{\text{Frequency of the species}}{\text{Total frequency of all species}} \times 100$$

$$\text{Relative Density} = \frac{\text{Density of the species}}{\text{Total density of all species}} \times 100$$

$$\text{Relative Abundance} = \frac{\text{Abundance of the species}}{\text{Total abundance of all species}} \times 100$$

$$\text{Relative Dominance} = \frac{\text{Dominance of the species}}{\text{Total Dominance of all species}} \times 100$$

Importance Value Index (IVI) = Relative frequency + Relative density +Relative dominance

Shanon – Weaver Index (1948):

The number of species and number of individuals in a community is measure of species diversity which depends on stability of the habitat. Vegetation of the study area was assess by determining Shannon – Weaver diversity index (1948)

$D = -\Sigma (ni / n) \log2 (ni / n)$

ni = Number of individuals of each species in the sample

n = Total number of individuals

Terrestrial Flora in the study area

Plant species were recorded during biodiversity assessment in study area including RF/PF in which are described in below:

Table 3-19 Flora of RF/PF of project study area

S.No.	Scientific Name	Local name	Family	Habitat
1	*Anogeissus pendula*	Dhok	Combretaceae	T
2	*Azadirachta indica*	Neem	Meliaceae	T
3	*Acacia leucophloea*	Ronjh	Fabaceae	T
4	*Acacia nilotica*	Babool	Fabaceae	T
5	*Balanites aegyptiaca*	Higot/ Desert date	Zygophyllaceae	T
6	*Boswellia serrata*	Salai	Burseraceae	T
7	*Butea monosperma*	Dhak	Fabaceae	T
8	*Calotropis procera*	Aak	Asclepiadaceae	S
9	*Capparis decidua*	Kair	Capparaceae	S
10	*Ficus benghalensis*	Bargad	Moraceae	T
11	*Ficus religiosa*	Pipal	Moraceae	T
12	*Euphorbia neriifolia*	Dandathor	Euphorbiaceae	S
13	*Phoenix sylvestris*	Khajoor	Arecaceae	T
14	*Prosopis juliflora*	Vilayati Babool	Fabaceae	T

15	*Pithecellobium dulce*	Jungal jalebi	Fabaceae	T
16	*Ziziphus mauritiana*	Ber	Rhamnaceae	T
17	*Holoptelea integrifolia*	Papri,Chilbul	Utreaceae	T
18	*Grewia tenex*	White crossberry	Tiliaceae	S
19	*Opuntia elatior*	Nag phani	Cactaceae	S
20	*Ricinus communis*	Arandi	Euphorbiaceae	S
21	*Argemone Mexicana*	Pili Kantili	Papaveraceae	H
22	*Amaranthus spinosus*	Jangli chaulai	Amaranthaceae	H
23	*Aerva tomentosa*	Bui	Amaranthaceae	H
24	*Datura metel*	Dhatura	Solanaceae	H
25	*Indigofera cordifolia*	Gokhru	Fabaceae	H
26	*Lantana camara*	Raimuniya	Verbenaceae	H
27	*Tephrosia purpurea*	Sarphonk	Fabaceae	H
28	*Achyranthes aspera*	Apamarga	Amaranthaceae	H
29	*Bidens pilosa*	Burr marigold	Asteraceae	H
30	*Commelina benghalensis*	Kanchara	Commelinaceae	H
31	*Euphorbia hirta*	Bara dudhi	Euphorbiaceae	H
32	*Ocimum gratissimum*	Van tulsi	Lamiaceae	H
33	*Sida acuta*	Chikana	Malvaceae	H
34	*Tribulus terrestris*	Gokharu	Zygophyllaceae	H
35	*Tridax procumbens*	Tal muriya	Asteraceae	H
36	*Triumfetta rhomboidea*	Chiriyari	Tiliaceae	H
37	*Ipomoea eriocarpa*	-	Convolvulaceae	C
38	*Cuscuta reflexa*	Akashbel	Convolvulaceae	C
39	*Aristida depressa*	Bristle grass	Poaceae	G
40	*Cynodon dactylon*	Doob ghas	Poaceae	G
41	*Dichanthium cardicosum*	Badi	Poaceae	G
42	*Cenchrus setigerus*	Bhurat	Poaceae	G
43	*Dendrocalamus strictus*	Bans	Poaceae	G

Table 3-20 Flora of core and buffer zone of project study site

S.No.	Scientific Name	Local name	Family	Habitat	Core area	Buffer area
1	*Albizia lebbeck*	Siris	Mimosaceae	T	-	+
2	*Ailanthus excelsa*	Ardu	Simaroubaceae	T	-	+
3	*Acacia Senegal*	Cumta	Fabaceae	T	-	+
4	*Acacia leucophloea*	Ronjh	Fabaceae	T	-	+
5	*Acacia nilotica*	Babool	Fabaceae	T	-	+
6	*Azadirachta indica*	Neem	Meliaceae	T	-	+
7	*Butea monosperma*	Dhak	Fabaceae	T	-	+
8	*Cassia siamea*	Kassod	Fabaceae	T	-	+
9	*Cassia fistula*	Amaltash	Fabaceae	T	-	+
10	*Dalbergia sissoo*	Shesham	Fabaceae	T	-	+
11	*Delonix regia*	Gulmohar	Caesalpiniaceae	T	-	+

12	*Ficus religiosa*	Pipal	Moraceae	T	-	+
13	*Ficus benghalensis*	Bargad	Moraceae	T	-	+
14	*Eucalyptus globules*	Safeda/Sugandhapatr a	Myrtaceae	T	-	+
15	*Ficus racemosa*	Gular	Moraceae	T	-	+
16	*Mangifera indica*	Aam	Anacardiaceae	T	-	+
17	*Phoenix sylvestris*	Khajoor	Arecaceae	T	+	+
18	*Pithecellobium dulce*	Jungal jalebi	Fabaceae	T	-	+
19	*Pongamia pinnata*	Karanj	Fabaceae	T	-	+
20	*Polyalthia longifolia*	Ashok	Annonaceae	T	-	+
21	*Prosopis juliflora*	Vilayati Babool	Fabaceae	T	+	+
22	*Terminalia arjuna*	Arjun	Combretaceae	T	-	+
23	*Syzygium cumini*	Jamun	Myrtaceae	T	-	+
24	*Salvadora persica*	Pilu	Salvadoraceae	T	-	+
25	*Ziziphus mauritiana*	Ber	Rhamnaceae	T	+	+
26	*Holoptelea integrifolia*	Papri,Chilbul	Utreaceae	T	-	+
27	*Bougainvillea sp.*	-	Nyctaginaceae	S	-	+
28	*Calotropis procera*	Aak	Asclepiadaceae	S	+	+
29	*Capparis decidua*	Kair	Capparaceae	S	+	+
30	*Hibiscus rosa-sinensis*	Jasband	Malvaceae	S	-	+
31	*Euphorbia neriifolia*	Dandathor	Euphorbiaceae	S	-	+
32	*Grewia tenex*	White crossberry	Tiliaceae	S	-	+
33	*Opuntia elatior*	Nag phani	Cactaceae	S	-	+
34	*Tecoma stans*	-	Bignoniaceae	S	-	+
35	*Nerium oleander*	Kaner	Apocynaceae	S	-	+
36	*Plumeria alba*	Champa	Apocynaceae	S	-	+
37	*Ricinus communis*	Arandi	Euphorbiaceae	S	+	+
38	*Ziziphus nummularia*	Jharberi	Rhamnaceae	S	+	+
39	*Argemone Mexicana*	Pili Kantili	Papaveraceae	H	+	+
40	*Amaranthus spinosus*	Jangli chaulai	Amaranthaceae	H	+	+
41	*Aerva tomentosa*	Bui	Amaranthaceae	H	+	+
42	*Acalypha indica*	Muktajhuri	Euphorbiaceae	H	+	+
43	*Catharanthus roseus*	Sadabhar	Apocynaceae	H	-	+
44	*Cucurbita pepo*	Pumpkin	Cucurbitaceae	C	-	+
45	*Trichosanthes cucumerina*	-	Cucurbitaceae	C	-	+
46	*Datura metel*	Dhatura	Solanaceae	H	+	+
47	*Helianthus annuus*	Peli Dhoodhak	Asteraceae	H	+	+
48	*Indigofera cordifolia*	Gokhru	Fabaceae	H	+	+
49	*Lantana camara*	Raimuniya	Verbenaceae	H	+	+
50	*Ocimum tenuiflorum*	Tulsi	Lamiaceae	H	-	+
51	*Tephrosia purpurea*	Sarphonk	Fabaceae	H	+	+
52	*Pedalium murex*	Bada gokhru	Pedaliacae	H	+	+
53	*Ipomoea nil*	Kaladana	Convolvulaceae	C	-	+
54	*Aristida depressa*	Bristle grass	Poaceae	G	+	+

55	*Chloris dolichostachya*	-	Poaceae	G	-	+
56	*Cynodon dactylon*	Doob ghas	Poaceae	G	-	+
57	*Cenchrus biflorus*	-	Poaceae	G	+	+
58	*Eragrostis tremula*	Chiri Bajra	Poaceae	C	-	+
59	*Saccharin spontaneum*	-	Poaceae	G	+	+

Where, T = Tree, S = Shrub, H = Herb, G = Grass, C= Climber, (-) = absent, (+) = Present

Floral study : Trees (10x10m)

Core zone : It was observed that three trees Khajoor(*Phoenix sylvestris)*, Ber (*Ziziphus mauritiana*) and vilayati babool (*Prosopis juliflora)* were observed at core zone of project site during survey.

Trees:

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Dom	IVI
1	Khajoor	*Phoenix Sylvestris*	17.2155	32.043	28.572	77.8305
2	Vilayti Babool	*Prosopis juliflora*	70.089	27.273	28.571	125.933
3	Ber	*Zizyphus mauritiana*	12.6955	40.684	42.857	96.2365
		Total	100	100	100	300

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index.

It was observed that Vilayti Babool (Prosopis juliflora, IVI-125.933) and Ber (IVI-96.2365) were dominant tree species in core zone.

Buffer zone: Trees(10x10)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Dom	IVI	SWD Index $H= - \sum P_i (\ln P_i)$
1	Siris	*Albizia lebbeck*	6.814	7.186	7.902	21.902	-0.1830
2	Ardu	*Ailanthus excelsa*	5.451	5.589	4.489	15.529	-0.1586
3	Cumta	*Acacia senegal*	3.748	3.792	4.607	12.147	-0.1231
4	Ronjh	*Acacia leucophloea*	3.237	2.794	3.449	9.481	-0.1110
5	Babool	*Acacia nilotica*	3.407	3.593	3.464	10.464	-0.1151
6	Neem	*Azadirachta indica*	6.644	6.188	6.257	19.088	-0.1801

7	Dhak	*Butea monosperma*	6.814	5.988	3.742	16.545	-0.1830
8	Kassod	*Cassia siamea*	6.474	6.587	6.465	19.526	-0.1772
9	Amaltash	*Cassia fistula*	3.748	3.792	5.216	12.756	-0.1231
10	Shesham	*Dalbergia sissoo*	4.940	5.389	9.766	20.096	-0.1486
11	Gulmohar	*Delonix regia*	5.451	5.589	3.532	14.572	-0.1586
12	Pipal	*Ficus religiosa*	3.748	4.192	4.788	12.727	-0.1231
13	Bargad	*Ficus benghalensis*	4.259	2.994	2.668	9.921	-0.1344
14	Safeda/Sugandha patra	*Eucalyptus globulus*	2.385	2.395	2.101	6.881	-0.0891
15	Gular	*Ficus racemosa*	1.363	1.397	3.222	5.982	-0.0585
16	Aam	*Mangifera indica*	1.874	1.796	1.461	5.131	-0.0745
17	Khajoor	*Phoenix sylvestris*	4.089	4.192	2.316	10.596	-0.1307
18	Jungal jalebi	*Pithecellobium dulce*	4.770	4.990	1.838	11.599	-0.1451
19	Karanj	*Pongamia pinnata*	6.474	7.385	3.669	17.528	-0.1772
20	Ashok	*Polyalthia longifolia*	2.215	2.395	1.253	5.863	-0.0844
21	Vilayati Babool	*Prosopis juliflora*	4.600	4.391	5.149	14.140	-0.1416
22	Arjun	*Terminalia arjuna*	1.363	1.397	6.336	9.096	-0.0585
23	Jamun	*Syzygium cumini*	1.363	1.597	0.887	3.846	-0.0585
24	Pilu	*Salvadora persica*	1.022	1.198	1.063	3.283	-0.0468
25	Ber	*Ziziphus mauritiana*	1.193	0.998	2.557	4.748	-0.0528
26	Papri,Chilbul	*Holoptelea integrifolia*	2.555	2.196	1.804	6.555	-0.0937
							3.1308

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ Pi (lnPi)= Shanon – Weaver Index

It was observed that Siris *(Albizia lebbeck,* IVI -21.902 *)* was dominant species in buffer zone of project study area. The other some dominate species as per the IVI were Sisham (*Dalbergia sissoo* , IVI- 20.096), Kasod tree (*Cassia siamea*, IVI- 19.526), Neem(*Azadirachta indica*, IVI-19.088), and Karanj(*Pongamia pinnata*,IVI-17.528). The other trees species were also well in number in nearby area.

Shrubs :Core zone(3x3m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index $H= -\sum P_i (\ln P_i)$
1	Aak	*Calotropis procera*	38.04	37.50	25.01	100.55	-0.368
2	Kair	*Capparis decidua*	23.91	28.57	20.63	73.12	-0.342
3	Arandi	*Ricinus communis*	11.96	16.07	18.34	46.37	-0.254
4	Ber	*Zyzipus nummularia*	26.09	17.86	36.02	79.96	-0.351
							1.314

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index $H= -\sum P_i (\ln P_i)$= Shanon – Weaver Index

Shrub:Buffer zone (3x3m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index $H= -\sum P_i (\ln P_i)$
1	Bougainvillea	*Bougainvillea sp.*	7.71	4.02	15.52	27.26	-0.1976
2	Aak	*Calotropis procera*	18.09	13.79	10.61	42.49	-0.3093
3	Kair	*Capparis decidua*	11.97	10.92	8.87	31.76	-0.2541

4	Jasband	*Hibiscus rosa-sinensis*	9.57	9.20	8.43	27.20	-0.2246
5	Dandathor	*Euphorbia neriifolia*	9.31	6.32	11.92	27.55	-0.2210
6	White crossberry	*Grewia tenex*	3.99	4.02	8.03	16.04	-0.1285
7	Nag phani	*Opuntia elatior*	7.18	6.90	8.43	22.51	-0.1891
8	Yellow bells	*Tecoma stans*	2.93	4.60	5.15	12.67	-0.1033
9	Jharberi	*Ziziphus nummularia*	10.90	10.92	8.08	29.91	-0.2416
10	Champa	*Plumeria alba*	3.99	7.47	4.32	15.78	-0.1285
11	Arandi	*Ricinus communis*	6.65	10.34	5.20	22.20	-0.1802
12	Kaner	*Nerium oleander*	7.71	11.49	5.43	24.64	-0.1976
							2.3756

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

It was observed that Aak (*Calotropis procera* ,IVI-100.51) and Ber(IVI-79.96) were dominant shrub species in core zone. In buffer zone Aak (*Calotropis procera*, IVI- 42.49) was dominant shrubs observed in buffer zone. The other species which were also well in number i.e. Kair(*Capparis deciduas*, IVI-31.76), Ber (*Ziziphus nummularia*, IVI-29.91) and Dandathor (*Euphorbia neriifolia*, IVI- 27.55).

Herbs,grasses and climbers: Core zone(1x1m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Pili Kantili	*Argemone mexicana*	7.01	10.57	5.11	22.68	-0.1863
2	Jangli chaulai	*Amaranthus spinosus*	7.77	9.81	6.09	23.67	-0.1984
3	Bui	*Aerva tomentosa*	4.55	5.28	6.63	16.45	-0.1405

4	Muktajhuri	*Acalypha indica*	3.03	4.15	5.62	12.80	-0.1060
5	Dhatura	*Datura metel*	3.79	4.91	5.95	14.64	-0.1240
6	Peli Dhoodhak	Launaea nudicaulis	12.69	11.32	8.63	32.64	-0.2620
7	Gokhru	*Indigofera cordifolia*	8.71	7.17	9.36	25.24	-0.2126
8	Raimuniya	*Lantana camara*	5.49	8.68	4.87	19.04	-0.1594
9	Sarphonk	*Tephrosia purpurea*	6.63	5.28	9.66	21.57	-0.1799
10	Bada gokhru	*Pedalium murex*	3.60	4.53	6.12	14.25	-0.1196
11	Bristle grass	*Aristida depressa*	10.98	10.19	8.30	29.48	-0.2426
12	Doob ghas	*Cynodon dactylon*	15.34	12.45	9.49	37.28	-0.2876
13	Chiri Bajra	*Saccharun spontaneum*	10.42	5.66	14.17	30.25	-0.2356
							2.4544

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - $\sum P_i$ (lnP_i)= Shanon – Weaver Index

Herb ,grasses and climbers ; Buffer zone(1x1m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - $\sum P_i$ (lnP_i)
1	Pili Kantili	*Argemone mexicana*	8.53	9.51	4.43	22.48	-0.2100
2	Jangli chaulai	*Amaranthus spinosus*	7.03	7.97	4.36	19.35	-0.1866
3	Bui	*Aerva tomentosa*	6.15	4.63	6.57	17.34	-0.1715
4	Muktajhuri	*Acalypha indica*	4.64	3.60	6.38	14.62	-0.1425
5	Sadabhar	*Catharanthus roseus*	2.38	2.06	5.73	10.17	-0.0891
6	Pumpkin	*Cucurbita pepo*	1.00	1.54	3.22	5.76	-0.0462
7	serpent gourd	*Trichosanthes cucumerina*	0.88	1.03	4.22	6.13	-0.0416
8	Dhatura	*Datura metel*	3.01	4.11	3.62	10.74	-0.1055

9	Peli Dhoodhak	*Launaea nudicaulis*	9.66	10.03	4.76	24.45	-0.2258
10	Gokhru	*Indigofera cordifolia*	7.28	6.17	5.83	19.28	-0.1907
11	Raimuniya	*Lantana camara*	4.64	5.66	4.06	14.36	-0.1425
12	Tulsi	*Ocimum tenuiflorum*	3.64	3.60	5.00	12.24	-0.1206
13	Sarphonk	*Tephrosia purpurea*	3.89	3.60	5.34	12.83	-0.1263
14	Bada gokhru	*Pedalium murex*	2.51	3.08	4.02	9.62	-0.0925
15	kaladana	*Ipomoea nil*	1.13	1.80	3.10	6.03	-0.0506
16	Bristle grass	*Aristida depressa*	6.40	6.94	4.56	17.90	-0.1759
17	Kerela grass	*Chloris dolichostachys*	0.75	1.29	2.90	4.93	-0.0368
18	Doob ghas	*Cynodon dactylon*	11.54	10.03	5.69	27.26	-0.2492
19	Bhurat	*Cenchrus biflorus*	5.77	4.37	6.53	16.67	-0.1646
20	Chiri Bajra	*Eragrostis tremula*	2.63	3.08	4.22	9.94	-0.0958
21	Kans grass	*Saccharum spontaneum*	6.52	5.91	5.46	17.89	-0.1781
							2.8423

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - $\sum P_i (\ln P_i)$**= Shanon – Weaver Index**

Some herbs, grasses and climbers were also densely populated in study area. Doob grass (*Cynodon dactylon*,) and Peeli doodhak(*Launaea nudicaulis*) were dominant species in both core (IVI- 37.28 & IVI 32.64) and buffer zone (IVI-27.26 & IVI- 24.45). The other dominant species in buffer zone were pili kantili(*Argemone mexicana*, IVI-22.48), jungle chulai (*Amaranthus spinosus* , IVI-19.35) and gokhru (*Indigofera cordifolia*, IVI-19.28),

3.6.3 Threat Status of the floristic diversity

Flora recorded from the study sites during the survey when compared with the available literature revealed that none of the species recorded from the region fall under any category of threat status.

3.6.4 Faunal study:

i. Avifauna

Point count method was followed for counting the birds. Opportunistic surveys were also carried out with respect to avifaunal checklist. Identification by calls was also made for species which

were not directly encountered or were hidden in the vegetation or canopy. Secondary data collected from the literature.

ii. Herpetofauna

Amphibians and reptiles recorded during area searches were identified by visual characteristics. Aquatic searches involved examining each type of aquatic habitat.

iii. Mammals

Presence of mammals were documented by using both direct sightings and indirect evidences i.e. animal burrows/holes, scats, pellets, droppings and tracks. Opportunistic sightings were also included. Circular Plots were used to search indirect evidences.

Fauna of Project study area

During the study in the field and concern with local stakeholder, following animals were recorded in project study area.

Fauna recorded in Core and Buffer Zone of Project Study Site

S.No	Common Name	Binomial Name of Species	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
	Mammals					
1	Nilgai	*Boselaphus tragocamelus*	Bovidae	III	-	+
2	Langur	*Presbytis entellus*	Cercoppithecidae	II	-	+
3	Bandar	*Macaca mulatta*	Cercoppithecidae	II	-	+
4	Jackal/Siyar	*Canis aureus*	Canidae	II	-	+
5	Hare	*Lepus nigricollis*	Leporidae	IV	+	+
6	House Rat	*Rattus rattus*	Muridae	V	-	+
7	Common Mongoose	*Herpestes edwardsii*	Herpestidae	II	-	+
8	Four Striped Palm Squirrel	*Funambulus pennant*	Sciuridae	IV	+	+
9	Indian Flying Fox	*Pteropus giganteus*	Pteropodidae	LC	-	+
10	Sloth Bear	*Melursus ursinus*	Ursidae	I	-	+
11	Panther	*Panthera pardus*	Felidae	I	-	+
	Reptiles					
12	Red sand Boa	*Eryx johnii*	Boidae	V	-	+
13	Brahminy Skink/ Bahmani	*Mabuya carinata*	Scincidae	LC	+	+
14	Common Garden Lizard/Girgit	*Calotes versicolor*	Agamidae	LC	+	+
15	House Gecko/Chhipkali	*Hemidactylus flaviviridis*	Gekkonidae	LC	-	+
16	Cobra	*Naja naja*	Elapidae	II	-	+

	Amphibians					
14	Indian Bull Frog	*Hoplobatrachus* tigerinus	Dicroglossidae	IV	-	+
15	Indian cricket Frog	*Fejervarya limnocharis*	Dicroglossidae	IV	-	+
	Pisces					
21	Common carp	*Cyprinus carpio*	Cyprinidae	VU	-	+
22	Snakehead fish	*Channa punctatus*	Channidae	LC	-	+
23	Indian Carp	*Catla catla*	Cyprinidae	LC	-	+
24	Mosqito fish	*Gambusia affinis*	Poeciliidae	LC	-	+

Avifaunal species recorded on project study area

S.No.	Scientific Name	Common Name	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
1	*Pavo cristatus*	Indian Peafowl	Phasianidae	I	-	+
2	*Mycteria leucocephala*	Painted stork	Ciconiidae	IV	-	+
3	*Actitis hypoleucos*	Common Sandpiper	Scolopacidae	IV	-	+
4	*Ceryle rudis*	Pied Kingfisher	Cerylidae	IV	-	+
5	*Ardeola grayii*	Indian Pond Heron	Ardeidae	IV	-	+
6	*Fulica atra*	Common coot	Rallidae	IV	-	+
7	*Ardea cinerea*	Grey Heron	Ardeidae	IV	-	+
8	*Vanellus cinereus*	Red-wattled lapwing	Charadriidae	LC	-	+
9	*Ploceus philippinus*	Baya weaver	Ploceidae	IV	+	+
10	*Francolinus pondicerianus*	Grey francolin	Phasianidae	IV	+	+
11	*Upupa epops*	Common hoopoe	Upupidae	IV	-	+
12	*Merops orientalis*	Green bee-eater	Meropidae	LC	+	+
13	*Centropus bengalensis*	Lesser coucal	Cuculidae	IV	-	+
14	*Psittacula krameri*	Rose-ringed parakeet	Psittacidae	IV	-	+
15	*Halcyon smyrnensis*	White-throated kingfisher	Halcyonidae	IV	-	+
16	*Apus affinis*	House swift	Apodidae	LC	-	+
17	*Columba livia*	Rock pigeon	Columbidae	IV	-	+
18	*Streptopelia enegalensis*	Laughing dove	Columbidae	IV	+	+
19	*Streptopelia decaocto*	Eurasian dove	Columbidae	IV	-	+
20	*Streptopelia tranquebarica*	Red Collared dove	Columbidae	IV	-	+

21	*Egretta garzetta*	Little egret	Ardeidae	IV	-	+
22	*Bubulcus ibis*	Cattle egret	Ardeidae	IV	+	+
23	*Corvus splendens*	House crow	Corvidae	V	-	+
24	*Dicrurus macrocercus*	Black drongo	Dicruridae	IV	+	+
25	*Saxicoloides fulicata*	Indian robin	Muscicapidae	IV	+	+
26	*Sturnus contra*	Asian Pied starling	Sturnidae	IV	-	+
27	*Acridotheres tristis*	Common myna	Sturnidae	IV	-	+
28	*Pycnonotus cafer*	Red-vented bulbul	Pycnonotidae	IV	+	+
29	*Corvus macrorhynchos*	Jungle crow	Corvidae	IV	-	
30	*Turdoides striatus*	Jungle babbler	Leiothrichidae	IV	+	+
31	*Nectarinia asiatica*	Purple sunbird	Nectariniidae	IV	-	+
32	*Passer domesticus*	House sparrow	Passeridae	IV	-	+
33	*Motacilla maderaspatensis*	White-browed wagtail	Motacillidae	LC	-	+
34	*Motacilla flava*	Yellow wegtail	Motacillidae	LC	-	+
35	*Microcarbo niger*	Little cormorant	Phalacrocoracidae	IV	-	+
36	*Himantopus himantopus*	Black wing Still	Recurvirostridae	IV	-	+
37	*Saxicola caprata*	Pied Bush chat	Muscicapidae	IV	-	+
38	*Prinia socialis*	Ashy Warn-Warbler	Cisticolidae	IV	+	+
39	*Chrysocola ptes festivus*	Wood piker	Picidae	IV	-	+
40	*Amaurornis phoenicurus*	White-breasted waterhen	Rallidae	IV	-	+
41	*Dendrocitta vagabunda*	Rufous tree pie	Corvidae	IV	-	+
42	*Anas poecilorhyncha*	Spotted bill duck	Anatidae	IV	-	+



Halcyon smyrnensis



Anas poecilorhyncha



Psittacula krameri



Presbytis entallus



Dicrurus macrocercus



Pteropus giganteus

Fig: Fauna of study area

3.6.5 Aquatic diversity

Riparian, free floating and submerge vegetation were observed in project study area which are described in Table 1.8.

Table 1.8 Aquatic vegetation recorded in project study area

S.No.	Local name	Scientific Name	Family
1	Bathua	*Chenopodium album*	*Amaranthaceae*
2	Nutgrass, Coco	*Cyperus rotundus*	*Cyperaceae*
3	Small Duckweed	*Lemna perpusilla*	*Lemnaceae*
4	Knotweed	*Polygonum species*	*Polygonaceae*
5	Low Bulrush	*Scirpus cernuus*	*Cyperaceae*
6	Giant Duckweed	*Spirodela polyrhiza*	*Araceae*
7	Era	*Typha elephantina*	*Typhaceae*

3.6.6 Endangered Species

Endangered and threatened animals of India have been listed in the Schedule I and Schedule II of the Wildlife (Protection) Act, 1972 (amended in 2002). In buffer zone Schedule I species reported are Melursus ursinus (Sloth Bear), Panthera pardus (Panther) & Pavo cristatus (Indian Peafowl). Schedule II species are Presbytis entellus (Langur), Macaca mulatta (Bandar), Canis aureus (Jackal/Siyar), Herpestes edwardsii (Common Mongoose) & Naja naja (Cobra)

3.6.7 Eco-sensitive Zone

There is no Wildlife Sanctuary, National Park or Biosphere Reserves in the Core as well as buffer zone.

3.6.8 Cropping Pattern of the Study Area

Climatic factors chiefly determine the cropping pattern in the study area/ region. The area comes under semi- arid zone of the state on account of freely availability of adequate water; cropping patter is by and large single only. During Kharif, Maize, Groundnut, Soyabean, Sorghum and Urad are the main crops cultivated and during Rabi, Wheat, Rapeseed, Gram and Mustard are the main crops in the area.

3.7 SOCIO – ECONOMICS & DEMOGRAPHIC PROFILE

Every developmental project has its beneficial and adverse effects. The project will impact on the local area and its socio-economic status. In EIA, all such positive and negative impacts are to be identified, quantified or described and predicted with futuristic approach of well being of environment and community development in the area.

All developmental activities are undertaken for the social well-being and upliftment for their living status in the area. Socio-economic plays a vital role in environmental impact assessment study of such type of developmental projects in the area/region.

3.7.1 Methodology Adopted for the Study

The general methodology of impact assessment that we have used to assess socio-economic impacts associated with the project is as follows:

- Description of existing socio-economic or demographic environment in the area of influence (baseline socio-economic set up of the proposed project area)
- Procurement of relevant standards and criteria:

Review of secondary data, such as District Census data 2011 prepared by Statistics Department of State Government, for the parameters of demography, occupational structure of people and other details available within the core and buffer zone of study area.

- Assessment of socio-economic impact significance.
- Mitigation measures for adverse socio-economic impacts and the monitoring process.

3.7.1.1 Baseline Status

It is important to conduct socio-economic studies and assess the existing status and also the impacts envisaged by proposed river sand mining project on the socio-economic conditions of the study area, which will help in mitigating any adverse impacts. The area comprises of government Gair Mumkin Nadi/ Nallah. There are no historical monuments, archaeological, cultural or ecological places of importance in the study area.

3.7.2 Demographic Profile

As per the Census data for the year 2011, the study area over a radius of 10 km has a number of villages. Total population of Sheoganj is about 100502 as per 2011 census in the study area. Out of the total population, 19.00% are scheduled caste and 14.22% is scheduled tribes. Literacy status in Sheoganj depicts that the area have 54.27% literates and 45.73% illiterates.

Table 3-21 Demographic profile of study area (Sheoganj – Sirohi)

S.No.	Name	Household	Population	SC	ST	Literates	Illiterates	Literacy Rate
1	Alpa	501	2392	542	818	746	1646	31.19
2	Andor	516	2460	493	142	1082	1378	43.98
3	Arathwara	1057	5375	1201	299	2694	2681	50.12
4	Badla	110	556	37	271	281	275	50.54

5	Bagseen	677	3057	604	324	1337	1720	43.74
6	Bar Gaon	1160	5747	2168	698	2860	2887	49.77
7	Baravera	107	552	0	443	137	415	24.82
8	Barewara	238	1132	196	103	562	570	49.65
9	Bhaiv	504	2398	795	458	962	1436	40.12
10	Buderi	93	478	43	97	223	255	46.65
11	Chandana	197	991	278	145	632	359	63.77
12	Chooli	252	1220	246	136	632	588	51.80
13	Deoli	130	709	70	142	312	397	44.01
14	Devon Ka Bera	147	712	0	313	195	517	27.39
15	Godana	252	1237	162	194	491	746	39.69
16	Gola	102	461	86	19	217	244	47.07
17	Jaitpura	394	1828	147	983	979	849	53.56
18	Jogapura	674	3265	418	923	1500	1765	45.94
19	Joyla	764	3825	1026	49	1945	1880	50.85
20	Kaldari	207	1293	11	1086	406	887	31.40
21	Khejariya	410	1926	380	670	743	1183	38.58
22	Lakhmawa Bara	154	756	128	212	439	317	58.07
23	Lakhmawa Chhota	141	612	53	15	257	355	41.99
24	Manadar	1022	4779	884	550	1952	2827	40.85
25	Mochhal	197	904	88	471	359	545	39.71
26	Morli	287	1573	211	243	726	847	46.15
27	Palri	1313	6152	1342	487	3148	3004	51.17
28	Posaliya	1372	6821	1232	1419	3825	2996	56.08
29	Radbar	268	1276	385	142	622	654	48.75
30	Rowara	396	1914	493	442	778	1136	40.65
31	Rukhada	268	1348	498	161	752	596	55.79
32	Sagaliya	218	1082	289	265	339	743	31.33
33	Sheoganj	5515	28053	3989	1306	20605	7448	73.45
34	Surajpura	80	385	8	130	211	174	54.81

35	Sutharon Ka Guda	108	583	109	109	308	275	52.83
36	Vadka	101	448	28	0	238	210	53.13
37	Vera Rampura	191	1093	192	0	599	494	54.80
38	Vera Vilpur	232	1109	271	31	444	665	40.04
Total		**20355**	**100502**	**19103**	**14296**	**54538**	**45964**	**46.43**

3.7.3 Socio-economic Profile

The review of socio-economic profile of the villages around the mining site is essential for understanding social impacts due to mining activity.

3.7.4 Literacy Levels

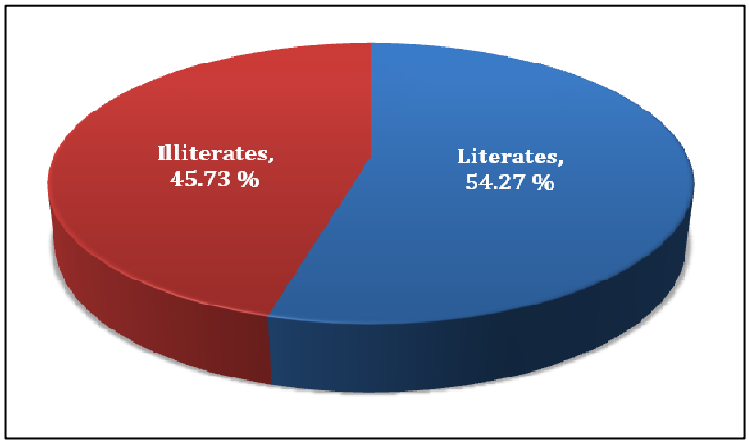


Figure 3.16 Demographic Profile-Literacy Status of the Study Area

As per census data for the year 2011, the study area over a radius of 10 km from the mining site has 54538 No. of literates. The summary of village-wise literacy status is given in **Table 3.24.**

3.7.5 Caste Distribution of the Study Area

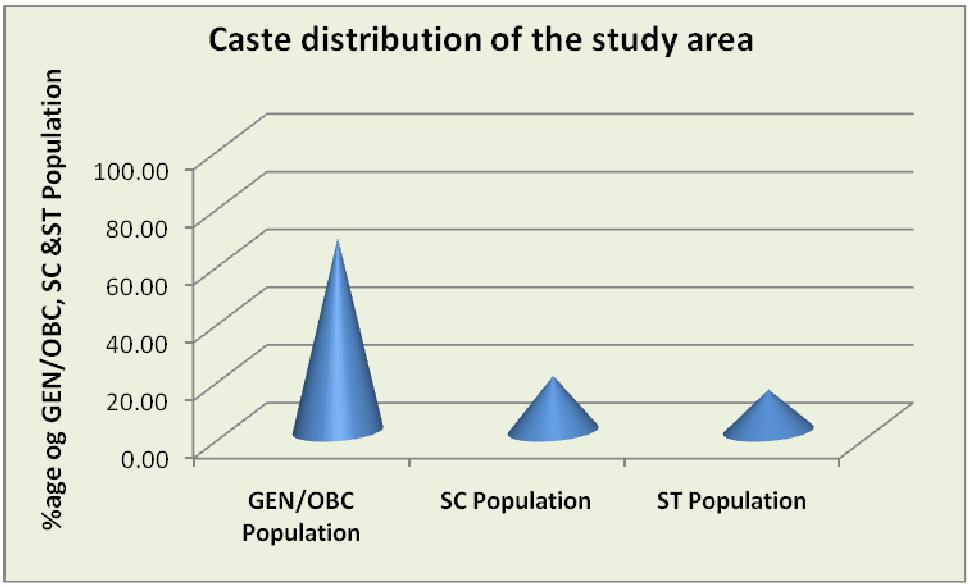


Figure 3.17 Caste Distribution of the Study Area

3.7.6 Occupational Structure

With reference to the **Table 3.25** which have been generated through the study of secondary occupational data for the villages within 10 km radius of the proposed mining site. In the study area, predominant activity is agriculture, cultivators and agricultural labours. The total workers in the study area are 38561 out of this main workers are 31390 and marginal workers are 7171. The table given as appended in **Table 3.25** clearly shows that the status of non workers in the study area is about 61947. The main occupation in the region is mining and allied activities.

Table 3-22 Occupational structure of study area (Sheoganj - Sirohi)

S.No.	Name	Population	Total Worker	Main Worker	Marginal Worker	Non Worker
1	Alpa	2392	1225	1033	192	1167
2	Andor	2460	1133	950	183	1327
3	Arathwara	5375	1812	1665	147	3563
4	Badla	556	282	166	116	274
5	Bagseen	3057	1076	889	187	1981
6	Bar Gaon	5747	2253	1698	555	3494
7	Baravera	552	364	342	22	188
8	Barewara	1132	549	430	119	583
9	Bhaiv	2398	1014	997	17	1384
10	Buderi	478	327	322	5	151
11	Chandana	991	381	304	77	610
12	Chooli	1220	511	480	31	709
13	Deoli	709	205	197	8	504

14	Devon Ka Bera	712	221	207	14	491
15	Godana	1237	552	355	197	685
16	Gola	461	178	99	79	283
17	Jaitpura	1828	758	546	212	1070
18	Jogapura	3265	1536	1232	304	1729
19	Joyla	3825	1621	1133	488	2204
20	Kaldari	1293	552	277	275	741
21	Khejariya	1926	679	387	292	1247
22	Lakhmawa Bara	756	326	210	116	430
23	Lakhmawa Chhota	612	347	343	4	265
24	Manadar	4779	2037	1340	697	2742
25	Mochhal	904	418	259	159	486
26	Morli	1573	657	519	138	916
27	Palri	6152	2319	1854	465	3833
28	Posaliya	6821	2664	2083	581	4157
29	Radbar	1276	597	474	123	679
30	Rowara	1914	835	730	105	1079
31	Rukhada	1348	605	507	98	743
32	Sagaliya	1082	563	378	185	519
33	Sheoganj	28053	8562	7869	693	19491
34	Surajpura	385	151	103	48	234
35	Sutharon Ka Guda	583	298	297	1	285
36	Vadka	448	107	98	9	341
37	Vera Rampura	1093	461	460	1	632
38	Vera Vilpur	1109	385	157	228	724
Total		**100502**	**38561**	**31390**	**7171**	**61941**

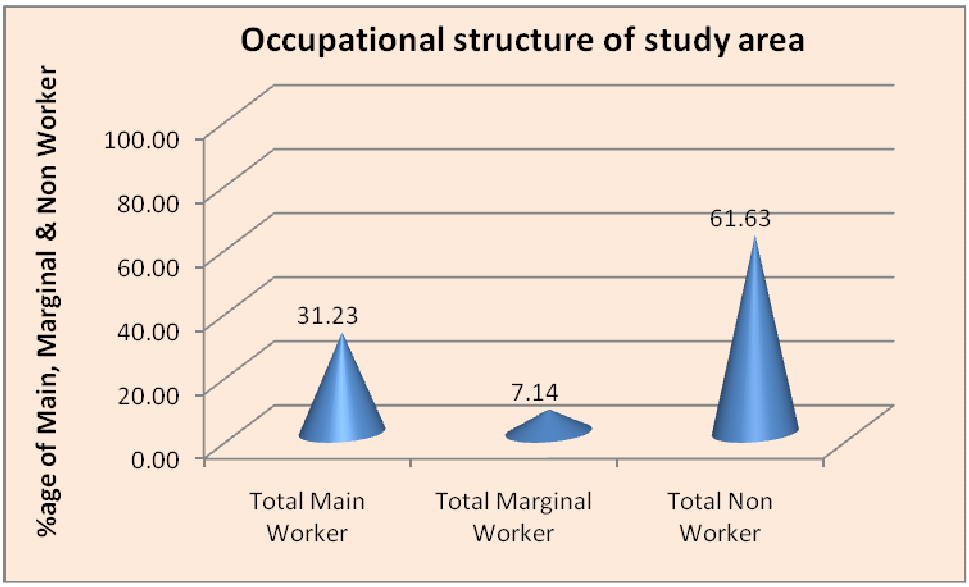


Figure 3.18 Occupational Structure showing Worker & Non-Worker

Status of the Study Area

3.7.7 Basic Amenities

Site Analysis

(i) Connectivity

Nearest Highway is NH 14 passes from mine site area & SH 38 is passing about Village Jawal at 15 km from West direction of lease area and SH 62 passes through from village chamundari the lease area. NH-76 (Pindwara – Udaipur) Passes from South Direction from lease area.

(ii) Infrastructure

Infrastructure resource base in villages under the study area of proposed project at near village Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil-Sheoganj, District-Sirohi (Rajasthan) is satisfactory. Education facility up to primary level is available in all the villages. Facility up to middle school and high school is also available in some of the villages. Medical facility includes primary health centre (PHC), registered private practitioner etc. is available in some of the villages. In most of the villages, medical facility is available at a distance of 5 to 10 km. Govt. The main drinking water resource is through private dug-wells and bore wells. Roads are built with pucca and kaccha, both of type. Density of house along the main arterial roads comparatively higher than inner village areas. Other facility includes rest shelter, canteen, amusement center, communication facility with mobile telephone services and landline available at site. Other amenities for workers and staff in form of bonus, PF is provided timely.

(iii) Amenities/Facilities

Basic amenities/facilities available in nearby villages and towns are such as road, power supply, communication, water supply, medical and health etc. Site is well connected with road and other infrastructure facilities. Communication facilities such as post office, telecommunication available in near villages Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota,

Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh. Nearby villages are electrified. Medical facilities such as PHC, Hospital and Dispensary facilities available in near town of Sheoganj & District Sirohi.

(iv) Water

Ground water forms a major source of drinking water in urban as well as in rural areas. More than 90% of the rural population uses ground water for domestic purposes. Sirohi district comprises 6 urban areas and each of them is facilitated by piped water supply. All the 467 villages and 375 marked hamlets are benefited by water supply for drinking and domestic purposes.

(v) Road Transport

Mine site is well connected with rail and road transport. NH-14 passes middle of the lease area and SH-38 Passes from North West Direction from lease area. NH-76 (Pindwara –Udaipur) Passes from South Direction from lease area.

(vi) Rail Transport

Sirohi has the major rail way station Abu Road connecting to most of the important Cities and rail way station in India.

Some of the rail way stations in district are Sirohi Road, Jawai Bandh, Swarupganj, Nana, Mori Bera, Keshavganj, Kothar and Kivarli. which connects most of the towns and villages in the District.

(vii) Air Transport

Air transport facility is not available in the district. The nearest airport is Maharana Pratap Airport, Udaipur at a distance of 92.0 kms.

(viii) Health and Educational facilities

There are good educational facilities in Sirohi district, which serve both townspeople and inhabitants of surrounding villages and towns in the hinterland. There are 920 primary schools, 196 Middle Schools, 210 secondary and higher secondary schools and 04 degree colleges,

Table 3.26 Shows Education facilities in the district

S.No.	Facilities/Institutions	Nos.
1	Primary Schools	920
2	Middle schools	196
3	Higher Secondary and Secondary Schools	210
4	Collages	04

Table 3.27 Medical facilities at District-Sirohi, Rajasthan

S.No.	Facilities	Nos.
1	Allopathic Hospitals	01
2	Ayurvedic Hospitals	02
3	Community Health Centres	06
4	Primary Health Centres	27
5	Dispensaries	68
6	Sub Health Centres	191

(ix) Population Projections

Total population of Sirohi District is 1,036,346as per latest provisional figures released by Directorate of Census Operations in Rajasthan. This shows increase of 21.76 percent in 2011 compared to figures of 2001 census. The initial figures of data shows that male and female were 534,231 and 502,115 respectively. Sirohi District of Rajasthan comprises an area of 5,136 sq. km. As per census 2011, density of Sirohi District per square km is 202 compared to 166 per sq.km of 2001. With regards to Sex Ratio in Sirohi, it stood at 940 per 1000 male compared to 2001 census figure of 943. In 2011 census, child sex ratio is 897 girls per 1000 boys compared to figure of 918 girls per 1000 boys of 2001 census data. . There were total 173,364 children under age of 0-6 against 168,985 of 2001 census. Of total 173,364 male and female were 91,370 and 81,994 respectively. In 2011, Children under 0-6 formed 16.73 percent of Sirohi District compared to 19.85 percent of 2001. There was net change of -3.12 percent in this compared to previous census of India.

Total population is 1,036,346 compared to 851,107of 2001.

1. Male and female were 534,231 and 502,115 respectively.

2. Population Growth for Sirohi District recorded in 2011 for the decade has remained 21.76 percent. Same figure for 1991-2001 decade was 26.81% percent.
3. Total Area of Sirohi District was 5136 sq. Km with average density of 202 per sq. km.
4. Sex Ratio of Sirohi District is now 940, while child sex ratio (0-6) is 897 per 1000boys.
5. Children below 0-6 age were 173,364 which forms 16.73 of total Sirohi District population.
6. Average Literacy rate for Sirohi District is 55.25 percent, a change of from past figure of 53.94 percent. In India, literacy rate is counted only for those above 7 years of age. Child between 0-6 ages are exempted from this.

Total literates in the Sirohi District increased to 476,806.

Table – 3.28 Projected Population of the District Sirohi, Rajasthan

S.No.	Year	Population	% increase
1	2001	851,107	21.76
2	2011	1,036,346	

3.7 Existing Traffic Scenario

The existing traffic scenario is given in following table

Traffic density of NH- 14

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day	Proposed V/C Ratio	Level of Service (LOS)
35000	Car/ jeep/ van	289	1.0	289	0.05	"A"
	Two wheelers	179	0.5	89.5		
	Truck	440	3.0	1320		
	Tractor	188	1.5	282		
	Total	1096		1980.5		

Traffic density of SH- 38

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	217	1.0	217	0.08	"A"
	Two wheelers	169	0.5	85		
	Truck	240	3.0	720		
	Tractor	141	1.5	211		
	Total	767		1233		

Dhruwana- Jaitpura MDR

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day	Proposed V/C Ratio	Level of Service (LOS)
5800	Car/ jeep/ van	43	1.0	43	0.05	"A"
	Two wheelers	78	0.5	39		
	Truck	58	3.0	174		
	Tractor	33	1.5	50		
	Total	212		306		

V= Volume in PCU's/Day C=Capacity in PCU's/Day

The existing level of service at near village is "B" *i.e.* very good and at highway is "A" *i.e.* excellent.

3.6.1 Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.05 to 0.08 with LOS being "A" and "B" which is categorized as 'excellent' and very good as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8,500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 4 blocks having stretch of around 8-9 Km of each. There will be maximum trolley assumed per block is 40-45 and trucks per block will be 60-65. Separate route for each block will be maintained so that congestion on any route does not take place.

CHAPTER- 4 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 GENERAL

In order to understand the impacts, the baseline data generated requires being superimposed by impacts from different activities proposed to be taken up. Every developmental project will have both positive and negative impacts on the surroundings. Likely impacts on environment can be mitigated by proper and effective environment management plan (EMP). Superimposed predicted impacts over baseline environmental scenario give the ultimate environmental scenario. With such an assessment an impact score will be obtained with implementation of project without any mitigation measures. Each effects of the project on each environmental parameter are detailed below in accordance with the parameters of environment likely to be affected. In the present study, baseline environmental scenario was established through environmental monitoring data for the period of **December-2013 to February 2014** (Winter Season). On the behalf of impact analysis, the proposed mitigating measures and future monitoring requirement are incorporated in the environment management plan for minimizing the impacts.

In order to assessment of environmental process, the mitigation measures have been developed with a view to bring down the levels of impacts within the prescribed permissible limits. Based on the project details and status of baseline environmental scenario, potential impacts as a result of the mining project of ***M/s. Mangal Singh Solanki*** have been identified.

The environmental impact assessment of activities of project proponent comprises the following for proposed production of mineral 28.05 Lac TPA of River sand (Bajri) from this mine. The key environmental problems arising due to proposed project of river sand mining are as follows:

- Change in Land-Use (Land Degradation, Soil Erosion etc.)
- Change in Ambient Air Quality
- Alteration in Water Quality Characteristics
- Change in Ambient Noise level
- Changes in Vegetation characteristics of the area

- Changes in Traffic Scenario
- Change in Socio-economic Status

4.2 DETAILS OF INVESTIGATED OF ENVIRONMENTAL IMPACTS

The environmental impact assessment of activities of project proponent comprises the following for proposed production of mineral 28.05 Lac TPA of River sand (Bajri) from this mine. The key environmental problems arising due to proposed project of river sand mining are as follows:

- Change in Land-Use (Land Degradation, Soil Erosion etc.)
- Change in Ambient Air Quality
- Alteration in Water Quality Characteristics
- Change in Ambient Noise level
- Changes in Vegetation characteristics of the area
- Changes in Traffic Scenario
- Change in Socio-economic Status

4.2.1 IMPACTS PREDICTION OF LAND AND SOIL ENVIRONMENT

Predictions of impact of mining activity on land environment are based on the nature of activities and associated aspects of environment. Degradation of land is not a very significant adverse impact of riverbed mining due creation of access roads, mining operations, transportation of mined out material. Impact of sand mining may cause:

(i) Soil erosion due to excessive undercutting of river banks.
(ii) Changes in channel slope and velocity.
(iii) Changes in the downstream *i.e.* Deposition of sediment.
(iv) Alteration in channel bed morphology.

The proposed project of river sand (Bajri) mining will not be much impact of the project activity on the soil, land use and cropping pattern in the surrounding areas as the mine is confined to riverbed only, there will no other land disturbed. Vegetation is sparsely distributed in the area except with few thorny shrubs/bushes. No waste generated during proposed mining operation. Thus no waste dump proposal at mine site.

Table 4-1 Land Use Operational & Post Operational

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.0 Ha.	311 Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Dump/Heaps:	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	5.5 Ha.	5.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	5.0 ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Un-worked Area	1405.5 Ha	1092.5 Ha
Total		**1414 Ha**	**1414 Ha**

4.1.2 Mitigation Measures

Excavations of river bed mineral and allied activities are the main sources of environmental degradation. Mining will not be done beyond the stipulated limit/norms, so the chance of river channel widening, bank widening and natural gradient will be negligible. Mining at concave side of the river channel will not be done to prevent further bank erosion.

In order to prevent the environmental degradation of mine lease area and its surroundings, the following measures shall be taken;

- Creation of ponds and pits on the river bed shall not be allowed.
- Mining will be carried out in scientific manner to avoid overcutting of river banks.
- Slope and gradient of channel will not be disturbed due to proposed mining operation.
- No modification in channel morphology is proposed.
- Damage of river bank due to access ramps to river bed, causing damage to vegetation, soil erosion, micro-disturbance to ground water etc.
- Riparian vegetation losses standing along the bank due to making roads connecting successive access to river bed.

Following measures to stop further degradation of land environment are as follows:

(i) Number of access roads to river bed shall be provided minimum for which cutting of river banks will be avoided and ramps are to be maintained.

(ii) Mining schedule is synchronized with the river flow direction and gradient of the land.

(iii) Minimum ramps (access route) will be formed as per requirement. Access route will be kept outside of village boundary.

(iv) Access point to the river bed will be decided basis on least steepness of river bank and least human activity.

(v) Access roads from public roads and up to river bank will be aligned in such a way that it would cause least environmental damage in the area.

(vi) Proper Mining will be carried to ensure that ponds are not formed in the river bed.

(vii) Proposed afforestation measures along the banks of the river and along the road side of the approach roads to arrest soil erosion and strengthening of banks.

(viii) Mining will not be done during monsoon season.

4.3 WATER ENVIRONMENT

Excavation of sand within stream bed has a direct impact on the stream's physical characteristics such as geometry, gradient, substrate composition and stability, depth, velocity and sediment transport. Average annual rainfall is about 496.2mm for last 23 years. Generally, ephemerals types of river are found in the district. Water flows in rivers only in monsoon season. Anticipated impact on water environment is alteration of flow patterns resulting from modification of the river bed. No proposal for pumping of water either from river or tapping the groundwater is envisaged. There will not be any adverse impacts on surface hydrology and ground water regime. Mining of river sand will confined to 3m depth from surface of channel or above the ground water table whichever is less. Thus no ground water pollution is expected as the mining operation will not

intersect the ground water table. No liquid waste will be generated due to mining or any other way. During mining, no diversion or modification of any part of the river is proposed. The status of surface water and ground water in 10 km radius in Buffer zone of study area are depicted in **Table 4.2**

Table 4-2 Ground water and Surface water in Study Area

Station Code	Location	Distance	Direction
GW1	Khandra	0.5 km	East
GW2	Sumerpur	2.5 km	North East
GW3	Bagsin	6.0 km	West
GW4	Naya Jogpura	2.5 km	North West
GW5	Fatehpura	2.0 km	North
GW6	Badla	6.0 km	East
SW1	Sukli Nadi*	-	-
SW2	Jawai River*	-	-
SW3	Jawai Dam*	5.5 km	East

**** denote dried*** *(**GW**= Ground Water, **SW**=Surface Water)*

The ground water will not encounter in the workings. Rainwater flows only in rainy days from mining area, mining will not be carried out in mansoon season. The measures proposed in environment management plan will cause to improve surface and ground water quality.

4.3.1 Water Consumption/Water Demand

The water consumption at the mine is as following:

Table 4-3 Water Requirement at Mine site

S.No.	Description	Water Requirement (KLD)	Source
1.	Dust Suppression	8.0	Tanker supply from nearby villages.
2.	Drinking & other domestic uses	3.0	Tanker supply from nearby villages.
3.	Green belt	5.0	Tanker supply from nearby villages.
Total		**16.0**	

4.3.2 IMPACT ON WATER QUALITY

Excavation of sand within stream bed has a direct impact on the stream's physical characteristics such as geometry, gradient, substrate composition and stability, depth, velocity and sediment transport. Average annual rainfall is about 496.2mm for last 23 years. Generally, ephemerals types of river are found in the district.

Water flows in rivers only in monsoon season. Anticipated impact on water environment is alteration of flow patterns resulting from modification of the river bed. No proposal for pumping of water either from river or tapping the groundwater is envisaged. There will not be any adverse impacts on surface hydrology and ground water regime. Mining of river sand will confined to 3m depth from surface of channel or above the ground water table whichever is less. Thus no ground water pollution is expected as the mining operation will not intersect the ground water table. No liquid waste will be generated due to mining or any other way. During mining, no diversion or modification of any part of the river is proposed.

4.3.3 MITIGATIONS MEASURES

The mining from river bed does not have any impact on topography and natural drainage of surrounding area as no part of land outside river bed will be disturbed. During mining no other water channel or natural drainage will be obstructed. All the measures will be adopted to avoid surface water pollution in and around the study area. No toxic waste will be generated by mining or any other way. Flow and direction will not be altered by mining or any other way. Slope of the area is fairly even. Mine will maintain zero discharge status. In order to mitigate the likely impacts, the following measures have been proposed:

- It is not proposed to divert or truncate any part of the river, mining will be restricted to riverbed only.
- No natural drainage /passage will be obstructed due to mining or any other way.
- Mobile toilets will be provided for the workers at site with septic tank followed by soak pit.
- There will not be any adverse impact on surface hydrology and ground water regime. Mining of river sand is confined to 3 meter depth from surface of river channel or above the ground water table whichever is less. Thus no ground water pollution is expected as the mining operation will not intersect the ground water table.
- No liquid waste will be generated due to mining or any other way so there

is no possibility of pollution of water resources due to liquid waste. There no contamination of ground water is envisaged.

- Flow and direction will not be altered by mining or any other way. Mine will not generate any toxic substance during 5 year period.
- To prevent silt being carried during monsoon period, a series of plants would be planted at riparian zone (erosion prone)

4.4 HYDROLOGY OF THE AREA & IMPACT ON GROUND WATER QUALITY

In view of the facts that the mining activity does not intersect the ground water table, no impact on the quality of ground water is anticipated. Beside this the sand and bajri are nontoxic in nature and therefore percolated water from the pits shall not impact the ground water quality. The extraction of sand and bajri from river channel shall lead to change in its cross-sectional profile and cause increasing the bed slope / gradient. During flow of water in monsoon season, the river channel creates a new channel path through the pit where it will deposit all bed sediments. During monsoon, rivers are flooded and carry bed load and deposit in excavated pits will recharge ground water table.

4.5 IMPACT OF GEOLOGY AND HYDROGEOLOGY

As the requirement of water for drinking/domestic use, dust suppression and green belt shall be met from the ground water resources (nearby villages), thus there shall be impact on ground water resource to the extent the water is abstracted from the ground i.e. 16 kld per day . Annual water consumption @16 kld comes out to 5,280 KL anually.

Ground water table is around 15-20 m below river bed level & the quality significantly influenced by semi-arid climate and hydro-geologically diversity-salinity, sodicity and fluoride are the major factors affecting the ground water quality. Ground water is the major source of irrigation in the district.

Impact on hydro-geology

In between the porous sand / gravel river bed and the ground water table the hyporheic is sandwiched this zone allows both way movement of infiltrated as well as capillary water through it and is responsible for hyporheic processes due to interstitial bacterial and invertebrates biota. The intervention in river by way

of hydraulic structures regulating the river flow and more often than not leaving no flow d/s, mining activities in which the bed material, filter material through which the water percolate to ground water, effluent from industrial activities, insecticides used in agriculture are all potent to impair the biota in hyporheic. In the present case due to dry riverbed for most period of the year except monsoon, this impact will not be there. However, after the withdrawal of monsoon if the river bed mining, in dry riverbed near u/s and d/s of water retaining structures such as anicut, the loss of hyporheic zone will be there as the riverbed stretches both u/s and d/s of the structure are hydraulically connected with the stored water and the stratum below the river bed has moisture content in it to support the interstitial bacteria. Therefore during post monsoon the mining in river bed shall not be carried out in about 500 m u/s and d/s of water retaining structures. These reaches in river bed can be taken up for mining in March and April.

4.6 IMPACTS ON AIR ENVIRONMENT

The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. Dust particles generated during various mining activities are airborne become lead to increase in PM_{10} level in the ambient air. Ambient air quality was studied and predicted through air dispersion modeling that the mining activity is not likely affect the quality of air. On the basis of modeling technique, anticipated impacts on ambient air environment are insignificant. The major source of dust generation is the transport of material by trucks and tippers. Cumulative GLC due to mining & transportation are predicted by air dispersion modelling.

4.6.1 Prediction of Impacts

Prediction of impacts is the most important component in Environmental Impact assessment studies. Many scientific techniques and methodologies are available to predict impacts on physico-ecological and socio-economic environment. Such predictions are superimposed over the baseline status of environmental quality to derive the ultimate scenario of environmental conditions. The prediction of impacts helps to identify and implement environmental management plan during and after the execution of the developmental mining activity to minimize the deterioration of environmental quality.

The mathematical models attempt to quantitatively describe the cause and effect relationships between sources of pollution and different components of the environment, viz air, noise, water, land, biological and socio-economic. There are also various scientific techniques/ methodologies available to predict the environmental impacts quantitatively as well as qualitatively.

The mathematical models used include steady state Gaussian Plume Dispersion model designed for multiple applications for air quality. For land, biological and socio - economic environments, the predictions have been made based on available scientific knowledge and techniques. In the present study, the most probable impacts on various components of the surrounding environment due to the proposed River Sand mining operations have been predicted using mathematical models and statistical techniques.

Prediction of impacts on air environment has been carried out taking into consideration the proposed production and increase in emissions. This project proposal is production of 28.05 Lac TPA River sand. Details of production considered for prediction of impacts is given in **Table 4.4:**

Table 4-4 Details of Production (Tonnes per Year)

Years	Proposed Production in Metric Tonne
First	28,05,000 Tons
Second	28,05,000 Tons
Third	28,05,000 Tons
Fourth	28,05,000 Tons
Fifth	28,05,000 Tons
Total	**1,40,25,000 Tons**

(*Source: Mining Plan*)

4.6.2 Impact on Air Environment

The air quality impact of a source or group of sources is evaluated by the use of mathematical models. The models simulate the relationships between air pollutant emissions and the resulting impact on air quality. The inputs to the model include data relating to emissions, meteorology and atmospheric details like ambient temperature, wind speed and wind direction all of which are determined by formulating impact scenarios. The estimation and evaluation of dust generation from mining activities is an immensely complicated

procedure. Dust to be generated during proposed mining activities will be from various sources like excavation operations which generate fugitive dust harmful to the human health and environment. Apart from this, vehicular movement within and around the mining activity will also generate huge quantity of dust. The proposed River Sand mine activity proposes to use heavy equipments like hydraulic excavators, loaders, dumpers and dozers which act as sources generating dust pollution along with movement of vehicles within the mining area acting as line sources.

4.6.3 Overview of Environmental Impacts due to Mining

4.6.3.1 Operation & Major Pollutant Sources

At mining sites, the major pollutant sources of concern include transportation of mineral, loading of mineral & moving of mining machineries.

4.6.4 Long-term Impacts of Mining

4.6.4.1 Impacts on Air Quality

The primary air pollutant of concern at mining sites is particulate matter. There are established standards as per the NAAQS. A variety of mining operations emit particulate, usually as fugitive dust (as opposed to emissions from stacks), and relatively simple controls are often sufficient.

- Loading and unloading bins for minerals generate dust. Again water sprays are typically used for control
- Equipment and vehicles travel on access and haul roads are major sources of fine and coarse dust. Most mines use water trucks to dampen the surface periodically
- Wind also entrains dust from dumps and roads (either dry as disposed or the dry portions of impoundments), and other disturbed areas. Spray from water trucks are often used when the mine is operating. During temporary closures, particularly after the active life, stabilization and reclamation are aimed in part at reducing fugitive dust emissions. Tailings in particular can be a potent source of fine particulate; temporary or permanent closure greatly increases the potential for surface tailings to dry out and become sources of dust.

The emission rates were calculated based on the field activities and the dust emission effect was estimated at different location.

Table 4-5 Table Showing Impact Prediction without Using Control Measures

Location	Background Concentration PM_{10} ($\mu g/m^3$)	Predicted Incremental Concentration PM_{10} ($\mu g/m^3$) without control measures	Post Project Air Quality PM_{10} without control measures ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Dhanpura	58.66	1.99	60.65	100
Chuli	56.70	4.19	60.89	100
Chotila ki Bhagli	56.28	0.78	57.06	100
Ora	56.92	0.68	57.6	100
Alpa	57.27	0.72	57.99	100
Jawai River	55.90	0.25	56.15	100
Sheoganj	59.95	0.4	60.35	100
Khejriya	54.96	0.67	55.63	100
Balvana	58.47	0.32	58.79	100
Khari River	54.36	0.95	55.31	100

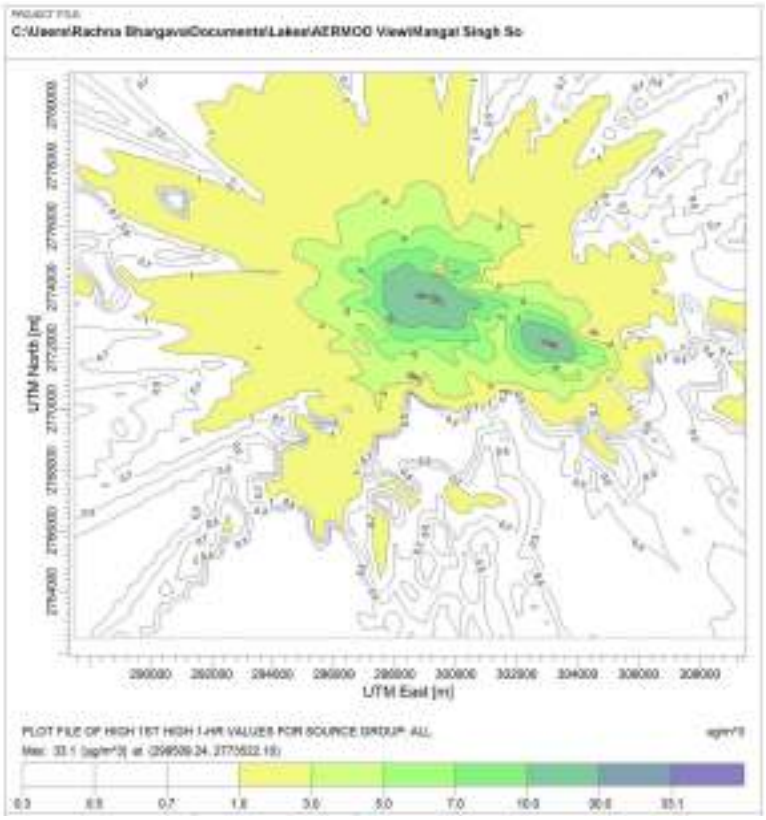


Figure 4.1 PM ISOPLINTH WITHOUT USING CONTRL MEASURES

4.6.4.2 Mitigation Measures

- The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads regularly.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin.
- Overloading of material will be kept under check.
- Proper tuning of vehicles will be ensured to keep gas emission from the vehicles within prescribed limits/norms.
- Plantation of trees along the 7.5m of riparian zone to attenuate the impact of dust in the nearby villages.
- Dust mask provided to the workers engaged at dust generation points like excavations and loading points.

The emission rates were calculated based on the field activities and the dust emission effect was estimated at different location after using control Measures.

Table 4-6 Table Showing Impact Prediction with Using Control Measures

Location	Background Concentration PM10 (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) without control measures	Post Project Air Quality PM10 without control measures (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) with control measures	Post Project Air Quality PM10 with control measures (µg/m3)	NAAQS (µg/m3)
Dhanpura	58.66	1.99	60.65	0.22	58.88	100
Chuli	56.70	4.19	60.89	2.51	59.21	100
Chotila ki Bhagli	56.28	0.78	57.06	0.04	56.32	100
Ora	56.92	0.68	57.6	0.05	56.97	100
Alpa	57.27	0.72	57.99	0.07	57.34	100
Jawai River	55.90	0.25	56.15	0.03	55.93	100
Sheoganj	59.95	0.4	60.35	0.06	60.01	100
Khejriya	54.96	0.67	55.63	0.16	55.12	100
Balvana	58.47	0.32	58.79	0.03	58.5	100
Khari River	54.36	0.95	55.31	0.09	54.45	100

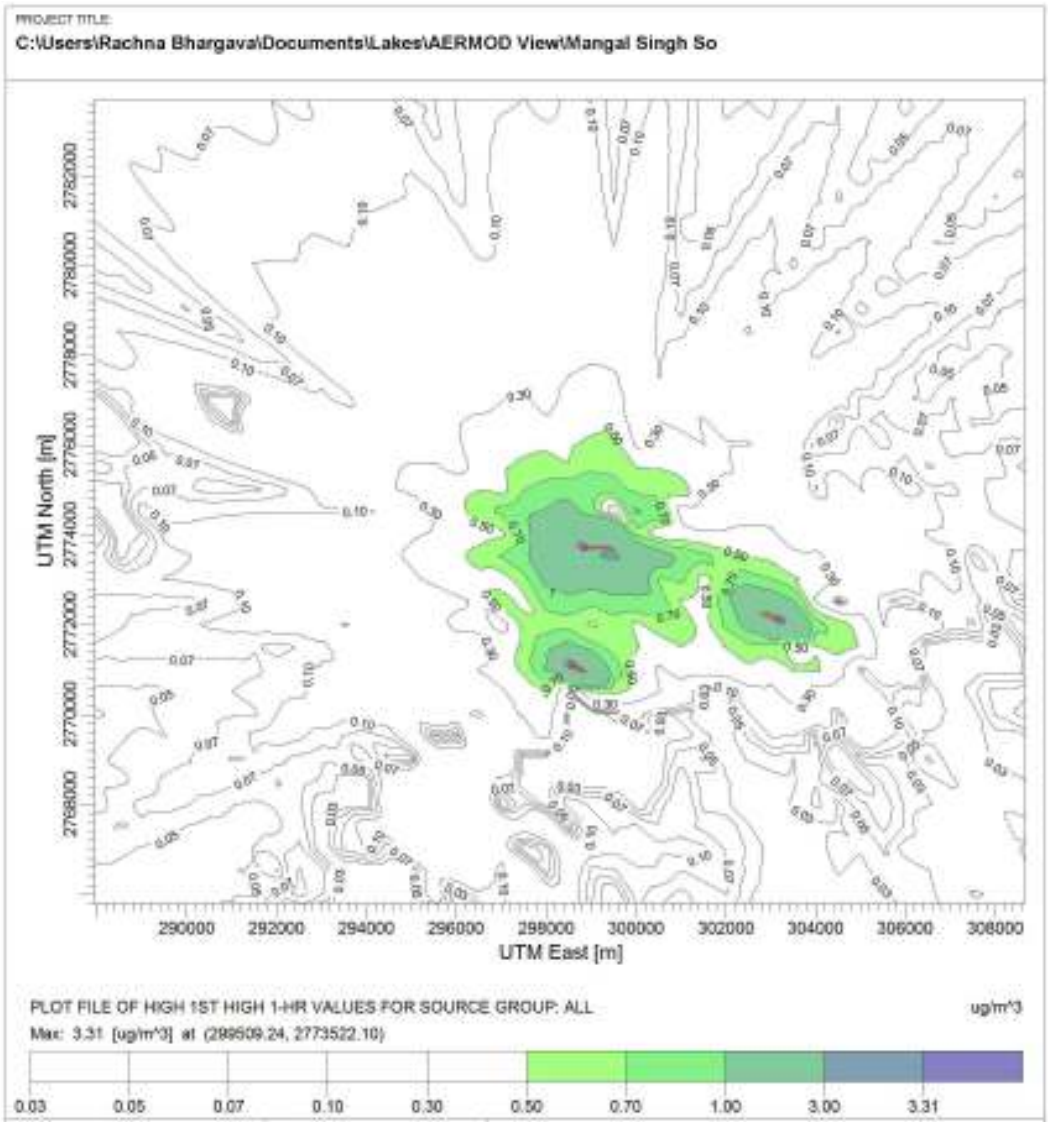


Figure 4.2 PM ISOPLINTH WITH USING CONTRL MEASURES

4.7 IMPACTS ON NOISE ENVIRONMENT

The noise levels are dependent upon the deployment of mining machinery and transport vehicles in the area. Ambient noise level in the core zone is likely to increases from deployment of additional noise generating equipment such as heavy earth moving machineries. The impact of noise will be restricted in the working area only. The main sources of noise in the mine are classified as follows:

- Mobile Mining Equipment (Poclain, Excavators etc.)
- Transportation (Dumpers, Trucks, Tippers & other vehicles.)

In order to protect the workers from higher noise levels, project proponent will adopt the following noise abatement measures.

- Well maintained vehicle will be used which will reduced the noise level.
- Plantation of trees along the 7.5m riparian zone of the river will be done to dampen the noise, if possible.
- The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Imposition of speed limit on heavy earth moving machineries near residential areas.
- Trucks drivers will be instructed to make minimum use of horns at the residential area.

Computation of level of noise at the mine boundary is based on the assumption that there are no attenuation paths between the source and the mine boundary. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e. for every doubling of the distance the noise levels are decreased by 6 dB (A). Point source propagation is defined by the following equation:

$Lp2 = Lp1\ 20 \log r2/r1$

Where Lp1 and Lp2 are sound pressure levels at points located at distances r1 and r2 respectively from the source.

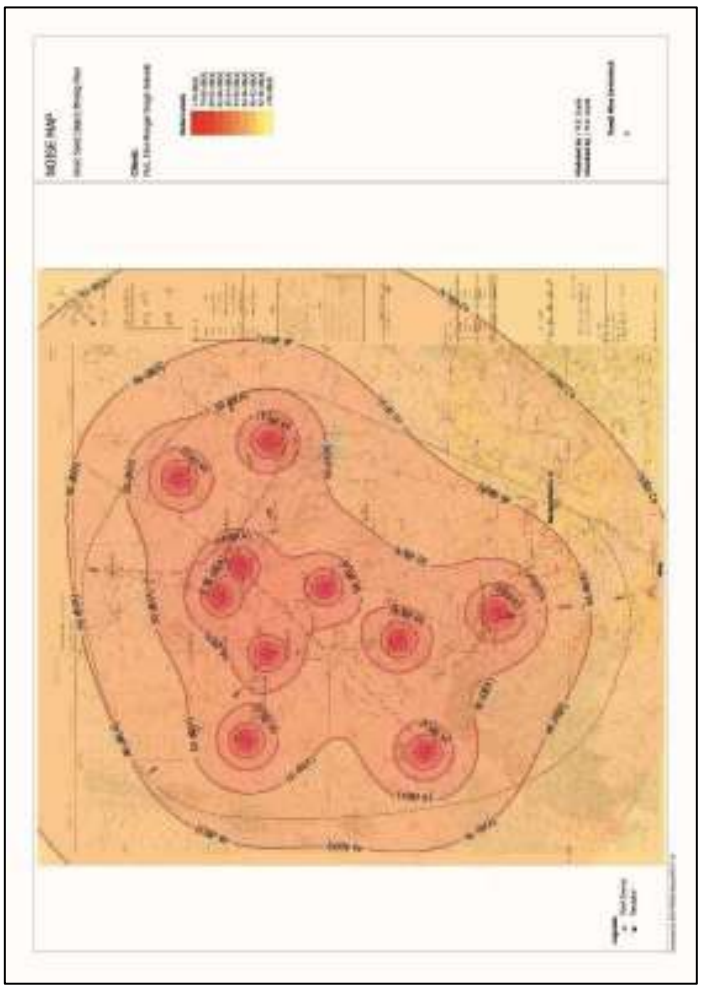


Figure 4.3 Noise modeling of study Area

The noise level during the proposed mining activities at Sheoganj has been predicted for the worst scenario. The cumulative noise level due to these sources shall be 50.0 dB (A). Hence, no impact on ambient noise level is anticipated.

4.8 IMPACTS ON BIOLOGICAL ENVIRONMENT

NATURE OF IMPACTS

Impact of mining on land environment gets reflected in land-use pattern of the respective area because the more the land gets exposed to erosion by loosing its green cover or by getting disturbed otherwise due to mining and related activities, its water resources gets damaged, soils get contaminated, part or total of flora and fauna gets lost, air and water gets polluted and the more damages go on proceeding in accelerated rates and the cumulative effects push the land towards degradation.

Mines and their associated infrastructure may impact terrestrial flora and fauna in diverse ways during operational phase. The main impacts the loss and fragmentation of habitats, with a consequent loss of biodiversity and possibly loss of species of special concern. This may result from direct land clearance, or occur indirectly via loss or changes in habitats due to consequent changes in drainage patterns, increased fire risk, or secondary impacts associated socio-economic factors resulting from changes in surrounding land use. During the operational life of the mine, small accumulative impacts also occur Including ongoing mortalities resulting from increased road traffic, increased disturbance (noise and light), dust generation, air pollution, increased litter and change in the incidence of fire. All of these factors may impact the surrounding fauna and ecological processes in different ways.

However, in most of the cases it has been observed that the damage due to mining activity has been reflected on decrease in green cover or water resource or both. Greenery bears a pivotal role in protecting the quality of all aspects of environment, also in many cases it is considered as a desired indicator of protector of environmental quality in the region. Regarding desired land use pattern, our National Forest Policy has fixed the national average forest cover at 33%. This fact indicates that there is still some drawback in the land-use management system. Strategies need to be developed including policy intervention, promoting research and stakeholder participation, and technological intervention to check land degradation.

EXISTING IMPACTS:

Many existing impacts occur in the region, particularly the loss of sensitive habitats (via primary destruction and secondarily via contamination), loss of faunal diversity (particularly large mammals and birds), loss of species of special concern, and disruption to faunal movements. The direct impacts of mining disturbances to land surfaces are usually significant, with the likelihood of destruction of local biodiversity within natural ecosystems through the removal of natural soils, plants and animals. However, mining is a temporary land use because the mineral deposit is finite and eventually gets exhausted.

The Key environmental problem and impacts of mining /quarrying are:

- Degradation of forest and loss of biodiversity
- Air and noise pollution
- Surface and ground water pollution
- Land degradation
- Environmental degradation due to abandoned and closed mine

4.8.1 Mitigation Measures

The impact on land cannot be fully eliminated because there are some mining impacts such as loss of agricultural land, water pollution, fall in water table etc are inevitable but its impact can be reduced to an acceptable level by adopting suitable mitigation measures and by doing adequate planning at the initial stage of mine development. Setting aside or exclusion of critically important areas, compensatory afforestation, creation of green belts, rehabilitation of species or individuals are basic actions taken for mitigation of impact. While creating green belt and undertaking the afforestation works, it is required to plant indigenous/local plants and as far as possible exotics should not be introduced. The cost of eco-restoration of the site should be included in the project cost. Some of the land related mitigation measures are as follows:

- Topsoil can be conserved by implementing adequate mitigation and cons -ervation plan.
- Open area should be planted with trees.
- Stabilization of overburden dumps by mechanical and biological reclamation.
- No mining in area support unique habitant, endemic, threatened or declining species, or species of high economic and cultural value to society.
- Natural drains or nallah should not be disturbed; Incase of diversion - alignments should be made by constructing artificial drain.

Plantation is a principal goal of reclamation and results in many desirable secondary water quality and aesthetic benefits. Plantation goals are from simple erosion control to the full restoration of complex native communities. The approaches and protocols employed, therefore, are specific for region, site and land use. The development of a permanent vegetation cover should aim to establish a plant community that will maintain itself indefinitely without attention or artificial aid, and support native fauna. To extract better results, some ecological variables must be considered while selecting species for plantation. These are; their capacity to stabilize soil, soil organic matter and available

soil nutrients, and under storey development. In the initial stages of revegetation quick growing grasses with short life cycle and forage crops are recommended. It will improve the nutrient and organic matter content in soil. Plantation of mixed species of economic importance should be done after 2-3 years of growing grasses. While selecting suitable species for plantation in mine area, the following considerations have to be taken into account:

- Planting, pollutant tolerant species.
- Plants of fast growing with thick vegetation foliage
- Indigenous plants species with easy adaptability to the locality.
- Socio economic requirement of the people of the surrounding area.

There is need for creating green belt (approximately 7.5 to 15 m wide) in the safety area to provide an effective dust, noise and sight curtain in the periphery of the mining area. The trees to be planted in the green belt area shall act as buffers and shock absorber against dusts, noise and stone flying. Trees in the green belt will be tall, wind firm, broad leaved and evergreen.

Greenbelt development program will be designed within the natural constraints of the river sand area and in particular species selection reflects flora known to be resistant to the local conditions.

A 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) Prevent soil erosion to great extent
6) Improve ecological conditions.
7) Improves the aesthetics & beneficially influence the microclimate of the surrounding.

SPECIES FOR PLANTATION AND GREEN BELT DEVELOPMENT

The species selected for plantation will be of mixed type having a combination of fast and slow growing species with an ultimate aim to have triple storey plantation i.e. a combination of species of tall, intermediate and short height in zigzag lining. A list of the species suggested for afforestation is giving for the development of mining site for sustainable environment of area. All these plants and shrubs can be cultivated in less water and have tolerance power of heat and dry conditions of atmosphere.

SUGGESTED PLANTS FOR RECLAMATION OF THE MINING SITE

TREE		
S. No	**Species name**	**Binomial name**
1	Shisham	*Delbergia sisso*
2	Ardu or Mahaneem	*Ailanthus excelsa*
3	Khejri	*Prosopis cineraria*
4	Indian Elm	*Holoptelea integrifolia*
5	Gum Arabic tree	*Acacia senegal*
6	Israyali Babool	*Acacia toratalis*
7	Imli	*Tamarindus indica*
8	Babool	*Acacia nilotica*
9	Jungle Jalebi	*Pithecellobium dulce*
10	Ronj	*Acacia leucophloea*
11	Neem	*Azadirachta indica*
12	Ber	*Zizyphus mauritiana*
13	Siris tree	*Albizia lebbeck*
14	Rohira	*Tecomell undulata*
SHRUBS / HERBS		
1	Munja grass	*Saccharum munja*
2	Peeli Kaner	*Thevetia peruviana*
3	Vilayati Babool	*Prosopis juliflora*
4	Arandi	*Ricinus cummunis*
5	Kaner	*Nerium Indicum*
6	Sarphonka	*Tephrosia hamiltonii*
7	"Red (Yellow, Wild) Sage"	*Lantana camara*
8	Kans grass	*Saccharum spontaneum*
9	Bui	*Aerva tomentosa*

CONSERVATION MEASURES

Ecological restoration is about a broad set of activities (enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns). In essence, the

restoration of mined land is based around ecosystem reconstruction. It is usually a question of the re-establishment of the capability of the land to capture and retain fundamental resources (energy, water, nutrients and species). With this view, it is proposed to plant the trees and undertake development of green belt in the project area at all possible places. As a trend, the faunal population is on decreasing trend in general. Arrangement of adequate funds has been made for enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns.

Suggestion for conservation of Threatened Species

Direct and indirect approach is required to provide effective conservation, which is suggested as under.

- Some provision of rewards for growing maximum threatened plant species.
- Aware the villagers and encourage them to grow threatened plant species in their farms by mentioning their medicinal and economic value.
- Another way to help preserve the endangered species is to create society dedication towards the ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the state forest department.
- Organized workshop for conservation awareness of threatened plant species. A series of conservation awareness workshops for village and school children should be conducted in the different villages. Interactive discussion will be carried out participants.
- Encourage afforestation activities around by maintaining them.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of promote conservation.

The lease is in the river bed and devoid of any vegetation. Mining activities will not cause any harm to riparian vegetation cover as the working will not extend beyond the offset left against the banks. It is proposed to have plantation on both sides of the roads & along the bank of river as greenbelt 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. Green belts are created not only for the purpose of protecting sensitive areas or to maintain ecological balance but also act as efficient biological filters. Green belt development provides an important tool to

address the issue of mitigating the adverse effect of fugitive emission on surrounding environment.

4.9 IMPACTS ON SOCIO-ECONOMIC ENVIRONMENT

The entire mine lease area lies within the revenue waste land in river bed, the project does not involve any loss of agriculture land. Some of the impacts would be directly beneficial to the socio-economic environment due to proposed employment potential.

Adverse Impacts

- The adverse impacts on socio-economic environment due to mining activities in the region will affect to the local air environment and this dust will settle down on nearby agricultural fields and will affect the productivity of the land and increase in respiratory problems. Soil erosion and loss of fertility etc.
- There may be some conflict of utilization of local resources between project proponent and local communities. For avoidance of which the project proponent should maintain a good liaison and ensure cordial relation between staff and locals.
- Contamination of water, soil and air due to mining
- Increased use of existing public infrastructure i.e. road due to vehicular traffic involved in transportation of minerals may cause congestion on roads.

4.9.1 Mitigation Measures

In the buffer zone villages, this project will be one of the major economic activities resulting in generation of revenues to the state and central governments by way of royalty and taxes etc

The beneficial impacts due to the activities in the region would be:

- Employment Potential for 36 persons in the various categories as skilled/semiskilled/ un-skilled for carrying out mining activities.

- Indirect employment in transport sector.
- Amelioration of the general living standards of local persons employed in mining activities.
- The higher earnings will result in more purchase power.
- Improvement in the economic growth in the region by way of additional mineral availability.
- Various activities, such as livelihood and entrepreneurship through providing training in Self-employment and empowering women through education and training and Promoting their SHG (Self Helping Group), taken under corporate social responsibility Initiative will have a positive impact on socio economic fabric of the area.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc from this project directly and indirectly.

4.9.2 Rehabilitation and Compensation

The mine area does not cover any habitation due the mine area is river bed. Hence the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc. exist within the lease area or in the immediate vicinity. The mining operations will not disturb/relocate any village or need resettlement. Thus no impact is anticipated.

The manpower requirement for the proposed project will increase employment opportunities to the local population. This will improve their socio-economic status. Also, there will be indirect employment opportunities due to the mining activities. The project will have beneficial impacts at the local level by increase in transport and communication facilities, community welfare measures and improved trade activities.

4.10 MINE WASTE MANAGEMENT

No waste will be generated from river sand mining activity. All the material will be marketable.

4.10.1 SOLID WASTE GENERATION AND DISPOSAL NATURE OF MINERAL REJECTS

Nature of Waste

No waste will be generated from this mine.

Sub-grade Mineral

No sub grade will generated at site.

4.11 TRAFFIC STUDY

Study of traffic is important to the context of river sand mining project in the area. Traffic access and impact studies gather and analyze information that will help determine the need for any improvements to interior, adjacent, and nearby road systems. Main aim of this study is to understand the existing carrying capacity of the roads adjacent to the project site and the connecting main roads in the area. Traffic impact analysis required for a proposed developmental project of river sand mining is the use of trip generation data. The trip generation of a proposed project of mining is essentially the number of inbound and outbound vehicle trips that are expected to be generated by the operational activities during an average day or during peak hour traffic. The proposed project of river sand mining can impact the surrounding roadway system by adding to existing traffic volumes or altering traffic patterns. In addition to designing appropriate access for proposed project of river sand mining in the area, proponent try to maintain a satisfactory level of transportation service and safety for all roadway users. Traffic study provides a clear scenario of existing traffic structure (existing carrying capacity of roads near project site) compared to the numbers of trucks will be added during operational activities.

4.12 Existing Traffic Scenario

The existing traffic scenario is given in **Table 4.8**

Table 4-7 Existing Traffic Scenario & LOS

S.No.	Road	Volume (V)	Capacity (C)	Existing V/C Ratio	Level of Service (LOS)
1	Sukri Nadi to Paladi	802	12500	0.06	A
2	Sukri Nadi via Chotile ki Bhagli to Chamundari	460.5	5800	0.08	A
3	Jawai River via Sumerpura to Khivandi	917	12500	0.07	A

4	Khejariya via Jetpura to NH-14	822	5800	0.14	A
5.	Sukri Nadi to Godana	418	5800	0.07	A
6.	Sukri Nadi to Jogapura	834	5800	0.14	A
7.	Jawai River to Sheoganj and Sheoganj to Sukali Nadi	897	5800	0.15	A

V= Volume in PCU's/Day C=Capacity in PCU's/Day

The existing level of service at near village and at Highway is "A" *i.e.* Excellent.

Table 4-8 Capacity as per IRC: 64 (1990)

Volume/ Capacity	Level of Services	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
0.8-1.0	E	Very Poor

4.12.1 Impact During Mining Activity

Total Capacity of Mine : 28,05,000 Tonne per Annum

Number of Working Days : 330 Days

Truck Capacity : 20 Tonne

Number of Trucks Deployed : 375 Trucks

Number of Trolley Deployed : 250

Working Hours per day : 8 Hours

There will be 8,500 TPD production @ 28, 05,000 Lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as Sheoganj, Sirohi, Jalore, Abu Road etc. connecting via route NH-14,SH-38 and by Dhruwana- Jaitpura Rd. (MDR).

Details of vehicle on major roads observed during field study and increased load on routes are as follows.

Traffic density of NH- 14

Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day
Car/ jeep/ van	289	1.0	289

Two wheelers	179	0.5	90
Truck	440	3.0	1320
Tractor	188	1.5	282
Total	1096		1981

Traffic density of SH- 38

Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day
Car/ jeep/ van	217	1.0	217
Two wheelers	169	0.5	85
Truck	240	3.0	720
Tractor	141	1.5	211
Total	767		1233

Dhruwana- Jaitpura MDR

Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day
Car/ jeep/ van	43	1.0	43
Two wheelers	78	0.5	39
Truck	58	3.0	174
Tractor	33	1.5	50
Total	212		306

Impact on Carrying capacity of NH-14, and MDR

About 2.805 million tonne of material / annum shall be transported through NH-14, SH-38 and by Dhruwana- Jaitpura Rd. (MDR) will be 8,500 tonne / day, which will be transported by 375 trucks (20 tonne capacity) and 250 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be 1500 PCU/day which will be distributed to different roads to different destination. As per IRC: 64-1990, the design service volume for a four lane rural road in plain terrain for low curvature is 35,000 PCU / day, the design service volume for a two lane rural road in plain terrain for low curvature is 15,000 PCU / day and for Intermediate road 58,00 PCU/day. The incremental rise in daily traffic at NH-14, SH-38 and MDR due to transportation of minerals

is evaluated and shown in following tables thus the marginal incremental rise in the total PCU shall not be appreciable and adequate apportionment of total design service volume capacity shall be still available in post project scenario.

Incremental rise in existing average daily traffic at NH-14 due to proposed transport activity

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
35,000	Car/ jeep/ van	289	1.0	289	0.10	"A"
	Two wheelers	179	0.5	89		
	Truck	840	3.0	2520		
	tractor	453	1.5	679		
	Total	1761		3577		

Incremental rise in existing average daily traffic at SH-38 due to proposed transport activity

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
15,000	Car/ jeep/ van	217	1.0	217	0.16	"A"
	Two wheelers	169	0.5	85		
	Truck	540	3.0	1620		
	tractor	341	1.5	512		
	Total	1267		2434		

Incremental rise in existing average daily traffic at Dhruwana- Jaitpura (MDR) due to proposed transport activity

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
5,800	Car/ jeep/ van	43	1.0	43	0.08	"A"
	Two wheelers	78	0.5	39		

	Truck	108	3.0	324		
	tractor	68	1.5	102		
	Total	297		508		

4.12.2 Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.08 to 0.16 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8,500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 4 blocks having stretch of around 8-9 Km of each. There will be maximum trolley assumed per block is 40-45 and trucks per block will be 60-65. Separate route for each block will be maintained so that congestion on any route does not take place.

4.12.3 Control Measures for Impact Due to Traffic

Following control measures have been suggested to prevent air pollution due to the transportation activities Transport trucks/tippers shall be properly maintained.

- Avoiding of overloading of trucks beyond stipulated capacity by installing weigh bridges at the check posts or near to it.
- Strict compliance of traffic rules and regulations.

The Hon'ble High Court of Judicature for Rajasthan at Jaipur Bench, vide its interim order dated 14-08-2014, in S.B.Civil Miscellaneous Stay Application 8034/2014 in S.B.CWP No. 2372/2014 in the matter of overloading and illegal mining, had passed certain directions as interim measures, fixing responsibilities on LOI holders directed them to install weighing machines at the check post or close to the check post now existing. However, machine would remain under the supervision of Mining Department as well as Transport Department who will be responsible for

proper upkeep of records and data for regulating the loading capacity of trucks. It has also directed Transport department to keep the records of trucks carrying bajri to avoid overloading and if found otherwise to take action as per Motor Vehicle Act and Rules made there under. It should not only take pecuniary action but take stringent action like seizure of the truck. Taking strong note in the matter of illegal mining the Hon'ble High Court had directed the Police Department specifically the concerned SHO where illegal mining is reported to register the case and cause seizure of the mining machinery.

4.13 Impact of sediment replenishment

Rivers of the state are seasonal in nature. Replenishment in these types of rivers is meager. Precipitation is a key factor to carrying sediment load from one place to another. Rivers in the state carrying maximum sediment load during rainy season. Climate of the area is semi-arid type. Rainy season starts from mid of June to mid of September in the area. Scanty, erratic and uneven nature of precipitation is common phenomenon in the state. In this instant case, sediment transported from catchment area to river comes out to be 294654.66 tons per year. The maximum targeted production of river sand in the instant case is @ 28.05 Lac TPA. Hence the annual replenishment of sediment comes out to be 9.43 % of the targeted production.

However actual amount of sediment replenishment may vary from computed sediment in view of catchment topography, lithology, soil erodibility, vegetation, land use, precipitation and river channel morphology.

4.14 Irreversible and Irretrivable Commitments of Environmental Components

There is no Irreversible and Irretrivable Components due to this project.

4.15 ASSESSMENT OF SIGNIFICANCE OF IMPACTS

The environmental attributes which are likely to have an impact due to the proposed River sand mining project at near villages Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Table 4-9 Summary of Anticipated Impacts

S.No.	Proposed Activity/Parameters	Anticipated Impacts

1	**Air Environment**	
	PM_{10}	-
	SO_2	-
	NO_X	-
2	**Water Environment**	-
3	**Biological Environment**	
	Flora (Vegetation)	+ve
	Fauna (Wildlife)	-
	Plankton	-
4	**Noise Environment**	-
5	**Socio-economic Environment**	
	(a) Social Status	-
	(b) Economic Status	+ve
	(c) Generation of Employment	+ve
	(d) Infrastructure Resource Base	+ve
6.	**Traffic Environment**	-
7.	**Sediment Replenishment**	-

Note: (-) =No Impacts, (-ve) =Negative Impacts, (+ve) =Positive Impacts

CHAPTER- 5 ANALYSIS OF ALTERNATIVES

5.1 GENERAL

The consideration of alternatives is most useful for the environmental impact assessment in the project cycle. Mining of mineral river sand (Bajri) is site specific project and there is no need to choose alternative. Analysis of alternatives is the most effective way of meeting the needs and purpose of the proposal either through enhancing the environmental benefits of the proposed developmental activity and or through minimizing or mitigating potentially significant negative impacts. Analysis of alternatives provides all feasible option with a holistic view of decision making in order to achieve the sustainable development of the area/ region. A comparative analysis has to be done for alternatives help to determine the best method of the project objectives with minimum environmental impacts.

5.2 THE FOLLOWING ALTERNATIVES HAVE TO BE SELECTED ON THEIR MERITS AND DEMERITS

- Energy demand shall be used efficiently but in this project the electric energy is not available so diesel energy is being used for operating mining machineries.
- For transportation of men and materials, public transport is being used near to mine site. The mineral is transported by Trucks/Tippers of adequate capacity.

5.3 OTHER FACTORS CONTRIBUTE TO THE SELECTION OF MINE SITE AND OTHERS

It is vital point to select mine site, choice of mining method, this is river sand (bajri) mining project where the material will be lifted by Poclain into Truck/Tippers. No new technology is involved. The mining shall be done as per laid down procedures given in the mining plan. Other mitigation measures will be taken to reduce the impacts on the environment during mining operation.

5.4 CRUSHER AND BENEFICIATION PLANTS, IF ANY

No mineral beneficiation processing of any kind will be undertaken at mine site. Mineral is directly saleable in the market.

5.5 CONCLUSION

However, after analysis of the various factors the most environmentally compatible alternative shall be selected. Selection of alternative may depend upon available technology, policy objectives, social attitude, environmental and site constraints & project economics.

CHAPTER- 6 ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

Monitoring schedules are ensured to keep all the environmental parameters of the project within statutory levels in respect of ambient air quality, water quality, socio-economic improvement, noise level standards, biological quality etc. Regular periodical returns are submitted to RSPCB, etc. in this respect.

In respect of the proposed river sand mining project, well planned mitigation measures and efficient environmental management plan will be implemented promptly and attentively to ensure that during the project operation, the various environmental parameters as described above are well within statutory limits. Environmental monitoring is a useful tool to assess the cumulative impacts of a project. The monitoring results help to judge the success of mitigation measures for environmental protection. They are also used to ensure compliance with environmental standards.

6.2 MONITORING PARAMETERS/ FREQUENCY ETC.

Table 6-1 Monitoring Schedule for Environmental Parameters

Particulars	Monitoring Frequencies	Duration of Sampling	Monitoring Parameters
Ground water/ Surface water	Six monthly	Grab	As per IS:10500 & IS:2296
Ambient Air Quality	Quarterly	24 Hr.	PM_{10}, SO_2, and NO_2.
Noise Pollution (Working environment)	Yearly	-	Level in dB (A) and dB (C)
Soil Analysis	Half Yearly / Yearly	-	pH, Electrical Conductivity, Available Nitrogen & Phosphorus, Potash and Texture.

6.2.1 ENVIRONMENTAL MONITORING CELL

The monitoring shall be done by the supervisory officers of the mine. Any abnormalities shall be brought to the notice of management to take immediate corrective action to prevent any mishap. Following shall be the proposed

environmental organization chart for this mine. Mine manager shall be in-charge of the environment cell. The mines owner will also frequently review the work and the managers of mine will overview the arrangements for effective functioning of environmental safeguards.

The environmental data shall be monitored initially by using an outside agency and later an in house monitoring cell shall be developed.

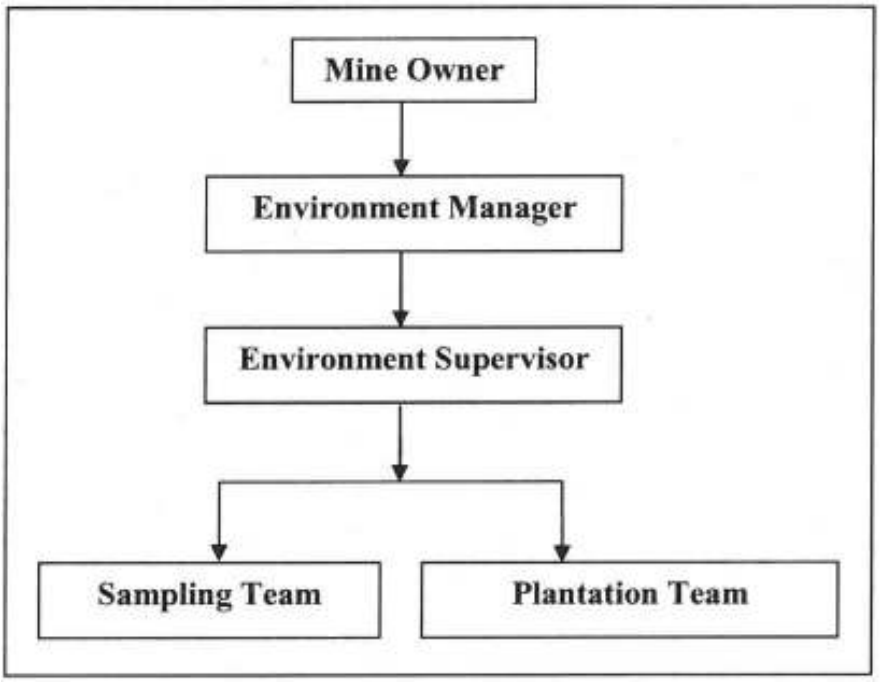


Figure 6.1 Chart of Environment Monitoring Cell (EMC)

6.3 FUNCTIONS OF THE MONITORING CELL

1. To carry out environmental monitoring at site for various environmental parameters as required either departmentally or through outside agencies. This will ensure that the environmental status of the core and buffer zone of the mine will be preserved in good status as per rules.
2. To observe the environmental control measures to be implemented.
3. To keep a watch on the flow patterns of drainage and keep vigil on the efficiency of water management system.
4. To study the effects of project activities on the environment.

5. To ensure implementation of plantation programme. Regular monitoring of survival rate of plants should also be carried out to achieve the desired result, for five years.
6. To keep records of monitoring etc. in a systematic way, so as to facilitate easy access, when needed by statutory agencies, etc.
7. Conducting environmental studies and reporting to SPCB.
8. To interact and liaise with State and Central Government Departments.
9. To ensure the availability of the necessary spares for the pollution control equipment all the times so as to keep the pollutants of the environment within the stipulated limits.
10. To identify the source of pollution and to take immediate action to prevent further pollution.
11. Conducting safety audits and programmes to create safety awareness in workers/ staff.
12. Conducting regular health audits to detect any health problems promptly to the workers/ staff. This will reduce occupational health problems.
13. Parting training on safety and conducting safety drills to educate employees.
14. Carrying out socio-economic study once in three years in the surrounding areas to find out the benefits derived by the society due to the project and also to fulfill the deficiency, if any, immediately.

The recorded data from monitoring of air, water and noise will be submitted half yearly by project proponent to Ministry of Environment and Forests (Regional office) and State Pollution Control Board (SPCB), respectively.

6.4 ENVIRONMENTAL ADMINISTRATION

The mine manager at the project site will be directly responsible for various environmental activities. The mine owner will frequently review the monitoring activities. The advisor of the project will correlate and oversee the environmental activities and their effective implementation in consonance with the guideline in the Environment Management Plan (EMP). Environmental control measures

span various factors like land degradation, soil, air, water quality, noise levels and afforestation measures etc. In addition to the above participation by the executive level, staff support has to be provided by way of employing workers for carrying out the activities. As far as air, water and noise pollution is concerned, periodical monitoring has to be performed either by the project proponent or by external agencies, during the operational activities of mining. Air quality should be conforming to Central Pollution Control Board (CPCB) standards.

Ground Water for Drinking

Ground water for drinking will be monitored once in a month to ensure conformity with IS: 10500, including analysis of various physico-chemical parameters etc.

Ambient Noise Level Standards:

THE ENVIRONMENT (PROTECTION) RULES, 1986

Table 6-2 Ambient Noise level Standards

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

6.5 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The success of environmental management in an organization not only depends on involvement at all levels but also on the creation of an effective implementing organizational structure. Keeping this in view, organizational structure responsible for the implementation of environmental control and mitigatory measures as well as monitoring of such implementation has been discussed below in this Chapter. The management of environment shall be made an integral part of the major activities of mining.

6.6 IMPLEMENTATION OF ENVIRONMENT MANAGEMENT PLAN

The following system shall be followed to see that the scheme is implemented as per schedule. These measures are being observed in present working also.

1. Water table should be recharged by framing ground water recharge wells or sumps for direct recharge of ground water table during monsoon season.

2. Plantation should be carried out along the periphery of 7.5m riparian zone of river, along haul roads in consultation with local gram panchayat wherever possible.

3. Afforestation measures are attended by a crew on a regular basis for culturing, manuring and watering.

4. On an annual basis the quality of air, water, noise and soil will be tested to know their status vis-a-vis the baseline data. This will enable us to take any corrective measures, if required. The frequency of sampling shall be as prescribed by the Ministry of Environment & Forest (MoEF) guideline issued in this regard.

6.7 POST PROJECT MONITORING SCHEME

A well-defined environmental monitoring program would be employed with trained and qualified staff to ensure that the various environmental parameters maintained within the permissible limits of standards.

6.8 ENVIRONMENT POLICY

Environment Policy/Violations of Environment Norms/ Hierarchal System

Environment Policy

The project proponent (LOI Holder) has a laid down environmental policy and in furtherance of their business philosophy is committed to maintaining a clean and sustainable environment with concerted efforts towards improvement of environment performance in routine business. The project proponent shall strictly adhere to the central and the state rules and acts in context to the environment protection. The project proponent (would be lessee) shall comply with the environmental norms and conditions set forth in the main

Environmental Clearance of the project and shall submit compliance to the MoEF periodically as warranted under the EC letter.

The environment policy is enclosed as **Annexure- 10A**

6.9 Infringement / deviation of the environment or forest norms/conditions

The project proponent shall comply with the environmental norms set out by the Centre / State Government, which are being closely monitored by the MoEF, New Delhi and the State Pollution Control Board, Rajasthan, and Department of Mines and Geology, Rajasthan.

Any infringement / deviation / violation of the rules contained in various environment and other rules and acts such as Rajasthan State Environmental Policy, 2010, Rajasthan State Water Policy, 2010, Rajasthan State Forest Policy, 2010, Wildlife Protection Act, 1972, Air (Prevention and Control of Pollution) Act, 1981, 1987, Noise Pollution (Regulation & Control) Rule 2000 and the Rajasthan Minor Mineral Concession Rules, 1986 (amended up to 19 June, 2012), if and whenever brought to the notice of the lessee, the same shall be addressed by him in the light of the expressed non-compliance reporting system, **Annexure- 10B.**

6.10 COST ON ENVIRONMENT MONITORING

The cost in respect of monitoring of environmental attributes, parameter to be monitored sampling/monitoring locations with frequency and cost provision as given in **Table 6.3.** The total cost of environmental plan works out to Rs. 4.0 lac as the recurring cost per year.(2Lac for Six monthly)

Table 6-3 Budget for Environmental Monitoring

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1.	Air Pollution Monitoring		1.5
1	Water Pollution monitoring	-	0.5
2	Soil sampling and analysis	-	0.5
3	Noise Monitoring	-	0.4
4	Ground water survey	-	0.6
5	Plantation monitoring	-	0.5
	Total	**-**	**4.0**

CHAPTER- 7 ADDITIONAL STUDIES

7.1 GENERAL

The additional studies covered for the project will involve the following:

7.2 Public consultation

Public consultation for this project was conducted on 05/09/2014 at 03:00 P.M. at Office – Subsection Officer, Tehsil - Sheoganj, District - Sirohi (Rajasthan) which was presided over by the ADM-Sirohi and attended by officers of RSPCB, Pali. The public hearing was attended by various entities like local community in surrounding who may have any concern about the project or other specific person/organizations have to express any opinion in the project approval. Requisite publicity through local news papers/ media i.e. in Dainik Bhaskar dated 03.08.2014 and Hindustan Times Dated 03.08.2014 was given at least 30 days in advance of the date fixed for public hearing through the Collector and State Pollution Control Board official in the matter. The views and grievances were listened and resolved. The project proponent has given commitment to fulfill the environmental and social responsibility for development of community of nearby villages. In this report, public hearing proceedings and minutes of public hearing is included in the final EIA/EMP report and submitting to MoEF, New Delhi for Environment Clearance.

Public Hearing Compliance with budgetary allocation

S.No.	Issues raised by the Public	Response/Commitment of Project Proponents	Suggestions made by the Public Hearing Panel	Budgetary Allocations
1.	Shri Shravan Kumar resident of Jaitpura, asked where will be plantation carried out and who will look after them for which an amount at the rate of ` 5/ton is being deposited to State Govt. And who will replace the dead plants.	Project proponent said that they will do plantation and its care for five year from the date of agreement. Technical advisor told that there is provision for planting 1000 plants per year.	-	To Enhance the Environmental condition of the area Rs. 26.00 Lacs/Year will be spent. out of this Rs. 6.50 Lacs /Year will be spent on plantation. (Ref: chapter – 9, table 9.5 of EIA/ EMP
2.	Shri Vijendra Singh resident of Angaur said	-	Shri Mool Singh Devra, Mining Engineer,	

	that who will utilize the amount that is being deposited to state govt. at the rate of ` 5/ton.		Tehsil- Sirohi, said that project proponent and admin committee of Govt. will decide where plantation is to be carried out. Apart from this repairing of transportation route and re-leveling of pits would be done time to time.	Report.)
3.	Shri Mahipal Singh Sarpanch of Morli said that Panchayat is not getting the royalty received on Bajri mining.	-	-	We are paying royalty to state mining department.
4.	Shri M. R. Meena, Tehsildar- Shivganj asked about the safety measures for the workers indulge in Bajri mining.	-	Dr. V.C. Garg, Additional District Collector (Representative District Collector), Sirohi told that Insurance policy facility is provided by the Labour department for their safety in ` 30 card.	Rs. 1.0 Lacs/annum will be spent on Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed; Rs. 2.0 Lacs /Annum will be spent on Insurance cover to all workers engaged in mines shall be provided;
5.	Shri Bhawani Singh resident of Bharela said that large pits forms due to mining and obstruct the	-	-	Mining will be carried out up to 3 mtr from surface or above water

	flow of water that should be repaired.			table whatever is earlier achieved as per state mining rule.
6.	Shri Yogendra Singh resident of Sumerpur said that worker travels in large number from sumerpur to shivganj, so what are the measures for their safety from accident.	Technical advisor Shri Chandra Shekhar Chouhan told that priority for driving will be given only to the licensed person.	-	
7.	Shri Vaarsingh, Subsection Officer, Shivganj said that ground water level will not be intersected while mining. But what should be done if ground water level comes before.	Technical advisor Shri Chandra Shekhar Chouhan told that mining will not be done if ground water level achived.	-	Mining will be carried out up to 3 mtr from surface or above water table whatever is earlier achieved as per state mining rule.

The Public Hearing proceeding with action plan is given in Annexure- 5

7.3 RISK ASSESSMENT

Risk Assessment (RA) and Disaster Management Plan (DMP) in connection with mining and allied operations of the project should be spelt out in detail to cover likely dangers/risks/explosions/accidents, etc. likely to arise from the project operations, including onsite and offsite emergency plans to meet the disastrous situations.

RISK ANALYSIS & DISASTER MANAGEMENT PLAN

The possible risks in the case of River sand mining projects are erosion, inundation/floods, accidents due to vehicular movement, Drowning, accident during sand loading and transporting etc. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine should be able to work under conditions, which are adequately safe and healthy. At the same time the environmental conditions should be such as not to impair his working efficiency. This is possible only when there is adequate safety in mines.

Hence, mine safety is one of the most essential aspects of any working mine.

Safety of the mine and the employees is taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed safety is ensured not only to manpower but also to machines & working environment.

7.3.1 Assessment of Risks & Mitigation Measures

7.3.1.1 Hazard Identification

Major Risks involved in River Bed Mining are following:

1. River Bed Inundation,
2. Dewatering,
3. Drowning ,if any
4. Possible risks due to failure of pit slope & its control
5. Soil Erosion,
6. Blanketing of River bed Suspended organic & Inorganic solids,
7. Uneven/ Irregular mining of sand or bajri
8. Accident due to Vehicular Movement
9. Accident during mineral loading and transportation
10. Failure of machinery

7.3.1.2 Mitigation Measures

A. Possible Risks Due to Inundation/Floods & Its Control

Mining will be done during the non monsoon periods; therefore problem of inundation/floods is not likely to happen. There was no incidence of inundation/floods reported from the area so far. River flows only in monsoon season.

B. Dewatering

Depth of mine is limited to 3 m depth only from the river bed level whereas the ground water flows at 5m to 6m below from surface of river channel. Hence no dewatering is required. During mining, no ground water table will be intersected at all.

C. Drowning, if Any

There is no possibility of drowning in the river, mining operation will be carried out in dry bed only. All mining activities will be stopped during the monsoon

season. The mining operation will do under strict supervision and only during dry season. Deep water zones in the river will be identified. No go zone will be clearly marked and shall be aware to the mine workers.

D. Possible Risks Due to Failure of Pit Slope & Its Control

Pit will be created of limited depth only i.e. 3m thus the chance of failure of pit slope is marginal.

E. Soil Erosion

There is no top soil in the core zone. No mining will be done within 7.5 m from the either side of river banks to maintain its protection. Mining will proceed along the river in the direction from downstream to upstream in each block. No mining will be done across the river's nalla's. However plantation will be carried out along river banks in safety zone to protect banks and prevent soil erosion.

F. Blanketing of River bed Suspended organic & Inorganic solid

River Bed mining causes blanketing of River by suspended organic & Inorganic solids in overlaying water. Slope stabilization and time to time slope stability monitoring along with slope failure study will avoid this.

G. Uneven/ Irregular mining of sand or bajri

Due to uneven/ irregular thickness of sand bed, river bed mining may result in ponds to develop. Excessive mining can change River direction & geometry altering recharging capacity of replenishment. Proper management of even excavation will overcome this.

H. Accident due to Vehicular Movement and their Mitigation Measures

- Possibilities of road accidents are possible due to rash driving.
- Possibility of overloading may injure the passerby public.
- The possibility of accident during vehicular movement in the mine in case pathway is not compacted or movement is at the embankment.
- All transportation within the mining lease working should be carried out directly under the supervision and control of the management.
- The vehicles will be maintained in good condition and checked thoroughly at least once a month by the competent person authorized for the purpose

by the management.

- Road signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the equipments/ vehicles especially at the working place/loading points, stopper should be posted to properly guide reversing/spotting operating, otherwise no person should be there within 10 m radius of machine.
- The maximum permissible speed limit should be ensured.
- Overloading of material will be avoided.
- A statutory provision of the fences, constant education, training etc will go a long way in reducing the incidents of such accidents.

I. Accident during Mineral Loading and Transportation

- The mineral will be load in the trucks mechanically i.e. by Poclain and JCB. There is a possibility of injury to the person during loading operation at mine.
- There is a possibility of riverbank collapse.
- There is a chance of falling of animals/human into pits in river bed by overlooking of fenced area near working.

J. Failure of machinery

- Records will be maintained and updated of all the machines used at the minesite.
- Periodic maintenance and conditioning of the machines will be carried out under expert supervision.

Other Possible Measures to Avoid Risks/Disaster Due To River sand Mining

- Unwanted material including mineral or spillage (if any) should not be stacked on the banks as it will hinder the flow of water in monsoon season.
- The minerals will be mined out in a uniform way so that the river flow/course will not be disturbed.
- River bank areas, under operation will be protected by avoiding unauthorized gravel excavation along rivers as that may cause instability to

the river bank.

- River banks will not be excavated to form access ramps.
- Only excavated river gravel should be used to deposit against the river bank to form access ramps.

7.4 Disaster Management Plan (DMP)

The Disaster Management Plan for the proposed river sand mining project will cover hazard identification due to various mining and allied activities, the risk involved due to the hazards and planning the necessary mitigation measures for the same. The following natural/ industrial hazards as follows:

- Failure of pit slope
- Accident due to transportation & other equipment etc.

7.4.1 Structure of the Disaster Management Plan

(i) Outline of Disaster Management Plan

The purpose of disaster management plan is to restore the normalcy for early resumption of mining operation due to an unexpected, sudden occurrence resulting to abnormalities in the course of mining activity leading to a serious danger to workers or any machinery or the environment. The following factors will play major role in the management strategy. The disaster management plan may be broadly divided into following steps as:

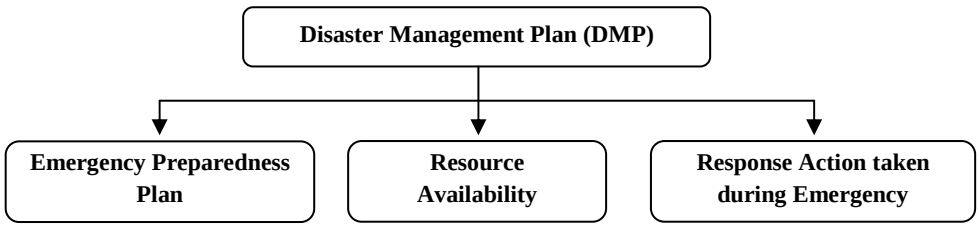


Figure 7.1 Objectives of Disaster Management Plan

(ii) System of Communication

Where is an internal communication system for the department head and to their line of command with telephone. The telephone numbers and addresses of adjoining mines, rescue station, police station, fire service station, local hospital, electricity supply agency and standing consultative committee members are also maintained for any emergency requirement.

(iii) Consultative Committee

A standing consultative committee will be formed under the head of mines manager. The members consists of safety officer/medical officer/Asst. manager/ public relation officer/ Foreman/ and environmental engineer.

(iv) Facilities & Accommodation

Accommodation and facilities for medical centre, rescue room and for various working groups will be provided.

(v) First Aid & medical facilities

The mine management is having first aid/ medical centre for use in emergency situation. All casualties would be registered and will be given first aid. The centre will have facilities for first aid & minor treatment, resuscitation, ambulance and transport. It will have proper telephone/wireless set for quick communication with hospitals where the complicated cases are to be sent.

(vi) Transport services

A well defined transport control system will be provided to deal with the situation.

(vii) Functions of Public Relations/ Responsibility of Mine Management

(a) To make a cordial relation with government officials and other social service organization and working groups.

(b) To liaise with representatives of the mine to ameliorate the situation of panic, tension, sentiments, grievances and misgivings created by any disaster.

(c) To ameliorate the injured, survivors and family members of affected persons by providing material, moral support and establishing contact with relatives of victims.

(viii) Following infrastructure and operational system will be provided to meet any emergencies.

Emergency Control Room:

This will be situated near the mine site in such a way that response time is

minimal at time of disaster. It will be provided with the following facilities:

a) Master plan of the mines.
b) First aid boxes.
c) Telephone line
d) Emergency lighting system.
e) Transport facility.

Emergency control room will function as control base.

7.4.2 Offsite Emergency Plan

Offsite emergency plan defining the various steps to tackle any offsite emergencies which may affect surrounding areas of the project has to be prepared after due final discussion with local panchayat and revenue officials. As per this offsite plan, actions have to be promptly initiated to deal with any offsite disastrous situation, with help of Collector and other officials.

7.5 SOCIAL IMPACT ASSESSMENT

The entire mine lease area lies within the revenue waste land in river bed, the project does not involve any loss of agriculture land. Some of the impacts would be directly beneficial to the socio-economic environment due to proposed employment potential. The beneficial impacts due to the activities in the region would be:

- Employment Potential for persons in the various categories as skilled/semiskilled/ un-skilled for carrying out mining activities.
- Indirect employment in transport sector.
- Amelioration of the general living standards of local persons employed in mining activities.
- The higher earnings will result in more purchase power.
- Improvement in the economic growth in the region by way of additional mineral availability.
- Various activities, such as livelihood and entrepreneurship through providing training in Self-employment and empowering women through education and training and Promoting their SHG (Self Helping Group),

taken under corporate social responsibility Initiative will have a positive impact on socio economic fabric of the area.

- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc from this project directly and indirectly.

7.6 Rehabilitation and Resettlement

The Mine area fall in river bed and is not being used by general public for any purposes Hence R & R plan is not applicable on the project.

CHAPTER- 8 PROJECT BENEFITS

8.1 IMPORTANCE OF THE PROJECT TO THE REGION AND COUNTRY

Mining is one of the major industries which play a crucial role in the process of country's economic development. Mineral wealth of Rajasthan provides the employment opportunities to the people of the state as well as region. Most of the people in the region are directly or indirectly dependent on mining and allied activities. Due to the globalization and new ventures, the requirement for River Sand (Bajri) has been on the rise over the last few years. Mineral river sand is used mainly in construction sector. Sand is used as building material. Its strength and long life makes it suitable for a number of purposes. Mining industry play an important role in economic sector in India. Rajasthan is rich in mineral wealth. The state is endowed with major and minor mineral resources. The region, where the project is situated is mostly dependant on agriculture and mineral resources. The development of mining in the area provides direct and indirect employment opportunities, infrastructure development, communication and socio-economic infrastructure. The important benefits accruing from the project can thus be stated as-boost to local and regional economy, direct contribution to the state exchequer.

8.2 THE PROJECT GAINS FURTHER IMPORTANCE TO THE STATE/ COUNTRY ON ACCOUNT OF FACTORS MENTIONED BELOW

8.2.1 Economic Benefits

The project is expected to encourage industrial growth in the area/ region with proper utilization of local geological resources i.e. River sand. The project will further help by increased revenue to the State Government by way of royalty and taxes etc.

8.2.2 Environmental Benefits

Environmental benefits of river sand mining are as follows:

(i) To protect river banks

(ii) To control river channel

(iii) To protect from inundation/floods

(iv) Reducing submergence of adjoining agricultural lands

(v) Protection of crops being cultivated along the river bank

(vi) To increase its assimilative capacity i.e. hold more volume of water

8.2.3 Employment Opportunities

The employment to the local people of nearby villages for mine project directly will certainly increase per capita income of inhabitants of nearby localities.

8.2.4 Improved Educational Facilities

The project will help in better educational facilities in nearby area by providing financial assistance.

8.2.5 Infrastructure Development

The proposed project will facilitates clean drinking water facilities in nearby area. Maintenance of roads will be time to time.

8.2.6 Medical Assistance

Medical awareness campaign programmes will be organized time to time. The medical checkup camps will be organized in systematic manner for mine workers and nearby inhabitants.

8.2.7 Improvement in Physico Infrastructure

The proposed project of river sand mining will provide better living standards in nearby area with basic social amenities such as educational facilities, health care, road infrastructure and clean drinking water.

8.2.8 Improvement in Social Infrastructure

- There will be a positive impact in socio-economic area due to increased economic activities,creation of new employment opportunities, infrastructural development and better educational and health facilities.
- The project proponent (Lessee) will undertake awareness program and community activities like health, camps, medical aids, family welfare camps, AIDS awareness programme etc.
- Periodic medical check-ups as per Mines Act/ Rules and other social developmentand promotional activities will be undertaken. All this will assist to lift the generalhealth status of the residents of the area around mines.

- A massive plantation has been done in the mine area so far and lot many areproposed to mitigate the ill-effects of mining and to improve the vicinity and environment of mine and it surrounding area. The project proponent will give emphasis on plantation and will also motivate local persons for plantation during rainy season. This will also increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

8.2.9 Other Activities

The proposed project will contribute in various cultural activities in surroundings i.e. organization of religious functions, construction and repair of religious places, local fairs and social activities etc.

8.3 CONCLUSION

Thus the proposed project of river sand mining of **M/s. Mangal Singh Solanki** benefits to all persons of nearby villages and State/Central Govt. by way of taxes & royalty. The local government body i.e. Panchayat Samiti/ blocks are also get some part of royalty which will ultimately be utilized for the development programmes of the region.

CHAPTER- 9 ENVIRONMENTAL MANAGEMENT PLAN

9.1 GENERAL

Environment Management Plan (EMP) is aimed at mitigating the possible adverse impact of a project and for ensuring to maintain the existing environmental quality. The mining activities in the area involve excavation of mineral, machinery and movement of transport vehicles. These activities lead to generation of air borne dust, which can cause air pollution in and around the lease area. Other similar causes are land degradation, noise and water pollution etc. In order to minimize impacts of mining on different environmental parameters and keep air, noise, water quality within prescribed limits a comprehensive environmental management plan has to be prepared. It has been envisaged that the study area will not be adversely affected significantly and impacts will be confined to the project. The mining development in the study area needs to be intertwined with judicious utilization of natural resources within the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged in the environment without affecting the designated use and is governed by dilution, dispersion and removal due to natural physico-chemical and biological processes.

Environment management plan is required to ensure sustainable development in the area adopting proper safeguarding measures with the concept of sustainable and scientific mining practices. The project proponent will be implemented integrated environment management throughout various stages of mine. To mitigate the adverse impacts which are likely to be caused due to the mining operation, environment management plan has been formulated and integrated with mine plan. This chapter covers the genesis of pollution and the proposed measures required for meeting the prevailing statutory requirements of gaseous emissions, noise levels and water quality etc. for environmental management purpose in connection with the mining and related activities in the study area. For attaining the desired objective of good environmental quality in the study area, several management strategies in different phases are proposed and evaluated.

The Environmental Management Plan (EMP) is a site specific plan to ensure that the activities of the project are implemented in sustainable manner. EMP also ensures that the project implementation is carried out taking appropriate mitigation measures to reduce adverse environmental impacts due to developing projects. The Environment Management Plan (EMP) aims to mitigate measures to restore and conserve the ecosystem of the possible adverse impacts due to proposed project. The mitigation steps are used to minimize negative impacts on environment due to proposed project of river sand mining. The EMP contains planned improvements with adopting some control measures viz. fugitive dust reduction on roads & measures to alleviate the problems in affected villages near project area and planning for the sustainable development of the area/region.

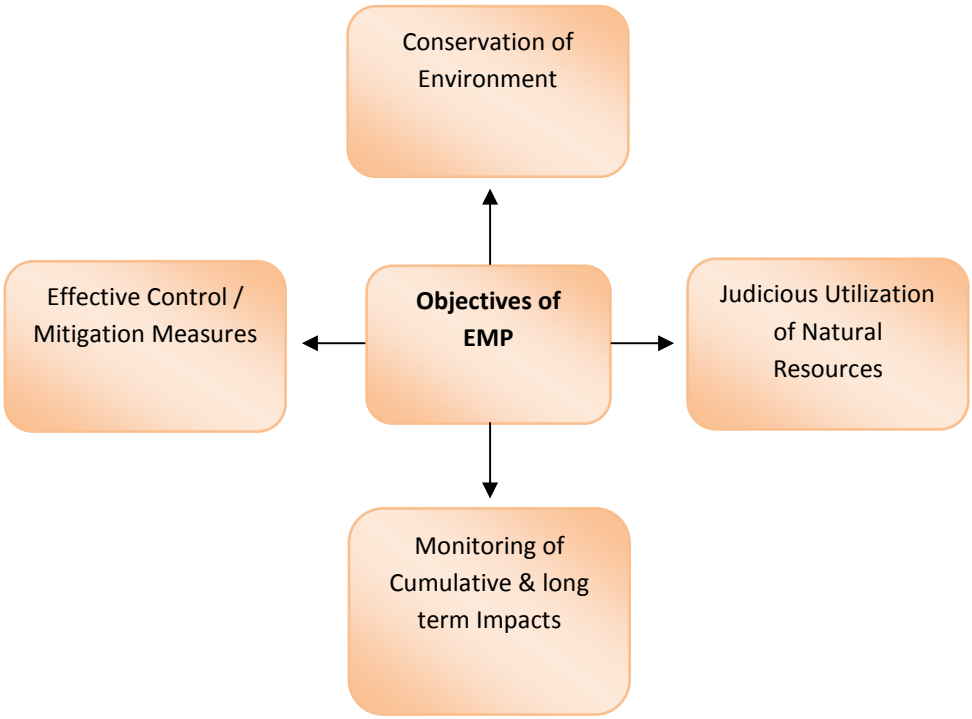


Figure 9.1 Objectives of Environment Management Plan (EMP)

This section discusses the management plan adopting various mitigation measures and enhancement of beneficial impacts due to proposed project of mining. The Environmental Management Plan (EMP) has been designed within the framework of various Indian legislative and regulatory requirements on environmental and socio-economic aspects. The aim of environment management plan is to ensure that all the safeguarding measures formulated with

the concept of sustainable mining in the area/region. The proposed project in study area maintains its sustainable balance of natural resources. Environmental management plan giving the environmental protection measures at mine to meet the stipulated norms of Ministry of Environment & Forest (MOEF) are detailed below.

9.2 AIR POLLUTION CONTROL

The magnitude of air pollution in mining varies with methods of mining, type of mineral and level of mechanization involved. Mitigation measures suggested for air pollution controls are based on the baseline ambient air quality of the area. In view of maintain or control ambient air quality in the area/ region, it is desirable that air quality is monitored on a regular basis to check compliance of standards as prescribed by CPCB. In case of non-compliance, appropriate mitigation measures needs to be checked.

As per the results of ambient air quality monitoring data, the background concentrations of PM_{10}, SO_2 and NO_2 should remain within the stipulated CPCB standards for all of the samples. The addition of gaseous pollutants due to the proposed mining activities is expected to be relatively high. Information of ambient air quality was studied and various modeling techniques predicted that the mining activity will not affect the air quality in a significant manner. During mining operations, loading and transportation may cause deterioration in air quality due to handling dry materials.

9.2.1 Prevention and Control of Air Pollution

- The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads regularly.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin.
- Overloading of material will be kept under check.
- Proper tuning of vehicles will be ensured to keep gas emission from the vehicles within prescribed limits/norms.

- Plantation of trees along the 7.5m of riparian zone to attenuate the impact of dust in the nearby villages.

9.3 WATER MANAGEMENT & POLLUTION CONTROL

9.3.1 Ground Water

Mining of sand within a streambed has a direct impact on the streams physical characteristics such as geometry, gradient, substrate composition and stability, depth, velocity and sediment transport. Flow and direction will not be altered by mining or any other way. Mine will not generate any toxic substance during 5 year period. Mining will be strictly restricted to 3m depth from surface of river channel or above the ground water table whichever is less. So there will no negative impact anticipated on ground water regime of the area.

9.3.2 Surface Water

In view point of surface water, river itself a lotic ecosystem. Most of the rivers in the state of Rajasthan are seasonal in nature and flows only in monsoon season. The mining from river bed does not have any impact on topography and natural drainage of surrounding area as no part of land outside river bed is disturbed. During mining no other water channel or natural drainage will be obstructed. All the measures will be adopted to avoid surface water pollution in and around the study area. No toxic waste will be generated by mining or any other way. Mine will maintain zero discharge status. In order to mitigate the likely impacts, the following measures have been proposed:

- It is not proposed to divert or truncate any part of the stream mining will be restricted to riverbed only.
- No natural drainage/passage will be obstructed due to mining or any other way.

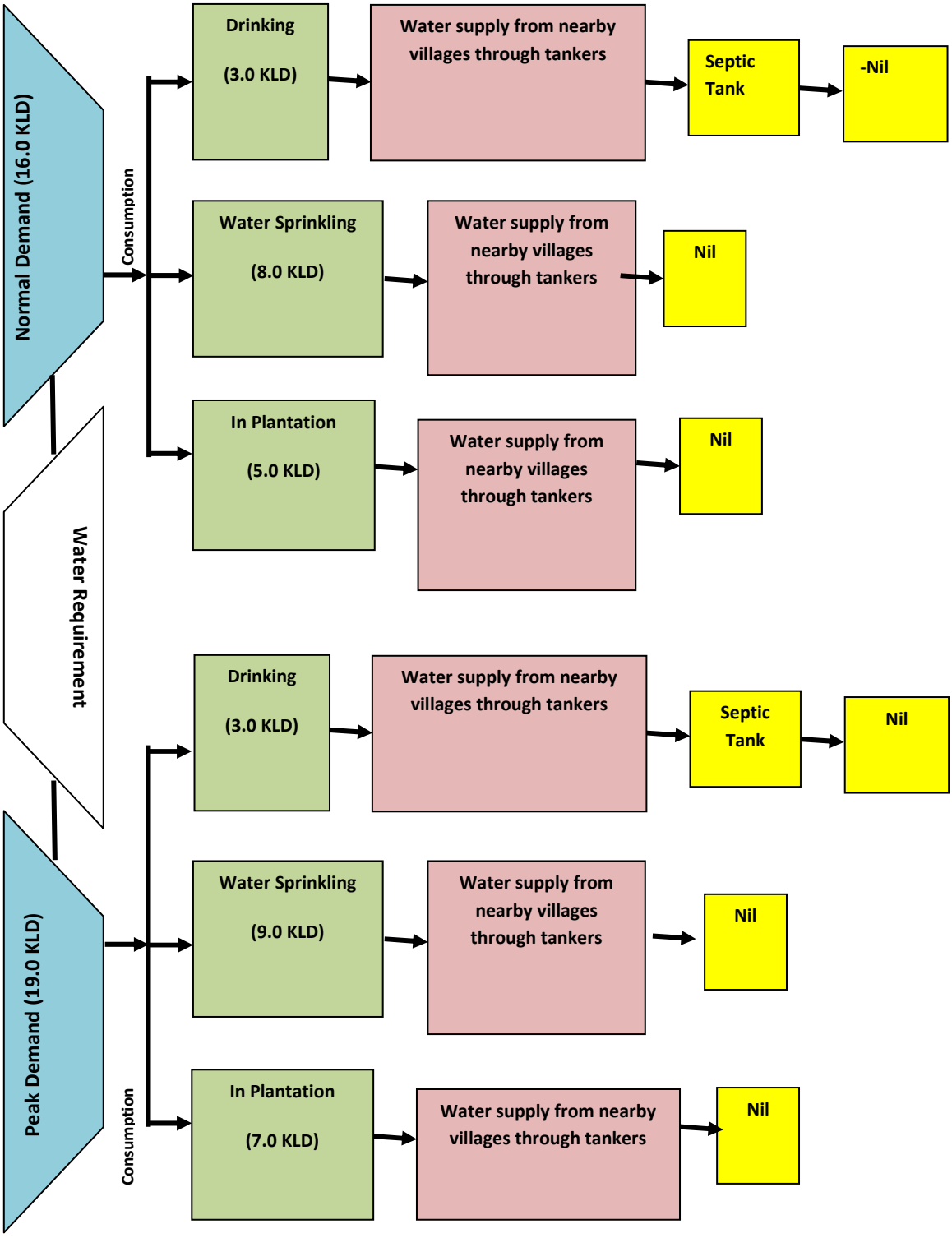


Figure 9.2 Water Flow Diagram

9.3.3 Geo-Hydrology

In view of the facts that the mining activities do not intersect the ground water table, no impact on the quality of ground water is anticipated. Beside this the sand and bajri are nontoxic in nature and therefore percolated water from the pits shall not impact the ground water quality. The extraction of sand and bajri from river channel shall lead to change in its cross-sectional profile and cause increasing the bed slope / gradient. During flow of water in monsoon season, the river channel creates a new channel path through the pit where it will deposit all bed sediments. During monsoon, rivers are flooded and carry bed load and deposit in excavated pits will recharge ground water table.

9.4 CONTROL OF NOISE & VIBRATION

The ambient noise level monitoring has been carried out in and around the mine shows that the ambient noise levels are well within the stipulated norms of Central Pollution Control Board (CPCB). Within an operational mine, major source of noise are transportation of materials by trucks and movement of machineries. There will not be any major impact on noise level due to proposed mining and allied activities. Blasting will not be practiced as the mineral is loose and soft in nature hence there will not be any possibility of land vibration. It was found that the mining activity will not have any significant impact on the noise environment of the region. To keep noise generation in control, latest sophisticated technology and equipment will be use. The only impact will be due to the transportation of materials by trucks & excavation of material with excavator/poclain.

The equipment systems will include cabins to ensure that the operators and other work persons in and around the operating equipment have comfortable work stations. To keep the ambient noise levels within the permissible limits of 75dB (A), the following measures will be taken to minimize noise are as:

- Plantation of trees along the 7.5m riparian zone of the river will be done to dampen the noise.
- The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.

- Timely maintenance of vehicles and their silencers to minimize vibration and sound.
- Phasing out of old and worn out trucks.
- Trucks drivers will be instructed to make minimum use of horns at the village area.
- Care will be taken to produce minimum sound during loading/excavation activities.

9.5 BIOLOGICAL MANAGEMENT

The proposed project is only of extraction of mineral i.e. river sand (bajri) from the river bed. Mining will confined to river bed only no other land will be disturbed due to proposed mining operations. No ecologically important species of flora and fauna such as rare/endangered/threatened/vulnerable are existing within river and 10km radius study area. Proposed afforestation measures will provide aesthetic beauty and environmental protection in the area.

- There will be no significant impact of the river bed mining project on the biological diversity found in the 10 km radius of the project site.
- The mining lease area is in non-forest land where presence of fauna is very rare. No endangered species of fauna is found in and around lease area. As such, there will be no adverse impact of the mining activity on fauna found in the study area.
- No adverse impacts will be envisaged on the existing aquatic phytoplankton and zooplankton on downstream side of the river.
- A detailed biological study has been conducted in core and buffer zone of study area to represent the existing scenario of flora and fauna. Based on the study made of the core and buffer zone of study area, there is no impact envisaged on flora and fauna due to proposed project of river sand mining in the area.

9.6 SOLID WASTE MANAGEMENT

During excavation of river sand (Bajri), no waste will be generated as all the material is directly saleable/marketable. No waste will be generated so there is no dump proposal at mine site.

- No stock piling of sand will be done in adjoining area.
- No liquid waste will be generated during mining and other associated activities.

9.7 LAND ENVIRONMENT

Excavations of river bed mineral and allied activities are the main sources of environmental degradation. Mining will not be done beyond the stipulated limit/norms, so the chance of river channel widening, bank widening and natural gradient will be negligible. Mining at concave side of the river channel will not be done to prevent further bank erosion. Details are as follows:

(i) Damage of river bank due to access ramps to river bed, causing damage to vegetation, soil erosion, micro-disturbance to ground water etc.

(ii) Riparian vegetation losses standing along the bank due to making roads connecting successive access to river bed.

Following measures to stop further degradation of land environment are as follows:

(ix) Number of access roads to river bed shall be provided minimum for which cutting of river banks will be avoided and ramps are to be maintained.

(x) Mining schedule is synchronized with the river flow direction and gradient of the land.

(xi) Haulage roads parallel to the river bank roads connecting access to river bed will be made away from the bank.

(xii) Access point to the river bed will be decided basis on least steepness of river bank and least human activity.

(xiii) Access roads from public roads and upto river bank will be aligned in such a way that it would cause least environmental damage in the area.

(xiv) Proper care will be taken to ensure that ponds are not formed in the river bed.

(xv) Proposed afforestation measures along the banks of the river and along the road side of the approach roads to arrest soil erosion and strengthening of banks.

(xvi) Mining will not be done during monsoon season.

9.8 BIOLOGICAL ENVIRONMENT

River sand (Bajri) mining operations will be managed to minimizes damage to river and riparian habitats in the area. In view point of biological environment, afforestation measures will be adopted for a healthy ecosystem in and around the project area. This will lead to minimize the soil erosion, dust pollution and noise abatement in the core and buffer zone. For this, plantation activities will be carried out in phased manner at different places i.e. riparian zone (erosion prone zone), along haul roads and suitable places i.e. (In Panchayat bhawans, schools, parks etc.) During plantation programme, local species of plants will be given preferences. Vegetation covers in the area generally helps in:

(i) Stabilizing erodible slopes to minimize pollution.

(ii) To increases the mine site stability by strengthening their bank.

(iii) Control of dust.

(iv) Enhancement of aesthetic value.

(v) Noise abatement.

(vi) Conservation of biodiversity in the area.

It is recommended to plant fast growing local plant species, which can adapt to the local climate.

Table 9-1 Ecology: Stage wise Cumulative Plantation

Year	Fresh Plants	Replace of Dead Plants (20%)
Ist Year	@2500	500
II Year	@2500	500
III Year	@2500	500
IV Year	@2500	500
V Year	@2500	500

In 5 year mining period total 12,500 plants will be planted @2500/Year. In which 20 % plants will be dead every year. So total 12,500 - 25,00 = 10,000 plants will be survive at the end of five year. In the subsequent plan period also, the plantation programme will continue till the mining operations continue. Preferences will be given to local species of plant such as *Azadirachta indica* (Neem), *Syzygium cumini* (Jamun), *Polyalthia longifolia* (Ashoka), *Ficus religiosa* (Peepal). Periodic cleaning, manuring and watering will be done for healthy growth of trees with proper fencing and guarding of trees. Plantation area will be fenced to protect from cattle menace. The details of plants requirement and stage wise cumulative plantation is given in table 9.1.

The plant shall meet the environmental and economic requirements like soil improvement, timber, noise attenuation, avenue and aesthetic. The survival rate has been considered 80% for the study area. The dead plants will be replaced by fresh plants in the next year, proper earthwork, water and manuring is being done for healthy growth of the trees. The trees will be protected from cattle menace.

Green belt development Plan

Green belts can help in reducing the impact of fugitive emissions and pollutants released at ground levels.

Total 4750 Plants are proposed to be planted in Core zone and Buffer zone. Core zone is having linear stretch so plants will be planted on periphery of River bank where river bank erosion is most likely to be encountered.

The selection of plant species for greenbelt development should be according to CPCB guideline for greenbelt development and on the basic of climatic condition, soil fertility status etc of region. The plant species for greenbelt described below in Table which can be sustained in local climatic condition.

Table 9.2 Plant Species for greenbelt development

S.No.	Plant Species	Habitat
1	*Azadirachta indica*	T
2	*Acacia nilotica*	T
3	*Albizia lebbeck*	T
4	*Cassia fistula*	T

5	*Dalbergia sissoo*	T
6	*Delonix regia*	T
7	*Ficus benghalensis*	T
8	*Ficus religiosa*	T
9	*Hibiscus rosa sinensis*	S
10	*Helianthus annuus*	H
11	*Musa acuminate*	S
12	*Nerium indicum*	S
13	*Punica malus*	S
14	*Rosa indica*	H
15	*Thevetia peruviana*	S
16	*Terminalia arjuna*	T
17	*Ziziphus mauritiana*	S

Where's T= Tree, S = Shrub, H = Herb

The plant shall meet the environmental and economic requirements like soil improvement, timber, noise attenuation, avenue and aesthetic. The survival rate has been considered 80% for the study area. The dead plants will be replaced by fresh plants in the next year, proper earthwork, water and manuring is being done for healthy growth of the trees. The trees will be protected from cattle menace

9.9 Post Mining Land Use-Conceptual:

Mining will be started at various points within the river channel confined to lease area @ 28.05 Lac Tonne per year. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is replenished in every rainy season hence the life of mine is unlimited and cannot be ascertained. Afforestation along 7.5 mtr buffer zone will be carried out in Phased manner with local species in the Govt. land only as riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected. Lease is granted for Five year period so that progressive Plantation @ 25,00 trees along river bank and haul roads in buffer

zone (erosion prone zone) will be carried out so at the end of lease period 5.0 Ha. will be planted by plantation.

Table 9-2 Post Mining (Conceptual) Land Use of Core Zone

Area in (Ha.)

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.0 Ha.	311Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Dump/Heaps:	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	5.5 Ha.	5.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	5.0 ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Un-worked Area	1405.5 Ha	1092.5 Ha
Total		**1414 Ha**	**1414**

9.10 OCCUPATIONAL HEALTH & SAFETY

(i) The collection of minor mineral from the river bed has some impacts on health.

(ii) Except dust generation there is no source which can show a probability for health related diseases and proper dust suppression will control dust generation and dispersion.

(iii) Dust masks will be provided to the workers working in the dust prone areas as additional personal protective equipments.

(iv) The occupational health hazards have so far not been reported.

(v) Awareness program will be conducted about likely occupational health hazards so as to have preventive action in place.

(vi) Any workers health related problem will be properly addressed.

Periodical medical checkup will be conducted

9.10.1 Anticipated Occupational & Safety Hazards:

- Health Impact due to

- ✓ Physical activity
- ✓ Extremes of age, poor physical condition, fatigue
- ✓ Cardiovascular diseases
- ✓ Skin disorders

- Dust exposure
- Noise

9.10.2 Mitigation measures to ensure OH&S

Following points will be taken care of during mine operation for assuring safety of workers:

1. Regular Health Awareness Programmes and camps will be organized.
2. Regular maintenance and testing of the machines and equipments. Best available techniques to be employed in mining.
3. The mine workers will be provided all necessary Personal Protective Equipment (Dust Masks & Boots) for their physical safe guard from dust & hygiene.
4. Speed of vehicles will be restricted to below 25km/hr to mitigate dust generation while transporting of sand (bajri).
5. The fresh employees when taken will be thoroughly medically examined under initial medical examination including chest X-ray, Blood pressure etc, and thereafter during continuation of employment; the periodic medical examination will be conducted.
6. Under initial vocational training, the workers will be given training related to all safety and health aspects pertaining to sand mining and thereafter every quarter, special training courses/ Awareness programme for Malaria eradication, HIV and health effects on exposure to mineral dust will be organized for employed person as well as for nearby villagers.
7. The Occupational Health Surveillance Programme: A team of qualified doctors and nurses will visit periodically for health check up of all the workers, team and its records is maintained properly.

NOISE:-

1. Since mining operations do not include any major source of generation of noise in the working area thus, noise levels are not of significant levels. However, ear plugs will be provided to all workers in the area.
2. Audiometery test of the workers shall be done regularly & medical health provided wherever required.

9.10.3 EMP for the Occupational Safety & Health hazards

The health of workers can be protected by adopting the following measures:

- Good Housekeeping practices
- Enclosure of core zone to prevent unauthorized access.
- Enforcement of usage of Personal Protective Equipments.
- Regular Work Environment Monitoring
- Air emission control systems such as water sprinklers

Frequency of Periodical Examination:

- For employees - <30 years once in a year
- Between 31-40 years once in a year
- Between 41-50 years twice in a year
- Above >50 years twice in a year

9.10.3.1 Plan for pre-placement and periodical health status of workers:

Pre-employment checkup will be made mandatory and following tests will be conducted for all employees:

1. Plan of evaluation of health of workers
2. Chest x-rays
3. Audiometry
4. ECG
5. Haemogram (examination of the blood)
6. Urine (Routine and Microscopic)
7. Complete physical examination
    - Musculo-skeletal disorders (MSD)
    - Backache

- Pain in minor and major joints
- Fatigue, etc.

9.10.3.2 Budget allocation for OH&S in EMP:

- Insurance cover to all workers engaged in mines shall be provided
- A recurring budget of Rs 10.0 lac per annum for OH&S is proposed in EMP.

Table 9-3 Budgetary provisions for OHS

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	Regular health check up camps for the workers engaged in mines shall be organized or checked in dispensary	1.0
2.	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed;	1.0
3.	Insurance cover to all workers engaged in mines shall be provided;	2.5
4.	Common vocational training center shall be setup at district level;	1.50
5.	Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.	4.0
	Total	**10.00**

9.11 PUBLIC HEALTH AND SAFETY

The Health check up and other measures are proposed for the project affected peoples. The provisions are given below:-

S.No	Impact	Mitigation	Amount (In Lacs)
1.	Health and Safety for villagers	• Health Checkup camps shall be organized.	Rs. 1.0
		• Support to primary Health center.	0.5
		• Sign board shall be displayed for road safety	0.5
		Total	**Rs. 2.0 Lacs**

9.12 SOCIO-ECONOMIC CONDITIONS OF THE REGION

Mining activities have invariably brought a drastic change in the physical and socio-economic environment. Mostly remote areas tucked away from urbanization and influence of modern civilization fall within the limits of mine development. A natural corollary to this the socio economic aspects of the local inhabitants who have dwelling this region for generations, get suddenly and probably a radical change, consequent to their abrupt exposure to the mining activities. The impact of this mining project will be positive. Majority of the work force shall be local people coming from and within the district. The local people will get employment, better medical and educational facilities etc., mainly due to the proposed mining project. In addition to this the literacy rate and better living standards shall increase due to the enhanced earning capacity of villagers. This area will also have better medical, educational, transportation and communication facilities, which are also directly linked with the establishment of the mining project. In the buffer zone villages, this project will be one of the major economic activities resulting in generation of revenues to the state and central governments by way of royalty and taxes etc.

There is no resettlement or rehabilitation involved in this project as the project lies on the river bed. Mining will be confined to river bed only.

9.12.1 Developmental Activities to be undertaken

In order to enhance the contribution of mining industry and share a greater responsibility not only towards its employees but also for the community residing around lease area. Hence, it is considered necessary to provide basic facilities to the surrounding villages for upliftment of their livelihood in the area/region.

9.12.2 Contribution regarding the Social Development of the nearby residents:

There are no other mines of river sand in vicinity of area. Looking towards upliftment of living standard and earning, people generally goes outside for earning their livelihood. This area will provide direct employment opportunities as an additional employment to the local residents. Hence earning of the people will increase and will help to uplift of socio-economic status of the area, which

will improve their living standard. Besides this, Lessee is ready to do help at their level best for surroundings.

9.12.3 Details of Health Checkup and Insurance of the entire Employed Person (for Existing Lease):

Fund allocation for CSR: It is conventionally method to calculate fund for CSR as 2% of project cost. Project cost of this project is 4 Crore so that it comes out to be about 16 Lac per year.

Provisions of CSR measures: It is proposed that the regular health checkup camps for the workers engaged in mines will be organized. It is also proposed that insurance cover to all workers engaged in mines will be provided. Following measures will be adopted to cover under Rajasthan minor mineral concession rules (Second amendment 2012) Rule 37U (9) of Corporate Social Responsibility:-

1. Regular health check up camps for the workers engaged in mines shall be organized;
2. Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed;
3. Insurance cover to all workers engaged in mines shall be provided;
4. Common vocational training center shall be setup at district level; and
5. Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.

Table 9-4 Budgetary provisions for corporate social responsibility

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	School function, furniture, prize distribution and provision of scholarship for meritorious students in nearby villages.	7.5
2.	Community functions i.e. Dusshera, Holi and sports activities in villages.	3.5
3.	Training and awareness campaign.	4.5

4.	Community hall development, renovation of structure such as temple, school buildings, make drinking water structures etc. in nearby villages.	10
5.	Health Check up camps in villages	0.5
	Total	**26**

9.13 ENVIRONMENTAL CONTROL & MONITORING PROGRAMME

For successful implementation of an Environmental management plan (EMP), it is important that an effective environmental monitoring cell should be set up whose role would be to check the efficiency of the organizational set up responsible for implementation of EMP.

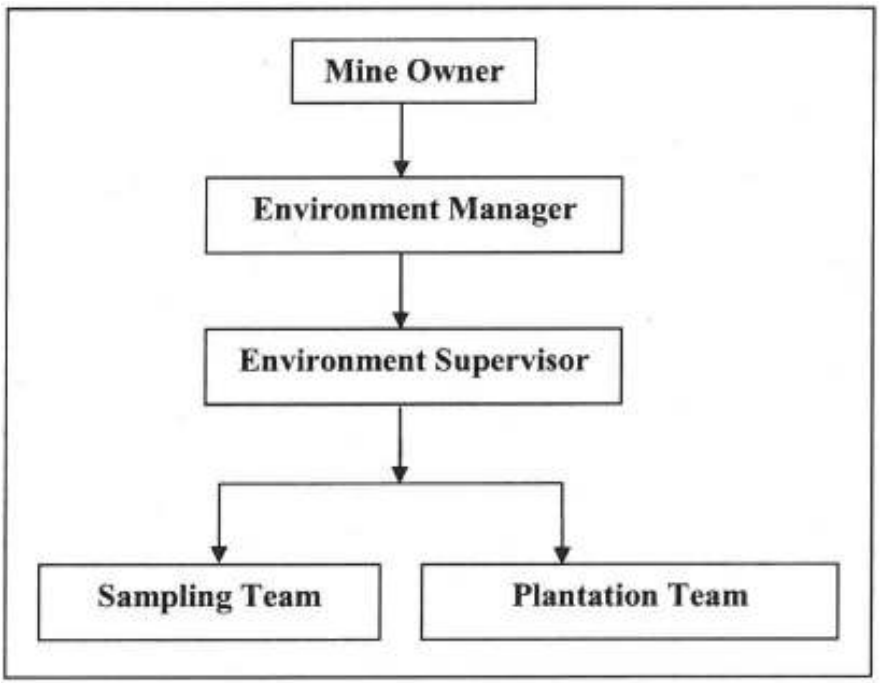


Figure 9.3 Organizational Structure of Environment Monitoring Cell (EMC)

9.13.1 Budget Provision for EMP

It is necessary to include the environmental cost as a part of the budgetary cost component. It is proposed to take up measures like maintenance of haul road, pollution monitoring, pollution control measures, plantation activities nearby villages etc. The haul roads both within the lease and outside the mining lease are being watered and good drainage system would be maintained. The project authorities propose to undertake the following environmental works to achieve the environmental quality as desired. Adequate budgetary provision has been

made by the company for execution of environmental management plan. The detail of budget is given in following **Table 9.5**

Table 9-5 Budget for Environmental Protection Measures

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1	Pollution Monitoring Air,water,noise	-	4.00
2	Pollution Control Measures (Water Sprinkling & Others)	-	6.00
3	Wire crate around pit	-	4.5
4	Plantation including protection	3.00	6.50
5	Rainwater harvesting in nearby villages	-	3.00
6	Maintenance of Haul Road	-	2.00
	Total	**3.00**	**26.00**

9.13.2 Monitoring Schedule

Table 9-6 Monitoring Schedule for Environmental Parameters

Particulars	Monitoring Frequencies	Duration of Sampling	Monitoring Parameters
Ground water/ Surface water	Six monthly	Grab	As per IS:10500 & IS:2296
Ambient Air Quality	Quarterly	24 Hr.	PM_{10}, SO_2 and NO_2.
Noise Pollution (Working environment)	Yearly	-	Level in dB (A) and dB (C)
Soil Analysis	Half Yearly/Yearly	-	pH, Electrical Conductivity, Available Nitrogen & Phosphorus, Potash and Texture.

9.13.3 Environmental Management Cell (EMC)

Environment management department should be developed with qualified and experienced persons. It is recommended to monitor noise and air quality in and around the plant site to know the quality of surrounding environment as per SPCB/CPCB guidelines and as mentioned in consent order. The general maintenance department should do general and preventive maintenance

undertakes the following environmental works to achieve the environmental quality as desired. Adequate budgetary provision has been made by the lessee for execution of Environment Management Plan (EMP).

9.13.4 Compliance to Statutory Requirement

During mining all the statutory norms from the concerned department will be strictly followed. Mining will be done in scientific manner and fulfills all the condition given in approved mining plan. Apart from the above, project proponent is abide by Rules and Regulations of various concerned agencies/bodies/department (Mines/SPCB/CPCB/MOEF). These are as follows:

(i) The Mines Act., 1952
(ii) The Mines and Mineral (Development and Regulation) Act, 1957
(iii) Mines Rules, 1955
(iv) Mineral Conservation and Development Rules, 1988
(v) Rajasthan Minor Mineral Concession Rules (RMMCR), 1986; Amended on 19th July, 2012.
(vi) The Water (Prevention and Control of Pollution) Act, 1974
(vii) The Air (Prevention and Control of Pollution) Act, 1981
(viii) The Forest (Conservation) Act, 1980
(ix) The Wildlife (Protection) Act, 1972
(x) The Environment (Protection) Act, 1986.

9.13.5 CONCLUSION

River has an assimilative capacity to retain some amount of sand in their bed but slowly river channel will get shallower due to continuous deposition of sediment which will lead to widening of the channel and resultant effects could be seen in the form of submergence of the nearby/adjacent areas. So the river sand mining is essential in view point of environment as well as life. Based on the environment impact assessment study, it is observed and concluded that there will be an insignificant increase in the dust pollution, which will be controlled by adopting various mitigative measures like sprinkling of water, green belt development at riparian zone, along haul roads and other unworked areas. Afforestation measures will be done at riparian zones, along haul roads and other unworked areas so that there will be insignificant impact on ambient air

environment and ecology due to proposed mining activities while on the other hand mining operation will lead to direct and indirect employment opportunities in the area. This will fulfills basic amenities in nearby villages and play a vital role in betterment of life. Hence, it can be summarized that the proposed project of river sand (Bajri) mining of **M/s. Mangal Singh Solanki** will have positive impact on the environment, socio-economics of the area and lead to sustainable development of the region.

CHAPTER- 10 SUMMARY & CONCLUSIONS

10.1 PROJECT DESCRIPTION

10.2 INTRODUCTION

M/s. Mangal Singh Solanki, having its residence cum office 13, Shiv Nagar, Jaipur, Rajasthan has a mining lease (M.L. Area -1414 Ha.) of River sand (Bajri) under Rajasthan minor minerals concession rules 1986, near village- Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil- Sheoganj, District- Sirohi (Rajasthan). The area of this lease is 1414 hectares. As per EIA Notification 2006 project proponent has to obtain Environmental Clearance from MoEF, New Delhi for production of River sand (Bajri) 28.05 TPA.

Name of Project Proponent	:	M/s. Mangal Singh Solanki
Residence cum office Address	:	13, Shiv Nagar, Jaipur, Rajasthan
E-Mail Address	:	sharma.op985@gmail.com
Contact No.	:	0141-2333907

10.3 Project Location (Mine site)

The Lease area has been marked on Toposheet No. 45 C/12, 45 C/16, 45 G/4. This comprises the mining lease near village- Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan).

10.4 NEED OF THE PROJECT

Due to the globalization and new ventures, the requirement for River Sand (Bajri) has been on the rise over the last few years. Mineral river sand is used mainly in construction sector. Sand is used as building material. Its strength and long life makes it suitable for a number of purposes.

Mining industry play an important role in economic sector in India. Rajasthan is rich in mineral wealth. The state is endowed with major and minor mineral resources. The region, where the project is situated is mostly dependant on

agriculture and mineral resources. The development of mining in the area provides direct and indirect employment opportunities, infrastructure development, communication and socio-economic infrastructure. The important benefits accruing from the project can thus be stated as-boost to local and regional economy, direct contribution to the state exchequer.

Table 10-1 Salient Features of the Site

<table>
<tr><th>`S.No.</th><th>Particulars</th><th colspan="4">Details</th></tr>
<tr><td>A.</td><td colspan="5">Project Details</td></tr>
<tr><td></td><td>Nature of project</td><td colspan="4">River Sand mining Project</td></tr>
<tr><td></td><td>Date of Grant of LOI</td><td colspan="4">27th Feb. 2013</td></tr>
<tr><td></td><td>Validity of applied lease period</td><td colspan="4">5years from agreement of lease</td></tr>
<tr><td></td><td>Life of mine</td><td colspan="4">17 year</td></tr>
<tr><td>B.</td><td colspan="5">Size of Project</td></tr>
<tr><td></td><td>Lease area</td><td colspan="4">1414 Ha.</td></tr>
<tr><td></td><td>Current production capacity</td><td colspan="4">Nil</td></tr>
<tr><td></td><td>Proposed production capacity</td><td colspan="4">28.05 Lac TPA</td></tr>
<tr><td>C</td><td>Project Location</td><td colspan="4"></td></tr>
<tr><td></td><td>Mine Site Location</td><td colspan="4">Near Village - Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil-Sheoganj, District-Sirohi (Rajasthan)</td></tr>
<tr><td></td><td>Tehsil</td><td colspan="4">Sheoganj,</td></tr>
<tr><td></td><td>District</td><td colspan="4">Sirohi</td></tr>
<tr><td></td><td>State</td><td colspan="4">Rajasthan</td></tr>
<tr><td></td><td>Lease area Coordinates</td><td colspan="4"><table><tr><td>Latitudes</td><td>25°09’43.14” N</td><td>24°59’33.19” N</td></tr><tr><td>Longitudes</td><td>73°02’50.44” E</td><td>72°59’28.53” E</td></tr></table></td></tr>
<tr><td></td><td>Toposheet No.</td><td colspan="4"></td></tr>
<tr><td></td><td>Core Zone</td><td colspan="4">45 C/12, 45 C/16, 45 G/4</td></tr>
<tr><td></td><td>Buffer Zone</td><td colspan="4">45H/1,45 D/9, 45 D/13</td></tr>
<tr><td></td><td>Method of Mining</td><td colspan="4">Semi - Mechanized opencast</td></tr>
<tr><td></td><td>Khasra No. allotted by state govt. for forming mine lease area</td><td colspan="4"><table><tr><th>S. No</th><th>Village</th><th>Khasra No.</th><th>Area</th></tr><tr><td>1.</td><td>Lotiwada Chota</td><td></td><td></td></tr><tr><td></td><td></td><td>10</td><td>108.11</td></tr><tr><td>2.</td><td>Lotiwada Bada</td><td></td><td></td></tr><tr><td></td><td></td><td>1,50,60,163,165,431,440,4</td><td>501.48</td></tr></table></td></tr>
</table>

				49	
		3.	Naradara		
				221,229,232,258,297	998.39
		4.	Sawali		
				231,	276.03
		5.	Madani		
				300,	198.19
		6.	Akhapurakhuni		
				1,	130
		7.	Ummedgarh		
				19,31,40,58,113,	567.39
		8.	Cotila		
				1,2,3,8,38,40/1,41,42,49,76,81,101,111,127,131,137,149,156,157,169,175,190,210,218,221,218,235,241,269,271,294,307,316,349,351,361,370,374,383,400	519.16
		9.	Sutharonka Guda		
				25/170,25/179,25/186,28,29,30,308/27,311/25,312/25,320/27,348/11	233.99
		10.	Rukhada		
				14,17,87,93,101,108/01,116/01,152,155,158,163,165	512.19
		11.	Chuli		
				1,13,53,153,186,287,295,302,305,307,309,311,313,314,316,319,322,323,327,330,338,347,354,414,418,420,422,424,426,463,470,478,484,516,518,547,551,553,561,564,568,573,686,688,716,721/1	171.97
		12.	Radbar		
				2,9/1,74,93,1	470.87

				40,149,153,154,156	
		13.	Chibagaon		
				271,299/609,314,375,378,379,391,409,422,423,425,427,433,439,453,460,464,469,474,479,486,505,534,565,573,575,581,588,589,602,43,600,34,36,160,162,176,179	1282.93
		14.	Badgaon		
				14.25,54,157,167/2,169/2,171,174,184,197,218,224,227,231,322,371,434,494,636,649,664,776/2,797,799,814,818,820,822,828,837,839,844,849,408/870	858.08
		15.	Jaitpura		
				118,155,158/346,186,216,221,226,239,335	284.63
		16.	Khejdiya		
				21,48,51,62,64,67/1,93,113,125,169,191,199,201,208,217,290,292,296,303,317,344,360,400,408,442	209.92
		17.	Joyala		
				94/1,97/1,97/2,137/01,449,458/01,461/01,462,392/01	748.81
		18.	Posaliya		
				296,430/2,747,944,938/1,431,434,437	658.99
	Life of Mine	Life of mine @ 28.05 Lac TPA is around 17 years as per reserves but due to replenishment of river, life cannot be ascertained.			
	Operating Days/year	330 Days			
	Surface water body	Jawai dam is located in SE direction at a distance of 6.0 km from river Jawai.			

	Source of Water	Drinking water will be purchased by water tanker from nearby villages.
	Water Requirement	16 KLD
	Man power requirement	36 Persons
	Survey of India Top Sheet No.	
	Area availability (Hectares)	1414 Ha.
	Govt. Gair Mumkin Nadi/Nallah	1414 Ha.
	Topography	Semin Desert Plain
	Seismic Zone	Zone-III
	National Highway / State Highway	NH-14 passes through the lease area
	Nearest Railway Station	Jawai Bandh Railway Station approx. 4.5 km in East direction.
	Nearest village	Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh
	Nearest City / Towns	The district headquarter Sirohi can be approached from Pali through NH 14 which runs from Pali to Palanpur, Gujrat through Sirohi, Pindwara and Abu Road.
	Nearest Industries	None within 10 km of the study area.
	Ecological Sensitive Areas (Wildlife Sanctuaries/ National Parks/Biosphere Reserves etc.)	Not Any in 10 Km radius of the study area.
	Reserve/Protected Forest	➢ Rewara Reserve forest at a distance of 7.5 km in NW direction from Sukri Nadi. ➢ Protected forest near village Alpa at a distance of 7.5km in West direction from Sukri Nadi. ➢ Chotila protected forest at a distance of 0.25 km in south direction. ➢ Palri Reserve forest at a distance of 0.25 km in South direction. ➢ Darla Jod Reserve forest at a distance of 6.0km in South direction from Sukri River. ➢ Machhal protected forest at a distance of 8.0km in West direction from Sukri River.
	Heritage	There is no Heritage within 10 km radii.

10.5 LOCAL GEOLOGY

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying post-Delhi intrusives and extrusives such as Erinpura granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

10.6 METHOD OF MINING

River Sand Mining

Mining is proposed by semi-mechanized open-cast method. Mining will be done in scientific manner with proper taken care of environment & surroundings.

Salient Points on Scientific mining of River Sand (Bajri) are:

12. Mining will be carried out only in one bench formation of maximum 3 mtr height and formation of haul roads will be within pits and joined to nearest approach roads. Bench height will not be more than 3mtr at any site.
13. Mineral will be directly filled into tippers, trolleys and trucks.
14. Mining will be carried under supervision of competent person not less than second class mines manager certificate of competency holder.
15. 7.5 mtr un-worked buffers will be maintained along the river bank boundary (riparian zone) and vegetation growth generated on meandering boundary to protect further erosion during flooding of water in the River during monsoon.
16. There will be 45mtr unworked zone where any bridges & Anicuts and any other permanent structure as per RMMCR, 1986, Second Amendment 2012.
17. No drilling and blasting will be carried for mining of mineral river sand (Bajri) as the mineral is loose in nature. Mining will be carried by Poclain–Dumper combination as shown below **Figure 10.1.**

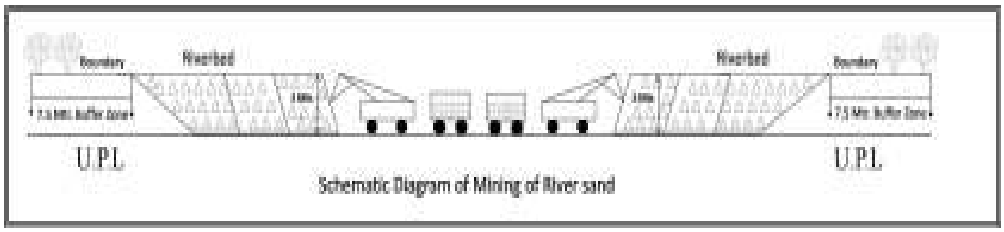


Figure 10.1 Schematic Diagram of river sand mining

Table 10-2 Proposed Mechanization at Mine Site

Type	Nos.	Size / Capacity	Motive Power
Excavator	8	Bucket capacity (2.5 cum)	Diesel
Water Sprinklers	2	5000Ltr Capacity	Diesel
Jeep	1	For Supervision	Diesel
Road Grader/Compactor	1	For compactness of Haul	Diesel

		roads	
Van cum Ambulance	1	For emergency services	Diesel
Mobile Store Room with necessary tools	1	For maintenance of machinery at site	Diesel
Tippers/Trucks/Dumpers	-	20 Tonne	Diesel

10.7 CONCEPTUAL MINING PLAN

Mining will be started at various points within the river channel confined to lease area @ 28.05 Tonne per year. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is replenished in every rainy season hence the life of mine is unlimited and cannot be ascertained. Afforestation along 7.5 mtr buffer zone River boundary of lease will be carried out in Phased manner with local species in the Govt. land only as riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected. Lease is granted for Five year period so that progressive Plantation @ 2,500 trees along river bank and haul roads in buffer zone (erosion prone zone) will be carried out so at the end of lease period, Mining lease area will be improved by plantation.

Blasting: River sand is in loose form so there is no requirement of blasting.

Mine Drainage: The ground water in this area gets intersected at a depth of more than 10-15 mtr bgl in riverbed and more than 20-25 m in surrounding agricultural fields as seen during field survey. No Mining work will be carried out below the water Table as perm. As such there shall be no need for any pumping operations. A drain on the up-slope side of pit will be made so that rainwater does not go into pit during mining operations. No water problem is envisaged during the five years working of lease period.

The details of conceptual plan of the mine are given in **Table 10.3**

Table 10-3 Land: Stage Wise Land use Operational and Post Operational Reclamation Area (Ha.)

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.0 Ha.	311 Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Dump/Heaps:	Nil	Nil
4.	Mineral Storage	Nil	Nil

5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	5.5 Ha.	5.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	5.0 ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Un-worked Area	1405.5 Ha	1092.5 Ha
Total		**1414 Ha**	**1414 Ha**

10.8 EIA METHODOLOGY

The environmental impacts from the proposed mining activity on different environmental parameters *viz.* air, water, noise, land, biological and socio-economic conditions has been assessed through rapid Environmental Impact Assessment (EIA) studies in winter Season of (December 2013 to February 2014) within the impact zone of 10 Km radius. The area has been distinctly divided into core zone (which forms the actual mining lease area of 1414Ha) and the buffer zone encompassing a radius of 10 km from the periphery of the lease.

10.9 BASELINE ENVIRONMENTAL DATA

Environment baseline studies have been conducted during the winter Season of (December 2013 to February 2014) in respect of micrometeorology, air quality, ambient noise levels, biological environment (flora & fauna), water quality, soil quality & socio-economics in the core and buffer zone of 10 km radius.

10.9.1 Ambient Air Quality

The ambient air quality monitoring of study area comprising core and buffer zone for the winter Season of (December 2013 to February 2014) was conducted and all the parameters SO_2, NO_2 and PM_{10} were found within the specified limit of CPCB standards.

10.9.2 Water Quality

Surface Water: Surface water resources are meager in the state. In the buffer zone, some of the seasonal surface water bodies located i.e. Sukli Nadi, Khari River, Jawai River and Jawai Dam water body. All the above water bodies are seasonal in nature.

Ground Water: Ground water quality in Sirohi significantly influenced by semi-arid climate and hydro-geologically diversity-salinity, sodicity and fluoride are the major factors affecting the ground water quality. Ground water is the major source of irrigation in the district.

10.9.3 Noise Environment

Sound levels during day (6 A.M to 10 P.M) and Night (10 P.M to 6 A.M) at 10 stations covering three in core zone and seven in buffer zone villages have been monitored.

Table 10-4 Environmental Baseline Data (December 2013 to February 2014)

S.No.	Parameters	Details
A.	**Ambient Air Quality**	
1.	PM_{10}	47.3 µg/m^3-69.4 µg/m^3
2.	SO_2	5.7 µg/m^3-8.9 µg/m^3
3.	NO_2	9.7 µg/m^3 -13.8 µg/m^3
B.	**Noise Level**	
4.	At Day time	53.8 dB(A)– 68.4 dB (A)
5.	At Night time	41.6 dB(A) – 48.3 dB(A)
C.	**Water Quality(Surface &Ground water)**	
6.	pH	7.5 to 8.1
7.	Total Dissolved Solid	353 mg/l - 1454 mg/l
8.	Nitrate	21.1 mg/l - 38 mg/l
D.	**Soil Quality**	
9.	Organic matter	0.03 % - 0.29 %

10.9.4 Biological Environment

Flora:

The floral species observed in the mine lease area are Khajoor (*Phoenix sylvestris*) Ber (*Ziziphus mauritiana*) and vilayati babool (*Prosopis juliflora*) etc.

Fauna:

Commonly found animal in the study area are Hare (Lepus nigricolles), Jackal/Siyar (Canis aureus), House Rat (Rattus rattus) etc and Schedule-I species present in study area are as follows:

Melursus ursinus (Sloth Bear), Panthera pardus (Panther) & Pavo cristatus (Indian Peafowl).

Land Use Pattern

Core Zone: of this project consists of mining lease near Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil - Sheoganj, District - Sirohi (Rajasthan) with an area of 1414 Ha. The lease area falls in government waste land.

Buffer Zone: Buffer zone comprises of agriculture land, scrub land, open land & waste land. Dry agriculture and wet agriculture crops are being raised in the buffer zone. The lease area will be used for mining and allied activities, including a green belt development.

10.9.5 Socio-Economics

Population in these villages is mainly dependent on dry agriculture depending on the rainfall. The mining activity provides some job opportunities to the local villagers either by way of direct or indirect employment.

10.9.6 Demographic Profile

Total population of Sheoganj is about 100502 as per 2011 census in the study area. Out of the total population, 19.00% is scheduled caste and 14.22% is scheduled tribes. Literacy status in Sheoganj depicts that the area have 54.27% literates and 45.73% illiterates.

10.9.7 Statutory Facilities Available at Mine

First Aid Station: A first aid station is to be made available with all necessary medical kit. All engineers and supervisors are being trained in first-aid treatment to take care of any emergency. An Ambulance is also present for this purpose.

Canteen/Rest Shelter: A good canteen-cum-rest shelter is to be made available in the mine complex.

Blasting Shelter: These are to be made available in the mining area.

Ablution Block: Appropriate number of Urinals & lavatories is to be made available at the mine office, rest shelter.

10.10 ENVIRONMENTAL IMPACT ASSESSMENT

The effect of mining on the environment will be marginal. From the baseline study it could be seen that all the values of ambient air, noise, water, soil etc. are well within the prescribed limits. However, proper management measures will be taken to minimize the impacts on the environment. The management of mine has already initiated the following steps to control pollution and the same shall be continued vigorously in future also.

10.11 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

10.11.1 Air Quality

- The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads.
- Dust mask provided to the workers engaged at dust generation points like excavations, loading and unloading points.
- Overloading will be prevented. The trucks/ tractor trolley will be covered by tarpaulin covers.
- Plantation of trees along the 7.5m of riparian zone to help reduce the impact of dust in the nearby villages.

10.11.2 Water Quality

- The deposit will be worked from the top surface to 3m bgl or above the ground water table whichever is less.
- Thus no ground water pollution is expected, as mining will not intersect ground water.
- It is not proposed to divert or truncate any part of the stream and at no point of time mining will be done from the stream.

10.11.3 Land Management

- Minimum number of access roads to river bed for which cutting of river banks will be avoided and ramps are to be maintained.
- Access points to river bed will be decided basing on least steepness of river bank and least human activity.

- Mining will be avoided during the monsoon season.
- Vegetation development is proposed along the road sides of the approach roads, to arrest soil erosion. While selecting the plant species, preference will be given for planting native species of the area.

10.11.4 Noise Control

- Well maintained vehicle will be used which will reduced the noise level.
- Plantation: Plantation of trees along the 7.5m riparian zone of the river will be done to dampen the noise, if possible.
- Hearing Protection: No hearing protection is generally needed for River sand mining projects.
- The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Phasing out of old and worn out trucks.
- Trucks drivers will be instructed to make minimum use of horns at the village area.

10.11.5 Socio-Economic development

Table 10-5 budgetary provisions for corporate social responsibility

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	School function, furniture, prize distribution and provision of scholarship for meritorious students in nearby villages.	7.0
2.	Community functions i.e. Dusshera, Holi and sports activities in villages.	3.5
3.	Training and awareness campaign.	4.5
4.	Community hall development, renovation of structure such as temple, school buildings, make drinking water structures etc. in nearby villages.	10
5.	Health Check up camps in villages	1.0
	Total	**26**

10.12 POST PROJECT ENVIRONMENTAL QUALITY IMPLEMENTATION & MONITORING PROGRAMMES

10.12.1 Monitoring Schedule

The monitoring schedule will include the following:

- Noise Control: Quarterly measurement of noise levels at sensitive locations would bring out the efficacy of maintenance schedules.
- Monitoring (One 8-hr sample) of ambient air quality at sensitive locations at regular intervals.
- Monitoring of water quality from appropriate stations at regular intervals.

10.13 ENVIRONMENTAL PROTECTION COST

The annual cost for environmental measures would be Rs. 26 lakh.

Table 10-6 Budget for Environmental Management plans

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1	Pollution Monitoring Air,water,noise	-	4.00
2	Pollution Control Measures (Water Sprinkling & Others)	-	6.00
3	Wire crate around pit	-	4.5
4	Plantation including protection	3.00	6.50
5	Rainwater harvesting in nearby villages	-	3.00
6	Maintenance of Haul Road	-	2.00
	Total	**3.00**	**26.00**

10.14 CONCLUSION

M/s. Mangal Singh Solanki had a River sand mine LOI Area 1414 is seeking environmental clearance for proposed production capacity of River sand (28.05 TPA). The baseline of air, water, soil and noise levels are found to be normal and are well within the permissible limits. The expected increase in the levels of the environmental pollution parameters would be marginal as per the impact assessment made. Continuation of the project will have the following benefits:

- Increased employment opportunities
- Increased Revenue to the Govt. in terms of Taxes & Royalty.

Improved socio–economic conditions of nearby villagers.

Disclosure
Of
Environmental Consultant

Perfact Enviro Solutions Pvt. Ltd

Perfact Enviro Solutions Pvt Ltd.
5th Floor, Front Wing, NN Mall
Sector- 3, Rohini, New Delhi - 110085
Phone: +91-11-47528467/47021086/65280483
Fax: +91-11-47528434

About Environmental Consultant

➢ INTRODUCTION:

Perfact Enviro Solutions Pvt Ltd, established by experienced environmental and related experts, provides specialized services in the field of Environment and Pollution Control for all types of **Industrial, Construction, Nuclear Sciences, Bio-diversity Mining, Aerial Ropeway and other related fields**. Our transparent and professional approach, commitment to excellent quality and service, timely deliveries have contributed to create a name in the field of environment. We have a core group of highly qualified experts from various fields like Environment, Forestry, Chemistry, Civil Engineering, Geology, Social Sciences, Electronics and Telecommunication with rich and diversified experience in the field of environment and pollution control.

Perfact Enviro Solutions Pvt Ltd is headed by **Mr. Praveen Bhargava**, Managing Director who has an experience of 27 years in the field of Environment and **Mrs. Rachna Bhargava**, Director & C.E.O, who has an experience of 21 years in the field of Environment.

Perfact Enviro Solutions Pvt Ltd management, experience, excellence, professionalism and ultimate satisfaction has helped in achieving the heights of success in their specialized field of environment.

➢ ACCREDIATATIONS OBTAINED:

- ISO-9001:2008 Certification
- ISO-14001:2004 Certification
- QCI – NABET Scheme for Accreditation of EIA Consultant Organization

KEY PERSONS:

S. No	Brief Description of Key Persons (NABET Approved)
	Mr. Praveen Bhargava is M.Phil in Chemistry, M.Sc in Inorganic Chemistry, P.G. Diploma in Ecology & Environment with overall experience of more than 27 years and currently the Director & Technical Head of Perfact Enviro Solutions Pvt. Ltd **EIA Coordinator:** ➢ "Mining of minerals including Opencast / Underground mining - (1)" ➢ "Leather/Skins/hide processing Industry – (15)" ➢ "Distilleries – (22" ➢ "Textile – Cotton and Man Made fibres – (19)" **Functional Area Expert (FAE)** ❖ AP – Air Pollution Monitoring, Prevention & Control ❖ WP – Water Pollution Monitoring, Prevention & Control ❖ SHW – Solid & Hazardous Waste Management

	❖ SC – Soil Conservation
	Mrs. Rachna Bhargava, M.Sc in Environmental Science, M.Sc in Mathematics & MA in Geography having more than 21 years of experience in the field of Environment is the Head / Team Leader of EIA Preparation Team. She is also a certified Advance EMS Auditor (ISO-14001:2004) & Laboratory Management & Internal Auditor (ISO 17025:2005) from CII and had undergone Training program on EIA, SIA, Air Dispersion Modelling, Air Quality, CSR, Advanced Training Programme on Green Building Rating System, etc. **EIA Coordinator:** ➢ "Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones(SEZs), Biotech Parks, Leather Complexes – (31)" ➢ "Aerial Ropeways – (35)" ➢ "Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions – (38)" ➢ "Townships and Area development projects – (39)"
	Mr. Santosh Pant is M.Tech in Applied Geology having an overall experience of more than 39 years in the field of Hydrology, Geology, Mining, GIS based Landuse & Env. **EIA Coordinator:** ➢ "Mining of minerals including Opencast / Underground mining - (1)" **Functional Area Expert (FAE)** ❖ HG – Hydrology, Ground Water & Water Conservation ❖ GEO – Geology
	Mr. U.S. Pandey is B.sc Engineering (Mining) from Banaras Hindu University (BHU having more than 43 years of experience in the field of Mining & Mineral Beneficiation **EIA Coordinator:** ➢ "Mining of minerals including Opencast / Underground mining - (1)" ➢ "Mineral beneficiation including pelletisation – (7)"
	Dr. Purba Chatterjiis Doctorate (Ph.D) in Environmental Science, certified Laboratory Management & Internal Auditor (IS/ISO/IEC 17025:2005), P.G certified in Industrial Environmental Mgmt., Microbiology & Biotechnology and trained in Environmental Mgmt. & ISO 14000/14001 having a total work experience of over 9 years in the field of Environment, Ecology & Biodiversity. **EIA Coordinator:** ➢ "Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions – (38)" ➢ "Townships and Area development projects – (39)" **Functional Area Expert (FAE)** ❖ WP – Water Pollution Monitoring, Prevention & Control ❖ EB – Ecology & Biodiversity
S. No	**Brief Description of Key Persons (NABET Approved)**
	Dr. R.P. Mathur is Doctorate (PhD) in Environment Science & Microbiology with vast experience in the Field of Environment & Microbiology and currently mentoring young aspirants in Air Quality Modelling Meteorology and other Environmental related topics/subjects. **Mentor:** AP – Air Pollution Monitoring, Prevention & Control

	Dr. S.P. Nigam is Doctorate (PhD) in Mechanical Engineering with vast experience in the Field of Environment & Mechanical Engineering and currently mentoring young aspirants in the areas of Noise & Vibration. He is member of **NBA AICTE, Govt. of India** as well as **Chairman Selection Committees/ Assessment Boards, DRDO, Govt. of India.** **Mentor:** NV – Noise & Vibration
	Mr. Anant Kishore Khareis holding a Master'sDegree in Economics & Post Graduate Diploma in Rural Development, with an overall of approx. 20 years of work experience in the field of Socio Economic studies & Social Welfare **Functional Area Expert (FAE)** ❖ SE – Socio Economic Aspects
	Mr. Rajveer Singh is M. Sc in Remote Sensing, certified in Remote Sensing and Digital image Processing having an overall work experience of more than 9 years. **Functional Area Expert (FAE)** ❖ LU – Landuse
	Mr. S.C. Gupta is M.E. (Chemical) with Specialization in Industrial Pollution Abatement with an experience of over 19 years in the field of Chemical Engineering, Risk Management & EIA **Functional Area Expert (FAE)** ❖ RH – Risk & Hazards Management

➢ Associate Functional Area Experts (AFAE) with area of expertise:

S. No	AFAEs	Functional Areas	Abbreviation
1	Mr. Nipun Bhargava Mr. Rakesh Kumar Pandey	Air Pollution Monitoring, Prevention & Control	AP
2	Mr. Nipun Bhargava	Meteorology, Air Quality Modelling& prediction	AQ
3	Mr. Nipun Bhargava Ms. Neha Aggarwal	Water Pollution Monitoring, Prevention & Control	WP
4	Mr. Sandeep Kumar	Ecology & Biodiversity	EB
5	Mr. Maheep Singh	Noise &Vibration	NV
6	Mrs. Rachna Dogra Mr. Chandrashekhar Jha	Soil Conservation	SC

The EIA report of **River Sand Mine (minor mineral)** located at Tehsil- Sheoganj, District - Sirohi (Rajasthan) with Lease area- 1414 ha & Production Capacity 28.05 Lac TPA owned by **M/s Mangal Singh Solanki**, is prepared by M/s Perfact Enviro Solutions Pvt. Ltd., New Delhi.

➢ **Team (EIA Coordinators, FAEs, AFAEs & Team Members) involved in the Project:**

- **EIA Coordinators:** Mr. Santosh Pant
- **Assistant to EIA Coordinator:**Mr. M.K. Gupta

❖ **Team :**

Functional Area	Approved FAE	Approved AFAE	Team Members
LU	Rajveer Singh	---	Sunita Dadarwal
AQ	Dr. RP Mathur (Mentor)	---	Jay Prakash Kumar C.M. Yadav
AP	Praveen Bhargava	---	M.K. Gupta Jay Prakash Kumar
WP	Praveen Bhargava	---	Dr. Alok Pandey Jay Prakash Kumar
EB	Dr. Purba Chatterji	---	C.M. Yadav Jitendra Prajapat
SE	Anant Kishore Khare	---	Sunita
NV	Dr. SP Nigam (Mentor)	---	U.S. Pandey Pawan Sut Sharma
GEO	Santosh Pant	---	Satish Chand Sharma
HG	Santosh Pant	---	PL Vaya
SC	Praveen Bhargava	---	Akta Chugh Shimbhu Singh
RH	SC Gupta	---	Dr Alok Pandey MK Gupta
SHW	Praveen Bhargava	---	M.K. Gupta Jitendra Prajapat
Other Technical persons involved	Mr. Rajiv Kumar ex IFS (Forestry & Wild Life)		

❖ **The list of approved EIA Coordinators & FAEs is also available on the official website of NABET on page 7 of the Minutes of Meeting No 020 / 2014 : 09 May 2014 .**

➢ Technical Man Power of the Organization:

S. No.	Name	Qualification	Experience (years)
1	Mr. Praveen Bhargava	Pursuing Ph.D, M.Sc, PG Diploma in Ecology & Environment	27
2	Mrs. Rachna Bhargava	MSc, Advance EMS Auditor	21
3	Mr. Rajiv Kumar (ex I.F.S)	M.Sc (Botany), A.I.F.C	25
4	Mr. Santosh Pant	M.Tech (Mining)	35
5	Mr. U.S. Pandey	B.Sc. Engineering (Mining)	38
6	Mr. Rajaa Chatterji	B. Tech, M.B.A	16
7	Dr. Purba Chatterji	Ph.D. (Env. Sc.)	8

8	Mr. Manoj Kumar Pant	M.A (Geography)	20
9	Mrs. AktaChugh	M.Sc	9
10	Dr. Abdul Rahman	Ph.D (Geology)	37
11	Mr. Nipun Bhargava	M.E (Chemical Engineering)	2
12	Mrs. Rachna Dogra	M.Sc (Chemistry), M.Phil (Chemistry)	2
13	Ms. Charu Sharma	M. Tech (Environmental Engg.)	3
14	Ms. Neha Aggarwal	B.E. (Environmental Engineering)	2
15	Mr. AkshayChauhan	M.Sc	2
16	Mr. Chandra Shekhar	B.Sc (hon.) Physics, M.Sc (Chemistry)	3
17	Ms. Charu Tyagi	M. Sc (Env. Management) & Pursuing Ph. D	2
18	Mr. Lokesh Kumar	M.Sc	2
19	Mr. Maheep Singh	M.Sc	2
20	Mr. RakeshPandey	M.Sc	2
21	Ms. Kamna Srivastava	M. Tech (Env. Science & Technology)	1
22	Ms. Nandni Joshi	M. Tech (Energy & Env. Management)	1
23	Mr. Anant Kishore Khare	M.A (Economics)	21
24	Ms. Supriya Tiwari	M.Sc. (Applied Microbiology & Bio-technology)	1
25	Mr. Dharmendra Kumar	M.Sc	2
26	Mr. Rajneesh Mourya	M. Sc. (Goelogy)	8
27	Mr. Sandeep Kumar	M.Sc, M.Tech	1
28	Ms. Shaimael Fatima	M. Tech (Env. Engg)	1
29	Mr. Vinay Kr. Singh	M. Tech (Env. Science & Engg)	1
30	Mr. Deepak Bhandari	B. Tech (Environmental Engg.)	1
31	Mr. RajnishChoudhary	B. Tech (Environmental Engg.)	1
32	Mr. Gopal Kumar	B.Tech	1

ANNEXURES

राजस्थान सरकार
खान (ग्रुप–2) विभाग

क्रमांक प.8(15)खान/ग्रुप–2/2013 जयपुर, दिनांकः–

27 FEB 2013

श्री मंगल सिंह सोलंकी,
पुत्र श्री लक्ष्मण सिंह सोलंकी,
निवासी–13, शिव नगर,
जयपुर (राज.)।

विषयः–खनन पट्टा क्षेत्र 1414 है0 क्षेत्र जिला सिरोही की तहसील शिवगंज स्थित गांवो में गैर मुमकिन नदी, नालो, बालों से (खसरे के अलावा) निकलने वाली खनिज बजरी का श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी निवासी–13, शिवनगर,जयपुर (राज.) के पक्ष में।

महोदय,

उपरोक्त विषय में राजस्थान खनिज रियायत नियमावली, 1986 के अन्तर्गत राज्य सरकार आपको 1414 हैक्टेयर क्षेत्र के लिये खनिज बजरी का खनन पट्टा 5 वर्ष के लिये जारी की जाने की मंशा रखती है। अतः निम्न पूर्तियां एक वर्ष में पूर्ण करें :–

1. माईनिगं प्लान तैयार करा एवं सक्षम अधिकारी से अनुमोदित करा प्रस्तुत करें।
2. पर्यावरण क्लीयेंरेंस भारत सरकार के वन एवं पर्यावरण मंत्रालय से प्राप्त कर प्रस्तुत करे।
3. नियम 37(जे) अनुसार वित्तीय आश्वासन प्रस्तुत किये जाने का शपथ पत्र प्रस्तुत करे।

भवदीय

संयुक्त शासन सचिव

प्रतिलिपिः–निदेशक, खान एवं भू–विज्ञान विभाग, उदयपुर को उनके पत्र कमांक निदे/प–2(ए.2)सिरो/बजरी/2012/271 दिनांक 28.01.2013 के कम में आवश्यक कार्यवाही हेतु प्रेषित है।

सहायक शासन सचिव

तहसील शिवगंज खनिज बजरी खननपट्टा हेतु खसरा व क्षेत्रफल का विवरण

क्र.स.	नाम गांव व खसरा नम्बर	कुल खसरा	रकबा / क्षेत्रफल	क्षेत्रफल बीघा में	क्षेत्रफल हेक्टर में
1	लोटीवाडा छोटा 10	1	108.11	108.11	17.50
2	लोटीवाडा बडा 1, 50, 60, 163, 165, 431, 440, 449	8	21.06, 8.10, 8.04, 416.04, 37.05, 1.01, 4.10, 6.08	501.48	81.19
3	नारादरा 221, 229, 232, 258, 297	5	133.18, 600.04, 33.09, 57.03, 175.05,	998.39	161.64
4	सवली 231	1	276.03	276.03	44.69
5	माडानी 300	1	198.19	198.19	32.09
6	अखापुराखुणी 1	1	130	130	21.05
7	रुम्मेदराड 19, 31, 40, 58, 113,	5	4.01, 530.19, 2.04, 27.15, 4	567.39	91.86
8	चोटिला 1, 2, 3, 8, 38, 40/1, 41, 42, 49, 76, 81, 101, 111, 127, 131, 137, 149, 156, 157, 169, 175, 190, 210, 218, 221, 228, 235, 241, 269, 271, 294, 307, 316, 349, 351, 361, 370, 374, 383, 400	40	45.15, 11.11, 0.16, 26.19, 9.17, 2.18, 80, 12.15, 7.11, 18.19, 3.04, 5 07, 2.16, 1.16, 2.09, 0.14, 0.11, 0.17, 6.15, 2.02, 1.05, 0.16, 113. 09, 0.06, 1.15, 12.05, 1.01, 0.15, 0.13, 0.15, 2.02, 1.06, 1.12, 23 12, 9.05, 103, 0.11, 3.06, 11.05, 0.06, 3.09	519.16	84.05
9	सुथारो का गुडा 25/170, 25/179, 25/186, 28, 29, 30, 308/27, 311/25, 312/26, 320/27, 348/11	11	20.02, 5.10, 0.14, 73.19, 111.06, 13.13, 1.01, 0.11, 0.09, 1.14, 9	233.99	37.88
10	रुखाडा 14, 17, 87, 93, 101, 108/01, 116/01, 152, 155, 158, 163, 165	12	2.16, 6.02, 338.18, 1.16, 10.17, 8.03, 24.12, 1.12, 108, 7.16, 3, 3.07	512.19	82.92

	खसरा नम्बर	कुल खसरा	रकबा / क्षेत्रफल	बीघा में	हेक्टर में
	सूली 1, 13, 53, 153, 186, 287, 295, 302, 305, 307, 309, 311, 313, 314, 316, 319, 322, 323, 327, 330, 338, 347, 354, 414, 418, 420, 422, 424, 426, 463, 470, 478, 484, 516, 518, 547, 551, 553, 561, 564, 568, 573, 686, 688, 716, 721/1	46	73.05, 2.14, 0.15, 0.15, 3.14, 0.12, 1.03, 7.09, 0.15, 0.02, 0.04, 1.01, 1.01, 0.02, 0.07, 0.03, 0.03, 0.09, 1.01, 1.09, 2.07, 1.08, 0.04, 2.17, 1.19, 1.16, 2.01, 3, 0.13, 5.19, 1.09, 3.19, 0.15, 3.09, 2.02, 1, 1.14, 3.09, 22.04, 2.18, 1.08, 2.03, 6.16, 2.05, 4, 8.18	171.97	27.84
12	राडबर 2, 9/1, 11, 74, 93, 140, 149, 153, 154, 156	10	3.04, 2, 3, 3.07, 301.14, 84.15, 48.14, 2.15, 7.10, 17.08	470.87	76.23
13	छीबागांव 271, 299/609, 314, 375, 378, 379, 391, 409, 422, 423, 425, 427, 433, 439, 453, 460, 464, 469, 474, 479, 486, 505, 534, 565, 573, 575, 581, 588, 589, 602, 43, 600, 34, 36, 160, 162, 176, 179	38	1.13, 2.18, 25.05, 0.08, 0.15, 1.15, 1.15, 0.18, 2.10, 2.15, 2, 2.15, 810, 1.03, 1.13, 6, 4.14, 6.03, 1.05, 6.13, 4.05, 52, 125.14, 0.18, 35 05, 21.15, 3.08, 28.5 11.04, 28.15, 19, 6.08, 2.03, 9.16, 7.1, 49. 05, 4.1, 3.09	1282.93	207.71
14	बडगावं 25, 54, 157, 167/2, 169/2, 171, 174, 184, 197, 218, 224, 227, 231, 322, 371, 434, 494, 636, 649, 664, 776/2, 797, 799, 814, 818, 820, 822, 828, 837, 839, 844, 849, 408/870	33	0.13, 0.15, 261.02, 3.05, 1, 65.05, 339.16, 7.03, 6.06, 4.14, 14.15, 10.15, 13.10, 1.06, 0.18, 0.08, 0.08, 1, 0.11, 2.12, 8.04, 23.13, 2 05, 11.05, 1.19, 4.06, 5.1, 8.10, 8.03, 27.08, 29.14, 0.17, 2.11, 0.01	858.08	138.92
15	जैतपुरा 118, 155, 158/346, 186, 216, 221, 226, 239, 335	9	145 10, 1.03, 7.1, 3.02, 9.19, 24.05, 9.12, 2.02, 84	284.63	46.08
16	खेजडिया 21, 48, 51, 62, 64, 67/1, 93, 113, 125, 169, 191, 199, 201, 208, 217, 290, 292, 296, 303, 317, 344, 360, 400, 408, 442	25	1.02, 8.09, 17.10, 7.17, 4.19, 0.01, 5.18, 7.14, 3.10, 8.08, 5, 4.10, 1 04, 0.09, 0.12, 4.04, 1.04, 1, 29, 88.04, 5.12, 3.07, 3.03, 3.15, 1	209 92	33.99
17	जोयला 94/1, 97/1, 97/2, 137/01, 449, 458/01, 461/01, 462, 392/01	9	11 10 4.08, 7.16, 62.05, 7.13, 7.01, 8.15, 168.06, 474.07	748.81	121.23
18	प्रोसालिया 296, 430/2, 747, 944, 938/1, 431, 434, 437	8	4.04, 4.07, 77.19, 3[illegible]7, 21.15, 16.16, [illegible], 119.03	658.99	106.69
	योग	263		8731.13	1413.58

Annexure - (2)

ITEM NO.310 COURT NO.6 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL NO(s). 9703-9706 OF 2013

CHIEF SECY.GOVT. OF RAJASTHAN Appellant (s)

VERSUS

NATIONAL GREEN TRIBUNAL BAR ASSN.& ORS. Respondent(s)

(With application for permission to place additional documents on record, exemption from filing certified copy of the impugned judgment and office report)

WITH SLP(C) NO. 34134 of 2013
[STATE OF RAJASTHAN & ORS. V. NATURE CLUB OF RAJASTHAN (NGO)]
(With prayer for interim relief and office report)
SLP(C) NO. 34811 of 2013
[NAVEEN SHARMA V. STATE OF RAJASTHAN & ORS.]
(With prayer for interim relief and office report)

Date: 25/11/2013 These Appeals were called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE A.K. PATNAIK
HON'BLE MR. JUSTICE SURINDER SINGH NIJJAR
HON'BLE MR. JUSTICE FAKKIR MOHAMED IBRAHIM KALIFULLA

For Appellant(s) IN SLP 34134 & Appeal
Mr. Harish N. Salve, Sr. Adv.
Dr. Manish Singhvi, AAG.
Mr. Amit Lubhaya, Adv.
Ms. Pragati Neekhra, Adv.

in SLP 34811
Mr. Huzefa Ahmadi, Sr. Adv.
Mr. Yashvardhan, Adv.
Mr. Merusagar Samantaray, Adv.

For Union of India
Mr. Mohan Parasaran, SG.
Mr. Harris Beeran, Adv.
Mr. Mushtaq Salim, Adv.

For Respondent(s)
Mr. Ashok Kumar Gaur, Sr. Adv.
Mr. Sandeep Singh Shekhawat, Adv.

Mr. Lal Ppratap Singh, Adv.
Mr. Umesh Pratap Singh, Adv.
Ms. Ruchi Kohli, Adv.
Mr. Ram Niwas, Adv.

In SLP 34134

Mr. C.A. Sundaram, Sr. Adv.
Mr. Nimanshu Shekhar, Adv.

For RR No. 1

Mr. Raj Panjwani, Sr. Adv.
Mr. Rahul Choudhary, Adv.
Ms. Anitha Shenoy, Adv.

UPON hearing counsel the Court made the following

O R D E R

Pursuant to orders passed by this Court on 11th November, 2013, the learned Solicitor General has submitted a status note on behalf of the Ministry of Environment and Forests on the applications for environmental clearance in respect of mining lease of bajri in the State of Rajasthan which is pending before the Ministry of Environment and Forests.

From the aforesaid status note it appears that the time period prescribed under Environmental Impact Assessment Notification 2006 for processing the applications of 82 letter of intent holders/project proponents received from the State of Rajasthan will expire some time in February, 2014. Obviously the mining activity with regard to the bajri lease in the State of Rajasthan cannot be totally kept in abeyance till February, 2014.

We, therefore, direct that till the end of February, 2014, the letter of intent holders who

have submitted their applications to the Ministry of Environment and Forests for clearance (numbering 82 only) can carry on mining operations in accordance with the Notification dated 21st June, 2012 of the Mines (Act 2) Department, Government of Rajasthan issued under Rule 65A of the Rajasthan Mines and Mineral Concession Rules, 1986.

We make it clear that the orders that will be passed by the Ministry of Environment and Forests on the 82 applications will be in accordance with the Notification, Environmental Impact Assessment 2006 dated 14th September, 2006.

The State of Rajasthan will ensure that this interim order is not violated in any manner.

It has been mentioned by Mr. Raj Panjwani, learned counsel appearing for the National Green Tribunal Bar Association that besides the Rajasthan matters, other matters are pending before the Tribunal. We make it clear that the other matters may go on in the Tribunal if there are no specific orders of this Court staying the proceedings in the particular matter.

[KALYANI GUPTA]
COURT MASTER

[INDU POKHRIYAL]
COURT MASTER

Certificate No.: L130627C-01

MANTEC ENVIRONMENTAL LABORATORY

{Recognized by Ministry of Environment & Forests}

D-36, SECTOR-VI, NOIDA-201 301, U. P.

Identification No.	:	**L13062701**
Name & Address of the Customer	:	**M/s Ramji mine envirotech , J-3 , Subhash Marg , C-Scheme, Jaipur-3022001(Rajasthan))**
Date of Sampling	:	**24.06.2013**
Date of Receipt	:	**27.06.2013**
Sample Description	:	**River Sand**
Sample Condition	:	**Ok**
Date of Analysis	:	**29.06.2013**
Sample Location	:	**Jawai River, Sheogunj, Dist – Sirohi , Rajasthan**

RESULTS

Sl. No.	Parameter	Units of Measurements	Value	Protocol
1.	pH	-	8.32	IS:2720
2.	Bulk Density	gm/cm^3	1.50	IS:2720
3.	Specific Gravity	gm/cm^3	2.03	IS:2720
4.	Texture	Class	Sandy	IS:2720
5.	Sand	%	86	IS:2720
6.	Clay	%	6	IS:2720
7.	Silt	%	8	IS:2720
8.	Water Holding Capacity	%	23.12	IS:2720

Analyzed by: **Seal of Lab:** **Authorized Signatory:**

Notes:

- The results relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

Government of Rajasthan
Department of Mines and Geology
Jodhpur Circle, Jodhpur.

6-West Patel Nagar,
Circuit House Road,
Jodhpur 342001

No.SME/JO/CC/Sirohi/Minor/Bajri/M.L. No- 10/2012/ **Dated:**

From:-
SUPDTG. MINING ENGINEER,
Department of Mines and Geology,
Jodhpur Circle, Jodhpur.

To,

Shri Mangal Singh Solanki,
S/o- Shri Lakshman Singh Solanki,
R/o.- 13, Shiv Nagar,
Jaipur (Raj.).

Sub: Approval of **Mining Plan with Progressive Mine Clousre Plan** in respect of yours Mining Lease for Mineral Bajri (**M.L. No- 10/2012**) Tehsil: Sheoganj District: Sirohi over an area of 1414 Hect. Submitted under rule 37 E of RMMCR 1986.

Dear Sir,

In exercise of the powers conferred by Rule 37 B / 37 G of The RMMCR 1986 and with Government of Rajasthan vide Notification no. No. F-14(I)/Mines/Gr.II/2011 dated 24.07.2012; I hereby APPROVE the above said **Mining Plan with Progressive Mine Clousre Plan**. This approval is subject to the following conditions:-

(i) This **Mining Plan with Progressive Mine Clousre Plan** is approved without prejudice to any other laws applicable to the mine/area from time to time whether made by the Central Government, State Government or any other authority.

(ii) It is clarified that the approval of your aforesaid **Mining Plan with Progressive Mine Clousre Plan** does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Regulations and Development) Act, 1957 or the R.M.M.C.R. 1986, or any other laws including Forest (Conservation) Act, 1980, Environment Protection Act, 1986 and the rules made there under.

(iii) It is further clarified that approval of the **Mining Plan with Progressive Mine Clousre Plan** is subject to the provisions of Forest (Conservation) Act, 1980, Forest (Conservation) Rules, 1981 and other relevant statutes, orders and guidelines as may be applicable to the lease from time to time.

(iv) The **Mining Plan with Progressive Mine Clousre Plan** is approved without prejudice to any order or direction from any Court of competent jurisdiction.

(v) The approval of proposed mining operations and associated activities is restricted to the mining lease area only.

(vi) The execution of **Mining Plan with Progressive Mine Clousre Plan** shall be subjected to vacation of prohibitory orders/notices, if any.

(vii) If anything found concealed as required by the mines Act/Rules in the contents of **Mining Plan with Progressive Mine Clousre Plan** and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.

(viii) At any stage, if it is observed that the information furnished in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.

(ix) The lessee/applicant should deposit Financial Assurance to the concerned Mining Engineer/Assistant Mining Engineer, as required under Rule 37 J of The Rajasthan Minor Mineral Concession Rules 1986.

Two copies of the approved **Mining Plan with Progressive Mine Clousre Plan** are being sent to your RQP as advised in consent letter.

Yours Faithfully,

SUPDTG. MINING ENGINEER,
Jodhpur Circle, Jodhpur

No. 14214 Dated: 27-9-13

Copy forwarded for kind information to:

1. The Regional Controller of Mines, Ajmer Region, IBM, Makhuqpura Industrial Estate, Ajmer 305008.
2. The Director of Mines Safety, Directorate General of Mines Safety, Ajmer.
3. M.E. Mines and geology Department Sirohi with one copie of approved **Mining Plan with Progressive Mine Clousre Plan.**
4. Shri M.K. Gupta (RQP) R/o Ramji Mine Envirotech, J-3, Subhash Marg, C-Scheme, Jaipur. Along with two copies of approved **Mining Plan with Progressive Mine Clousre Plan.**
5. Guard file.

SUPDTG. MINING ENGINEER,
Jodhpur Circle, Jodhpur

MINING PLAN

खनन् योजना

(INCLUDING PROGRESSIVE MINE CLOSURE PLAN)

मय उत्तरोत्तर खान बन्द करने की योजना

Letter No. 14710 - 14715
SME/JDR Dt. 22.10.13 Under
MCDR/1988/MCR 1960

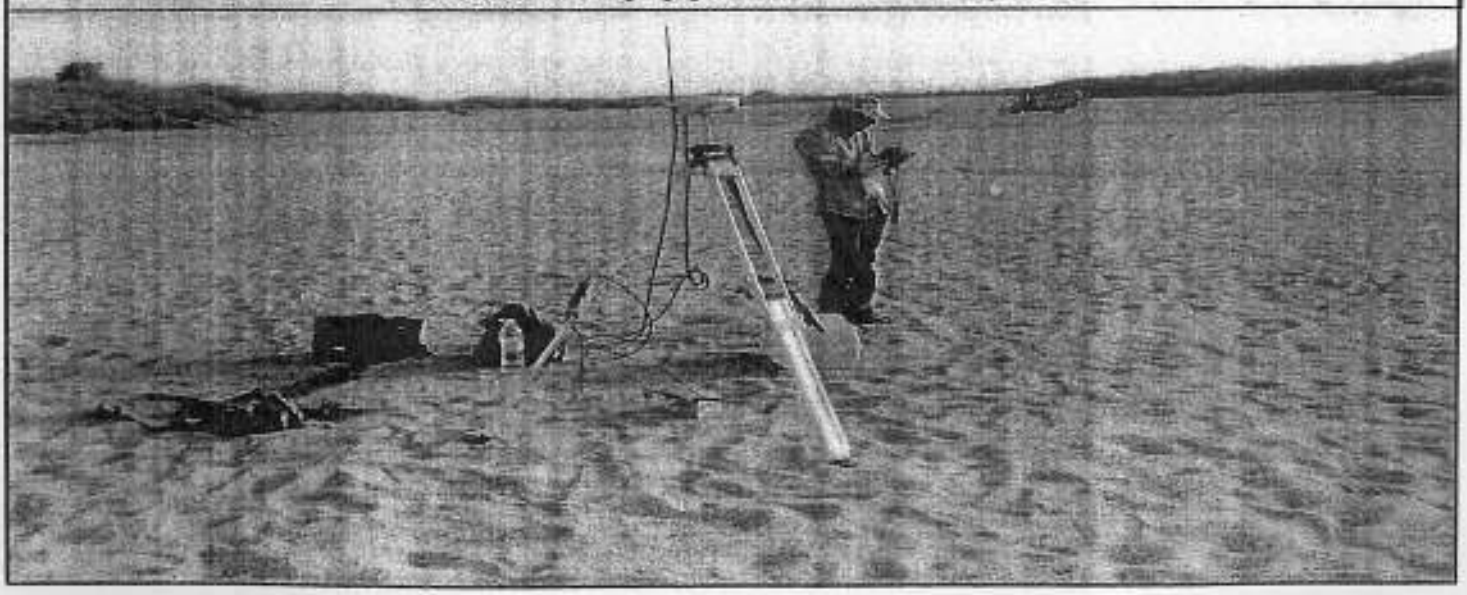
FOR

RIVER SAND

M.L. No-10/12

NEAR VILLAGE	**(AKHAPURA KHUNI, BAR GAON, CHHIBA GAON, CHOOLI, CHOTEELA, JAITPURA, JOYLA, KHEJARIYA, LOTIWARA BARA, LOTIWARA CHHOTA, MADANI, NARADARA, POSALIYAN, RADBAR, RUKHADA, SAWALI, SUTHARON KA GURHA, UMMEDGARH)**
TEHSIL	**SHEOGANJ**
DISTRICT	**SIROHI**
STATE	**RAJASTHAN**
LEASE AREA	**1414 HACTARES**
LAND STATUS	**NON-FOREST LAND**
WORKING	**SEMI-MECHANIZED OPENCAST MINING**
WORKING PERIOD	**5 YEARS**

Submission Under Rule 37E of Minor mineral concession rules & Progressive mine Closure Plan under Rule 37E (VI) (Second amendment) 2012



APPLICANT

SHRI MANGAL SINGH SOLANKI S/O SHRI LAKSHMAN SINGH SOLANKI
13, SHIV NAGAR, JAIPUR,
RAJASTHAN.

PREPARED BY

M. K. GUPTA
RAMJI MINE ENVIROTECH
RQP/AJM/269/2005/A
J-3, SUBHASH MARG, C-SCHEME,
JAIPUR, RAJASTHAN.
PH.- 0141-4036199, 9799744347

CERTIFICATE

1. AUTHORIZATION LETTER AND DECLARATION FROM LESSEE
2. UNDERTAKING FROM LESSEE
3. CERTIFICATE FROM RQP
4. CERTIFICATE ABOUT MINERS HEALTH
5. CERTIFICATE FROM LESSEE FOR PROGRESSIVE MINE CLOSURE PLAN
6. RQP CERTIFICATE

ANNEXURES

1. Letter of Intent for issue of mine lease with Mines and Geology Department.
2. Details of Khasra wise record of mine lease area.
3. Laboratory testing report of Mineral.
4. Demographic details of revenue village of River and mining Lease area.
5. Jamabandi details of Revenue Villages.
6. Photo of Mine Site Area

Certificate-1

MANGAL SINGH SOLANKI

AUTHORIZATION LETTER FROM APPLICANT

I **Mangal Singh Solanki**, Applicant of River sand mining Lease intended for grant **Location Near Village – Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Chotteela, Jaitpura, Jivla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh. Mining Lease Area 1414 Ha. Tehsil - Sheoganj, District - Sirohi, Rajasthan hereby authorize Shri M.K.Gupta registration number is RQP/AJM/269/2005/A for Preparation of mining Plan including progressive mine closure plan under Rule 37E of Rajasthan Minor Mineral concession rules 1986, second amendment 2012.** Mining Plan **under Rule 37E of Minor Mineral concession rules 1986, Second amendment 2012** has been prepared for approval and Grant of Lease.

I request the **Superintending Mining Engineer, Jodhpur** of Deptt. of mines and geology to make further correspondence regarding Approval//modification/resubmission and to collect the approved copies of the mining Plan with the said recognized person on his following address:

Sh. M. K. Gupta
J-3, Subhash Marg, C-Scheme, Jaipur, Rajasthan, Pin-302001
0141-4036199 (Off.), Mobile 9799 -744347

I hereby undertake that all the modifications so made in the aforesaid mining Plan and other said works by the recognized person 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.

Place – Jaipur
Date – 27.03.2013

Mangal Singh Solanki
(Applicant)

DECLARATION

This mining Plan has been prepared in full consultation with me and I understand its Contents and agree to implement the same in accordance with law. In case of default the approval would be withdrawn.

Mangal Singh Solanki
(Applicant)

Certificates-2

MANGAL SINGH SOLANKI

DECLARATION & UNDERTAKING FROM APPLICANT

This Mining Plan complies all statutory rules, regulations, orders made by the Central Government or State Government, statutory organizations, Court etc have been taken into consideration and whereas any specific permission is required then I will approach the concerned authorities.

Mangal Singh Solanki

(Applicant)

UNDERTAKING

M-L No-16/12

I Mangal Singh Solanki applicant for **River Sand Mining lease area in Tehsil -Sheoganj District - Sirohi Location near village - Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh** of Rajasthan hereby undertake that all the measures proposed in the mining Plan will be implemented in time bound manner as proposed.

Date- 27.09.2013

Mangal Singh Solanki

(Applicant)

Certificate-3

MUKESH KUMAR GUPTA

CERTIFICATE FROM RQP

"THIS IS TO CERTIFY THAT THE PROVISION OF **RAJASTHAN MINOR MINERAL CONCESSION RULES 1986 & Second amendment in RMMCR 2012** HAVE BEEN OBSERVED IN THIS MINING PLAN FOR RIVERSAND MINING LEASE, M.L.No-1011/2 Intended to be granted at LOCATION near village – **Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Mining** Lease **area for 1414Hectares Tehsil - Sheoganj,** DISTRICT - **Sirohi** OF RAJASTHAN STATE LOI ISSUED IN FAVOUR OF **SHRI MANGAL SINGH SOLANKI** AND WHEREEVER SPECIFIC PERMISSIONS ARE REQUIRED, THE APPLICANT WILL APPROACH THE CONCERNED AUTHORITIES OF DEPARTMENT OF MINES AND GEOLOGY FOR GRANTING THE PERMISSIONS."

(A.) Certified that provision of 'Mines Act', Rules and Regulations made hereunder have been observed in the mining Plan and wherever specific permissions are required the applicant will approach the Director General of Mines Safety.

(B.) It is further certified that the aforesaid mining plan is prepared as per the records, Documents provided by APPLICANT and information given as per discussion with him and his representative. Accordingly survey of mine was carried and mining Plan is prepared for submission.

(C.) It is also certified that the information furnished in the above mining Plan are true and correct to the best of my knowledge. I can say of any default the approval would be withdrawn.

M. K. Gupta

RQP/AJM/269/2005/A

M.K. GUPTA
RQP/AJM/269/2005-A

Place:-Jaipur

Date: 27.09.2013

Certificate-4

MANGAL SINGH SOLANKI

CERTIFICATE ABOUT MINER'S HEALTH

M. Lease-10/11

I, **Mangal Singh Solanki**, Applicant for River sand mining Lease Located Near Village - **Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil – Sheoganj District - Sirohi, Lease area for 1414 Hectares** hereby certify that the provision of Mines Act, Rules and Regulations made there under have been observed in the mining Plan.

Wherever specific permission is required the applicant will approach the Director General Mines Safety. Further standards Prescribed by DGMS in respect of Miners Health will be strictly implemented.

Place - Jaipur
Date – 27.05.2013

Mangal Singh Solanki
(Applicant)

Certificate-5

MANGAL SINGH SOLANKI

CERTIFICATE FOR PROGRESSIVE MINE CLOSURE PLAN

The progressive mine closure plan complies all statutory rule, regulations, orders made by the state Govt. or central govt., statutory organizations, Court etc. have been taken into consideration and whereas any specific permission is required the APPLICANT will approach the concerned authorities.

Place - Jaipur

Date - 27.03.2013

Mangal Singh Solanki

(Applicant)

UNDERTAKING

I Mangal Singh Solanki Applicant for River Sand Mining Lease area **1414 Ha.** for mineral River Sand Located **near village – Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil – Sheoganj District - Sirohi** (Rajasthan) hereby Undertake that all the measures proposed in this Closure Plan will be implemented in a time bound manner.

Place - Jaipur

Date - 27.03.2013

Mangal Singh Solanki

(Applicant)

Annexure C-3

खान योजना तैयार करने हेतु
योग्य व्यक्ति के रूप में
मान्यता का प्रमाणपत्र

(खनिज रियायत नियमावली 1960 के नियम 22(सी) के अंतर्गत)

श्री मुकेश कुमार गुप्ता

पुत्र श्री सुरेश चन्द

निवासी 315 बी. शांति नगर, दुर्गापुरा, जयपुर

द्वारा अपनी योग्यताओं और अनुभव का संतोषप्रद प्रमाण प्रस्तुत करने के फलस्वरूप खनिज रियायत नियमावली, 1960 के नियम 22(सी) के अंतर्गत उन्हें एतद्द्वारा खनन योजना तैयार करने हेतु योग्य व्यक्ति के रूप में मान्यता प्रदान की जाती है ।

उनका पंजीयन क्रमांक RQP/AJM/269/2005/A है ।

यह मान्यता दिनांक 23 मार्च 2015 को समाप्त होने वाली दस वर्षों की अवधि के लिए वैध है ।

स्थान अजमेर
दिनांक : 24 मार्च 05

खान नियंत्रक
भारतीय खान ब्यूरो

PART-I
MINING PLAN

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अधीक्षण खान परियन्ता
खान एवं भू-विज्ञान विभाग
जोधपुर वृत, जोधपुर

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PART-II

PROGRESSIVE MINE CLOSURE PLAN

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MINING PLAN

(Under rule 37E of Rajasthan Minor Mineral concession rules, 1986,
Second amendment 2012)

PREFACE

Rajasthan Government under its Notification and amendment in Rajasthan minor mineral concession rules 2012 vide order Government of Rajasthan Mines (Gr.II) Department No. F-14(1) Mines /Gr.II/2011 Jaipur Dated 23-05-2012 notified to provide mining lease for Bajri mining by tender or auction. It was Gazette notified by MINES (Gr.II) Department Notification, Jaipur dated June 21, 2012.

1.0 GENERAL INTRODUCTION ABOUT LESSEE

1.1 Name & Address of the lessee

Shri Mangal Singh Solanki

S/o Shri Lakshman Singh Solanki

13, Shiv Nagar, Jaipur, Rajasthan

1.2 Status of the Lessee (Individual/firm/company):-Individual

1.3 Name and address of the authorized person, who prepared the mining Plan.

Mukesh Kumar Gupta

Registration No. - RQP/AJM/269/2005/A

(Valid up to 23-03-2015, enclosed as Certificate No. 5)

Address: C/o J-3,Subhash Marg, C-Scheme, Jaipur- 302001

Phone no. 0141-4036199(O.), Mobile 9799-744347

Email – mkguptarqp@gmail.com, rmc.envirotech@gmail.com

2.0 (A) Details of mining lease:

In view of this Mining proposal for **Revenue Villages Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh (List of Khasra no. enclosed as annexure no.2)** measuring Mining Lease area **1414 Ha.** for mining of river sand mineral is submitted for approval.

2.0 (B) Details of M.L. No.:

LOI has been issued for grant of mining lease for mineral river sand (Bajri) in following Revenue Villages in given Khasra nos. of Tehsil - Sheoganj, District – Sirohi (Rajasthan).

Table 1.1 Location of Villages and Khasra nos. with Area

S.No.	Village Name	Khasra No.	Total No. of Khasras	Area in Bhigha
1.	Lotiwada Chota			
		10	1	108.11
2.	Lotiwada Bada			
		1,50,60,163,165,431,440,449	8	501.48
3.	Naradara			
		221, 229, 232, 258, 297	5	998.39
4.	Sawali			
		231	1	276.03

5.	Madani			
		300	1	198.19
6.	Akbapurakhurd			
		1	1	130
7.	Ummedgarh			
		19, 31, 40, 58, 113,	5	567.39
8.	Chotila			
		1, 2, 3, 8, 38, 40/1, 41, 42, 49, 76, 81, 101, 111, 127, 131, 137, 149, 156, 157, 169, 175, 190, 210, 218, 221, 218, 235, 241, 269, 271, 294, 307, 316, 349, 351, 361, 370, 374, 383, 400	40	519.16
9.	Sutharon ka Guda			
		25/170, 25/179, 25/186, 28, 29, 30, 308/27, 311/25, 312/25, 320/27, 348/11	11	233.99
10.	Rukhada			
		14, 17, 87, 93, 101, 108/01, 116/01, 152, 155, 158, 163, 165	12	512.19
11.	Chuli			
		1, 13, 53, 153, 186, 287, 295, 302, 305, 307, 309, 311, 313, 314, 316, 319, 322, 323, 327, 330, 338, 347, 354, 414, 418, 420, 422, 424, 426, 463, 470, 478, 484, 516, 518, 547, 551, 553, 561, 564, 568, 573, 686, 688, 716, 721/1	46	171.97
12.	Radbar			
		2, 9/1, 11, 74, 93, 140, 149, 153, 154, 156	10	470.87
13.	Chibagaon			
		271, 299/609, 314, 375, 378, 379, 391, 409, 422, 423, 425, 427, 433, 439, 453, 460, 464, 469, 474, 479, 486, 505, 534, 565, 573, 575, 581, 588, 589, 602, 43, 600, 34, 36, 160, 162, 176, 179	38	1282.93
14.	Badgaon			
		25, 54, 157, 167/2, 169/2, 171, 174, 184, 197, 218, 224, 227, 231, 322, 371, 434, 494, 636, 649, 664, 776/2, 797, 799, 814, 818, 820, 822, 828, 837, 839, 844, 849,408/870	33	858.08
15.	Jaitpura			
		118, 155, 158/346, 186, 216, 221, 226, 239, 335	9	284.63
16.	Khejdiya			

		21, 48, 51, 62, 64, 67/1, 93, 113, 125, 169, 191, 199, 201, 208, 217, 290, 292, 296, 303, 317, 344, 360, 400, 408, 442	25	209.92
17.	Joyala			
		94/1, 97/1, 97/2, 137/01, 449, 458/01, 461/01, 462, 392/01	9	748.81
18.	Posaliya			
		296, 430/2, 747, 944, 938,/1, 431, 434, 437	8	658.99
Total			263	

Total Lease area is 1414 Ha.

Table: 1.2 Mining Lease & Surrounding area details

S.No.	Particulars	Details
1.	Date of Survey	5-06-2013 & 6-06-2013
2.	Name of Mineral	River sand(Bajri)
3.	Status of Khasra Land in revenue record	Gair Mumkin Nadi, Nalla (Govt. Land)
4.	Mine Lease Area	1414 Ha.
5.	Near Village	Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh
6.	Tehsil	Sheoganj
7.	District	Sirohi
8.	State	Rajasthan
9.	Toposheet No.	45 C/12, 45 C/16, 45 G/4, 45 D/9, 45 D/13
10.	Description report of Lease area	Khasra of Revenue Villages which is Gair mumkin Nadi & Nallah is granted for mining lease falling in Tehsil Sheoganj. **List from Department of mines & Geology is annexed as annexure no.2.**
11.	Nearest Railway Station	There is no railway station within 5 km radius of lease area as well as tehsil head quater Sheoganj
12.	National Park	Not any in Buffer zone(5Km)
13.	Biosphere Reserve	Not Any in 5 Km radii.
14.	Heritage	There is no heritage within in 5 Km radius
15.	Forest in Buffer zone	Not any in Buffer zone(5Km)
16.	National Highway/State Highway	NH-14 passes through the lease area
17.	Water Bodies in Buffer zone (5 Km)	Odda dam is located within the lease area on river khari
18.	Population and nearest village River area	

S.No.	Particulars	Population as per Census 2011
1	Akhapura Khuni	48
2	Bar Gaon	5747
3	Chhiba Gaon	1806

		4	Chooli	1220
		5	Chotila	542
		6	Jaitpura	1828
		7	Joyla	3825
		8	Khejariya	1926
		9	Lotiwara Bara	634
		10	Lotiwara Chhota	619
		11	Madani	1433
		12	Naradara	1666
		13	Posaliya	6821
		14	Radbar	1276
		15	Rukhada	1348
		16	Sawali	968
		17	Sutharon Ka Guda	583
		18	Ummedgarh	489

2.0 (C) Description report of mining lease with Plan:

As per para 2.0, Table-2.1, Gair Mumkin Nadi and Nallah in Revenue villages **Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Revenue villages of Tehsil - Sheoganj measuring lease area 1414 Ha.**

(Enclosed copy as LOI as annexure no.1). Details of Khasra wise area is granted for mining is annexure no.2).

RQP was assigned for Mining Plan work of this area thereafter field Survey of this area was carried dated 5/6/2013 6/6/2013 with Instruments D.G.P.S.(Geomax ZGP800Amodel no.) & Total station(Leica model no.TS02).

2.0 (D) Key Plan of lease area: lease area of 5KM Radius showing prominent features **such as road, drainage, Type of land, Ponds, Hutments, topography, Forest land** etc. is shown as Key Plan Plate no. 2.

2.0 (E) LOCATION OF THE MINING LEASE AREA

Location of the mining lease area

The mining lease area for mineral river sand (Bajri) near villages **Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh** Tehsil - **Sheoganj, District - Sirohi** granted in favour of **Shri Mangal Singh Solanki.**

2.0 (F) LOCATION AND APPROACH

The district is situated in the South West of Rajasthan between the parallels of 24°20' and 25°17' North latitude and 72°16' and 73°16' East longitude. It covers geographical area of about 5136 sq.km. It is bounded on the north by Pali district in the east by Udaipur district in the south by Banaskantha district of Gujrat state on the West and North West Jalor district.

The district headquarter Sirohi can be approached from Pali through NH 14 which runs from Pali to Palanpur, Gujrat through Sirohi, Pindwara and Abu Road. From Udaipur, Pindwara can be approached through NH 76 than following NH 14 up to Sirohi. Sirohi-Jalore are connected through State Highway No. 38. Sirohi is connected from Deesa in Gujrat through State Highway No. 27. State Highway No.11 joins Sanchor to Mandar, Revadr, Moongthala and Abu Road. State Highway No. 10 joins Kalandari, Nitaura, Rohera, Bhoola and Kotra, District Udaipur. State Highway No.62 joins Pali and Pindwara. The distrct headquarter Sirohi does not have any rail connection but metergage line of North Western Railway from Marwar Junction to Palanpur in Gujrat passes through Pindwara and Abu Road towns of Sirohi district.

Latitude: 24^0 59'39.60' N to 25^0 12'27.89' N

Longitude: 72^0 43'28.43 E to 73^0 7'12.10 E

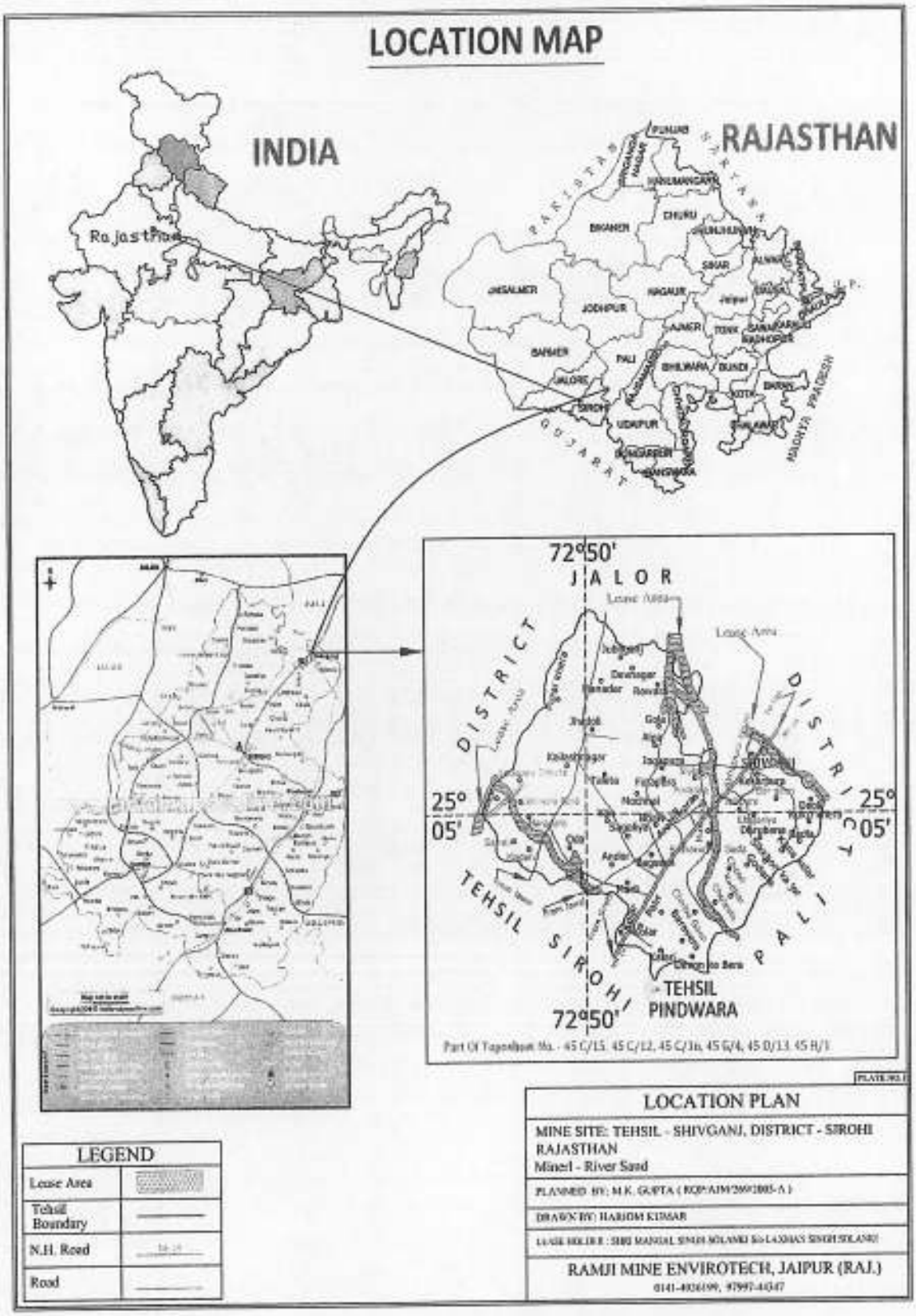


Fig. 1.1 Location Map of Mining Lease

2.0 (G) Details of mining Lease area

LOI for grant of mining lease has been issued by Government Letter. (Annexed as annexure no.1)

Table 1.3 Details of Mining lease

Location Near Village	Tehsil	District & State	Status of Land	Total Lease Area	Period
Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh	Sheoganj	Sirohi Rajasthan	Gair mumkin Nadi, Nallah	1414 Ha.	10 years

2.0 (H) Superimposed map of sanctioned area on revenue map, duly attested by the concerned tehsildar/SDO: Revenue map marked with Granted Khasra details & Jamabandi is annexed as annexure no. 5 & Revenue map as Plate no. 9.

2.0 (I) Infrastructure facilites:

Table 1.4 Infrastructure facilities

S.No.	Particulars	Details
1.	Nearest National highway	NH-14 Passes through cluster area
2.	Nearest Railway station	There is no railway station within 5 km radius
3.	Nearest Police station	PS Sheoganj located 6 km east of lease area
4.	Nearest Post office	PO Sheoganj located 6 km east of lease area
5.	Medical facilities	Govt Hospital is located at tehsil head quater Sheoganj
6.	Water and Electricity facilities	Water and electricity facilities are available at tehsil head quarter Sheoganj.
7.	Education facilities	Govt. degree college is located at Sheoganj
8.	Mode of transportation of mineral	By trucks, Tractor trolleys
9.	Canal/Port	Not any

3.0 No. of Existing mining pits, their dimension and Locations, Plan and Section of the Pits, Brief geology of the area

At Places, old pits are revealed as shown on the surface plan due to past excavation of river sand mining and some pits are more than 3m deep.

3.0 (A) (i) PHYSIOGRAPHY AND DRAINAGE PATTERN

Topography and Drainage

The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges

divides the district into two parts. In the western portion, for group of scattered hills are available one each in tehsil Sirohi and Sheoganj and two in Revdar tehsil.

Detached hills of the Aravalli range are situated in the south east of the district; Mount Abu is situated at about 1219 metre above sea level. Another important plateau is Oriya in Abu Road tehsil and lies below the main peak of Guru Shikhar which is 1722 metre above the mean sea level.

In general, the district as a whole reveals dendritic drainage pattern which shows general flow direction towards NW and SE respectively. South Easterly flowing streams feeds run off to the Banas River. North Westerly flowing streams feeds run off to River Jawai, Khari, Kapalganga and Krishnawati whereas, River Sipu receives run off from streams flowing towards North West as well as towards South Easterly.

Jawai is the longest and largest river of North West which eventually joins Luni River. Other important rivers of Sirohi District are Banas, Khari, Sukri, Badi, Kapal Ganga & Krishnawati. All the aforesaid rivers are seasonal rivers i.e., water flows in rivers during rainy season and becomes dry during summer season.

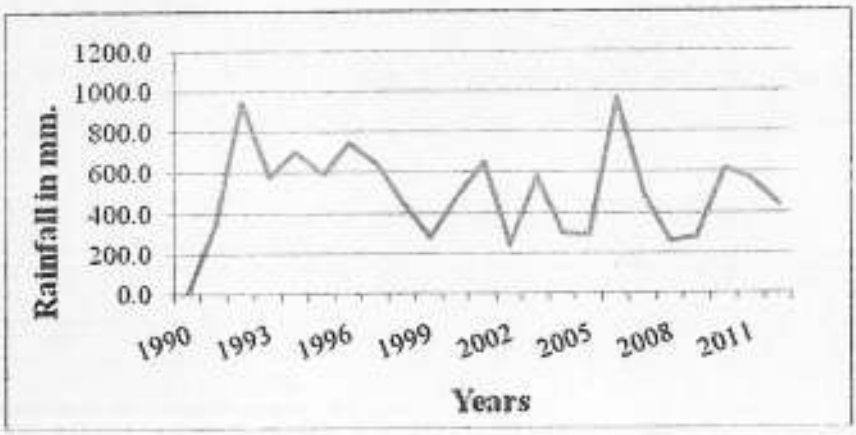
3.0 (A) (ii) RAINFALL & CLIMATE

The district has a dry climate with a hot season. Generally cold season starts from December and last till February followed by hot season continues up to middle of June, while the period from mid June to mid September is of the South West monsoon, next remaining period till winter is post monsoon. Maximum, minimum and mean temperatures recorded are 37° C, 6° C and 25.5° C respectively. The normal annual Rainfall is 638.4mm.

Table: 1.5 Annual Rainfall Data for Tehsil - Sheoganj, District - Sirohi, (Rajasthan)

S.No.	Year	Rainfall in mm.
1	1990	0.0
2	1991	339.0
3	1992	943.4
4	1993	578.0
5	1994	704.2

6	1995	590.6
7	1996	743.6
8	1997	645.2
9	1998	452.2
10	1999	278.4
11	2000	477.4
12	2001	647.4
13	2002	236.0
14	2003	581.0
15	2004	296.0
16	2005	289.8
17	2006	965.0
18	2007	490.4
19	2008	254.8
20	2009	275.8
21	2010	618.3
22	2011	568.2
23	2012	437.4
Average Annual Rainfall in mm.		**496.2**



3.0 (A) (iii) HYDROGEOLOGY

Depth of ground water level varies from 10 to 30 meters. Parts of Sheoganj block is either critical or over exploited from ground water view point. Abu road block is semi critical from underground point of view. In other parts of the district situation in terms of ground water resources is safe and satisfactory. Important aquifers are alluvium occupying about 982 sq.km areas in the district. Calk Schist and Gneiss covering 525sq.km area in Pindwara block. Phyllites and Schist covering 1543 sq.km area in Abu Road, Pindwara, Revdar, Sheoganj and Sirohi blocks and Granite occupying 1550sqkm area in Abu Road, Pindwara, Revdar, Sheoganj and Sirohi blocks.

In various aquifers rate of discharge of ground water varies from 90 to150 cu.mts per day. The area between Sirohi and Revdar shows steep depletion in water level ranging from 10 to 18 meters.

The ground water of the district shows low to medium salinity. The chemical character of ground water in a district also varies from primary bi carbonate type to tartary chloride type. Fluoride is an important toxic element present in ground water. Nearly 33 percent water samples of the district have fluoride concentration more than 1.5mg/L. At many places, viz., Anthala in abu Road; Sangwan in Pindwara; Jirawal and Nimbaj in Revdar; Bithura, Gola, Mochal and Sugarliyain Shivgang and Belagiri, Mirpur and Mahabatnagar in Sirohi block, fluoride concentration has been found to be more than 5.0mg/L. The maximum fluoride value is observed as 11.6mg/L at Gola in Sheoganj block. High fluoride is not confined to shallow aquifers but in deep tubewells too. Many of the tube wells and piezometers drilled under agriculture development programme (ADP) show fluoride value of 3.0mg/L and above. These waters show high fluoride content despite of low salinity.

3.0 (A) (iv) LOCAL HYDROGEOLOGY

The important aquifer in the Sheoganj block is alluvium occupying 526 sq. km. phyllite and pscist occupies only 60 sq.km area and granite occupies 186 sq.km area.

In alluvium ground water level is more than 35 m deep in phyllite and pschist is 15 to 30 m deep and in granite ground water level varies from 10 to 25 m from ground water potentiality view point is regarded as" safe "where draning out of ground water is less than 65 % of the annual recharge .

In various aquifers rate of discharge of ground water varies from 90 to150 cu.mts per day. The area between Sirohi and Revdar shows steep depletion in water level ranging from 10 to 18 meters.

The ground water of tehsil Sheoganj shows low to medium salinity. The chemical character of ground water in the tehsil also varies from primary bi carbonate type to tertiary chloride type. The maximum fluoride value is observed as 11.6mg/L at Gola in Sheoganj block. High fluoride is not confined

only to shallow aquifers but in deep tubewells too. Many of the tube wells and piezometers drilled under agriculture development programme (ADP) show fluoride value of 3.0mg/L and above. The waters show high fluoride content despite of low salinity.

3.0 (B) GEOLOGY OF THE AREA

3.0 (C) GEOLOGY

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying post-Delhi intrusives and extrusives such as Erinpura granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

A generalized stratigraphic succession of Sirohi District after enumerated here under:

Stratigrapic Succession of Sirohi District, Rajasthan

Age	Lithology
Recent To Sub Recent	Sand, Alluvium etc.
Post Delhi	Dolerite, Basalt etc. (Intrusives & Extrusives)
	Malani Rhyolite (Intrusives & Extrusives)
	Jalor Granite (Intrusives & Extrusives)
	Erinpura Granite (Intrusives & Extrusives)
Delhi Super Group	Ajabgarh Group : Phyllite, Schist, Gneisses, Marble, Amphibolite, etc.

3.0 (D) Local Geology of the area:

LOCAL GEOLOGY OF THE LEASE AND ADJOINING AREA

The river and surrounding area is by and large undulating plain covered under soil and Alluvium of Recent to Sub-recent age, obscuring the Subsurface geology of the area However in the surrounding area of river , hill ranges are revealed which comprise of limestone and phyllites of Dehli super group intruded by Erinpura granite of post Delhi age.

At Places, old pits are revealed due to past excavation of river sand mining Some of the old pits are more than 3 Mts deep.

3.0 (E) METHODS OF RESERVE ESTIMATION

Estimation of Geological Reserves

River sand is an incoherent mass of uneven grains deposited by water currents from upstream side to downstream side and is naturally deposited when the water current in the River slows down. Mineralization is found in the entire river channel. Based on field survey geological reserves of river sand has been computed for each block village wise by plan area method i.e., surface area has been taken on the basis of revenue khasra map, **to convert the area given in bighas into hectare, conversion factor 6.5 has been used to divide the given area. So that area in hectare may be obtained. Area obtained in hectare has been multiplied by 10000 to get the area in sq. meters** for computation of reserves. Rajasthan Government under its circulars and Notification and amendment in Rajasthan minor mineral concession rules vide order Government of Rajasthan Mines (Gr. II) Department No. F-14(1) Mines/ Gr.II/2011 Jaipur Dated 23-05-2012 issued permission for bajri mining up to 3 mtr depth from Surface level of River bed. It was Gazette notified by MINES (Gr.II) Department Notification; Jaipur dated June 21, 2012 and bulk density has been taken as1.50 as revealed by physical testing. Proved reserves have been computed upto a depth of 3 meters down from the surface of the river channel. Below the limits of proved reserves 5 meter depth has been considered for computing the probable category reserve of mineral river sand (bajri).

The computation of river sand reserves are enumerated here under:

Computation of Geological Reserves (Proved Category) of Mineral Riversand, Tehsil Sheoganj, District Sirohi, Rajasthan						
S.No.	Village Name	Area of River or Nala (sq.mtrs.)	Mineable Thickness of River Sand (mtr.)	Volume of River sand (m^3) (3x4)	Bulk Density	Reserves of River Sand (Tonss) (5x6)
1	2	3	4	5	6	7
1	Lotiwada Chota	172976	3	518928	1.50	778392
2	Lotiwada Bada	802368	3	2407104	1.50	3610656
3	Naradara	1597424	3	4792272	1.50	7188408
4	Sawali	441648	3	1324944	1.50	1987416
5	Madani	317104	3	951312	1.50	1426968
6	Akhapurakhuni	208000	3	624000	1.50	936000

7	Ummedgarh	907824	3	2723472	1.50	4085208
8	Chotila	830656	3	2491968	1.50	3737952
9	Sutharon ka Guda	374384	3	1123152	1.50	1684728
10	Rukhada	819504	3	2458512	1.50	3687768
11	Chuli	275152	3	825456	1.50	1238184
12	Radbar	753392	3	2260176	1.50	3390264
13	Chibagaon	2052688	3	6158064	1.50	9237096
14	Badgaon	1372928	3	4118784	1.50	6178176
15	Jaitpura	455408	3	1366224	1.50	2049336
16	Khejdiya	335872	3	1007616	1.50	1511424
17	Joyala	1198096	3	3594288	1.50	5391432
18	Posaliya	1054384	3	3163152	1.50	4744728
	TOTAL	**13969808**		**41909424**		**62864136**

Computation of Geological Reserves (Probable Category)of Mineral Riversand, Tehsil-Shivganj, District Sirohi, Rajasthan

S.No.	Village Name	Area of River or Nala (sq.mtrs.)	Mineable Thickness of River Sand (mtr.)	Volume of River sand (m^3) (3x4)	Bulk Density	Reserves of River Sand (Tonnes) (5x6)
1	2	3	4	5	6	7
1	Lotiwada Chota	172976	5	864880	1.50	1297320
2	Lotiwada Bada	802368	5	4011840	1.50	6017760
3	Naradara	1597424	5	7987120	1.50	11980680
4	Sawali	441648	5	2208240	1.50	3312360
5	Madani	317104	5	1585520	1.50	2378280
6	Akhapurakhuni	208000	5	1040000	1.50	1560000
7	Ummedgarh	907824	5	4539120	1.50	6808680
8	Chotila	830656	5	4153280	1.50	6229920
9	Sutharon ka Guda	374384	5	1871920	1.50	2807880
10	Rukhada	819504	5	4097520	1.50	6146280
11	Chuli	275152	5	1375760	1.50	2063640
12	Radbar	753392	5	3766960	1.50	5650440
13	Chibagaon	2052688	5	10263440	1.50	15395160
14	Badgaon	1372928	5	6864640	1.50	10296960
15	Jaitpura	455408	5	2277040	1.50	3415560
16	Khejdiya	335872	5	1679360	1.50	2519040
17	Joyala	1198096	5	5990480	1.50	8985720
18	Posaliya	1054384	5	5271920	1.50	7907880
	TOTAL	**13969808**		**69849040**		**104773560**

Geological Reserves of river sand

(i) Proved Geological Reserves of River Sand are **62864136** Tons.

(ii) Probable Geological Reserves of River Sand are **104773560** Tons

Mineable reserves of river sand

i. Proved Mineable Reserves of River Sand are= Geological reserves x 80%
= **62864136** x 80% = **50291309** Tons

ii. Probable Mineable Reserves of River Sand are= Geological reserves x 80%
= **104773560** x 80% = **83818848** Tons

3.0 (F) (i) Targeted Production from mining lease

Total working days in a year will be 330 days. Assuming targeted production around 8500 Tonss per day .**Annual targeted production comes out to be about 2805000 Tons per Annum.** During the five years lease period the total targeted production of river sand would be about 1,40,25,000 Tons.

3.0 (F) (ii) Life of Mine

Since lease has been granted for a period of five years and sand mining would be carried out @ 2805000 TPA Because River sand is such a mineral which is replenished after every monsoon season, therefore quantity of mineral taken out every year will be replenished and will be again mined in the ensuing year at the same rate of production. therefore life of mine can't be fixed but river sand mining is a recurring process.

3.0 (F) (iii) End Use Grade

The sand found in the river bed has been found very useful for all type civil work (Physical analysis report from laboratory is annexed as annexure no.3)

4.0 Details of Production and dispatches of last 5 years:

This is applied mining lease for grant for River sand mining and now under process of fresh grant after commencement of Rajasthan minor mineral concession rule, second amendment 2012, in favour of applicant after approval of mining Plan & getting Environment Clearance from MoEF.

5.0 Physical properties of river sand:-

Grains are fine to coarse grained. The general size of constituent particles of River sand varies from 0.5MM to 3 MM and is not uniform. The grains in all

sizes, small or large are rounded in shape. The color of sand is grayish. These deposits are of good quality and can be used for building industries. SiO_2 are the main constituents. As per Laboratory testing report of Sample tested of river shows Physical tested **pH 8.32,Bulk density 1.50 gm/cm^3, Silt content around 8%, Sand content 86%, Clay content 6%. Water holding capacity of sand was found about 23.12%. (Laboratory analysis report is attached as annexure no.3)**

5.1 Fraction Size in mm

5.2 Geological Properties of River sand: River sand found in the area is Flluvial deposit formed as result of transportation of sediments originated from upstream side. Sand particles get deposited under gravity during course of transportation of sediments. Sand is geologically formed by disintegration of boulders, pebbles during flow of water by shearing forces of river during motion. Sediments are river borne and get deposited in the riverbed and are mainly comprises of Quartz particles and other accessory particles.

5.3 Origin and Control of Mineralization: the Sediments are River Borne and have been formed as a result of mechanical wear and tear of Rock debris. Only Riversand upto 3 mtr depth from Surface Level of river channel will be mined out as per conditions laid down by State Govt. The sizes of sediments are variable within very wide limits. Replenisment of river sand(Bajri) is dependent on river runoff which inturn depends on rainfall in the catchment area.

6.0 Details of the Mining Machinery to be deployed and their detailed specifications:

Conventionally in Past mining has been carried from this river manually. Now in present case, Mining will be fully Mechanized with use of machinery. Tractor with trolley attachment will also be deployed for transportation of Bajri in addition to trucks and trailers. Mining is proposed as opencast method with use of Poclain . There is no requirement of Drilling and Blasting as there is no hard rock is to be mined out. Working will be carried out at different locations in the lease area at a time as per Development Plan **(Plate no.5)**.Connectivity to nearest transportation will be carried by nearest haul road available. Requirement of machinery vary according to production Schedule which is as under as per Production target as Table no. 6.1.

Table 1.6 Production Schedule:

Years	Proposed Production in Metric Tons
First	2805000 Tons
Second	2805000 Tons
Third	2805000 Tons
Fourth	2805000 Tons
Fifth	2805000 Tons
Total	14025000 Tons

Production schedule during 1st to 5 year is shown as above. The production from Ist to V year will be @ 2805000 Lac TPA. Depending on the demand and supply situation of market, production limit may vary to 20%.

Extent of Mechanization:

Various equipments to be used are proposed ahead —

(1) Drilling Machines: Not required for River sand mining.

(2) Blasting: Not required

(3) Loading Equipment

An excavator of about 2.5 cum bucket capacity normally loads 1000MT to 1500 MT per day per machine.

Loading per day is assumed by one machine : 1000MT to 1500 MT per machine (Average loading 1250 Tons).

Loading with 1 machine per year assuming 330 working days 412500 MT

Targeted production is about 2805000 Lac Tonss so no. of Excavators required is 6.7(say 7),7 machines would be deployed at different locations in the lease area and one excavators will be kept as standby.use.

It is evident that 1 excavator will be Kept for breakdown requirement hence no. of Excavators per day required = 8.

Type	Nos.	Bucket capacity in Cu.m.	Make	Motive Power	H.P.
Back-hoe	8	2.5 cum	Poclain	Hydraulic	200

(3) Haulage and Transport Equipments

The Excavators will work within the pits and trucks will come to point of working so that Excavator will fill directly into 6 tire tippers. It is expected that these tippers will carry a load of about 20MT. Tractor with trolley attachment will also be deployed for transportation of Bajri from mine.

Tonnage hauled by 1 haul unit : 5MT, 20 MT

No. of Average Tippers required carrying @ 8,500 TPD = 200 tractors each with capcity 5 Tonss and 375 trucks with average capacity 20 Tonss each However these units are customer's trucks and also deployed by lessee on hire basis which is directly filled by Poclain.

As mentioned earlier that the Run-off-mines will be transported directly to users and outside of River area.

(4) Other Equipments

The other equipment mainly includes the trucks for transport of consumables like diesel, lubes, spares etc.

Table 1.7 Proposed Mechanization at Mine Site

Type	Nos.	Size / Capacity	Make	Motive Power
Excavator	8	Bucket capacity (2.5 cum)	As per availability on hire basis	Diesel
Water Sprinklers	2	5000Ltr Capacity	On Hire Basis	Diesel
Jeep	1	For Supervision	On Hire Basis	Diesel
Road Grader/Compactor	1	For compactness of Haul roads	On Hire Basis	Diesel
Van cum Ambulance	1	For emergency services	On Hire Basis	Diesel
Mobile Store Room with necessary tools	1	For maintenance of machinery at site	On Hire Basis	Diesel

6.1 Exploration

No specific method of exploration is required as the river borne sediments are deposited all along the riverbed and are very well exposed on the surface. Moreover, these sediments are accumulated /replenished every year during rainy season by flood waters to almost the same level depending on the intensity of rains on the upstream side. Adequate quantity of sand reserves is available for meeting consumer demand.

7.0 Method of Mining

River Sand Mining

Conventionally the river sand mining is carried out manually but in the present case fully Mechanized mining with simultaneous screening at pit mouth. Since different size fractions would be dispatched separately. Hence no waste would be generated during river sand mining.

Salient Points on Scientific mining of River sand are:

1. First thing is to ascertain depth of mining which has been fixed by state Govt. as 3 mtr or above water table whichever is shallower. This is safe working depth for River sand mining as fixed by state Govt. vide condition number 9 of the bid.
2. Mining will be carried out only in one bench formation of maximum 3 mtr height and formation of Haul roads will be extended within pits and joined to nearest approach roads. Bench height will not be more than 3mtr at any site and width of Bench will be up to 40 to 50mtr.
3. Main Haul road as center line joining all pits will be formed before starting for movement of Heavy duty vehicles will be connected to nearest village road then to nearest Highway.
4. Mining will be carried as per Development Plan & Section development Plan **(Plate no.5.).**
5. Mineral will be directly filled into tippers, trolleys and trucks.
6. Mining will be carried without harm to surrounding environment with measures of the regular water sprinkling on haul roads.
7. Norms will be strictly followed; conditions mentioned in bid and Provisions of Rajasthan minor mineral concession rules 1986, second amendment 2012 & Lease agreement made with Govt. authorities.
8. Mining will be carried out under supervision of competent person not less than Second class mines manager of competency holder.
9. 7.5 mtr buffers will be maintained along the River bank boundary and vegetation growth generated on meandering boundary to protect further erosion during flooding of water in the River during monsoon.
10. No mining will be carried out within 45mtr radii where any Bridge & Annicuts and any other permanent structure do exist as per RMMCR, Amendment 2012,
11. Mining will be carried out by Poclain–Dumper combination. No drilling and Blasting will be carried out for mining.

7.0 **(A) Proposed year wise development for five years:**

The proposed method of mining will be semi mechanized "Open Cast" mining with use of Poclain and Dumper combination. There is no requirement of drilling and blasting for excavation of sand. This sand is loose in nature and can be directly filled in Customers trucks with use of Excavators. Working points are simultaneously worked as per availability and supply of sand by nearest selected revenue villages granted for mining. Some Bajri Pits had been worked in past in this area. Now Lease is granted in favour of **Shri Mangal Singh Solanki** for **five years** period.

For the systematic working of open cast mines, there will be only one working bench of 3 mtr depth from surface level of Riverbed and Bench width will be upto around 40-50mtr. Center level haul road will be primarily formed at the site and will be connected to nearest haul road to state highway. Backhoe Excavator machine of 2.5Cum bucket Capacity in one reach will excavate easily for 3 mtr depth. Maximum permissible depth for digging is 3 mtr from Surface level of river bed as per RMMCR Second Amendment 2012. Working of mine lease is assumed for 330 working days.

7.1 **Surface Transport**: Mode of Transport to the dispatch Sand is by trucks & Tractor Trolleys to the dispatch points.

7.0 **(B) Proposed Rate of Production when the mine is fully developed:**

Proposal for next five year Production is as Follows:

Years	Proposed Production in Metric Tons
First	2805000 Tons
Second	2805000 Tons
Third	2805000 Tons
Fourth	2805000 Tons
Fifth	2805000 Tons
Total	14025000 Tons

7.0 **(C) Mineable reserves and Anticipated life of mine**

7.0 **(C) (i) The Mineable reserves as follows:**

Total mineable reserves = Demonstrated reserves (Proved) - 20% Reserves Locked in Boundary Buffer zone, other Physical features such as annicut, Bridges, Wells, Culverts and permanent structures etc.= 50291309 Tons.

7.0 (C) (ii) Targeted Production from mining lease:

Since River sand will be worked for 330 days in a year Assuming targeted production @8500 Tons per day, Annual targeted production come about @2805000 TPA.

7.0 (C) (iii) Life of Mine

Period of Anticipated life of mine in each village cannot be estimated since the quantum of sand replenished every year. Flood water of River replenishes 3mtr zone River sand of excavation every year so life cannot be fixed but river sand is a recurring process, Mining lease has been granted for Five years period from date of agreement and its registration. **So lessee will work for five year period with Targeted production @2805000 Lac Tons per annum.**

7.0 (D) Proposed Method of mining

The mining will be fully Mechanized with Opencast mining method using only one working bench of 3 mtr depth and simultaneous screening of the excavated material at pit mouth, the mechanization will be using Hydraulic excavator with customer's truck. There will be temporary stack of mineral near pit side for required to stack mineral if It has more demand than Supply in nearby area. The Mining will be carried out, Top downwards with connecting approach roads to River for transportation of Bajri. Haul roads within mine site will be stretched accordingly of pit Widening. Maximum depth for mining will be 3 mtr from Surface of river channel. Haul roads will be created as well as within pit and outside pit area. If during mining, water level come before 3mtr depth then that part of mining will be left un-worked.

No degradation or mining will be carried except granted area. The proposals of mining for the next five-year workings are given for maximum 3mtr depth from surface Level.

7.0 (E) Conceptual Mining Plan

Mining will be started at various points within the river channel confined to lease area **@2805000 Tons per annum**. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand

is replenished in every rainy season hence the life of mine is unlimited and cannot be ascertained.

Afforestation in 7.5 mtr buffer zone along River boundary of lease will be carried out in Phased manner with local species in the Govt. land only as Riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected. **(Plate no.7).** Lease will be granted for Five year period so that progressive Plantation along river bank and haul roads in buffer zone will be carried out So at the end of lease period, Mining lease area will be improved by plantation as shown in **Plate No. 7** (Conceptual Plan).

7.0 (F) Blasting: River sand is in loose form so there is no requirement of Blasting.

7.0 (G) Mine Drainage:

The ground water in this area gets intersected at a depth of more than 15 mtr bgl in riverbed and more than 20-25 m in surrounding agricultural fields as seen during field survey. No Mining work will be carried out below the water Table as perm. As such there shall be no need for any pumping operations. A drain on the up-slope side of pit will be made so that rainwater does not go into pit during mining operations. No water problem is envisaged during the five years working of lease period.

7.0 (H) Surface Geological Plan & Section:

Surface geological plan & section is attached as plate No. 4.

8.0 <u>Year wise annual program of mining for next five years</u>:

Table 1.8 Production Schedule:

Years	Proposed Production in Metric Tons
First	2805000 Tons
Second	2805000 Tons
Third	2805000 Tons
Fourth	2805000 Tons
Fifth	2805000 Tons
Total	14025000 Tons

Production schedule during 1st to 5 year is shown as above. The production from Ist to V year will be @ 2805000 TPA. Depending on the demand and supply situation of market, production limit may vary to 20%.

Development Plan is given in Plate no.5

9.0 Details of the Employment: (Management plan) Technical /Skilled/ unskilled person:

Deployment of man power for Management plan, Technical and other persons to be employed as follows:

Table 1.9 Staff Details of Mine Site

S.No.	Designation	Qualification	Requirement
1.	Mines Manager	Second or First Class Certificate of Competency holder	1
2.	Mine Foreman	Foreman Certificate of Competency	1
3.	Mine Mate	Mate certificate holder	2
4.	Time Keeper & Chowkidar	Matriculate	2
5.	Other supervisory staff	Literate	4
Total			**10**

For desired annual production of sand, desired Excavation will have to be mined out daily. The **daily requirement** about **8 Skilled labours and 8 Unskilled labour, 10 Supervision Staff** is sufficient for mining. **Additional 10 labours** for maintenance of road, afforestation, Potable water arrangement and miscellaneous works are required.

It is proposed to construct and provide temporary site services as tin shed as mine office cum rest shelter; first aid station; toilet etc.

Skilled labours – 8 Operators of Poclain machine with 8 Helpers and Unskilled. Additional 10 persons for other work. 10 supervisory staff so Total persons per day will work around 36 **persons**. Labours deployment will be given priority for nearby villagers.

10.0 Measures taken and to be taken for Land Restoration, Reclamation and Plantation in/or nearby M.L. area:

- ✓ Conventionally the river sand mining is carried out manually but in present case, fully Mechanized mining will be carried out. River sand is available in the river. Sand is minor mineral and falls under the purview of Department of mines and geology, Govt. of Rajasthan. The state Govt. through its office has intended for grant of Lease in **Tehsil - Sheoganj** for River sand mining.

- ✓ Despite of proposed mining in large quantities from River bed, there is no degradation of land is anticipated. The mined out area is replenished with River sand every year by flow of Flood water during monsoon season.
- ✓ However proper afforestation in Progressive manner is proposed in Buffer zone as left 7.5 mtr from River bank.
- ✓ 3mtr will be Ultimate depth of mining. If water level above this depth is encountered then that part of location will be left as Unworked.
- ✓ There will be Unworked zone of 45mtr radius around Bridges, permanent structures, Culverts, Annicuts, etc. in the mining lease area.
- ✓ The sand is filled by river every year hence by river sand mining; River will come in its natural forms, River will hold more volume of water during rainy season, this makes situation better in the area to availability of drinking water through percolation further enhances groundwater table in the area.

11.0 Measures taken and to be taken for Protection of Environment in and around ML area:

Restoration of flora:-

1. There is no tree is affected due to mining activity as proposed. However to improve plantation at mine site and buffer zone will be carried.
2. Effective measures shall be taken for plantation in the area earmarked site. Phased wise plantation shall be done regularly before onset of monsoon.
3. The earmarked site(s) for plantation shall be fenced and proper planning of watering and caring the plants shall be implemented.
4. Suitable trees/grasses shall be planted along riparian zone or erosion prone zone, on both sides of river.
5. Take all Precautionary measures during mining operation for conservation and protection of endangered flora and fauna of the area.
6. Survival Rate as per location is assumed 80% of Local species of such as Neem, Babool, Ber, Shahtoot, Shisham, etc.

Table No.-1.10 Year wise cumulative Plantation

Year	Fresh Plants	Replace of Dead Plants (20%)
Ist Year	@1000	-
II Year	1000	1200
III Year	1000	1240
IV Year	1000	1250
V Year	1000	1250

12.0 Measures taken and to be taken for Protection of Environment in and around ML area:

- ✓ By planting trees along transportation roads, buffer zone of the mining area along river bank side, dust, smoke will be kept under permissible limits of environment laws.
- ✓ For erosion control measures, plantation will be carried out on banks or margins at about 7.5 meter distance to check further stream bank erosion problems during monsoon season.
- ✓ Choice of species like ***Azadirachta indica, Acacia nilotica, Saccharum munja, Cenchurs ciliaris, Prosposis Spicegera*** *and* good sand binders species of plants should be selected. Rate of survival percentage of tree species, in all the places is expected around 80% in the area.
- ✓ Local plant species will be preferred in plantation program in consultation with forest officials.
- ✓ Proper watering and manuring measures adopting is taken care of plants.
- ✓ The impacts of sand mining on the stability of riverbanks and on natural habitats can be minimized by the provision of buffer zones between the mining site and surrounding area.

Environmental Safeguarding Measures:

1. Every holder of mining lease shall:

- ✓ Obtain consent to establish and consent to operate from the Rajasthan State Pollution Control Board prior to start of mining operation and implement the condition of consent to operate strictly;
- ✓ Ensure that no natural watercourse and / or water resources are obstructed due to any mining operation. Adequate measures shall be

taken for protection of the older-streams, if any, emanating / passing through the mining lease, during the course of mining operation;

- ✓ Keep mine working restricted to above ground water level till approval of State Ground Water Department is obtained;
- ✓ Take effective safeguard measures, such as regular water sprinkling in critical areas prone to air pollution and having high level of particulate matter such as haul roads, loading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conforming to the norms prescribed by the State Pollution Control Board is maintained throughout;
- ✓ Ensure that personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety, environment and health aspects;
- ✓ Keep vehicular emissions under control and regularly monitor the same. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles shall not be overloaded;
- ✓ Take measures for control of noise levels below 85 dBA in the work environment.

2. The above conditions shall be enforced inter-alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India / High Court of Rajasthan and any other Court of Law relating to the subject matter.

3. Mine working shall be strictly as per the condition of approved mining plan.

12.1 Measures taken and to be taken for Dumping of Overburden, Stacking of Top soil and Utilization of Top soil:

(i) No waste dump proposal at end of life of mine or lease period.

13.0 Measures taken and to be taken for Control of Water, Noise and Air Pollution:

(i) Water:

(a) Surface Water

The mining activities have been so planned to prevent any of the disturbance to natural flow of water and also the drainage system of the area not to be affected. During mining natural flow of river will not be diverted at all. Six monthly monitoring will be carried in buffer zone.

(b) Ground Water

The water table is around १०-15m in core and surrounding area. The proposed mining activities will not intersect groundwater table at any stage of mining because the mining will be carried above 3 meter depth or Water table whatever is earlier.

(c) Quality of water

There will be no impact of mining on quality of ground water. Mineral is inert in nature. Quality of water will not be altered by mining or any other way. Mining operation will be confined to 3 m depth only. Mining activities will not intersect ground water table. Mineral is non toxic in nature so there will no chance to alter the quality characteristics of ground water/ surface water of the area of region.

Six monthly monitoring of ground water/surface water from mine site and surroundings and will be regular reporting to the concern department such as State Pollution Control Board/Concerning Mining Department.

(ii) Noise:

There will be sound of the mining machineries such as Poclain, JCB's, and excavator and due to movement of trucks/Jeep/tractors nearby the road. Except this there will be no sound. Proper maintenance of the m/c will be carried out and Plantation along river boundary will be carried to protect surrounding environment. Overloading will be avoided. The earplugs shall be provided to the drillers/operators. Noise arising out of mining operations for mineral at the source shall be controlled so as to keep it within the permissible limit. Periodical examination of noise pollution shall be monitored & results

shall be intimated to concern mining engineer/Assistant mining engineer as well as regional officer of the State Pollution Control Board.

(iii) Air:

Major source of air pollution is vehicles movement for loading. This will affect the air environment. Other than this, there will be no major impact on quality of air. Plying of trucks may generate some dust, which will be kept under limit by proper maintenance of machinery and Afforestation around haul road and River bank side. The Licensee shall be provided dust mask to the operator.

1. Air pollution due to dust, exhaust emissions or fumes during, mining or processing operations for mineral and related activities shall be controlled and kept within permissible limits as specified under any environmental law for the time being in force. Main haulage roads in the mine shall be kept wet by sprinkling of water; and

2. Six monthly examination of air quality shall be monitored and results shall be intimated to concerned Mining Engineer /Assistant Mining Engineer as well as regional officer of the State Pollution Control Board.

14.0 Contribution regarding the Social Development of the nearby residents:

There are no other mines of river sand in vicinity of area. Looking towards upliftment of infrastructure and earning, people generally goes outside for earning their livelihood. This area will provide direct employment opportunities as an additional employment to the local residents. Hence earning of the people will increase and will help to upliftment of socio-economic status of the area, which will improve their living standard. Besides this, Licensee is ready to do help at their level best for upliftment in the surroundings.

15.0 Details of Health Checkup and Insurance of the entire Employed Person (for Existing Lease):

It is proposed that the regular health checkup camps for the workers engaged in mines will be organized. It is also proposed that insurance cover to all workers engaged in mines will be provided. Following measures will be adopted to cover under RMMCR 37U (9) of Corporate Social Responsibility:-

1. Regular health check up camps for the workers engaged in mines shall be organized;

2. Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed;
3. Insurance cover to all workers engaged in mines shall be provided;
4. Common vocational training center shall be setup at district level; and

15.1 Fund Provision for Environmental Management:

Fund Provision for environmental protection will be as per RMMCR 1986 (Second Amendment 2012)

प्रेक्षण खनि प्रबन्धन
खान एवं भू विज्ञान विभाग,
जोधपुर क्षेत्र, जोधपुर

PART-II

PROGRESSIVE MINE CLOSURE PLAN

(Under Rule of RMMCR 37E (VI) Second Amendment 2012,)

1.0 Introduction

This progressive mine closure plan is an additional chapter of the mining plan for River Sand mining M.L.No 10/12 located near villages **Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh (List of Khasra no. enclosed as annexure no.2)** measuring Mining Lease area **1414 Ha.** for mining of mineral river sand (Bajri) is submitted for approval.

M.L. Area for mining of mineral River Sand (bajri) in Gairmumkin Nadi and Nala in Tehsil Sheoganj, District Sirohi LOI Granted in favour of Shri Mangal Singh Solanki, S/o Shri Lakshman Singh Solanki lies on survey of india Toposheet 54 A/16 and extends between latitudes 27° 00' N to 27° 5' 15" N and longitude 76° 45' E to 77° 00'E.

LOI for grant of mining lease has been issued by DMG Annexed **as annexure No. 1.**

The area falls in Gair mumkin nadi & Nallah which is Govt. land as per Revenue record. (Revenue map attached as **Plate no.9)**

अधीक्षण खनन अभियन्ता
खान एवं भू विज्ञान वि भाग,
जोधपुर वृत, जोधपुर

Table 1.1 Existing Land use pattern in M.L. area.
Present Land Use Pattern

(In Hectare)

	Forest Land	Private Land	Grazing Land	Govt. Waste Land (Gair Mumkin Nadi)	Others	Total	Land Acquired Outside Lease Area (if any)
	In Hectares						
Pits & Quarries	-		-	3.0	-	3.0	
Dumps of Ore Waste & Over burden	-	-	-	-	-		-
Infrastructure (Office &Workshop	-	-	-	-	-		-
Township	-	-	-	-	-		-
	-			-			-
Others structures as Culverts etc with 45 mtr Unworked zone	-	-	-	5.5		5.5	-
Rest area	-	-	-	1405.5		1405.5	
Area back filled, If any	Not So Far						
Area afforested by mine owner	-						

1.1 Reason for Closure

The mine closes either due to depletion of mineable reserves or due to uneconomic mining or due to more economic substitute for mining product.

This progressive mine closure plan is submitted as a statuary requirement for the mining lease under RMMCR Amendment 2012. Hence the aforesaid reasons for closure are not applicable at this stage.

1.2 Statutory Obligations

All legal obligations imposed by Department of mines and Geology, MoEF, RSPCB, RMMCR Second amendment 2012,MMR 1961,Mines Act 195[illegible] be taken into consideration by Lease holder.

1.3 Closure Plan Preparation

1.3.1 Name and Address of the Licensee

Shri Mangal Singh Solanki
S/o Shri Lakshman Singh Solanki
13, Shiv Nagar, Jaipur, Rajasthan

1.3.2 Name, Address and Registration Number of the Authorized Persons who prepared the Progressive Mine Closure Plan

M.K.Gupta
Registration No. - RQP/AJM/269/2005/A
(Valid up to 23-03-2015, enclosed as Certificate No.5)
Address— C/o C/o J-3,Subhash Marg,C-Scheme, Jaipur- 302001
Phone no. 0141-4036199(O.), Mobile 9799-744347
Email – mkguptarqp@gmail.com, rme.envirotech@gmail.com

1.3.3 Name of Executing Agency

Shri Mangal Singh Solanki
S/o Shri Lakshman Singh Solanki
13, Shiv Nagar, Jaipur, Rajasthan

2.0 Mine Description

Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh (List of Khasra no. enclosed as annexure no.2) measuring Mining Lease area **1414 Ha.**

The Tehsil headquarter Sheoganj is located 6.0 kms East of the lease area and District headquarter Sirohi is located WSW at a distance of 30kms from Tehsil headquarter Sheoganj.

Tehsil headquarter Sheoganj. can be approached from district headquarter Sirohi through NH-14 .

3.0 Review of Mining Plan

This is fresh grant of mine lease for river sand mining hence this is first mining plan.

4.0 Progressive Mine Closure Plan

4.1 Mined Out Land

The details of land use of the area at present and at the end of five year given below: -

Table 1.2 Land use pattern at the end of five year

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.0 Ha.	311Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Overburden/ Dump	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads,Dams,Anicuts etc	5.5 Ha.	5.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	5.0 ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil

The mine is an A class mine.

As per **plate no. 6**, the mineral reserves at working place will not exhausted during next five years or say the mine-able reserves will not deplete fully during the period of this progressive mine closure plan.

However with water flowing during rainy season replenish the extracted bed hence there is no reclamation of land is adopted except plantation on both sides of river channel which is necessary to prevent erosion of sides of agriculture farms.

4.2 Water Quality Management

The proposed deepest working is far above the general ground water table. The ground-water table of the Core zone area is about 12-15 mtr deep at the

mine lease area. Surrounding area is having 10-30 mtr deep of water table. No toxic mineral is present, which pollute the quality of ground water. No tailing pond is proposed, which pollute the quality of ground water. The proposed deepest working is above the ground water table thus quality of water will not decrease by proposed mining.

4.3 Air Quality

The source of air pollution is vehicular movement but regular road maintenance and water sprinkling on haul roads will be carried out to minimize impact. Loading of mineral also creates air pollution. Overloading of mineral is also source of more gaseous emissions which will be avoided. Often river sand is in moist condition at deeper level. Water sprinkling system is proposed on haul road once in a day especially during dry seasons if dust creates due to transportation. Plantation is also proposed along riparian zone. The plantation will suppress the dust which may spread in nearby area. Proposed mining will be Semi-Mechanized open cast mining. No processing/grinding unit is proposed in the area; hence the air pollution will remain in permissible limit. Regular Air Quality monitoring will be carried.

4.4 Waste Management

No waste generated at mine site due during mining. No waste dump proposal at mine site at end of life of mine so no impact is anticipated.

4.5 Top Soil Management

In River sand mining, mining activity remains confined to River channel only where no topsoil do exists hence River sand mining involves no removal and management of Topsoil.

4.6 Tailing Dam Management

No tailing dam is proposed hence this paragraph is not applicable.

4.7 Infrastructure

Infrastructure facility such as temporary office building of Tin Shed , first aid center, Rest shelter, Mobile workshop, are proposed for working in the area. No decommissioning is proposed at this stage. Thus no management measures require in this progressive mine closure plan.

4.8 Disposal of Mining Machineries

Mining machineries will be on hire basis. Some machinery will be purchased by Licensee. Machineries will be kept for future use. The big machineries will be deployed on hire basis. Thus disposal of mine machineries are not come across during the period of this progressive mine closure plan.

4.9 Safety and Security

All the safety measures as per mines act will be provided. For safety proposed the following proposals are also proposed: temporary barbed wire fencing will be proposed around the workings to check the inadvertent entry of human and livestock working pit. Watchmen are proposed for ward and watch duty for security propose. The watchman will not allow any general public person and livestock near the mine workings. The safe workings are proposed in the supervision of technical and qualified supervisory staff.

Following measures should be taken for Safety measures:-

1. While loading and unloading with trucks and dumpers, proper warning system should be adopted for alarming of working men.
2. Overloading of mineral should be avoided.
3. Ramp for transportation of mineral should be gradient of not less than 1 in 10.
4. Silencers in transporting vehicles should be in good condition.
5. There should be clear distance for working shovel and no men should enter in its periphery while shovel is working.
6. Competent person for supervision should be deployed as per DGMS regulations.
7. Mines act and Rules should be complied while operation of mine.

4.10 Disaster Management and Risk Assessment

It will be an opencast fully mechanized mine. The proposed workings will be fully Mechanized mining method hence due to Human negligence; there are some accidents which occurs.

Important aspect of disaster management is to recognize first the causes of accidents, assessing the consequences of such accidents and deciding emergency procedure both on ON-Site and OFF-Site that would need to be implemented in the event of an emergency.

ON-Site action is the responsibility of mine management and OFF-Site responsibility lies elsewhere outside the management.

Objective: the overall objective of the emergency plan will be:

- To Localize the emergency and if possible to eliminate it and to minimize the effects of the accident on people and property.
- Elimination will require prompt action by operations staff.
- Minimizing the effect by rescue, first aid, evacuation, rehabilitation.
- ON-Site: fix and onsite control who shall assess the size and nature of events at site.
- Formulate the Plan with outside authorities.
- Raise an alarm by blowing an emergency Siren.
- Assess the requirement of rescue and recovery equipment.

Action on Site:-

Evacuate non-essential persons from the incident area.

Keep records as per mines act of accidents at site.

Thus high-risk accident like land slide, subsidence, flood, inundation, fire, seismic activities etc. not come across. In past no such cases/ incidences was reported in the area so far. Private and Government buses are the mode of transport available nearby the mine site.

To deal with sudden causalities the nearest medical facilities are available in the village. Nearest police station is also in village & fire station is in the district. There will be charts printed in Hindi & English displaying telephone numbers, addresses and distances of nearby police station, hospital, fire station etc made available at most easily approachable sight of workers, which should be maintain in good condition always. The Licensee is capable to meet any type of risk. The Walky-Talky or mobile phone will be mode of inter-Communication between supervisors and technical staff observing working at Site.

4.11 Care and Maintenance during Temporary Discontinuance

In case of temporary discontinuance or if mine closes temporarily, then the mines working will be in the watch of a watchman. Before re-open of the mine the maintenance will be provided to all the machineries deployed at mine.

Before entering the labour into mine workings/ faces the workings and faces are proposed to inspect by Mines Manager for safety purpose as per Mines Act.

5.0 Economic Repercussion of Closure of Mine and Manpower Retrenchment

5.1 Number of Local Residents Employed

Skilled labours –8 Operators of Poclain machine with 8 Helpers and Unskilled – 10 labours. Additional 10 persons for other work. 10 supervisory staff so Total persons per day will work around 36 **persons**. Labours deployment will be given priority for nearby villagers.

5.2 Compensation

The compensation to the employees with sustenance of himself and their family members will be provided as per Labour law and Mines Act.

5.3 Satellite Occupations Connected with Mining Industry

The satellite occupations is connected with this mine directly and indirectly i.e. mineral trading & job on various mining activities, transportation of mineral etc.

5.4 Continued Engagement of Employment in the Rehabilitated Status of ML area and any Other Remnant Activities

Not applicable in this progressive mine closure plan.

5.5 Envisaged Repercussions on the Expectation of the Society around due to Closure of Mine

This paragraph belongs to final closure of the mine and not related with this progressive mine closure plan.

6.0 Time Scheduling for Abandonment

Mining lease is yet to be grant and mine is not proposed to abandoned.

7.0 Abandonment Cost

Mining lease is yet to be grant and mine is not proposed to abandoned.

8.0 Financial Assurance

As per rule 37(J) of Rajasthan Minor Mineral Concession Rules 1986, Second amendment 2012, the licensee will submit the financial assurance as acceptable by the officer authorized by the state government in this behalf.

9.0 Certificate

The certificate no.5 is enclosed.

10.0 Plan and Section

All relevant plans & sections have been enclosed.

(Mangal Singh Solanki)
(Applicant for Lease)

(M.K.Gupta)
RQP/AJM/269/2005/A

M.K. GUPTA
RQP/AJM/269/2005-A

22.10.13
अधीक्षण खान प्रबिधन्ता
खान एवं भू-विज्ञान विभाग,
जोधपुर वृत, जोधपुर

Annexure No. 1

राजस्थान सरकार
खान (ग्रुप–2) विभाग

जयपुर, दिनांक:– 27 FEB 2013

क्रमांक प.8(15)खान / ग्रुप–2 / 2013

श्री मंगल सिंह सोलंकी,
पुत्र श्री लक्ष्मण सिंह सोलंकी,
निवासी–13, शिव नगर,
जयपुर (राज.)।

विषयः–खनन पट्टा क्षेत्र 1414 है0 क्षेत्र जिला सिरोही की तहसील [illegible] गांवो में गैर मुमकिन नदी, नालो, बालों से (खसरे के अन्दर) निकलने वाला खनिज बजरी का श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी, निवासी–13, शिवनगर,जयपुर (राज.) के पक्ष में।

महोदय,

उपरोक्त विषय में राजस्थान खनिज रियायत नियमावली, 1986 के अन्तर्गत राज्य सरकार आपको 1414 हैक्टेयर क्षेत्र के लिये खनिज बजरी का खनन पट्टा 50 वर्ष के लिये जारी की जाने की मंशा रखती है। अतः निम्न पूर्तियां एक वर्ष में पूर्ण करें :–

1. माईनिंग प्लान तैयार करा एवं सक्षम अधिकारी से अनुमोदित करा प्रस्तुत करे।
2. पर्यावरण क्लीयेरेंस भारत सरकार के वन एवं पर्यावरण मंत्रालय से प्राप्त कर प्रस्तुत करे।
3. नियम 37(जे) अनुसार वित्तीय आश्वासन प्रस्तुत किये जाने का शपथ पत्र प्रस्तुत करे।

भवदीय

संयुक्त शासन सचिव

प्रतिलिपिः–निदेशक, खान एवं भू–विज्ञान विभाग, उदयपुर को उनके पत्र कमांक निदे/प–2(ए.2)सिरो / बजरी / 2012 / 271 दिनांक 28.01.2013 के कम में आवश्यक कार्यवाही हेतु प्रेषित है।

सहायक शासन सचिव

- 390 -desktop/vimal jv390

परिशिष्ट

तहसील शिवगंज खनिज बजरी खननपट्टा हेतु खसरा व क्षेत्रफल का विवरण

क्रमांक	नाम गांव व खसरा नम्बर	कुल खसरा	रकबा/ क्षेत्रफल	क्षेत्रफल बीघा में	क्षेत्रफल हेक्टर में
1	लोटीवाडा छोटा 10	1	108.11	108.11	17.50
2	लोटीवाडा बडा 1, 50, 60, 163, 165, 431, 440, 449	8	21.06, 8.10, 8.04, 416.04, 37.05, 1.01, 4.10, 6.08	501.48	81.19
3	नारादरा 221, 229, 232, 258, 297	5	133.18, 600.04, 33.09, 57.03, 175.05,	998.39	161.64
4	सवली 231	1	276.03	276.03	44.69
5	भाडानी 300	1	198.19	198.19	32.09
6	अखापुरानखुर्द 1	1	130	130	21.05
7	उभेदाड 19, 51, 40, 58, 113,	5	4.01, 530.19, 2.04, 27.15, 4	567.39	91.86
8	चांदेला 1, 2, 3, 8, 38, 40/1, 41, 42, 49, 76, 81, 101, 111, 127, 131, 137, 149, 156, 157, 169, 175, 190, 210, 216, 221, 228, 235, 241, 269, 271, 294, 307, 316, 349, 351, 361, 370, 374, 383, 400	40	45.15, 11.11, 0.16, 26.19, 9.17, 2.18, 80, 12.15, 7.11, 18.19, 3.04, 5.07, 2.16, 1.16, 2.09, 0.14, 0.11, 0.17, 6.15, 2.02, 1.05, 0.16, 113.09, 0.06, 1.15, 12.05, 1.01, 0.15, 0.13, 0.15, 2.02, 1.06, 1.12, 23.12, 4.05, 103, 0.11, 3.06, 11.05, 0.06, 3.09	519.16	84.06
9	सुखडी की गुडा 25/170, 25/179, 25/186, 28, 29, 30, 308/27, 311/25, 314/26, 320/27, 348/11	11	20.02, 5.10, 0.14, 73.19, 111.06, 13.13, 1.01, 0.11, 0.09, 1.14, 9	232.99	37.68
10	रूखाडा 14, 17, 87, 93, 101, 108/01, 116/01, 152, 155, 158, 163, 165	12	2.16, 6.02, 338.19, 1.16, 10.17, 8.03, 24.12, 1.12, 108, 7.16, 3.07,	512.19	82.9

	खसरा नंबर	कुल खसरा	रकबा / हेक्टेयर	आंशिक	हेक्टेयर
	वही 1, 13, 53, 153, 186, 287, 295, 302, 305, 307, 309, 311, 313, 314, 316, 319, 322, 323, 327, 330, 338, 347, 354, 414, 418, 420, 422, 424, 426, 463, 470, 478, 484, 516, 518, 547, 551, 553, 561, 564, 568, 573, 686, 688, 716, 721/1	46	73.05, 2.14, 0.15, 0.15, 3.14, 0.12, 1.03, 7.09, 0.15, 0.02, 0.04, 1.01, 1.01, 0.02, 0.07, 0.03, 0.03, 0.09, 1.01, 1.00, 2.07, 1.08, 0.04, 2.17, 1.19, 1.16, 2.01, 3, 0.13, 5.19, 1.09, 3.19, 0.15, 3.09, 2.02, 1, 1.14, 3.09, 22.04, 2.18, 1.08, 2.03, 6.16, 2.05, 4, 8.18	171.97	27.84
12	राऊबर 2, 9/1, 11, 74, 93, 140, 149, 153, 154, 156	10	3.04, 2, 3, 3.07, 301.14, 84.15, 48.14, 2.15, 7.10, 17.08	470.87	76.23
13	छोबागाव 271, 299/609, 314, 375, 378, 379, 391, 409, 422, 423, 425, 427, 433, 439, 453, 460, 464, 469, 474, 479, 486, 505, 534, 565, 573, 575, 581, 588, 589, 602, 43, 600, 34, 36, 160, 162, 176, 179	38	1.13, 2.18, 25.05, 0.08, 0.15, 1.15, 1.15, 0.18, 2.10, 2.15, 2, 2.15, 810, 1.03, 1.13, 6, 4.14, 6.03, 1.05, 6.13, 4.05, 52, 125.14, 0.18, 35 05, 21.15, 3.08, 28.5, 11.04, 28.15, 19, 6.08, 2.03, 9.16, 7.1, 49 05, 4.1, 3.09	1282.93	207.71
14	बडगाव 25, 54, 157, 167/2, 169/2, 171, 174, 184, 197, 218, 224, 227, 231, 322, 371, 434, 494, 636, 649, 664, 776/2, 797, 799, 814, 816, 820, 822, 828, 837, 839, 844, 849, 408/870	33	0.13, 0.15, 261.02, 3.05, 1, 65.05, 339.16, 7.03, 6.06, 4.14, 14.15, 10.15, 13.10, 1.06, 0.18, 0.08, 0.08, 1, 0.11, 2.12, 8.04, 23.13, 2 05, 11.05, 1.19, 4.06, 5.1, 8.10, 8.03, 27.08, 29.14, 0.17, 2.11, 0.01	858.08	138.92
15	जेतपुरा 118, 155, 158/346, 186, 216, 221, 226, 239, 335	9	145.10, 1.03, 7.1, 3.02, 9.19, 24.05, 9.12, 2.02, 84	284.63	46.08
16	खजडिया 21, 48, 51, 62, 64, 67/1, 93, 113, 125, 169, 191, 199, 201, 205, 217, 290, 292, 296, 303, 317, 344, 360, 400, 408, 442	25	1.02, 8.09, 17.10, 7.17, 4.19, 0.01, 5.18, 7.14, 3.10, 8.08, 5, 4.10, 1 04, 0.09, 0.12, 4.04, 1.04, 1, 29, 88.04, 5.12, 3.07, 3.03, 3.15, 1	209.92	33.99
17	जोयता 94/1, 97/1, 97/2, 137/01, 449, 458/01, 461/01, 462, 392/01	9	11.10, 4.08, 7.16, 62.05, 7.13, 7.01, 8.15, 168.06, 474.07	748.81	121.23
18	प्रौसालिया 296, 430/2, 747, 944, 938/1, 431, 434, 437	8	4.04, 4.07, 77.19, 30[illegible]7, 21.15, 16.16, [illegible], 119.03	658.99	106.69
	योग	263		8731.13	1413.58

Annexure No. -3

Certificate No.: L130627C-01

MANTEC ENVIRONMENTAL LABORATORY
(Recognized by Ministry of Environment & Forests)
D-36, SECTOR-VI, NOIDA-201 301, U. P.

Identification No.	:	L13062701
Name & Address of the Customer	:	M/s Ramji mine envirotech , J-3 , Subhash Marg , C-Sheme, Jaipur-3022001(Rajasthan))
Date of Sampling	:	24.06.2013
Date of Receipt	:	27.06.2013
Sample Description	:	River Sand
Sample Condition	:	Ok
Date of Analysis	:	29.06.2013
Sample Location	:	Jawai River, Sheogunj, Dist – Sirohi , Rajasthan

RESULTS

Sl. No.	Parameter	Units of Measurements	Value	Protocol
1.	pH	-	8.32	IS:2720
2.	Bulk Density	gm/cm³	1.50	IS:2720
3.	Specific Gravity	gm/cm³	2.03	IS:2720
4.	Texture	Class	Sandy	IS:2720
5.	Sand	%	86	IS:2720
6.	Clay	%	6	IS:2720
7.	Silt	%	8	IS:2720
8.	Water Holding Capacity	%	23.12	IS:2720

Analyzed by: **Seal of Lab:** **Authorized Signatory:**

Notes:

- The results relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

Table 1.1

Demographic Profile of Study Area

S. No.	Name	Population	SC	ST	Literates	Illiterates	Household	Literacy Rate
1	Akhapura Khuni	48	0	0	41	7	11	85.42
2	Bar Gaon	5747	2168	698	2860	2887	1160	49.77
3	Chhiba Gaon	1806	211	195	898	908	403	49.72
4	Chooli	1220	246	136	632	588	[illegible]	[illegible]
5	Chotila	542	0	541	140	402	96	[illegible]
6	Jaitpura	1828	147	983	979	849	394	[illegible]
7	Joyla	3825	1026	49	1945	1880	764	50.85
8	Khejariya	1926	380	670	743	1183	410	38.58
9	Lotiwara Bara	634	295	0	228	406	125	35.96
10	Lotiwara Chhota	619	92	160	184	435	130	29.73
11	Madani	1433	420	5	648	785	[illegible]	[illegible]
12	Naradara	1666	631	65	721	945	[illegible]	43.28
13	Posaliya	6821	1232	1419	3825	2996	[illegible]	56.08
14	Radbar	1276	385	142	622	654	268	48.75
15	Rukhada	1348	498	161	752	596	268	55.79
16	Sawali	968	236	65	422	546	218	43.60
17	Sutharon Ka Guda	583	109	109	308	275	108	52.83
18	Ummedgarh	489	161	213	126	363	100	25.77
Total		**32779**	**8237**	**5611**	**16074**	**16705**	**6699**	**46.81**

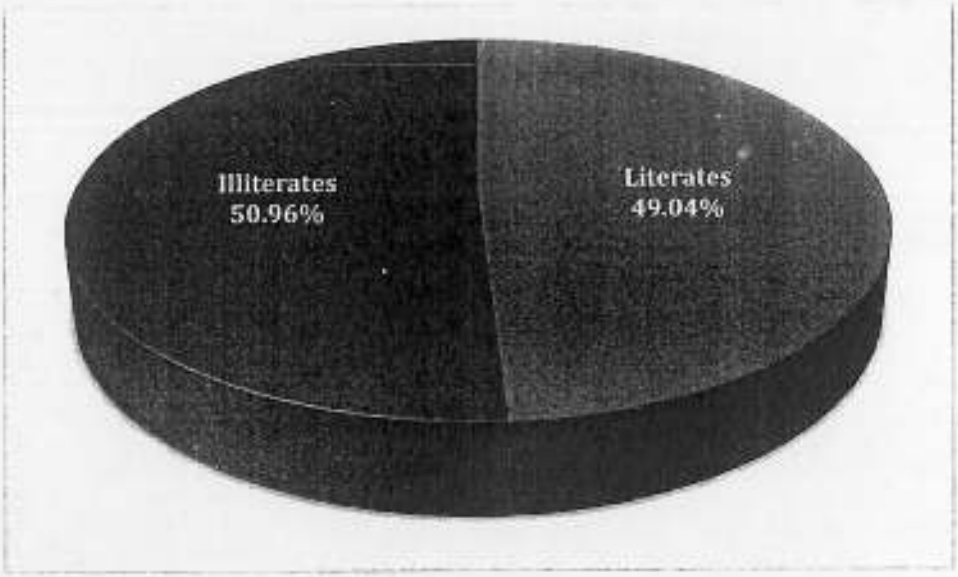
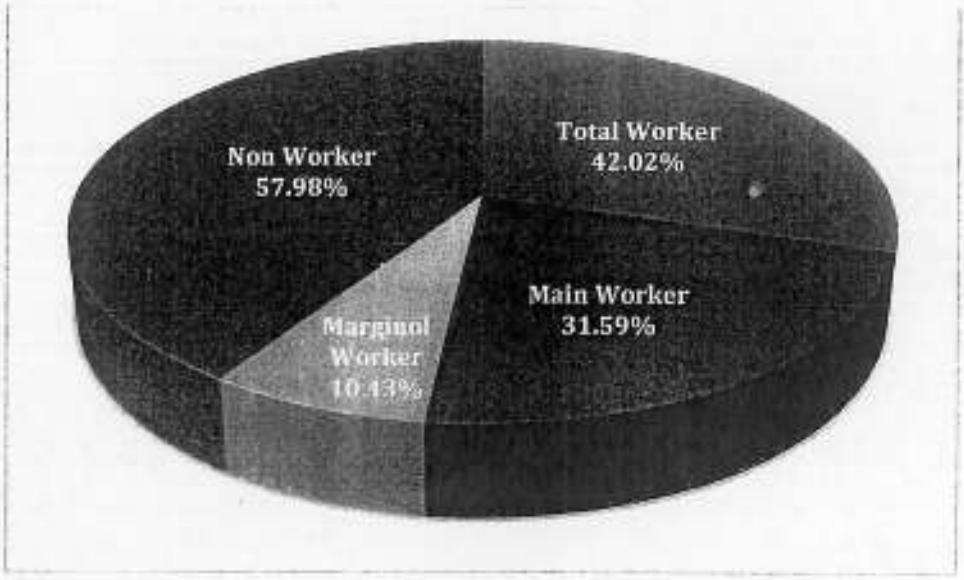


Table 1.2

Occupational Structure of Study Area

S. No.	Name	Population	Total Worker	Main Worker	Marginal Worker	Non Worker
1	Akhapura Khuni	48	19	17	2	29
2	Bar Gaon	5747	2253	1698	555	3494
3	Chhiba Gaon	1806	643	637	6	1163
4	Chooli	1220	511	480	31	709
5	Chotila	542	277	138	139	265
6	Jaitpura	1828	758	546	212	1070
7	Joyla	3825	1621	1133	488	2204
8	Khejariya	1926	679	387	292	1247
9	Lotiwara Bara	634	342	331	11	292
10	Lotiwara Chhota	619	395	314	81	224
11	Madani	1433	564	362	202	869
12	Naradara	1666	900	573	327	766
13	Posaliya	6821	2664	2083	581	4157
14	Radbar	1276	597	474	123	679
15	Rukhada	1348	605	507	98	743
16	Sawali	968	379	149	230	589
17	Sutharon Ka Guda	583	298	297	1	285
18	Ummedgarh	489	268	228	40	221
Total		**32779**	**13773**	**10354**	**3419**	**19006**



जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- खोटीवाडाखोटा पटवार हल्का :- नारादरा भू.अभि.नि.क्षेत्र गाबानी

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सन्वत :- 2065 - 2068 वास्तविक सन्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कारणकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	भूमि जो कब्जे के लिए उपलब्ध है	41/मिन01	25	जोद I 25						
				128	0-03	बारानी 3 0-03						
			कुल खसरा : 2	कुल क्षेत्रफल : 25-03		भूमि प्रकार के अनुसार क्षेत्र फल						
						बारानी 3 0-03						
						जोद I 25						
			नदियाँ तथा नाले (चरागाह हेतु)	10	108-11	नदी 108-11						
				55	3-16	बाजी 3-16						
				87	1	बाजी 1						
				135	2	बाजी 2						
				138	0-17	बाजी 0-17						
				157	1-18	बाजी 1-18						
				177	6-10	बाजी 6-10						
			कुल खसरा : 7	कुल क्षेत्रफल : 124-12		भूमि प्रकार के अनुसार क्षेत्रफल						
						नदी 108-11						
						बाजी 16-01						
			जलस्रोत(चरागाह हेतु)	14	0-11	तेद 0-11						
				30	0-01	तेद 0-01						
				31	0-01	तेद 0-01						
				40	0-06	तेद 0-06						
			कुल खसरा : 4	कुल क्षेत्रफल : 0-19		भूमि प्रकार के अनुसार क्षेत्रफल						
						तेद 0-19						



अपना हेल्प सेन्टर से जारी एवं सत्यापित प्रति

(हस्ताक्षर)

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- लोटीवाडाखोडा | पटवार हल्का :- नारादरा | भू.अभि.नि.क्षेत्र :- गाडानी |

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2065 - 2068 | वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	खसरा नम्बर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना						दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

डेट 0-19

नदी 108-11

बानी 16-01

प्रतिलिपि शुल्क 20/-

प्रमाणित किया जाता है कि यह प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।

प्रतिलिपि क्रमांक:- 1905156-6254

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

अपना छाता लेकर आये यह सत्यापित प्रति

धारी,अंजना कंवर (भाटी)

एस॰ आर॰ सी॰, पटवारी

पटवार हल्का-नारादरा, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- लोटीवाडाबड़ा पटवार हल्का नारादरा भू.प्रबं.नि.क्षेत्र माडानी पृष्ठ संख्या 3 of 6

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

वर्ष :- 2064 - 2067 वास्तविक सम्वत :- 2064

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि स्थाई सिंचाई जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
			कुल खसरा : 5	कुल क्षेत्रफल : 500-09		भूमि प्रकार के अनुसार क्षेत्रफल गै.मु.बोरल 500-09						
			बादर (चारागाह हेतु)	215	0-04	गै.मु.गड्ढा	0-04					
			कुल खसरा : 1	कुल क्षेत्रफल : 0-04		भूमि प्रकार के अनुसार क्षेत्रफल गै.मु.गड्ढा 0-04						
			नदियाँ तथा नाले (चारागाह हेतु)	1	21-06	गै.मु.नदी	21-06					
				50	8-10	गै.मु.नाला	8-10					
				60	8-04	गै.मु.नाला	8-04					
				163	416-04	गै.मु.नदी	416-04					
				165	37-05	गै.मु.नदी	37-05					
				431	1-01	गै.मु.नाला	1-01					
				440	4-10	गै.मु.नाला	4-10					
				449	6-09	गै.मु.नाला	6-09					
			कुल खसरा : 8	कुल क्षेत्रफल : 503-09		भूमि प्रकार के अनुसार क्षेत्रफल गै.मु.नदी 474-15 गै.मु.नाला 28-13						
			जंगल(चारागाह हेतु)	22M68	0-09	नाली	0-09					
				36	1-13	घास	1-13					
				37	5-01	नाली	5-01					
				80	0-05	नाली	0-05					
				107	1-12	नाली	1-12					
				109	1-17	नाली	1-17					



ना.क.सं.602
अपना आवेदन बेरोज़ में जाकर एवं सत्यापित करावें

(सुरेन्द्रसिंह)
एस. आर. ओ.

जमाबन्दी (प्रतिलोप)

प्रपत्र पी-26(बी)

ग्राम का नाम :- लोटीवाडाबडा | पटवार हल्का | नारावरा | यू.अभि.नि.क्षेत्र | माडली | पृष्ठ संख्या 1 of 6

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2064 - 2067 | वास्तविक सम्वत :- 2064

क्षेत्रफल :- बीघा-बिस्वा

खेसरा(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
		राज्य सरकार	6 वर्ष या अधिक परती/बुताई हेतु	2	6-08	पवत II	6-08						
				3	3-07	ब 2	3-07						
				4	5-01	ब 2	5-01						
				5	3-18	ब 2	3-18						
				6	10-12	ब 2	10-12						
				7	10-11	ब 2	10-11						
				8	15-17	ब 2	15-17						
				9	24-08	ब 2	24-08						
				10	6-15	ब 2	6-15						
				11	3-19	ब 2	3-19						
				12	10-17	ब 2	10-17						
				13	6-09	ब 2	6-09						
				14	8-09	ब 2	8-09						
				15	8-02	ब 2	8-02						
				16	8-08	ब 2	8-08						
				17	14-17	ब 2	14-17						
				18	7-02	ब 2	7-02						
				19/मिन01	0-05	ब 2	0-05						
				25/मिन01	2-09	ब 2	2-09						
				26	5-13	ब 2	5-13						
				34/मिन01	40-10	पवत II	40-10						
				35	13-01	ब 2	13-01						
				39/मिन01	7-16	ब 2	7-16						
				41	0-04	ब 2	0-04						
				42	3-10	ब 2	3-10						
				48	5	ब 2	5						
				49	4-02	पवत II	4-02						
				51	21-09	पवत II	21-09						
				5 मिन01	17 7	2	7-03						
				[illegible]	[illegible]	[illegible]							

अपना खाता कोड से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)
एल० आर० सी०, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- लोटीयाडाबडा | पटवार हल्का :- नारावरा | मू.अभि.नि.क्षेत्र :- नाडोली | पृष्ठ संख्या 2 of 6

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2064 - 2067 | वास्तविक सम्वत :- 2064

क्षेत्रफल :- बीघा-बिस्वा

खेतद(खतौनी) नया	खेतद(खतौनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	रूपान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिनके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (नवकूर)		राज. सरकार		57	4-15	च 2	4-15						
				58	14-13	च 2	14-13						
				59	9-05	पदत II	9-05						
				61	2-04	पदत II	2-04						
				85	19	पदत II	19						
				88	2	पदत II	2						
				89	6-17	पदत II	6-17						
				117	0-14	पदत I	0-14						
				124/मिन01	10	च 2	10						
				137	20	पदत I	20						
				139	19-05	च 3	19-05						
				157/मिन01	6	च 2	6						
				161/मिन01	15-04	पदत I	15-04						
				237	0-05	पदत II	0-05						
				248	5-03	पदत II	5-03						
				352	1-08	पदत II	1-08						
				370	2-19	च 2	2-19						

कुल खसरा : 47 | कुल क्षेत्रफल : 415-17

भूमि प्रकार के अनुसार क्षेत्रफल

पदत I	35-18
पदत II	118-[illegible]
च 2	245-03
च 3	19-05

केनल चराई योग्य भूमि	232	11-08	के.सु.क्षेत्रफ	11-08	
	266	8-10	के.सु.क्षेत्रफ	8-10	
	420	47-11	के.सु.क्षेत्रफ	47-11	

अपना [illegible] सहायिका प्रति

(सुनिताचिंग)
ग्राम- ग्रा.प. पो., पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- लोटीवाडावडा पटवार हल्का नारादरा भू.अभि.नि.क्षेत्र गाडानी पृष्ठ संख्या 4 of 6

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2064 - 2067 वास्तविक सम्वत :- 2064

क्षेत्रफल :- बीघा-बिस्वा

खेड़ट(खलोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्हीरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (पक्का)		राज सरकार		212	0-12	नाडी	0-12						
				219	0-05	ब 2	0-05						
				253	5-17	नाडी	5-17						
				256	0-05	डेह	0-05						
				260	0-16	वाड	0-16						
				261	1-15	तालाब	1-15						
				262	1-07	पाल	1-07						
				263	5-17	तालाब	5-17						
				264	3-05	पाल	3-05						
				266	0-08	डेह	0-08						
				292	1-01	नाडी	1-01						
				303	9-15	पाल	9-15						
				304	39-17	नाडी	39-17						
				308	4-16	नाडी	4-16						
				340	3-03	नाडी	3-03						
				372	0-07	नाडी	0-07						
				382	0-17	नाडी	0-17						
				383	1-02	वाड	1-02						
				402	0-18	नाडी	0-18						
				422	3-04	नाडी	3-04						
				423	14-16	पाल	14-16						
				428	0-14	डेह	0-14						

कुल खसरा : 31 कुल क्षेत्रफल : 125-13

भूमि प्रकार के अनुसार क्षेत्रफल

नाडी	83-17
डेह	1-05
वाड	32-14
तालाब	7-12
ब 2	0-0

अपत्र खुलता फोल्ड से काटें एवं सत्यापित करें

(भूमिपति)
एल० आर० सी०, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- मोटीबाढाबढा
तहसील :- शिवगंज
सम्वत :- 2064 - 2067
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का :- नारादरा
जिला :- सिरोही
वास्तविक सम्वत :- 2064

भू.अभि.नि.क्षेत्र :- गादानी
दिनांक :- 05/04/2013

नमूना पी-26(बी)

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	सामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मक्बूर)		राज. सरकार	श्मशान घाट (पारावाह के लिए नहीं)	258	0-03	गै.मु.श्मशान	0-03					
			कुल खसरा : 1	कुल क्षेत्रफल : 0-03		भूमि प्रकार के अनुसार क्षेत्रफल गै.मु.श्मशान 0-03						
			पगडांडिया तथा रास्ते (पारावाह के लिए नहीं)	72	7-06	गै.मु.रास्ता	7-06					
				119	2-13	गै.मु.रास्ता	2-13					
				121	0-05	गै.मु.रास्ता	0-05					
				123	1-09	गै.मु.रास्ता	1-09					
				126	8-11	गै.मु.रास्ता	8-11					
				156	0-09	गै.मु.रास्ता	0-09					
				159	1-13	गै.मु.रास्ता	1-13					
				180	1-19	गै.मु.रास्ता	1-19					
				187	0-08	गै.मु.रास्ता	0-08					
				197	2-08	गै.मु.रास्ता	2-08					
				213	1-07	गै.मु.रास्ता	1-07					
				240	1-16	गै.मु.रास्ता	1-16					
				257	0-10	गै.मु.रास्ता	0-10					
				269	1	गै.मु.रास्ता	1					
				275	0-16	गै.मु.रास्ता	0-16					
				287	7-06	गै.मु.रास्ता	7-06					
				290	2-09	गै.मु.रास्ता	2-09					
				339	2-10	गै.मु.रास्ता	2-10					
				376	11-03	गै.मु.रास्ता	11-03					
				421	9	गै.मु.रास्ता	9					

अभय ग्राम केन्द्र से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

जमाबन्दी (प्रतिलिपि)

प्रपत्र भी-26(बी)

गाम का नाम :- लोटीवाडाबडा
पटवार हल्का :- नारायरा
सू.अभि.नि.क्षेत्र :- वाडामी
पृष्ठ संख्या 6 of 6
तहसील :- शिवगंज
जिला :- सिरोही
दिनांक :- 05/04/2013
सम्वत :- 2064 - 2067
वास्तविक सम्वत :- 2064
क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश सं. एवं दिनांक	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
						वै.मु.रास्ता	69-04					

कुल: कुल खसरा : 115 कुल क्षेत्रफल : 1617-18

भूमि प्रकार के अनुसार क्षेत्रफल

पहाड I	35-18
पहाड II	118-11
गाडी	83-17
वै.मु.बसवाड़ा	0-03
हैंड	1-05
वे.मु.खेरज	500-09
वै.मु.रास्ता	69-04
वै.मु.खुड़	0-04
वै.मु.नदी	474-15
वै.मु.नाला	28-13
खाल	32-14
तालाब	7-12
व 2	245-09
व 3	19-05

प्रतिलिपि शुल्क: 60/-
प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।
प्रतिलिपि क्रमांक:- 1905137-6255
प्रतिलिपि जारी करने का दिनांक- 05/04/2013

अपना खाता केन्द्र [illegible] प्रमाणित प्रति
[illegible]
[illegible]
[illegible]

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- नारादरा
तहसील :- शिवगंज
सन्नत :- 2068 - 2069
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का नारादरा
जिला :- सिरोही
वास्तविक / सन :- 2066

भू.बन्दि.नि.क्षेत्र वाहनी
दिनांक :- 05/04/2013

खेसट(खतौनी) नया	खेसट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि स्थाई विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	भूमि जो काश्त के लिए उपलब्ध है	39	1-10	ब 1	1-10					
				234	5-18	ब 3	5-18					
				246/602	0-15	पहाड़ II	0-15					
				247	4	ब 3	4					
				253	6-05	ब 3	6-05					
				293	7-11	ब 3	7-11					
				294	1-04	पहाड़ I	1-04					
				399	1-12	पहाड़ I	1-12					
				616/373	0-02	पहाड़ II	0-02					

कुल खसरा : 9 कुल क्षेत्रफल : 28-17

भूमि प्रकार के अनुसार क्षेत्रफल

पहाड़ I	2-16
पहाड़ II	0-17
ब 1	1-10
ब 3	23-14

केवल चराई योग्य भूमि

2	6-13	गै.मु.खाना	6-13
4	32-18	गै.मु.खाना	32-18
216	6-06	गै.मु.खाना	6-06
221	133-18	गै.मु.नदी	133-18
229	600-04	गै.मु.नदी	600-04
232	33-09	गै.मु.नदी	33-09
256	57-03	गै.मु.नदी	57-03
260	1-04	गै.मु.खाना	1-04
282	11-05	गै.मु.खाना	11-05
284	2-10	गै.मु.बीड़	2-10
297	175-05	गै.मु.नदी	175-05

अपना खाता खोलने से खरी एवं सत्यापित प्रति

(सुरेशसिंह)
एल॰ आर॰ सी॰, पटवारी

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :-	नारादरा	पटवार हल्का	नारादरा	भू.अभि.नि.क्षेत्र	गाडानी	पृष्ठ संख्या	2 of 7
तहसील :-	शिवगंज	जिला :-	सिरोही	दिनांक :-	05/04/2013		
सम्वत :-	2066 - 2069	वास्तविक सम्वत :-	2066				
सेक्शन :-	बीघा-बिस्वा						

खेत(खतोली)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (चबूतरा)		राज. सरकार		454	1-01	वै.भू.बाला	1-01						
				459	5-15	वै.भू.बाला	5-15						
				466	1-01	वै.भू.बाला	1-01						
				493	3-18	वै.भू.बाला	3-18						
				518	3-05	वै.भू.बाला	3-05						
				526	5-10	वै.भू.बाला	5-10						
				534	10-09	वै.भू.बाला	10-09						
				553	1-05	वै.भू.बाला	1-05						
				561	0-04	वै.भू.बाला	0-04						
				614/559	511-15	वै.भू.बीरण	511-15						

कुल खसरा : 24 कुल क्षेत्रफल : 1988-17 भूमि प्रकार के अनुसार क्षेत्रफल

वै.भू.बीरण	767
वै.भू.नदी	999-19
वै.भू.धोरा	2-10
वै.भू.बाला	99-08

जलमग्न(परमानद हेतु)	6	4-01	वै.भू.पायतन	4-01
	7	1-19	वै.भू.नाडी	1-19
	22	2-12	वै.भू.नाडी	2-12
	31	1-04	वै.भू.नाडी	1-04
	35	2-05	वै.भू.नाडी	2-05
	62	2-15	वै.भू.नाडी	2-15
	64	4-19	वै.भू.नाडी	4-19
	75	1-18	वै.भू.नाडी	1-18
	96	1-12	वै.भू.तलाई	1-12
	1.	2-.	ग.गा.	-17

अपना खसरा क्रमांक से खातो एवं सम्बन्धित प्रति

(सुरेन्द्रसिंह)

एवम् मदद नं., पटवारी

सेक्शन क्रमांक, नारादरा तहसील

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- नारादरा | पटवार हल्का नारादरा | भू.अभि.वि.क्षेत्र गादानी
तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013
सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2066
क्षेत्रफल :- बीघा-बिस्वा

खेड़ट(खतोनी) नया	खेड़ट(खतोनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नक्शान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मक्कूर)		राज. सरकार		170	2-19	गै.मु.नाही	2-19					
				201	3-13	पाल	3-13					
				202	6-02	गै.मु.नाही	6-02					
				218	0-12	गै.मु.नाही	0-12					
				245	0-18	गै.मु.डेह	0-18					
				273	0-18	बहा	0-18					
				309	4-12	गै.मु.नाही	4-12					
				315	1-10	गै.मु.खाद गड्ढे	1-10					
				317	0-01	गै.मु.पेरा	0-01					
				318	6-15	गै.मु.तालाब	6-15					
				322	2	गै.मु.खाद गड्ढे	2					
				324	2	मजारी	2					
				325	1	पाला	1					
				326	1	गै.मु.	1					
				354	1-04	बहा	1-04					
				367	0-12	गै.मु.नाही	0-12					
				403	8-15	गै.मु.नाही	8-15					
				404	8	गै.मु.रावला	8					
				417	4-03	गै.मु.नाही	4-03					
				418	1-01	गै.मु.नाही	1-01					
				419	18-06	गै.मु.गोचर	18-06					
				542	0-06	गै.मु.नाही	0-06					

कुल खसरा : 35 कुल क्षेत्रफल : 109-12

भूमि प्रकार के अनुसार क्षेत्रफल
गै.मु.डेह 0-18
बहा 2-02

अपना खाता खेत से चारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)
पटवार सी. गादानी

ग्राम का नाम :- नारादरा
तहसील :- शिवगंज
सन्नात :- 2066 - 2069
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का नारादरा
जिला :- सिरोही
वास्तविक सम्वत :- 2068

भू.अधि.लि.क्षेत्र माडानी
दिनांक :- 05/04/2013

खेड़ा(खड़ोनी)		भूमि धारक का नाम	कारकदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		तामलटरण आदेश नं. तथा तारीख	भूमि ग्रौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नका	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

वै.भू	1
पाल	3-13
गै.भू.नाही	58-06
बाडा	1
वै.भू.चायल	30-07

निवास या बास (खारावाह के लिए नहीं)

33	8-07	वै.भू.रास्ता	8-07
37	15-16	गै.भू.रास्ता	15-16
72	0-17	वै.भू.रास्ता	0-17
77	3-02	वै.भू.रास्ता	3-02
83	3-14	गै.भू.रास्ता	3-14
105	2-07	वै.भू.रास्ता	2-07
113	4-13	गै.भू.रास्ता	4-13
127	2-13	गै.भू.रास्ता	2-13
140	1-05	वै.भू.रास्ता	1-05
149	1-07	गै.भू.रास्ता	1-07
158	1-13	गै.भू.रास्ता	1-13
163	2-04	वै.भू.रास्ता	2-04
172	1	गै.भू.रास्ता	1
177	12-12	गै.भू.रास्ता	12-12
185	4-13	वै.भू.रास्ता	4-13
197	2-19	वै.भू.रास्ता	2-19
204	2-12	गै.भू.रास्ता	2-12
209	2-04	वै.भू.रास्ता	2-04
212	1-14	गै.भू.रास्ता	1-14
226	1-10	वै.भू.रास्ता	1-10
231	1-02	गै.भू.रास्ता	1-02
246/601	0-05	वै.भू.रास्ता	0-05
251	0-05	गै.भू.रास्ता	0-05
45	3-8	गै.भू. II	3-08

अपना छाप कोड से असे एवं हस्ताक्षरित प्रति

(सुरेन्द्रसिंह)
पूर्व. आर. पी. पटवारी
स्वायत्त-शासन, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- नाराडरा
तहसील :- शिवगंज
सम्वत :- 2066 - 2069
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का नाराडरा
जिला :- सिरोही
वास्तविक सम्वत :- 2066

भू.अभि.नि.क्षेत्र गाडानी
दिनांक :- 05/04/2013

पृष्ठ संख्या 7 of 7

खेड़त(खतोनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		सामान्तरण आदेश सं. तथा तारीख	भूमि और विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि शुल्क: 70/-

प्रमाणित किया जाता है कि यह प्रतिलिपि में दिनांक

प्रतिलिपि क्रमांक:- 1905182-8256

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

सब के समक्ष परिवर्तन समाविष्ट कर दिये गये हैं।

अपना खाता खोल के सभी पर्चे सत्यापित प्रति
सत्य प्रतिलिपि

प्रभारी अधिकारी भूमि भवन केन्द्र
राजस्थानी लेखा सेवा, सिरोही

जमाबन्दी (प्रातालाप)

प्रपत्र पी-26(बी)

ग्राम का नाम :- सवली | पटवार हल्का :- बारादरा | भू.अभि.नि.क्षेत्र :- माडानी | पृष्ठ संख्या 1 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्षवार :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(अंतोनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि करारित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	भूमि को काश्त के लिए उपलब्ध है	1	1-11	रा.ग	1-11						
				12	1-18	रास्ता	1-18						
				16	0-03	रास्ता	0-03						
				23	2-07	रास्ता	2-07						
				28	0-03	रास्ता	0-03						
				37	3-11	रास्ता	3-11						
				51	0-10	रास्ता	0-10						
				58	0-11	रास्ता	0-11						
				62	2-04	रास्ता	2-04						
				63	0-12	नाला 1	0-12						
				69	0-04	रास्ता	0-04						
				71	12-05	रास्ता	12-05						
				75/505	1-19	रास्ता	1-19						
				77	6-17	रास्ता	6-17						
				78/1	10	ब 2	10						
				79	7-09	नाला 1	7-09						
				80	2-18	पै.भू.पाल	2-18						
				89	0-05	रास्ता	0-05						
				96	1-14	रास्ता	1-14						
				99	6-14	रास्ता	6-14						
				116	6-17	ब 2	6-17						
				118	5-13	रास्ता	5-13						
				124	0-03	रास्ता	0-03						
				129	0-18	रास्ता	0-18						
				140	3-10	रास्ता	3-10						
				145	0-03	रास्ता	0-03						
				148	3-05	रास्ता	3-05						
				149	0-12	खारच	0-12						
				152		खार	5						

इसमें खुले कोड से अधिक एवं परिवर्तन किये
(भू-प्रबन्धक)
एवं अति. कले. सहसिरो
सहसिरो-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- नारादरा | पटवार हल्का :- नारादरा | भू.अभि.नि.क्षेत्र :- माबानी | पृष्ठ संख्या 5 of 7

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेड़ट(खसरा) नम्बर	खेड़ट(खसरा) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मवकूर)		राज. सरकार		263	0-15	गै.मु.रास्ता	0-15						
				267	1-05	गै.मु.रास्ता	1-05						
				270	1-06	गै.मु.देवस्थान	1-06						
				278	1-07	गै.मु.रास्ता	1-07						
				289	0-15	गै.मु.रास्ता	0-15						
				305	0-19	गै.मु.रास्ता	0-19						
				316	0-03	गै.मु.देवस्थान	0-03						
				323	5-04	गै.मु.रास्ता	5-04						
				330	0-10	गै.मु.रास्ता	0-10						
				335	0-01	गै.मु.देवस्थान	0-01						
				335	4-15	गै.मु.रास्ता	4-15						
				342	2-02	गै.मु.रास्ता	2-02						
				344	2-09	गै.मु.रास्ता	2-09						
				349	0-18	गै.मु.रास्ता	0-18						
				362	2-05	गै.मु.रास्ता	2-05						
				376	5-06	गै.मु.रास्ता	5-06						
				377	0-19	गै.मु.रास्ता	0-19						
				395	4-08	गै.मु.रास्ता	4-08						
				402	0-02	गै.मु.देवस्थान	0-02						
				420	3-18	गै.मु.रास्ता	3-18						
				429	0-06	गै.मु.रास्ता	0-06						
				443	2-07	गै.मु.रास्ता	2-07						
				464	1-04	गै.मु.रास्ता	1-04						
				490	4-19	गै.मु.रास्ता	4-19						
				498	0-17	गै.मु.रास्ता	0-17						
				501	0-08	गै.मु.रास्ता	0-08						

ग्राम का नाम :- नारादरा पटवार हल्का नारादरा भू.प्र.नि.क्षेत्र माडानी पृष्ठ संख्या 6 of 7

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2066 - 2069 वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेसरा(खतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. एवं तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सवमूर)		राज.		547	6-02	गै.मु.रास्ता	6-02						
		सरकार		592	7-13	गै.मु.रास्ता	7-13						

कुल खसरा : 56 कुल क्षेत्रफल : 152-08 भूमि प्रकार के अनुसार क्षेत्रफल

गै.मु.रास्ता 150-16

गै.मु.क्षेत्रफल 1-12

कुल: कुल खसरा : 124 कुल क्षेत्रफल : 2159-14 भूमि प्रकार के अनुसार क्षेत्रफल

गै.मु.रोड	0-16
पहल I	2-16
पहल II	0-17
खड्डा	2-02
गै.मु.ओरण	787
गै.मु.रास्ता	150-16
गै.मु.नदी	999-19
गै.मु.खाद गड्ढे	3-10
गै.मु.तालाब	8-15
गै.मु.धोरा	2-10
आबादी	2
गै.मु.पेड़	0-01
गै.मु.	1
पाल	3-13
गै.मु.चाही	58-06
गै.मु.बाड़ा	99-08
बाड़ा	1
गै.मु.क्षेत्रफल	1-12
ब 1	1-10
ब 3	23-14
गै.म. क्षेत्रफल	30

अपना खाता फोन से जाने एवं सत्यापित करें

(हस्ताक्षरित)

एस॰ आर॰ मेघ, पटवारी

सहलील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

जमाब मी-26(मी)

ग्राम का नाम :- सबली | पटवार हल्का :- नारादरा | रू.व.मि.नि.क्षेत्र :- माडानी | पृष्ठ संख्या 4 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- क्षेत्र-विस्वा

क्षेत्रफल(अंतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (सबसूर)		राज. सरकार		431	3	वै.सु.माला	3					
				438	0-04	नाका 1	0-04					
				439	1	रास्ता	1					
				443	0-04	नाका 1	0-04					
				450	2-04	रास्ता	2-04					
				454	0-10	नाका 1	0-10					
				459	1-04	नाका 1	1-04					
				468	3-19	रास्ता	3-19					
				469	1	रास्ता	1					
				473	2-15	बारप	2-15					
				474	1-02	नाका 1	1-02					
				482/1	0-02	सड़क	0-02					
				483/3	0-01	सड़क	0-01					
				483/4	0-01	सड़क	0-01					
				484/1	0-04	सड़क	0-04					
				487/1	0-18	सड़क	0-18					
				488/1	0-03	सड़क	0-03					
				489/1	0-13	सड़क	0-13					
				490	16-10	रास्ता	16-10					
				492	1-03	वै.सु.माला	1-03					
				497/522	0-02	सड़क	0-02					
				498/523	0-05	सड़क	0-05					
				499/524	0-13	सड़क	0-13					
				500/1	0-12	सड़क	0-12					
				501/1	0-17	सड़क	0-17					

कुल खसरा : 115 | कुल क्षेत्रफल : 677-17 | भूमि प्रकार के अनुसार क्षेत्रफल

नाका 1	30-01
सड़क	4-12



प्रमाण खातेदार से प्राप्त एवं मनुमोदित करें

(सुनिश्चित)

सहा. क्षेत्र. वि. सहायक

सहायक निदेशक, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- सवली | पटवार हल्का :- नारादरा | पु.अभि.नि.क्षेत्र :- माढाली | पृष्ठ संख्या 4 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेत(खसरो) नया	खेत(खसरो) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सवलपुर)		राव.		431	3	पै.मु.चारा	3						
		करसार		438	0-04	नाला 1	0-04						
				439	1	रास्ता	1						
				443	0-04	नाला 1	0-04						
				450	2-04	रास्ता	2-04						
				454	0-10	नाला 1	0-10						
				459	1-04	नाला 1	1-04						
				466	3-19	रास्ता	3-19						
				469	1	रास्ता	1						
				473	2-15	खारण	2-15						
				474	1-02	नाला 1	1-02						
				482/1	0-02	सहक	0-02						
				483/3	0-01	सहक	0-01						
				483/4	0-01	सहक	0-01						
				484/1	0-04	सहक	0-04						
				487/1	0-18	सहक	0-18						
				488/1	0-03	सहक	0-03						
				489/1	0-13	सहक	0-13						
				490	16-10	रास्ता	16-10						
				492	1-03	पै.मु.चारा	1-03						
				497/522	0-02	सहक	0-02						
				498/523	0-06	सहक	0-06						
				499/524	0-13	सहक	0-13						
				500/1	0-12	सहक	0-12						
				501/1	0-17	सहक	0-17						

कुल खसरा : 115 | कुल क्षेत्रफल : 677-17 | भूमि प्रकार के अनुसार क्षेत्रफल

नाला 1	30-01
सहक	4-12



आपना खातर जेरॉक्स से जारी एवं सत्यापित की

(पुनीत)

तलाठी, ग्राम पं. सवली

सहलीक: शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

परिशिष्ट पी-28(बी)

ग्राम का नाम :- गाडानी
तहसील :- शिवगंज
सम्वत :- 2067 - 2070
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का :- बोडा
जिला :- सिरोही
वास्तविक सम्वत :- 2067

भू.अभि.नि.क्षेत्र :- गाडानी
दिनांक :- 05/04/2013

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लिखाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज सरकार	भूमि जो काश्त के लिए उपलब्ध है	163/1	7-05	ब 3	7-05						
				225/1	7-19	पक्त।	7-19						

कुल खसरा : 2 कुल क्षेत्रफल : 15-04

भूमि प्रकार के अनुसार क्षेत्रफल

पक्त।	7-19
ब 3	7-05

-	भूमि जो सिंचाई के लिए अनुपलब्ध	3	3-04	रास्ता	3-04
		6	0-16	रास्ता	0-16
		14	1-01	रास्ता	1-01
		19	7-01	नाडा	7-01
		21	1-10	रास्ता	1-10
		24	5-10	रास्ता	5-10
		28	3-06	रास्ता	3-06
		42	2-02	रास्ता	2-02
		45	1-18	रास्ता	1-18
		48	0-06	रास्ता	0-06
		54	0-10	रास्ता	0-10
		59	2	रास्ता	2
		63	2-02	नाडा	2-02
		64	0-04	पाल	0-04
		65	2-19	खारप	2-19
		66	8-02	रास्ता	8-02
		75	0-15	रास्ता	0-15
		82	2-17	रास्ता	2-17
		85	0-11	रास्ता	0-11
		90	44-16	खारप	44-16
		93	0-08	रास्ता	0-08
		[illegible]	[illegible]	रास्ता	0-15
		96	1-[illegible]	[illegible]	[illegible]

* नाखा. क्र.: 584 - नि.वि.: 25/02/2012 - आवेदन के द्वारा धरिदे आवेदक अमित द्वारा नागत तहसीलदार शिवगंज ख.नं.221 रकबा 85-12 बीघा में से रकबा 1-00 बीघा जिला कार्यालय भवन ख.नं.221/1 जल संसाधन विभाग (जल उपभोक्ता संगम-1, बोडा परियोजना के कार्यालय भवन हेतु 99 वर्ष की लीज पर) के नाम परि.।

अपना खाता कोड से जारी एवं सत्यापित मानें

(सुरेन्द्रसिंह)
एल॰ आर॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

राग का नाम :- गाडानी | पटवार हल्का :- ओडा | पू.अभि.नि.क्षेत्र :- गाडानी | पृष्ठ संख्या 2 of 6

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेत(अलोनी)		भूमि धारक का नाम	कारकदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि धारक विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सवाह)		राज सरकार		100	0-15	बाजी	0-15						
				101	1-08	धारच	1-08						
				102	1-19	रास्ता	1-19						
				103	1-07	रास्ता	1-07						
				108	0-09	नाला	0-09						
				111	0-05	रास्ता	0-05						
				112	2-07	धारच	2-07						
				113	1-10	रास्ता	1-10						
				116	0-02	नाला	0-02						
				117	0-03	नाला	0-03						
				119	1-02	रास्ता	1-02						
				121	13-09	धारच	13-09						
				122	4-16	धारच	4-16						
				123	0-10	बाजी	0-10						
				124	7-02	धारच	7-02						
				128/394	0-07	रास्ता	0-07						
				129	1-07	राज							
				130	2-18	नाला							
				131	0-10	रास्ता							
				136	1-10	बाजी	1-10						
				143	1-13	धारच	1-13						
				144	0-08	रास्ता	0-08						
				146	0-04	रास्ता	0-04						
				147	0-10	धारच	0-10						
				148	2-19	रास्ता	2-19						
				149	1-07	धारच	1-07						
				150	0-13	धारच	0-13						
				151	7	धारच	7						
				155	4-17	धारच	4-17						



अपना खाता फैक्ट से आयी एवं प्रतिलिपित प्रति

(भूराराम)

एल० आर० सी०, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी.28(बी)

ग्राम का नाम :- माडाली | पटवार हल्का :- बोडा | भू.प्रबं.नि.क्षेत्र :- माडाली | पृष्ठ संख्या 3 of 6

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 06/04/2013

साल :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(अतोनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		दाखिलख़ारिज आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मजदूर)	राज. सरकार			160	4-12	बारप		4-12				
				161	90-15	बारप		90-15				
				162	2-10	रास्ता		2-10				
				164	89-04	बाबी		89-04				
				168	2-10	रास्ता		2-10				
				170	5-17	बारप		5-17				
				171	4-09	रास्ता		4-09				
				172	23-17	बारप		23-17				
				177	0-10	रास्ता		0-10				
				180	2-05	रास्ता		2-05				
				181	0-04	नाडा		0-04				
				188	37-11	बारप		37-11				
				189	0-13	बारप		0-13				
				190	0-04	रास्ता		0-04				
				191	1-17	नाडा		1-17				
				196	5-03	बारप		5-03				
				197	14-14	बारप		14-14				
				198	3-12	बाबी		3-12				
				199	1-18	बारप		1-18				
				200	1-06	बाल		1-06				
				201	0-15	नाडा		0-15				
				202	5-02	बारप		5-02				
				208	2-12	रास्ता		2-12				
				211	2-07	बारप		2-07				
				214/2	24-05	बारप		24-05				
				216	1-10	रास्ता		1-10				
				220	1-04	नाडा		1-04				
				221	83-12	बारप		83-12				
				224	2-13	रास्ता		2-13				
						कु.		1				

अपना हाथ जगन्नाथ के सही एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

एल० आर० सी०, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र बी-26(बी)

ग्राम का नाम :-	गाडानी	पटवार हल्का	कोदा	भू.अभि.नि.क्षेत्र	गाडानी	पृष्ठ संख्या	4 of 6
तहसील :-	शिवगंज	जिला :-	सिरोही	दिनांक :-	05/04/2013		
सम्वत :-	2067 - 2070	वास्तविक सम्वत :-	2067				
क्षेत्रफल :-	बीघा-बिस्वा						

खेजरा(खतौनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (अक्कूर)		राज. सरकार		234	0-10	रास्ता	0-10						
				237	17-16	नाली	17-16						
				238	30-09	रेती	30-09						
				239	2-10	रास्ता	2-10						
				240	48-19	खारच	48-19						
				241	9-08	नाली	9-08						
				243/398	0-02	रास्ता	0-02						
				255	0-04	रास्ता	0-04						
				258	2-13	नाला	2-13						
				259	2-19	रास्ता	2-19						
				262	0-04	डेह	0-04						
				264	5-16	डाकाव	5-16						
				265	2-12	पाल	2-12						
				268	4	टूटा रोही	4						
				273	2-07	रास्ता	2-07						
				282	1-03	रास्ता	1-03						
				284	2-11	रास्ता	2-11						
				296	2-02	रास्ता	2-02						
				300	198-19	नदी	198-19						
				302	2-01	नाली	2-01						
				307	1-01	पाल	1-01						
				311	9-09	खारच	9-09						
				313	8-12	नाली	8-12						
				318	6-01	रास्ता	6-01						
				321	0-15	नाली	0-15						
				324	0-15	खारच	0-15						
				328	0-17	रास्ता	0-17						
				330	4-02	खारच	4-02						
				331	1-08	रास्ता	1-08						

अपना खातेदारी केन्द्र से भारी पर्व सत्यापित प्रति

(सुरेन्द्रसिंह)

पल्स आर० सी०, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-28(बी)

गाम का नाम :- गाडानी | पटवार हल्का :- ओडा | भू.अभि.नि.केन्द्र :- गाडानी | पृष्ठ संख्या 5 of 6

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सम्वत्)		राज. सरकार		334	0-08	खेड	0-08						
				339	1-04	घास	1-04						
				340	0-09	नाडा	0-09						
				352	0-19	नाडा	0-19						
				354/399	3-06	रास्ता	3-06						
				356	5-16	रास्ता	5-16						
				356/400	1-09	रास्ता	1-09						
				357	1-01	घास	1-01						
				358	0-17	नाडा	0-17						
				377	4-19	घासी	4-19						
				380	9-18	खारच	9-18						
				389	1-06	रास्ता	1-06						

कुल खसरा : 125 | कुल क्षेत्रफल : 989-06 | भूमि प्रकार के अनुसार क्षेत्रफल

खेड	0-12
खारच	467-13
घासी	198-19
नाडा	21-13
रास्ता	100-15
घास	14-07
घासी	146-02
रेती	30-09
डाबाव	5-16
डूडा रेती	4

कुल

कुल खसरा : 127 | कुल क्षेत्रफल : 1004-10 | भूमि प्रकार के अनुसार क्षेत्रफल

गहरा	7-19
खेड	0-12
खारच	467-13
[illegible]	1-10

अंकित प्रतिलिपि कोड के चार्ट एवं सत्यापित प्रति

(हस्ताक्षरित)

एस. आर. सी., पटलन्दी

सील खारच [illegible]

जमाबन्दी (प्रतिलिपि)

पत्रक पी-26(बी)

ग्राम का नाम :- अखापुरखुर्द | पटवार हल्का :- केशरपुरा | भू.अभि.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 1 of 2

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2064 - 2067 | वास्तविक सम्वत :- 2064

खेतफल :- बीघा-बिस्वा

खेत्रट(अतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	खेतफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि स्थित विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	भूमि जो काश्त के लिए उपलब्ध है	138	0-05	बड़ा	0-05						
				137/244	9-15	बरसाती I A	9-15						
			कुल खसरा : 2	कुल खेतफल : 10		भूमि प्रकार के अनुसार खेतफल बड़ा 0-05 बरसाती I A 9-15							
			चालू पड़त या उसमें शजर (चुतार्इ ईतु)	174	2-17	बरसाती I A	2-17						
			कुल खसरा : 1	कुल खेतफल : 2-17		भूमि प्रकार के अनुसार खेतफल बरसाती I A 2-17							
			खादर (चारागाह ईतु)	2	15-05	खाल खद्दर	15-05				* नामा. स.: 392 - सि.दि.: 17/11/2011 - भूमि-अवासि के द्वारा पारित अपाति आदेश के ख.नं.9473 रकबा 0-16 बीघा अर्थात् 0.128 है तथा ख.नं.2474 रकबा 1-05 बीघा अर्थात् (0.203 है) भूमि सडक परिवहन एवं राजमार्ग मंत्रालय, [illegible] के नाम दर्ज, तेष खाता	
				9	11-08	खाल खद्दर	11-08						
			कुल खसरा : 2	कुल खेतफल : 26-13		भूमि प्रकार के अनुसार खेतफल खाल खद्दर 26-13							
			नदियाँ तथा नाले (चारागाह ईतु)	1	1-30	नदी	1-30				* नामा. स.: 393 - सि.दि.: 17/11/2011 - भूमि-अवासि के द्वारा पारित अपाति आदेश के ख.नं.1472 रकबा 16-16 बीघा अर्थात् 2.556		
				163	1-12	नाली	1-12						
				167	0-05	नाली	0-05						
				169	2-07	नाली	2-07						

अपना खाता खोल्ड से नारी-पत्र सहायिल प्रति

(सुरेन्द्रसिंह)

एल॰ आर॰ सी॰, पटवारी

सहअंतल-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :-	अम्बापुराखुर्द	पटवार हल्का	केसरपुरा	भू.अभि.नि.क्षेत्र	शिवगंज	पृष्ठ संख्या	2 of 2
तहसील :-	शिवगंज	जिला :-	सिरोही	दिनांक :-	05/04/2013		
सम्वत :-	2064 - 2067	वास्तविक सम्वत :-	2064				
क्षेत्रफल :-	बीघा-बिस्वा						

खेत(खसरा नं.)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि ब्यौरा विविहियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (अखूट)		राज. सरकार									मंत्रालय, भारत सरकार के नाम दर्ज । क्षेत्र खाता बदस्तूर रहा ।	

	कुल खसरा : 4	कुल क्षेत्रफल : 134-07	भूमि प्रकार के अनुसार क्षेत्रफल
			नदी 130
			नाली 4-07

कुल	कुल खसरा : 9	कुल क्षेत्रफल : 173-17	भूमि प्रकार के अनुसार क्षेत्रफल
			खास कहर 26-13
			खड्डा 0-09
			नदी 130
			नाली 4-07
			बरसाती I A 12-12

* नई भूमि हेतु उक्त नामान्तरण अभिलेख में है।

प्रतिलिपि शुल्क 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक- 1905128-6259

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

अपना खाता-केस से आये एक चलचित्र प्रति
सीधे प्रतिलिपि

प्रभारी,अपना सेवा केन्द्र,
एम॰ डब्ल्यू॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- साडाणी | पटवार हल्का :- बोडा | भू.अभि.नि.क्षेत्र :- साडाणी | पृष्ठ संख्या 6 of 6

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. सभा तारीख	भूमि अंतरित विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

नादर	21-13
रास्ता	100-15
घास	14-07
बानी	145-02
रेती	30-09
तालाब	5-16
ब 3	7-05
टूटा रोही	4

* पर्तनी त्रुटि हेतु उक्त नामान्तरण लॉग प्रविष्ट में है।

प्रतिलिपि शुल्क 60/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन सम्मिलित कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1906196-6258

प्रतिलिपि जारी करने का दिनांक 05/04/2013

अपना छाप सील प्रतिहस्ताक्षरित एवं सत्यापित प्रति

पटवारी (भर्ती वर्ष 2008-09)

तहसीलदार शिवगंज वृत्त- सी॰, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- अम्बेरगढ़ पटवार हल्का नारावरा भू.प्र.नि.शेष माडानी पृष्ठ संख्या 1 of 4
तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013
वर्ष से :- 2067 - 2070 वास्तविक वर्ष :- 2067
क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि बन्धरित हो	टिप्पणी
नवा	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	भूमि जो सडक के लिए उपलब्ध है	24	4	व 2	4						
				31/1	0-03	व 3	0-03						
				39/1	9	व 2	9						
				44/1	10-10	व 2	10-10						
				52/1	116-07	पडत II	1-19						
						व 1	68-07						
						व 2	11-10						
						पडत I	34-11						
				53	95-18	व 3	15-19						
						व 2	27-10						
						पडत II	52-09						
				59	60	व 2	10-18						
						पडत II	46-01						
						पडत I	3-01						
				116/1	40-10	व 2	40-10						
				123	92-15	पडत I	17						
						पडत II	75-15						

कुल खसरा : 9 कुल क्षेत्रफल : 429-03 भूमि प्रकार के अनुसार क्षेत्रफल

पडत I	54-12
पडत II	178-04
व 1	68-07
व 2	113-18
व 3	16-02

	भूमि जो सुधार के लिए अनुपलब्ध	4	8-05	रास्ता	8-05
		16	0-18	रास्ता	0-18
		19	4-01	नदी	4-01
		24/172	121-15	खान खद्दर	121-15
			19	नदी	30-1

अपना खाता खेत से जारी एवं प्रमाणित प्रति
(सुरेन्द्रसिंह)
पटवार सर्कल, पटवारी
हल्का, जिला- सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- उन्गेदगढ़ | पटवार हल्का :- नारादरा | भू.अभि.नि.क्षेत्र :- गाम्भानी | पृष्ठ संख्या 2 of 4

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेत(खसरो)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश का क्रमांक एवं दिनांक	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (अक्कूर)		राज. सरकार		34	0-04	रोड	0-04						
				36	7-09	तालाब	7-09						
				37	5-14	पाल	5-14						
				38	1-03	रास्ता	1-03						
				40	2-04	नाला	2-04						
				42	1-11	रास्ता	1-11						
				43	2-15	नाला	2-15						
				45	1-12	नाला	1-12						
				46	0-15	रोड	0-15						
				47	0-04	रोड	0-04						
				48	1	टेरा	1						
				49	5-09	पाल	5-09						
				50	9-16	तालाब	9-16						
				51	0-17	नाला	0-17						
				56	0-15	बास	0-15						
				58	27-15	नाला	27-15						
				66	0-17	पाल	0-17						
				67	5-17	नाला	5-17						
				73	3-11	नाला	3-11						
				74	1-15	पाल	1-15						
				84	4-14	रास्ता	4-14						
				93	4-10	रास्ता	[illegible]						
				99	1-08	नाला	[illegible]						
				101	1-17	रास्ता	[illegible]						
				106	7-19	रास्ता -	7-19						
				107	2-06	खाद के घड्डे	2-06						
				109	2-10	खाद के घड्डे	2-10						
				111	2-10	खड्डा	2-10						
				112	0-13	रास्ता	0-13						

उपरोक्त खाता जोड़ से चारों पर्चे सत्यापित प्रति

(कुलवन्तसिंह)
पुत्र- उदय सिंह, पटवारी
सहपोल-[illegible], जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

पत्रक पी-26(बी)

ग्राम का नाम :- उमेदगढ़ पटवार हल्का नारायरा भू.प्रबं.वि.क्षेत्र माडानी पृष्ठ संख्या 3 of 4

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

समय :- 2067 - 2070 वास्तविक समय :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (अवकूर)		राज. सरकार		114	3-13	रास्ता	3-13						
				117	5-01	नाला	5-01						
				118	2-17	नाला	2-17						
				119	2-02	नाला	2-02						
				120	3-16	नाला	3-16						
				125	11	रास्ता	11						

कुल खसरा : 41 कुल क्षेत्रफल : 807-17

भूमि प्रकार के अनुसार क्षेत्रफल

मेरा	1
खाल खहर	121-15
खेत	1-03
नदी	536
नाला	29-16
नाला	33-19
रास्ता	49-03
दाह	14-11
खाल व झाड़	4-16
खलाल	17-05
टहीया	2-10

कुल

कुल खसरा : 50 कुल क्षेत्रफल : 1237

भूमि प्रकार के अनुसार क्षेत्रफल

मेरा	1
पहड़ I	54-12
पहड़ II	176-04
खाल खहर	121-15
खेत	1-03
नदी	535
नाला	29-16
नाला	33-19
रास्ता	[illegible]

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- उमेदपुरा | पटवार हल्का :- नारायरा | भू.प्रबं.नि.क्षेत्र :- माडाणी | पृष्ठ संख्या 4 of 4

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेसट(खतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि स्थीरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
						पाल	14-10					
						खाद के खड्डे	4-16					
						तालाब	17-05					
						ब 1	68-07					
						ब 2	113-18					
						ब 3	16-02					
						खीरा	2-10					

प्रतिलिपि शुल्क: 40/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक [illegible] तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।

प्रतिलिपि क्रमांक:- 1906197-6260

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

अपना खाता नंबर से प्रमाणित प्रति

पटवारी, नॉन-कम्प्यूटरीकृत

भू.प्रबं.नि.क्षेत्रीय पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

पत्रक पी-28(बी)

ग्राम का नाम :- चोरीना | पटवार हल्का :- श्रीमाधव | भू.अभि.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 1 of 10

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2059 - 2062 | वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

खेड़ा(बस्ती) नया	खेड़ा(बस्ती) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज सरकार	भूमि जो काश्त के लिए उपलब्ध है	62	1-13	बंजर	1-13						
				77/मि01	0-02	बंजर	0-02						
				116	0-13	ब 1	0-13						
				135/मि01	2-09	ब 1	2-09						
				180/मि01	1-10	बंजर	1-10						
				171/मि01	1-02	ब 2	0-12						
						खराबा	0-10						
				198/मि01	5-01	ब 2	5-01						
				229	1	ब 2	1						
				265	2-18	बंजर	2-18						

कुल खसरा : 9 | कुल क्षेत्रफल : 16-08 | भूमि प्रकार के अनुसार क्षेत्रफल

बंजर	6-03
ब 1	3-02
ब 2	6-13
खराबा	0-10

	भूमि जो जुताई के लिए अनुपलब्ध	1	45-15	गै.मु.नदी	45-15	नामा.स. 424-आयोग-02/07/2002
		2	11-11	नाला	11-11	द्वारा ध.न.64मी. रकबा 2.00 किस्म
		3	0-16	गै.मु.नदी	0-16	कई जगह 0.50 बाबूसिंह,देवीसिंह
		8	26-19	गै.मु.नदी	26-19	पि.भैरूसिंह राजपुत सा. सेदू
		14	3-04	रोड़	3-04	गैरखातेदार दर्ज।
		39	9-17	गै.मु.नदी	9-17	नामा.स.:426-आयोग-02/07/2002
		40/मि01	2-18	गै.मु.नदी	2-18	द्वारा ध.न.155मी. रकबा 0.19 कि.
		41	80	गै.मु.नदी	80	धा.ख. लगान 0.25 रघुनाथसिंह पुत्र
		42	12-15	गै.मु.नदी	12-15	गैनसिंह राजपुत सा.श्रीमाधव
		49	7-11	गै.मु.नदी	7-11	गैरखातेदार दर्ज।
		58/मि01	16-16	खड्डा	16-16	नामा.स.:426-निगमन-02/07/2002
		64/मि01	2	खड्डा	2	द्वारा ध.न 263मी./ रकबा 2.00 कि.
		65	0-	खा	2	ब- तबल 10 ब पुत्र : गैस

अपना खाता खोल से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

ग्राम अधि सेवा, माधवगढ़

तह शि. जि. सि.

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(सी)

ग्राम का नाम :- गोठीला | पटवार हल्का :- श्रीबालोन | भू.अभि.नि.क्षेत्र :- पोकलिया | पृष्ठ संख्या 3 of 10

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2059 - 2062 | वास्तविक वर्ष :- 2059

क्षेत्रफल :- बीघा-बिस्वा

खेड़ट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		रूपान्तरण आदेश एवं क्रमा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि वल्लरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मजकूर)		राज. सरकार		157	6-15	नाला	6-15				नामा.स.:459-आवंटन-30/04/2005 के		
				160	5-02	खाल खद्दर	5-02				द्वारा ख.न.202/505 रकबा 1-00 बीघा		
				161	0-16	खाल खद्दर	0-16				बिस्म ब ।। रकबा 1-00 सुवाराम		
				164	17-05	खड्डा	17-05				पुत्र चेलाजी सा.गोठीला के नाम		
				169	2-02	नाला	2-02				आवंटन ।		
				170	0-13	खाल खद्दर	0-13				नामा.स.:460-आवंटन-30/04/2005 के		
				170/मिन01	0-18	खाल खद्दर	0-18				द्वारा ख.न.247/504 रकबा 1-17		
				173/मिन01	3-03	खाल खद्दर	3-03				बिस्म ब ।। हेमा पुत्र पूना भील		
				174	3-17	मगरी	3-17				सा.गोठीला के नाम एलाटमेन्ट ।		
				175	1-05	नाला	1-05				नामा.स.:461-आवंटन-30/04/2005 के		
				179	2-04	खाल खद्दर	2-04				द्वारा ख.न.249 रकबा 1-04 बिस्म ब		
				190	0-16	नाला	0-16				।।रकबा पुत्र पूता भील सा.गोठीला के		
				195	9-08	मगरी	9-09				नाम एलाटमेन्ट ।		
				197	2-15	खाल खद्दर	2-15				नामा.स.:462-आवंटन-30/04/2005 के		
				202/मिन01	15-14	खाल खद्दर	15-14				द्वारा ख.न.248 रकबा 1-17 बिस्म ब		
				209	1-13	खाल खद्दर	1-13				।। नगा पुत्र धोका भील सा.गोठीला		
				210	113-09	गै.मु.नदी	113-09				के नाम एलाटमेन्ट ।		
				214/मिन01	55-13	मगरी	55-13				नामा.स.:463-आवंटन-30/04/2005 के		
				218	0-06	नाला	[illegible]				[illegible] ख.न.281/509 रकबा 4-00 बीघा		
				220	0-12	खाल खद्दर	[illegible]				[illegible] मे से ख.न.281/509/511		
				221	1-15	नाला	[illegible]				[illegible] रहीमा पुत्र नेहा भील		
				222	12-06	मगरी	[illegible]				सा. [illegible] के नाम आवंटन । शेष		
				228	1-01	नाला	[illegible]				बदस्तूर ।		
				230	0-11	खाल खद्दर	[illegible]				नामा. [illegible]-आवंटन-30/04/2005 के		
				232	10-02	मगरी	[illegible]				द्वारा ख.न.247/509 रकबा 2-00		
				234	1-10	मगरी	[illegible]				बिस्म ब ।। हमा पुत्र केसा भील		
				235	0-15	नाला	[illegible]				सा.गोठीला के नाम एलाटमेन्ट ।		
				237	2-01	मगरी	2-01				नामा.स.:466-आवंटन-30/04/2005 के		
				238	2-05	खाल खद्दर	2-05				द्वारा ख.न.164/505 रकबा 0-15 बीघा		



अपना ग्राम खेड़ा की जारी एवं सुरक्षित प्रति

(सुरेशसिंह)
पी॰ आर॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

गाम का नाम :- पोटीला | पटवार हल्का :- छीबागांव | भू.अभि.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 2 of 10

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2059 - 2062 | वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (तलहूर)		राज. सरकार		67/मिन01	3-09	खड्डा	3-09						बीज वा.वेह खातेदार दर्ज शेष रकबा
				76	18-19	नाला	18-19						मवसुर रहा।
				80	1-02	खाल खहर	1-02						नामा.क्र.447-अन्य-19/11/2004
				81	3-04	नाला	3-04						स्वीकृत होने से ख.नं.247 रकबा
				90	0-17	मगरी	0-17						3-17 किस्म मकरी में से
				96	6-13	मगरी	6-13						ख.नं.247/504 रकबा 1-17 ब.II,
				100	0-01	रोड	0-01						ख.नं.248 रकबा 1-17 खाल खहर से
				101	5-07	नाला	5-07						रकबा 1-17 ब.II, ख.नं. 249 रकबा
				103	2-02	मगरी	2-02						1-04 खालखहर से 1-04 ब.II,
				105/मिन01	27-08	पहाड़	27-08						ख.नं.202/मिन01 रकबा 15-14
				111	3-16	नाला	3-16						खालखहर में से 202/505 रकबा 3-00
				112	0-13	खाल खहर	0-13						किस्म ब.II, ख.नं.397 रकबा 59-00
				114	1-13	खाल खहर	1-13						किस्म मगरी में से ख.नं 397/506
				115	0-14	खाल खहर	0-14						रकबा 21-00 किस्म ब.II, ख.नं.281
				117	0-01	खाल खहर	0-01						रकबा 97-14 किस्म मगरी में से
				120	5-19	खाल खहर	5-19						ख.नं. 281/509 रकबा 4-00 किस्म
				122	1-08	खाल खहर	1-08						ब.II ख.नं.283 रकबा 8-08 किस्म
				126/मिन01	0-13	खाल खहर	0-13						मगरी में से ख.नं.283/507 रकबा
				127	1-16	नाला	1-16						2-00 किस्म ब.II, ख.नं.284 रकबा
				131	2-09	नाला	2-09						0-15 खालखहर से रकबा 0-15 ब.II,
				137	0-14	नाला	0-14						ख.नं. 164 रकबा 17-05 किस्म खड्डा
				138	2-07	खाल खहर	2-07						में से ख.नं.164/508 रकबा 1-10
				140	0-14	खाल खहर	0-14						किस्म ब.II में भूमि किस्म
				142	0-16	खाल खहर	0-16						परिवर्तित । शेष खाता मवसुर ।
				144	2	खाल खहर	2						नामा.क्र.458-खापंडा-30/04/2005 के
				148	0-08	खाल खहर	0-08						द्वारा ख.नं.202/505 रकबा 3-00 बीघा
				149	0-11	नाला	0-11						किस्म ब II में से ख.नं.202/505/510
				153	4	खाल खहर	4						रकबा 2-00 बीघा, कुला पि.रामा बीज
				155/मिन01	0-19	खाल खहर	0-19						वा. पोटीला के नाम कायम । शेष
													ते।

अपनाम खालसा खेरुन्द से उतारी पूर्ण कुलखतिया प्रति

(सुरेन्द्रसिंह)
राज० आर० सी०, पटवारी
खालसीला-सिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- चोटीला पटवार हल्का शीवगंज भू.अभि.नि.क्षेत्र पोसलिया पृष्ठ संख्या 4 of 10

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2059 - 2062 वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि अधीन डिक्रीदियों जिसके पक्ष में भूमि बन्धरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मनकूत)	राव. सरकार			241	0-13	नाला	0-13						किस्म ब ।। कैलाश पुत्र हरखाजी मेघवाल सा. चोटिला के नाम आवटा । नामा.स.:466-आवंटन-30/04/2005 के द्वारा ख.न.164/508 रकबा 0-15 किस्म ब ।। कैलसिंह,खानसिंह पि.प्रतापसिंह एवं.चोटिला के नाम आवटा । नामा.स.:467-आवंटन-30/04/2005 के द्वारा ख.न.397/508 रकबा 21-00 किस्म ब ।। में से ख.न.397/508/513 रकबा 5-00कि.ब ।। लगान 1.25 मूलसिंह पुत्र अमीरसिंह सा.चोटिला के नाम आवटा शेष बदस्तुर। नामा.स.:501-अन्त-23/05/2007 द्वारा अरिये अदालत आदेश द्वारा तहसीलदार साहब शिवगंज की निगरानी के बजाय श्री चौदस माजि महादेव मन्दिर सेवा समिति हेतु आरक्षित के हक में खसरा 331,338,337,336/1,339,344 रकबा 72-09 का सहकरण स्वीकृत हुआ हैं। शेष खसरा 338 रकबा 0-04 बदस्तुर । नामा.स.:510-आवेदारी-28/06/2008 अरिये श्रीमान सहायक तहसीलदार शिवगंज के आदेश क्रमांक /739-40 दिनांक 31-05-2008 के द्वारा ख.न. 247/504 रकबा 1-17 किस्म ब ।। लगान 0.47 से हेमा पुत्र पुना जाति भील को आवेदारी हक दिया गया ।
				243	2-02	खास बहर	2-02						
				245	0-08	खास बहर	0-08						
				247	3-17	मगरी	3-17						
				248	1-17	खास बहर	1-17						
				249	1-04	खास बहर	1-04						
				251	34-17	मगरी	34-17						
				253	0-08	खास बहर	0-08						
				255	3-02	मगरी	3-02						
				257	9	मगरी	9						
				258	1-14	खास बहर	1-14						
				259	30-19	मगरी	30-19						
				260	0-15	खास बहर	0-15						
				262	1	खास बहर	1						
				263	6-06	मगरी	6-06						
				264	0-15	खास बहर	0-15						
				266	1	खास बहर	1						
				267	37-18	मगरी	37-18						
				269	0-15	[illegible]	0-15						
				271	2-02	[illegible]	2-02						
				274	12-09	[illegible]	12-09						
				275/मिन01	2-12	[illegible]	2-12						
				277	3-18	[illegible]	3-18						
				278	2-07	[illegible]	2-07						
				279	1-07	[illegible]	1-07						
				281	97-14	[illegible]	97-14						
				282	1-18	[illegible]	1-18						
				283	46-14	मगरी	46-14						
				285	1-05	खास बहर	1-05						

अपना खाता बैंक से चालू एवं बचतखाता खोले

(सुरेन्द्रसिंह)
एच. आर. एस., चरलाई।
आबोल-डोबाबाल, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

गाव का नाम :- चोटीला | पटवार हल्का :- खीमगांव | भू.अभि.नि.क्षेत्र :- पोलालिया | पृष्ठ संख्या 5 of 10

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

साल :- 2059 - 2062 | वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

बेहद(अलोनी) नया	बेहद(अलोनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि छोड़ा गिरिहिदों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (एक)		राज सरकार		291	0-04	पै.मु.पत्थर	0-04						नरिंदे भीमाल नामक तहसीलदार
				294	1-05	नाला	1-05						शिवगंज के अन्तिम क्रमांक /739-40
				295	2-16	खाज खट्टर	2-16						दिनांक 31-05-2008 के द्वारा ख.न.
				296	7-11	मगरी	7-11						164/508 रकबा 0-16 किस्म व II लगान
				298	12-16	पहाड	12-16						0.19 मे खैतसिंह,अमरसिंह
				304	1-17	पहाड	1-17						दि.हजारसिंह रायपुर को खातेदारी
				305	18-14	पहाड	18-14						हक दिया गया ।
				306	0-10	पहाड	0-10						नामा.स.:512-खातेदारी-28/06/2008
				307	1-12	नाला	1-12						नरिंदे भीमाल नामक तहसीलदार
				308	15-03	मगरी	15-03						शिवगंज के आदेश क्रमांक /739-40
				313	0-05	बरडा	0-05						दिनांक 31-05-2008 के द्वारा ख.न.
				314	0-09	डेर	0-09						249 रकबा 1-04 किस्म व II लगान
				315	4-06	खाज खट्टर	4-06						0.30 मे दरबा पुत्र हुरा भील को
				316	23-12	पै.मु.नदी	23-12						खातेदारी हक दिया गया ।
				318	1-04	बरडा	1-04						नामा.स.:513-खातेदारी-07/07/2008
				320	1-01	मगरी	1-01						नरिंदे भीमाल नामक तहसीलदार
				331	1	पहाड	1						शिवगंज के अन्तिम क्रमांक /739-40
				336	2-14	खाज खट्टर	2-14						दिनांक 31-05-2008 के द्वारा ख.न.
				337	3-03	खाज खट्टर	3-03						281/508/511 रकबा 2-00 किस्म व II
				338	1-19	खाज खट्टर	1-19						लगान 0-50 मे पतीका पुत्र केसा भील
				339	82-12	मगरी	82-12						को खातेदारी हक दिया गया ।
				340	7-09	खाज खट्टर	7-09						नामा. स.: 516 - वि.वि.: 31/01/2009
				342	3-16	झाड़ा	3-16						- खातेदारी द्वारा खातेदारी आदेश
				344	2-13	खाज खट्टर	2-13						नामत तहसीलदार निर्गमित होने से
				347/मैन01	113-12	मगरी	113-12						ख.न. 397/506/513 रकबा 5.00 किस्म
				348	27-04	मगरी	27-04						व II मे धूलसिंह पुत्र अनोपसिंह
				349	9-05	नाला	9-05						जाति रावपुत्र सा.चोटीला खातेदार
				350	59-07	मगरी	59-07						खर्च का ना.क. स्वीकृत हुवा ।
				351	103	पै.मु.नदी	103						नामा.स.:517-खातेदारी-16/09/2009
1	मैन	1	2	3	4	5	6	7					ग - अन्य द्वारा पेशकार - भाग

अपना खाता फोन से जाने एवं मैसेज प्राप्त करें

(हरिसिंह)

एण्ड्रा- ग्रा., पटवारी

तहसील- शिवगंज, जिला- सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- चोटीला पटवार हल्का खीवाणा भू.अभि.नि.क्षेत्र गोसलिया पृष्ठ संख्या 6 of 10

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2059 - 2062 वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मजकूर)	राज. सरकार			354	27-06	मगरी	27-06					सा. डूंगर पुत्र हरलाडी जाति	
				356	2-05	मगरी	2-05					वेषभाल ब.न. 164/508/512 रकबा 0-15	
				361	0-11	नाला	0-11					का गैर खातेदारी से खातेदारी का	
				367/मिन01	51-11	मगरी	51-11					नामा.करण स्वीकृत हुआ।	
				369/मिन01	26-03	मगरी	26-03					नामा.स.:518-खातेदारी-16/03/2009	
				370	3-06	नाला	3-06					वरिये अन्तर्देश द्वारा नायब तहसीलदार	
				371	1-09	खाल खेड़	1-09					सा. वैसा ,डूला पुत्र रावा बीज	
				372	2-18	खाल खेड़	2-18					सा.चोटीला ब.न.202/505/516 रकबा	
				373/मिन01	17-16	मगरी	17-16					2-00का गैरखातेदारी से खातेदारी का	
				374	11-05	नाला	11-05					नामा.करण स्वीकृत हुआ।	
				379/मिन01	19	मगरी	19					नामा.स.:519-खातेदारी-16/03/2009	
				381	6-14	मगरी	6-14					वरिये अन्तर्देश द्वारा नायब तहसीलदार	
				383	0-06	नाला	0-06					सा. गूमा पुत्र पैला बीज सा.खोटीला	
				386	16-16	मगरी	16-16					ब.न.202/506 रकबा 1-00बीघा का	
				387/मिन01	7-19	मगरी	7-19					गैरखातेदारी से खातेदारी का	
				389/मिन01	6-02	मगरी	6-02					नामा.करण स्वीकृत हुआ।	
				390/मिन01	10-13	मगरी	10-13					नामा.स.:520-खातेदारी-16/03/2009	
				394	3-10	मगरी	3-10					वरिये अन्तर्देश द्वारा नायबतहसीलदार	
				396/मिन01	43-01	मगरी	43-01					सा. नवा पुत्र खेमा बीज सा.चोटीला	
				397	59	मगरी	59					ब.न.248 रकबा 1-17 बीघा का	
				399/मिन01	6-05	मगरी	6-05					गैरखातेदारी से खातेदारी का	
				400	3-09	मगरी	3-09					नामा.करण स्वीकृत हुआ।	
				401	4	मगरी	4					नामा. स.: 526 - दि.: 23/07/2009	
												- वेचान द्वारा ब न. 164/508 रकबा	
												0-15 बिघा ब.2 चकान 0.18 मे	
												खैलसिंह, छगनसिंह पि प्रतापसिंह के	
												बजाय बीमति रमकूदेवी पत्नी	
												नारायणलाल खोड़ी मीणा पि खानपी	
												(शिवगंज) खातेदार बने हुआ।	

अपना खातेदारी अधिकार से जारी पूर्ण सत्यापित प्रति

(सुरेन्द्रसिंह)

एवं. डाट. डी., पटवारी

खीवाणा-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

गाव का नाम :- चोटीला
तहसील :- शिवगंज
सन्दर्भ :- 2059 - 2062
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का :- खीवांसर
जिला :- सिरोही
वास्तविक सम्वत :- 2059

पू.कानि.नि.क्षेत्र :- पोसालिया
दिनांक :- 05/04/2013

पृष्ठ संख्या 7 of 10

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश सं. एवं तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (अधूरा)		राज. सरकार								- बेचान द्वारा ब.नं.397/506/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अजीतसिंह के बजाय अमरकुमार लक्ष्मीकुमार रॉय फ्लै.नं.102, रहिवास संघवा, मय लिबोज हाउसिंग सोसायटी, फ्लोट नं.34, सेक्टर-11, खारघर, नवी मुम्बई-410210 (महा.) हि.1/9 क्षेत्र हि.6/9 बकायत् रहा। नामा. स.: 528 - नि.दि.: 25/07/2009 - बेचान द्वारा ब.नं.397/506/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अजीतसिंह 6/9 के बजाय फरीद हुसैन तडवी नि.दीसरा माला रफकर चेम्बर बाजेर टेलीफोन एक्सचेंज के पास, बाजेर- पुणे-411045 (महा.) हि.1/9 मूलसिंह पुत्र अजीतसिंह 7/9 दर्ज। नामा. स.: 529 - नि.दि.: 23/07/2009 - बेचान द्वारा ब.नं.397/506/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अजीतसिंह 7/9 के बजाय विनोद रसिकलाल शाह नि.ए-6, अपर्णा बिल्डिंग, 353/18 आर.बी मेहता मार्ग, पालकोपर (ईस्ट) मुम्बई-77 हि. 1/9 मूलसिंह पुत्र अजीतसिंह 6/9 दर्ज। नामा. स.: 530 - नि.दि.: 23/07/2009 - बेचान द्वारा ब.नं.397/506/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अजीतसिंह 6/9 के बजाय मांगीलाल	अपना खाता खेवट से अन्तरी एवं हस्तान्तरित प्रति (सुरेन्द्रसिंह) एल॰ आर॰ सी॰, पटवारी सहसील-शिवगंज, जिला-सि॰

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- चोटीला पटवार हल्का छीबागांव मु.अभि.नि.क्षेत्र पोसालिया पृष्ठ संख्या 8 of 10

तहसील :- शिवचंन जिला :- सिरोही दिनांक :- 05/04/2013

साम्वत :- 2059 - 2062 वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतोनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि धारी विशिष्टियाँ जिसके पक्ष में भूमि वन्तरित हो)	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मजदूर)	राज सरकार										शांतिलकुमार एच.पी.ठक्कर रोड, सिवर राजापुरिया, पिंपले पार्क (ईस्ट), मुम्बई-57 हि.1/9 मूलसिंह पुत्र अबीरसिंह 5/9 वर्ग। नामा. ध.: 531 - नि.दि.: 23/07/2009 - बैचान द्वारा ख.नं.397/506/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अबीरसिंह 5/9 के बजाय अनिलकुमार कांतिलाल शाह नि मोहन निवासी पी.टी.एच.आई.भवन राजावाडी, घाटकोपर, मुम्बई-77 हि.1/9 मूलसिंह पुत्र अबीरसिंह 4/9 वर्ग। नामा. ध.: 532 - नि.दि.: 23/07/2009 - बैचान द्वारा ख.नं.397/506/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अबीरसिंह 4/9 के बजाय चन्द्रकान्त नन्दलाल शाह नि.बी/27, मिलान्त [illegible], तिलक रोड, घाटकोपर (ईस्ट), [illegible]7 हि.1/9 मूलसिंह पुत्र अबीरसिंह 3/9 वर्ग। नामा. [illegible]533 - नि.दि.: 23/07/2009 - बैचान द्वारा ख.नं.397/506/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अबीरसिंह 3/9 के बजाय विनय सुरेन्द्र शाह, नि.201, इन्दिरा अपार्टमेन्ट, कारमीचेल रोड, मुम्बई-20 (महा.) हि.1/9 मूलसिंह पुत्र अबीरसिंह 2/9 वर्ग।	

आपश्री द्वारा भेजे गये प्रार्थना पत्र के प्रत्युत्तर में उपरोक्त प्रतिलिपि प्रमाणित की जाती है।

(सुरेन्द्रसिंह)
एस. डी. सी., पालनपुर।
स्थानीय-व्यवस्थापन, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-28(बी)

ग्राम का नाम :- नोटीला | पटवार इल्का :- खीवागांव | भू.प्र.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 9 of 10

तहसील :- सिरोही | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2059 - 2062 | वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(बीघा)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1.(मल्हार)		राज.									- बेचान द्वारा ब.नं.397/508/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अजीतसिंह 2/9 के बजाय मोहीग कालिचरण शुक्ला, नि.के-192, पटेल नगर प्रथम, साबिरबाबाद, डिफेंसीनेट, जिला साबिरबाबाद हि.1/9 मूलसिंह पुत्र अजीतसिंह 1/9 दर्ज। नामा. स.: 535 - नि.वि.: 23/07/2009 - बेचान द्वारा ब.नं.397/508/513 रकबा 5-00 बीघा में मूलसिंह पुत्र अजीतसिंह 1/9 के बजाय जिला कृष्ण कुमार अग्रवाल नि.चहला मारा, टार्टन टॉवर, कमला मिल कम्पाउण्ड, एस.बी.मार्ग, लोअर परेल, मुम्बई-93 हि.1/9 खातेदार * नामा. स.: 550 - नि.वि.: 16/12/2010 - अन्य के द्वारा ब.नं.281/508/511 रकबा 2-00 में खतीया पुत्र केसा के बजाय पाबाराम पुत्र केसाली दर्ज हुवा। * नामा. स.: 587 - नि.वि.: 16/12/2010 - रहनामा के द्वारा बरना पुत्र हुरा का हिस्सा रहन-SBBJ (ADB) बाबा सिमर्पण के पक्ष में रहन।	

आपना ग्रहण कोन्द मे जारी एवं सत्यापित प्रति

(भूपेन्द्रसिंह)

ग्राम- आर- सी-, पटवारी

सहायक-सिरोही, जिला-सिरोही

कुल खसरा : 156 | कुल क्षेत्रफल : 1912-05 | भूमि प्रकार के अनुसार क्षेत्रफल

खास खेर	114-08
मकरी	1162-07
रेह	-1-

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- नोटीला पटवार हल्का खीवाणा भू.प्र.नि.क्षेत्र पोसालिया पृष्ठ संख्या 10 of 10

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2059 - 2062 वास्तविक सम्वत :- 2059

क्षेत्रफल :- बीघा-बिस्वा

खेड़ट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		सामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

बट्टा	43-06
वै.भू.नदी	430-01
वै.भू.पत्थर	0-04
पहाड़	62-05
नाला	94
पाया	0-12
परदा	1-09

कुल: कुल खसरा : 165 कुल क्षेत्रफल : 1928-14

भूमि प्रकार के अनुसार क्षेत्रफल

बंजर	6-03
खाल खेड़	114-08
मगरी	1162-07
रेत	3-14
बट्टा	43-06
वै.भू.नदी	430-01
वै.भू.पत्थर	0-04
पहाड़	62-05
नाला	94
पाया	0-12
परदा	1-09
[illegible]	9-02
[illegible]	6-13
खराब	10-10

* मर्यादी शुद्धि हेतु एक सामान्तरण लोक प्रक्रिया में है।

प्रतिलिपि शुल्क 100/-

प्रमाणित किया जाता है कि इस प्रतिलिपि से दिनांक एवं के समक्ष परिवर्तन सम्मिलित कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1905123-6261

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

सेवित खाता केन्द्र से जारी यह सत्यापित प्रति
पटवार हल्का पोसालिया

[illegible]
एल. आर. सी., पटवारी

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

गाम का नाम :- सुवारोकागुढा | पटवार हल्का | उकमच | भू.अभि.नि.क्षेत्र | पीलालिया | पृष्ठ संख्या 1 of 3

तहसील :- सिनवंन | जिला :- सिरोही | दिनांक :- 05/04/2013

साल :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खतौनी(लगोली)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लिंचाई के साधन	लगान		नामान्तरण आदेश सं. एवं तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज सरकार	8 वर्ष का अधिक परती(खुशार्द हेतु)	1/40	0-13	बरसाती ।	0-13						
				14	3-07	बरसाती ।	3-07						
				307/7	0-09	बरसाती ।	0-09						
				309/25	1-07	बरसाती ।	1-07						
				310/25	0-13	बरसाती ।	0-13						
				313/23	0-07	बरसाती ।	0-07						
				316/21	0-01	बरसाती ।	0-01						
				394/25	0-06	बरसाती ।	0-06						
			कुल खसरा : 8	कुल क्षेत्रफल :	7-03	भूमि प्रकार के अनुसार क्षेत्रफल बरसाती ।	7-03						
			खादर (भारतमाह हेतु)	17	17-10	बड़ा	17-10						
			कुल खसरा : 1	कुल क्षेत्रफल :	17-10	भूमि प्रकार के अनुसार क्षेत्रफल बड़ा	17-10						
			पड़ाती तथा पर्वत (भारतमाह हेतु)	15/199	43-15	गै.मु.पहाड़	43-15						
			कुल खसरा : 1	कुल क्षेत्रफल :	43-15	भूमि प्रकार के अनुसार क्षेत्रफल गै.मु.पहाड़	43-15						
			नदियों तथा नाले (भारतमाह हेतु)	25/170	20-02	नदी	20-02						
				25/179	5-10	नदी	5-10						
				25/186	0-14	नदी	0-14						
				28	73-19	नदी	73-19						
				29	111-06	नदी	111-06						
				30	13-13	नदी	13-13						
				309/27	1-01	नदी	1-01						
				25/		नदी	1-						

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति

(भूपेन्द्रसिंह)

पार्क आर० सी०, पटवारी

तहसील-पिंडवाड़ा, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :-	सुधारोकागुडा	पटवार हल्का	उमगण	भू.अभि.नि.क्षेत्र	पोसालिया	पृष्ठ संख्या	2 of 3
तहसील :-	शिवगंज	जिला :-	सिरोही	दिनांक :-	05/04/2013		
सम्वत :-	2066 - 2069	वास्तविक सम्वत :-	2066				
क्षेत्रफल :-	बीघा-बिस्वा						

खेड़द(खसरा नं.)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		दाखलखरग आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मकबूत)	राज.			312/25	0-09	नदी	0-09					
	सरकार			320/27	1-14	नदी	1-14					
				348/11	9	नाला	9					
			कुल खसरा : 11		कुल क्षेत्रफल : 237-19	भूमि प्रकार के अनुसार क्षेत्रफल						
						नदी	228-19					
						नाला	9					
		जलमग्न(जलग्रहण हेतु)		32	0-04	आ.भा.	0-04					
			कुल खसरा : 1		कुल क्षेत्रफल : 0-04	भूमि प्रकार के अनुसार क्षेत्रफल						
						आ.भा.	0-04					
		पगडंडिया एवं रास्ते (खातगाह के लिए नहीं)		3	0-01	रास्ता	0-01					
				4	0-01	रास्ता	0-01					
				318/2	0-01	रास्ता	0-01					
			कुल खसरा : 3		कुल क्षेत्रफल : 0-03	भूमि प्रकार के अनुसार क्षेत्रफल						
						रास्ता	0-03					
कुल:			कुल खसरा : 25		कुल क्षेत्रफल : 306-14	भूमि प्रकार के अनुसार क्षेत्रफल						
						[illegible]	7-03					
						खेड़ा	17-10					
						नदी	228-19					
						वी.भू.गड्ढा	43-15					
						नाला	9					
						रास्ता	0-03					
						आ.भा	0-04					

अपना खाता खोलू दे जाते पर सहायक

(ग्रेड-तृतीय)
एल० आर० सी०, पटवारी
सहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-28(बी)

ग्राम का नाम :- सुधारोकागुडा | पटवार हल्का :- अमाण | पु.व.नि.वि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 3 of 3

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सवत :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(अंग्रेजी)		भूमि धारक का नाम	कारणकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अवधारित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि शुल्क 30/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक [illegible] तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।

प्रतिलिपि क्रमांक :- 1905177-6262

प्रतिलिपि तारी करने का दिनांक :- 05/04/2013

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति

[illegible]

प्रभारी अधिकारी

एस. आर. सी., पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(सी)

ग्राम का नाम :- रखाडा | पटवार हल्का :- उपगण | भू.अभि.वि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 1 of 2

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2064 - 2067 | वास्तविक सम्वत :- 2064

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतोनी) नया	खेवट(खतोनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विविधिवर्ग जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	आवर (चारागाह हेतु)	71	1-09	रद्दा	1-09						
				88	3-06	रद्दा	3-06						
				91	4-03	रद्दा	4-03						
				94	0-12	बैड	0-12						
				99	11-16	रद्दा	11-16						
				103	0-01	रद्दा	0-01						
				128	0-19	रद्दा	0-19						
				129	3-08	रद्दा	3-08						
			कुल खसरा : 8	कुल क्षेत्रफल : 25-12		भूमि प्रकार के अनुसार क्षेत्रफल							
						बैड	0-12						
						रद्दा	25						
			रहावी तथा पर्वत (चारागाह हेतु)	120	5-15	कांकरा	5-15						
			कुल खसरा : 1	कुल क्षेत्रफल : 5-15		भूमि प्रकार के अनुसार क्षेत्रफल							
						कांकरा	5-15						
			नदियों तथा नाले (चारागाह हेतु)	14	2-16	नदी	2-16						
				17	6-02	नदी	6-02						
				87	338-18	नदी	338-18						
				93	1-08	नाला	1-08						
				101	10-17	नाला	10-17						
				108/मिल01	8-05	नाला	8-05						
				116/मिल01	24-12	नाला	24-12						
				152	1-12	नाला	1-12						
				155	108	नाला	108						
				158	7-16	नाला	7-16						
				163	3	नाला	3						



अपना खाता खेवट से मूलरूप से सम्बन्धित प्रति

(धूपेन्द्रसिंह)

पटवारी

पटवारी हल्का नं. [illegible]-[illegible]

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- खेवादा
तहसील :- सिरोंज
वर्ष :- 2064 - 2067
क्षेत्रफल :- बीघा-बिस्वा

पटवार मुल्क :- उपखण्ड
जिला :- सिरोंही
वास्तविक वर्ष :- 2064

भू.प्र.वि.नि.क्षेत्र :- गोसलिया
दिनांक :- 05/04/2013

खेवट(खसरा) नया	खेवट(खसरा) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. एवं तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

कुल खसरा : 12 कुल क्षेत्रफल : 516-09 भूमि प्रकार के अनुसार क्षेत्रफल
नदी 347-16
नाला 168-13

कुल

कुल खसरा : 21 कुल क्षेत्रफल : 547-16 भूमि प्रकार के अनुसार क्षेत्रफल
तेह 0-12
कातरा 5-15
नदी 347-16
नाला 168-13
रहा 25

प्रतिलिपि शुल्क 20/-
प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक एक के समक्ष परिवर्तन शामिल कर दिये गये है।
प्रतिलिपि क्रमांक 1905129-6253
प्रतिलिपि जारी करने का दिनांक 05/04/2013

अपना खातन केन्द्र से जारी पूर्व प्रमाणित प्रति

प्रभारी अधिकारी
खातन केन्द्र
ग्राम- खेवा, पो. पटवारी
वाया गोसलिया, सिरोंही
राजस्थान-सिरोंही, पिन-307019

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(सी)

ग्राम का नाम :- चुली | पटवार हल्का चुली | उ.प.वि.नि.क्षेत्र मोसालिया | पृष्ठ संख्या 1 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि स्थांरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	भूमि को नालत के लिए उपलब्ध है	720/1	5-02	पडत।	5-02					

कुल खसरा : 1 | कुल क्षेत्रफल : 5-02 | भूमि प्रकार के अनुसार क्षेत्रफल
पडत। 5-02

खादर (भारानाह हेतु)

84	0-03	खाल खद्दर	0-03
103	1-06	खाल खद्दर	1-06
114	0-08	खाल खद्दर	0-08
246	0-05	पै.भू.खड्डा	0-05
260	0-02	खाल खद्दर	0-02
464	0-03	खाल खद्दर	0-03
469	2-13	पै.भू.खड्डा	2-13
474	0-17	खाल खद्दर	0-17
477	0-18	खाल खद्दर	0-18
515	0-05	खाल खद्दर	0-05
557	5-10	खाल खद्दर	5-10
586	2-04	खाल खद्दर	2-04
649	4-09	खाल खद्दर	4-09
676	17-17	खाल खद्दर	17-17
678	1-02	खाल खद्दर	1-02
698	7-02	खाल खद्दर	7-02
699	5-15	खाल खद्दर	5-15
718	2-04	खाल खद्दर	2-04
723	28-08	खाल खद्दर	28-08

कुल खसरा : 19 | कुल क्षेत्रफल : 81-09 | भूमि प्रकार के अनुसार क्षेत्रफल
खाल खद्दर 78-11
पै.भू.खड्डा 2-18

अधीक्षण खाता सेन्टर से जारी एवं सत्यापित प्रति

(भूमिपालिका)
एम० आर० सी०, पटवारी
शिवगंज-सिरोही, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- चुण्डी | पटवार हल्का चुण्डी | भू.अभि.नि.क्षेत्र गोयलिया | पृष्ठ संख्या 2 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(अंतर्गत)		भूमि धारक का नाम	कब्जाधारक का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (अबाद)	रब	पहाडी तथा बर्बाद (भारतमाह होड़)		274/1	33-05	वै.भू.पहाड	33-05						
	धारकार			325	10-14	वै.भू.पहाड	10-14						
				580	42-06	वै.भू.पहाड	42-06						
				613/1	0-02	वै.भू.पहाड	0-02						
				615	59-10	वै.भू.पहाड	59-10						
				616	2-02	वै.भू.पहाड	2-02						
				621	0-09	वै.भू.पहाड	0-09						
				623	6-13	वै.भू.पहाड	6-13						
				625/1	1-14	वै.भू.पहाड	1-14						
				629/1	0-07	वै.भू.पहाड	0-07						
				641/1	13-09	वै.भू.पहाड	13-09						
				642	12-01	वै.भू.पहाड	12-01						
				661	1-15	वै.भू.पहाड	1-15						
				655/1	4-17	वै.भू.पहाड	4-17						
				656/1	0-13	वै.भू.पहाड	0-13						
				671	1-04	वै.भू.पहाड	1-04						
				673/1	1-16	वै.भू.पहाड	1-16						
				674	4-05	वै.भू.पहाड	4-05						
				677/1	18-10	वै.भू.पहाड	18-10						
				679/1	8-18	वै.भू.पहाड	8-18						
				680/1	124-03	वै.भू.पहाड	124-03						
				690	4-09	वै.भू.पहाड	4-09						
				693	12-16	वै.भू.पहाड	12-16						
				695/1	119-14	वै.भू.पहाड	119-14						
				697	9-19	वै.भू.पहाड	9-19						
				702	21-06	वै.भू.पहाड	21-06						
				703/1	28-05	वै.भू.पहाड	28-05						
				706	1-02	वै.भू.पहाड	1-02						
				707	0-18	वै.भू.पहाड	0-18						

अपना खाता खोलने से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

एल॰ आर॰ जी॰, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

पत्रक पी-26(बी)

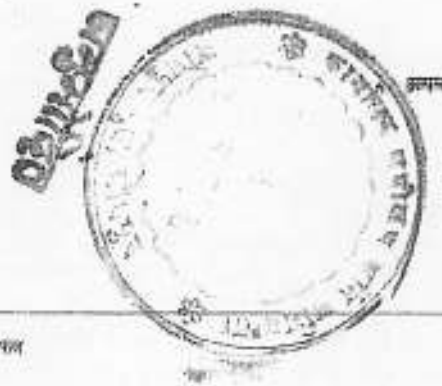
ग्राम का नाम :- चुण्डी | पटवार हल्का :- चुण्डी | भू.अभि.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 4 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

समय :- 2068 - 2071 | वास्तविक समय :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सकल)		राज. सरकार		344	0-19	गै.मु.नाला	0-19						
				347	1-08	गै.मु.नाला	1-08						
				354	0-04	गै.मु.नाला	0-04						
				414	2-17	गै.मु.नाला	2-17						
				418	1-19	गै.मु.नाला	1-19						
				420	1-16	गै.मु.नाला	1-16						
				422	2-01	गै.मु.नाला	2-01						
				424	3	गै.मु.नाला	3						
				426	0-13	गै.मु.नाला	0-13						
				463	5-19	गै.मु.नाला	5-19						
				470	1-09	गै.मु.नाला	1-09						
				478	3-19	गै.मु.नाला	3-19						
				484	0-15	गै.मु.नाला	0-15						
				516	3-09	गै.मु.नाला	3-09						
				518	2-02	गै.मु.नाला	2-02						
				547	1	गै.मु.नाला	1						
				551	1-14	गै.मु.नाला	1-14						
				553	3-09	गै.मु.नाला	3-09						
				561	22-04	गै.मु.नाला	22-04						
				564	2-18	गै.मु.नाला	2-18						
				566	1-08	गै.मु.नाला	1-08						
				573	2-03	गै.मु.नाला	2-03						
				686	6-16	गै.मु.नाला	6-16						
				688	2-05	गै.मु.नाला	2-05						
				713	1-03	गै.मु.नाला	1-03						
				716	4	गै.मु.नाला	4						
				721/1	8-18	गै.मु.नाला	8-18						



अनन्य खाता केन्द्र से जारी पूर्व सत्यापित प्रति

(भूमि-निरीक्षक)

भूमि अभि० सेवा, पटवारी

तहसील-शिवगंज, जिला-सिरोही

कुल खसरा : 49 कुल क्षेत्रफल : 196-04 भूमि प्रकार के अनुसार क्षेत्रफल

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- दुसी पटवार हल्का दुसी भू.अभि.वि.क्षेत्र पोसालिया पृष्ठ संख्या 3 of 5

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2068 - 2071 वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		शिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (एकमुश्त)	राज सरकार			712	15-16	वै.सु.पहाड	15-16						
				715	4-14	वै.सु.पहाड	4-14						
				725/1	5-10	वै.सु.पहाड	5-10						
			कुल खसरा : 33		कुल क्षेत्रफल : 571-14	भूमि प्रकार के अनुसार क्षेत्रफल							
						वै.सु.पहाड	571-01						
						वै.सु.पहाड	0-13						
			परिवर्तन तथा बाकी (भारसाधु हेतु)	1	73-05	वै.सु.नदी	73-05						
				13	2-14	वै.सु.नाला	2-14						
				53	0-15	वै.सु.नाला	0-15						
				78	6-05	वै.सु.नाला	6-05						
				153	0-15	वै.सु.नाला	0-15						
				186	3-14	वै.सु.नाला	3-14						
				287	0-12	वै.सु.नाला	0-12						
				296	1-03	वै.सु.नाला	1-03						
				302	7-09	वै.सु.नाला	7-09						
				305	0-15	वै.सु.नाला	0-15						
				307	0-02	वै.सु.नाला	0-02						
				309	0-04	वै.सु.नाला	0-04						
				311	1-01	वै.सु.नाला	1-01						
				313	1-01	वै.सु.नाला	1-01						
				314	0-02	वै.सु.नाला	0-02						
				316	0-07	वै.सु.नाला	0-07						
				319	0-03	वै.सु.नाला	0-03						
				322	0-03	वै.सु.नाला	0-03						
				323	0-09	वै.सु.नाला	0-09						
				327	1-01	वै.सु.नाला	1-01						
				340	19	वै.सु [illegible]	1-02						
				[illegible]	[illegible]	[illegible]	[illegible]						

अपना खुला क्षेत्र से जारी एवं प्रमाणित प्रति

([illegible])

एल० डार० सी०, पटवारी

पटवार हल्का-दुसी, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- चूली | पटवार हल्का चूली | भू.प्र.नि.केन्द्र पोसालिया | पृष्ठ संख्या 5 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेड़त(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		भावान्तरण आदेश सं. एवं तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
						गै.मु.नाला	122-19					
			जलमग्न(चरागाह हेतु)	627	0-11	गै.मु.बेरा	0-11					
			कुल खसरा : 1	कुल क्षेत्रफल : 0-11		भूमि प्रकार के अनुसार क्षेत्रफल						
						गै.मु.बेरा	0-11					
कुल:			कुल खसरा : 103	कुल क्षेत्रफल : 855		भूमि प्रकार के अनुसार क्षेत्रफल						
						पहाड़	5-02					
						खास खार	78-11					
						गै.मु.पहाड़	2-18					
						गै.मु.नदी	73-05					
						गै.मु.नाला	122-19					
						गै.मु.पहाड़	571-01					
						गै.मु.बेरा	0-11					
						गै.मु.पहाड़	0-13					

प्रतिलिपि शुल्क: 50/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में लिखित उक्त के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1905207-8264

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

आयत खसरा नंबर के अनुसार भूस्थापित आरेख

पटवारी हल्का नं. चूली

हस्ताक्षर श्री एस. डी. पटवारी

स्थानीय-नियमण, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- राजनर | पटवार हल्का :- नुणी | भू.व.नि.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 1 of 3

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2067 - 2070 | वास्तविक वर्ष :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज सरकार	भूमि जो काश्त के लिए उपलब्ध है	195/145	2	ब 2	2					
				197/189	2-10	ब 2	2-10					
			कुल खसरा : 2	कुल क्षेत्रफल : 4-10		भूमि प्रकार के अनुसार क्षेत्रफल						
						ब 2	4-10					
			5 वर्ष का आर्थिक परती(सुधार्ह हेतु)	5	3-10	पडत I	3-10					
				150	7-15	ब 2	7-15					
			कुल खसरा : 2	कुल क्षेत्रफल : 11-05		भूमि प्रकार के अनुसार क्षेत्रफल						
						पडत I	3-10					
						ब 2	7-15					
			खादर (चारनाह हेतु)	3	1-09	गै.मु.खालखद्दर	1-09					
				27	3-13	गै.मु.खालखद्दर	3-13					
				44	5	गै.मु.खालखद्दर	5					
				89	1-11	गै.मु.खालखद्दर	1-11					
				194/92	48	खाल खद्दर	48					
			कुल खसरा : 5	कुल क्षेत्रफल : 59-13		भूमि प्रकार के अनुसार क्षेत्रफल						
						खाल खद्दर	48					
						गै.मु.खालखद्दर	11-13					
			पहाडी ढाल एवं परती (चारनाह हेतु)	94	8-06	गै.मु.मवरी	8-06					
				101	133-06	गै.मु.मवरी	133-06					
				180	41-14	गै.मु.मवरी	41-14					
				185	147-15	गै.मु.मवरी	147-15					
				196/145	74-04	गै.मु.मवरी	74-04					
				195/189	58-17	ब 2	58-17					

अपना खातरा खेन्द्र से जारी एवं सत्यप्रमिल प्रति

(सुरेन्द्रसिंह)

एल॰ आर॰ सी॰, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- राडकर | पटवार हल्का :- नुली | भू.प्रबं.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 2 of 3

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

समत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खसरा) नया	खेवट(खसरा) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

कुल खसरा : 6 कुल क्षेत्रफल : 464-02 भूमि प्रकार के अनुसार क्षेत्रफल

गै.मु.बंजरी 405-05

ब 2 58-17

नदियाँ तथा नाले (पारणाह हेतु)

2	3-04	गै.मु.नाला	3-04
9/1	2	गै.मु.नाला	2
11	3	गै.मु.नाला	3
74	3-07	गै.मु.नाला	3-07
93	301-14	गै.मु.नदी	301-14
140	84-15	गै.मु.नदी	84-15
149	48-14	गै.मु.नाला	48-14
153	2-15	गै.मु.नाला	2-15
154	7-10	गै.मु.नाला	7-10
158	17-08	गै.मु.नाला	17-08

कुल खसरा : 10 कुल क्षेत्रफल : 474-07 भूमि प्रकार के अनुसार क्षेत्रफल

गै.मु.नदी 386-09

गै.मु.नाला 87-18

जलमग्न(पारणाह हेतु)

162	0-01	बेरा	0-01
174	0-04	बेरा	0-04

कुल खसरा : 2 कुल क्षेत्रफल : 0-05 भूमि प्रकार के अनुसार क्षेत्रफल

बेरा 0-05

कुल: कुल खसरा : 27 कुल क्षेत्रफल : 1014-02 भूमि प्रकार के अनुसार क्षेत्रफल

बेरा 0-05

पहाड़ । 3-10

चालू बहर 48

अपना खतरा खेत में उतारी एवं सत्यापित प्रति

(भूमिबन्दोबस्त)

एस. आर. सी., पटवारी

पटवारहल्का-Revenue, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

पत्रक पी-26(बी)

ग्राम का नाम :- खीवाखांव | पटवार हल्का :- खीवागांव | नू.अभि.नि.क्षेत्र :- गोसालिया | पृष्ठ संख्या 2 of 7

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	वाणान्तरण आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मयचूर)		राज. सरकार		387	42	गै.मु.खाल खद्दर 42						
				402	1-17	गै.मु.खाल खद्दर 1-17						
				407	2-11	गै.मु.खाल खद्दर 2-11						
				416	1-10	गै.मु.खाल खद्दर 1-10						
				429	12	गै.मु.खाल खद्दर 12						
				450	3	गै.मु.खाल खद्दर 3						
				455	0-13	गै.मु.खाल खद्दर 0-13						
				457	0-10	गै.मु.खाल खद्दर 0-10						
				465	2-18	गै.मु.खाल खद्दर 2-18						
				467	3-07	गै.मु.खाल खद्दर 3-07						
				485	4-10	गै.मु.खाल खद्दर 4-10						
				490	1-18	गै.मु.खाल खद्दर 1- 8						
				508	1	गै.मु.खाल खद्दर 1						
				514	7	गै.मु.खाल खद्दर 7						
				516	1-03	गै.मु.खाल खद्दर 1-03						
				521	11-17	गै.मु.खाल खद्दर 11-17						
				536	2-02	गै.मु.खड्डा 2-02						
				574	1-10	गै.मु.खड्डा 1-10						
				576	5-10	गै.मु.खड्डा 5-10						
				591	0-05	गै.मु.खाल खद्दर 0-05						

कुल खसरा : 43 | कुल क्षेत्रफल : 221-06

भूमि प्रकार के अनुसार क्षेत्रफल

गै.मु.खड्डा 20-17

गै.मु.खाल खद्दर 192-13

गै.मु.पहाड़ 1-08

गै.मु.रोपा 6-08

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

एल॰ आर॰ सी॰, पटवारी

लक्कसोल-शिवगंज, जिला-सिरोही

पहाड़ी एवं पर्वत (चारागाह हेतु)	1	124	गै.मु.पहाड़	124		1
	135	197	गै.मु.पहाड़	197		1

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- खीवासांव | पटवार हल्का | खीवासांव | भू.अभि.नि.क्षेत्र | पोखलिया | पृष्ठ संख्या 1 of 7

तहसील :- जियनंव | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2066 - 2069 | वास्तविक वर्ष :- 2066

क्षेत्रफल :- बीघा-बिस्वा

नवीन	पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		सामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियों जिसके पक्ष में भूमि सन्तरित हो	टिप्पणी
									दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	भूमि जो काश्त के लिए उपलब्ध है	346	0-10	ब 2	0-10						
				560/592	5	ब 2	5						
				572/590	3	ब 2	3						
			कुल खसरा : 3	कुल क्षेत्रफल : 9-10		भूमि प्रकार के अनुसार क्षेत्रफल							
						ब 2	9-10						
			भूमि जो खुदाई के लिए अनुपलब्ध	42	1	वै.सु.सड़क	1						पीचर ट्रेक
				65	3	वै.सु.सड़क	3						भरविश
				65/608	1-07	वै.सु.खाल बहर	1-07						नाला सं 560
				72	9-08	वै.सु.खाल बहर	9-08						
				97	0-09	वै.सु.खाल बहर	0-09						
				118	14-15	वै.सु.खाल बहर	14-15						
				137	14-16	वै.सु.खाल बहर	14-16						
				143	4-05	वै.सु.खाल बहर	4-05						
				169	0-11	वै.सु.खाल बहर	0-11						
				171	0-07	वै.सु.खाल बहर	0-07						
				173	3-10	वै.सु.खाल बहर	3-10						
				175	1-15	वै.सु.खाल बहर	1-15						
				180	15-05	वै.सु.खाल बहर	15-05						
				183	3-15	वै.सु.खाल बहर	3-15						
				188	1-18	वै.सु.खाल बहर	1-18						
				193	6-08	वै.सु.बोया	6-08						
				220	5-11	वै.सु.खाल बहर	5-11						
				224	7-15	वै.सु.सड़क	7-15						
				235	1-08	वै.सु.पहाड़	1-08						
				305	5-10	वै.सु.खाल बहर	5-10						
				367	2-10	वै.सु.खाल बहर	2-10						
				377	0-08	वै.सु.खाल बहर	0-08						
				38	5-	वै.सु. बहर	5						

अपना खाता केन्द्र से जारी एवं हस्ताक्षरित प्रति

(भूपेन्द्रसिंह)

ग्राम• अधि• भी•, पटवारी

मुख्यालय-जियनंव, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

परिशिष्ट सी-26(बी)

ग्राम का नाम :- छीयावांव | पटवार हल्का :- छीयावांव | भू.प्र.नि.क्षेत्र :- पोमावास | पृष्ठ संख्या 3 of 7

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2066 - 2069 | वास्तविक वर्ष :- 2066

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रट(खजोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मजकूर)	राम.			185	30-15	गै.मु.पहाड़	30-15						अरक्षित
	अरमार			221	90	गै.मु.पहाड़	90						ना.क.सं.590
				222	52	गै.मु.पहाड़	52						गौचर हेतु
				223	75-02	गै.मु.पहाड़	75-02						अरक्षित
				229	13-05	गै.मु.पहाड़	13-05						ना.क.सं.590
				235/1	15-17	गै.मु.पहाड़	15-17						
				236	199-06	गै.मु.पहाड़	199-06						
				238	81-10	गै.मु.पहाड़	81-10						
				239	235	गै.मु.पहाड़	235						
				240	240-05	गै.मु.पहाड़	240-05						
				241	87-05	गै.मु.पहाड़	87-05						
				254	21-17	गै.मु.पहाड़	21-17						
				266	36-15	गै.मु.पहाड़	36-15						
				267	15-03	गै.मु.पहाड़	15-03						
				268	4-13	गै.मु.पहाड़	4-13						
				272	7-10	गै.मु.पहाड़	7-10						
				278	31-15	गै.मु.पहाड़	31-15						
				279	0-05	गै.मु.पहाड़	0-05						
				298	187-10	गै.मु.पहाड़	187-10						
				300	150	गै.मु.पहाड़	150						
				301	142-05	गै.मु.पहाड़	142-05						
				315	102-10	गै.मु.पहाड़	102-10						
				328	3-13	गै.मु.पहाड़	3-13						
				338	1-16	गै.मु.पहाड़	1-16						
				348	43-05	गै.मु.पहाड़	43-05						
				349	6-12	गै.मु.पहाड़	6-12						
				358	11-13	गै.मु.पहाड़	11-13						
				365	7	गै.मु.पहाड़	7						
				366	38-05	गै.मु.पहाड़	38-05						

अपना क्षेत्रा क्षेत्र में सही एवं हस्ताक्षरित प्रति

(हस्ताक्षर)

एम. एल. पी. पटवारी

सहायक भू-प्रबन्धक जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- खीवाणा | पटवार हल्का :- खीवाणा | भू.अभि.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 4 of 7

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2068 - 2069 | वास्तविक वर्ष :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	गमनागमन आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (अधूरा)	राम सरकार			462	27-04	गै.मु.पहाड						
				547	21-15	गै.मु.पहाड						
				549	7-02	गै.मु.पहाड						
				560	8	गै.मु.पहाड						
				562	3-17	गै.मु.पहाड						
				572/1	8-10	गै.मु.पहाड						
				580	8	गै.मु.पहाड						
				601	4-13	गै.मु.पहाड						
				606	73-10	गै.मु.पहाड						
				606/607	871-05	गै.मु.पहाड						
				702/237	127	गै.मु.पहाड						
				707/296	0-05	गै.मु.पहाड						
				708/287	0-05	गै.मु.पहाड						
				709/297	74-09	गै.मु.पहाड						
				710/299	320-13	गै.मु.पहाड						
				711/303	6	गै.मु.पहाड						
				713/309	15-18	गै.मु.पहाड						
				714/342	14-14	गै.मु.पहाड						
				715/346	88	गै.मु.पहाड						
				716/347	84	गै.मु.पहाड						
				718/419	5-02	गै.मु.पहाड						
				722/543	4-03	गै.मु.पहाड						
				723/545	12-17	गै.मु.पहाड						
				724/569	22-05	गै.मु.पहाड						
				726/577	5-09	गै.मु.पहाड						
				727/587	9-19	गै.मु.पहाड						
				728/592	10-13	गै.मु.पहाड						

समायर पोरवा कोड्स से चारों ओर सहमाणित (डी)

(सुरेन्द्रसिंह)
पिता- आर. सी. पटवारी
पटवारी-शिवगंज, जिला-सिरोही

कुल खाता : 60 कुल क्षेत्रफल : 4135-05 भूमि प्रकार के अनुसार क्षेत्रफल

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(जी)

ग्राम का नाम :- छीछागांव | पटवार हल्का :- छीछागांव | भू.अभि.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 6 of 7

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेड़ा(खतौनी) नया	खेड़ा(खतौनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	सामान्तरण आदेश नं. तथा तारीख	भूमि धारी विशिष्टियों जिनके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मनकूर)		राज. सरकार		486	4-05	गै.मु.नाला						
				505	52	गै.मु.नाला						
				522	6-03	चरोई का.का.						
				534	125-14	गै.मु.नाला						
				565	0-18	गै.मु.नाला						
				573	35-05	गै.मु.नाला						
				575	21-15	गै.मु.नाला						
				581	3-08	गै.मु.नाला						
				588	28-05	गै.मु.नाला						
				589	11-04	गै.मु.नाला						
				600	6-08	गै.मु.नाला						
				602	28-15	गै.मु.नाला						
			कुल खसरा : 39		कुल क्षेत्रफल : 502-06	भूमि प्रकार के अनुसार क्षेत्रफल						
						गै.मु.नाला 493-03						
						चरोई का.का. 9-03						
		खलभा(चरागाह हेतु)		37	0-06	गै.मु.रोड						
				92	0-08	गै.मु.रोड						
			कुल खसरा : 2		कुल क्षेत्रफल : 0-14	भूमि प्रकार के अनुसार क्षेत्रफल						
						गै.मु.रोड 0-14						
कुल:			कुल खसरा : 147		कुल क्षेत्रफल : 4563-01	भूमि प्रकार के अनुसार क्षेत्रफल						
						गै.मु.रोड 0-14						
						गै.मु.पहाड़ 20-17						
						गै.मु.खाल खड्डा 192-13						
						गै.मु.नाला 494-18						
						चरोई का.का. 9-03						

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- खीमाणा | पटवार हल्का :- खीमाणा | मु.अभि.नि.क्षेत्र :- मोलाखिया | पृष्ठ संख्या 5 of 7

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्णन :- 2068 - 2069 | वास्तविक वर्णन :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और निहितियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
						कै.सु.पहाड़	4087-18					
						कै.सु.पहाड़	45-12					
			नदियाँ तथा नाले (पाराशर ईकू)	34	2-03	कै.सु.नाला	2-03					
				38	9-16	कै.सु.नाला	9-16					
				43	19	कै.सु.नाला	19					
				160	7-10	कै.सु.नाला	7-10					
				162	49-05	कै.सु.नाला	49-05					
				176	4-10	कै.सु.नाला	4-10					
				179	3-09	कै.सु.नाला	3-09					
				225	3	चरनोई का.का.	3					
				271	1-13	कै.सु.नाला	1-13					
				299/609	2-18	कै.सु.नाला	2-18					
				314	25-05	कै.सु.नाला	25-05					
				375	0-08	कै.सु.नाला	0-08					
				378	0-15	कै.सु.नाला	0-15					
				391	1-15	कै.सु.नाला	1-15					
				409	0-18	कै.सु.नाला	0-18					
				422	2-10	कै.सु.नाला	2-10					
				423	2-15	कै.सु.नाला	2-15					
				425	2	कै.सु.नाला	2					
				427	2-15	कै.सु.नाला	2-15					
				433	8-10	कै.सु.नाला	8-10					
				439	1-03	कै.सु.नाला	1-03					
				453	1-13	कै.सु.नाला	1-13					
				460	6	कै.सु.नाला	6					
				464	4-14	कै.सु.नाला	4-14					
				469	6-03	कै.सु.नाला	6-03					
				474	1-05	कै.सु.नाला	1-05					
						कै.सु.	1-					

अपना खाता केन्द्र से प्राप्त यह प्रमाणित प्रति

(सुरेन्द्रसिंह)

ग्राम प्रशा. अ., पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)



प्रपत्र पी-26(बी)

राज्य का नाम :-	बड़गांव	जिला :-	बड़गांव	मु.अभि.नि.क्षेत्र	शिवगंज
तहसील :-	शिवगंज	पंचायत समिति :-	शिवगंज	दिनांक :-	05/04/2013
संवत :-	2065 - 2068	तात्कालिक संवत :-	2065		
क्षेत्रफल :-	बीघा-बिस्वा				

पृष्ठ संख्या 1 of 20

खेत(अंतोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा	क्षेत्रफल	किस्म	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना			नम्बर				दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज्य सरकार	6 वर्ष या अधिक परती(खुवाई हेतु)	5	0-01	बंजर	0-01			* नामा. सं.: 2892 - नि.दि.: 30/12/2010 - बयानरकरबे के द्वारा ब.नं.286/1102 रकबा 200 व.मी.(0-02-01) आबादी मोहल्लाबाज पूर्व मालकी धा.हेतु के नाम दर्ज हुआ, क्षेत्र बदस्तूर।		
				37/5	6	बारानी 2	6					
				48	0-11	ब.चा.	0-11					
				71	0-07	पडत	0-07					
				72	0-07	ब.चा.	0-07					
				73	0-09	I-A	0-09					
				74	0-04	पडत	0-04					
				75	19-10	I-A	18-05					
						चा.मे.	0-19					
						खहर	0-06					
				215	28-11	बंजर	28-11					
				216	6	बारानी 1	6					
				217	14	बंजर	14					
				221	31	बंजर	31					
				222	8	आबादी	0-05					
						बंजर	7-15					
				233/2	0-10	ब.चा.	0-10					
				273	8-04	बंजर	8-04					
				286	10	बंजर	10					
				290/1	0-01	बारानी 1	0-01					
				299	4-17	बारानी 1	4-17					
				646/13	3-09	बारानी 1	3-09					
				660/मिन01	4-18	बारानी 1	4-18					
				663/1	11-17	बंजर	11-17					
				665	13	बंजर	13					
				666	56-06	बारानी 1	56-06					
				666/मिन01	5-13	बारानी 1	5-13					
				668/मिन01	61-01	बारानी 1	61-01					
				672/मिन01	3-03	बारानी 1	3-03					

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

एल० आर० सी०, पटवारी

सर्कल-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- छीवागांव | पटवार हल्का :- छीवागांव | भू.प्र.नि.क्षेत्र :- गोसाविया |
तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013
फसल :- 2066 - 2069 | वास्तविक फसल :- 2066
क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

पै.सु.गोवा 6-08
ब 2 8-10
पै.सु.खाद 45-12

प्रतिलिपि शुल्क 70/-
प्रमाणित किया जाता है कि एक प्रतिलिपि में खिलांक एक के समक्ष परिलक्षित समाविष्ट कर दिये गये है।

प्रतिलिपि क्रमांक - 1905181-6266
प्रतिलिपि जारी करने का दिनांक 05/04/2013

अपना खाता केन्द्र गोसाविया की सम्पत्तिगत प्रति

प्रभारी अधिकारी/कर्मचारी
पटवारी हल्का छीवागांव
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

पत्रक पी-28(बी)

ग्राम का नाम :- बड़गांव | पटवार हल्का :- बड़वांव | मु.अभि.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 2 of 20

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2065 - 2066 | वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नवा	खेवट(खतौनी) पुराना	भूमि धारक का नाम	क रकबार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और/या विशिष्टियां जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मकबूर)		राज. सरकार		879	193	बारानी 1	193						
				886/मिन01	0-01	बारानी 1	0-01						
				705	10	बंजर	10						
				707/1	12-10	बंजर	12-10						
				741	0-10	बारानी 1	0-10						
				760	0-19	बंजर	0-19						
				762	6-03	बंजर	6-03						
				775	14-10	बंजर	14-10						
				800	25	बंजर	25						
				803	49	बंजर	49						
				805/मिन01	6-07	बंजर	6-07						
				805/मिन02	10-10	बंजर	10-10						
				805/1	21-04	बंजर	21-04						
				805/2	28-13	बंजर	28-13						
				807/2	45	बंजर	45						
				808/मिन01	50-18	बंजर	50-18						
				808/मिन02	9-05	बंजर	9-05						
				811/मिन01	8-11	बंजर	8-11						
				817	7-07	बंजर	7-07						
				821	49	बंजर	49						
				827/मिन01	8	बंजर	8						
				829	6-19	बंजर	6-19						
				830/1	10	बारानी 1	10						
				831/4	3-18	बंजर	3-18						
				831/5	10	बंजर	10						
				835	16	बारानी 1	16						
				836/2	33	बंजर	33						
				836/4	4	बंजर	4						
				836	8	बंजर	8						



असल खाता मोल्ड से जारी एवं सत्यापित प्रति।

(भूमिलिपिक)

एल० आर० जी०, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- बडगांव
तहसील :- शिवगंज
वर्ष :- 2065 - 2068
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का :- बडगांव
जिला :- सिरोही
वास्तविक सम्वत :- 2065

भू.अभि.नि. क्षेत्र :- शिवगंज
दिनांक :- 05/04/2013

खेड़ा(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा दिनांक	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (संलग्न)	राज			160	0-07	रास्ता	0-07					
	सरकार			162	0-17	रास्ता	0-17					
				172	0-13	रास्ता	0-13					
				193	4-14	रास्ता	4-14					
				205	0-16	रास्ता	0-16					
				209	1-07	रास्ता	1-07					
				210	1-06	रास्ता	1-06					
				220	0-13	रास्ता	0-13					
				225	6-04	रास्ता	6-04					
				241	2-07	रास्ता	2-07					
				254	2-06	रास्ता	2-06					
				258	1-15	रास्ता	1-15					
				266	0-14	रास्ता	0-14					
				268	0-11	रास्ता	0-11					
				268/1	7-09	रास्ता	7-09					
				273/1	1-05	रास्ता	1-05					
				279	1-04	रास्ता	1-04					
				295	0-19	रास्ता	0-19					
				298	1-06	रास्ता	1-06					
				301	2	रास्ता	2					
				309	4-06	रास्ता	4-06					
				327	0-19	रास्ता	0-19					
				342	4-19	रास्ता	4-19					
				351	2-10	रास्ता	2-10					
				374	0-10	रास्ता	0-10					
				380	0-16	रास्ता	0-16					
				385	6-01	रास्ता	6-01					
				388	2-07	रास्ता	2-07					
				427	0-19	रास्ता	0-19					
							0-					

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)
एस. आर. पी., पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- वडवांव | पटवार हल्का :- वडवांव | भू.अभि.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 14 of 20

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2065 - 2068 | वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेत(खाड़ोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (लबपूर)		राज. सरकार		82/1/9	0-01	आबादी	0-01						
				82/2	1-11	आबादी	1-11						
				82/2/1	1-08	आबादी	1-08						
				85	0-08	आबादी	0-08						
				85/1	0-01	आबादी	0-01						
				85/1/8	0-01	आबादी	0-01						
				85/2	0-08	आबादी	0-08						
				86/1/मि01	0-13	आबादी	0-13						
				86/1/2	2	आबादी	2						
				86/2	0-14	आबादी	0-14						
				86/2/मि01	1-13	आबादी	1-13						
				87	1-04	आबादी	1-04						
				124/873	0-05	आबादी	0-05						
				126	0-01	आबादी	0-01						
				126/2	0-01	आबादी	0-01						
				126/3	0-03	आबादी	0-03						
				126/4	0-03	आबादी	0-03						
				126/5	0-03	आबादी	0-03						
				126/6	0-03	आबादी	0-03						
				130/1/1/प	0-01	आबादी	0-01						
				131/1/1/ब	0-14	आबादी	0-14						
				131/1/1/म	0-10	आबादी	0-10						
				131/1/1/ह	0-08	आबादी	0-08						
				131/2/853	2-04	आबादी	2-04						
				131/2/874	1-14	आबादी	1-14						
				255/1	0-10	आबादी	0-10						
				255/14	0-08-14	पै.सु.आबादी	0-08-14						
				255/2	0-10	आबादी	0-10						
				255/3	0-10	आबादी	0-10						



जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- बड़गांव
तहसील :- शिवगंज
सम्वत :- 2065 - 2069
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का बड़गांव
जिला :- सिरोही
वास्तविक सम्वत :- 2065

भू.अभि.नि.क्षेत्र शिवगंज
दिनांक :- 05/04/2013

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लिंचाई के साधन	लगान दर	लगान रकम	तामान्तरण आदेश नं. तथा तारीख	भूमि ग्रहण विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मजदूर)		राज. सरकार		286/2	0-05	बजादी	0-03						
				286/3	0-02	बजादी	0-02						

कुल खसरा : 145 कुल क्षेत्रफल : 82-04-14 भूमि प्रकार के अनुसार क्षेत्रफल
पी.सु.बजादी 0-08-14
बजादी 81-16

खण्डरिया तथा रास्ते (लगानमुक्त के लिए नहीं)	4	2-03	रास्ता	2-03
	15	1-10	रास्ता	1-10
	26	1	रास्ता	1
	32	2-05	रास्ता	2-05
	34	1-01	रास्ता	1-01
	35	1-09	रास्ता	1-09
	41	1-16	रास्ता	1-16
	51	2-04	रास्ता	2-04
	52	0-04	रास्ता	0-04
	55	0-13	रास्ता	0-13
	56	1-05	रास्ता	1-05
	59	2-07	रास्ता	2-07
	61	1-16	रास्ता	1-16
	70	0-17	रास्ता	0-17
	81	0-06	रास्ता	0-06
	105	3-07	रास्ता	3-07
	122	1-08	रास्ता	1-08
	123	4-14	रास्ता	4-14
	128/1	0-17	सड़क	0-17
	129	3-08	रास्ता	3-08
	139	0-11	रास्ता	0-11
	147	0-11	रास्ता	0-11
	15-	0-0;		(

* नामा. क्र.: 3242 - नि.वि.: 26/03/2012 - आयोजन अधिक्षण अभियन्ता का.शिवगंज के द्वारा ख.नं.4, 15, 26, 56, 61, 70, 81, 105, 128/1, 129 कुल किता 10 रकबा 16-09 नगरपालिका शिवगंज के नाम दर्ज हुआ, शेष बदस्तूर रहा।

अपना खाता खोल्ड से जारी एवं हस्ताक्षरित प्रति

(सुरेन्द्रसिंह)
एल॰ आर॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- बड़गांव पटवार हल्का बड़गांव भू.अभि.दि.क्षेत्र शिवगंज पृष्ठ संख्या 12 of 20

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2065 - 2068 वास्तविक सम्वत :- 2065

क्षेत्रफल :- सीधा-मिस्सा

खेत(खसरा) नया	खेत(खसरा) पुराना	भूमि धारक का नाम	कारतकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	सामान्यकरण आदेश सं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मक्बूर)		राज. सरकार		ब.न. 79 मिन								
				78/मिन06	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन07	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन08	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/1	1	आबादी	1					
				78/मिन10	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन11	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन12	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन13	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन14	0-02	आबादी	0-02					
				ब.न. 79 मिन								
				78/मिन15	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन16	0-01	आबादी	0-01					
				ब.न. 79								
				78/मिन17	0-01	आबादी	0-01					
				ब.न. 79 मिन								
				78/मिन18	0-02	आबादी	0-02					
				ब.न. 79 मिन								
				78/मिन19	0-02	आबादी	0-02					
				ब.न. 79 मिन								
				78/मिन20	0-01	आबादी	0-01					
				ब.न. 79 मिन								



आपका खातेदार ... से प्राप्त एवं सत्यापित प्रति

(सुरेश सिंह)

ग्राम- आर० सी०, पटवारी

स्थान- शिवगंज, जिला- सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :-	बड़वांव	पटवार हल्का	बड़वांव	भू.प्र.नि.क्षेत्र	शिवगंज	पृष्ठ संख्या	13 of 20
तहसील :-	शिवगंज	जिला :-	सिरोही	दिनांक :-	05/04/2013		
सम्वत :-	2065 - 2068	वास्तविक सम्वत :-	2065				
योजना :-	बीका-निम्बा						

भवन(आवासीय)		भूमि धारक का नाम	कारखाना का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि कौरा विलिहिवों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
पक्का	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (अबादू)		राव		78/मिन21	0-01	आबादी	0-01					
		शंकर		ह.न. 79 मिन								
				78/मिन22	0-01	आबादी	0-01					
				ह.न. 79 मिन								
				79/मिन09	0-01	आबादी	0-01					
				ह.न. 79 मिन								
				79/1	0-04	आबादी	0-04					
				80/मिन01	0-01	आबादी	0-01					
				ह.न. 124								
				80/मिन02	0-01	आबादी	0-01					
				ह.न. 124								
				80/मिन03	0-01	आबादी	0-01					
				80/मिन04	0-02	आबादी	0-02					
				80/मिन05	0-09	आबादी	0-09					
				80/1	0-01	आबादी	0-01					
				82/1	1-10	आबादी	1-10					
				82/1/1	0-01	आबादी	0-01					
				82/1/10	0-01	आबादी	0-01					
				82/1/11	0-01	आबादी	0-01					
				82/1/12	0-01	आबादी	0-01					
				82/1/13	0-01	आबादी	0-01					
				82/1/14	0-01	आबादी	0-01					
				82/1/15	0-01	आबादी	0-01					
				82/1/16	0-01	आबादी	0-01					
				82/1/3	0-01	आबादी	0-01					
				82/1/4	0-02	आबादी	0-02					
				82/1/5	0-01	आबादी	0-01					
				82/1/6	0-01	आबादी	0-01					
				82/1/7	0-01	आबादी	0-01					
				78/मिन21	0-01	आबादी	0-01					

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति.

(सुरेन्द्रसिंह)
एल॰ आर॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

फार्म पी-26(बी)

ग्राम का नाम :- बडनावं | पटवार हल्का बडनावं | भू.अभि.नि.क्षेत्र शिवगंज | पृष्ठ संख्या 10 of 20
तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013
सम्वत :- 2065 - 2068 | वास्तविक सम्वत :- 2065
क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(खलोगी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि अंतरित विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मजबूर)		राज. सरकार		13/2/9	0-16	आबादी						
				14	0-07	आबादी						
				19/866	0-02	आबादी						
				20	0-10	आबादी						
				21/1	0-09	आबादी						
				21/1/1	0-02	आबादी						
				21/1/15	0-02	आबादी						
				21/1/16	0-06	आबादी						
				21/1/17	0-00-10	आबादी						
				21/1/18	0-00-10	आबादी						
				21/1/19	0-01	आबादी						
				21/1/2	0-02	आबादी						
				21/1/21	0-01	आबादी						
				21/1/22	0-00-10	आबादी						
				21/1/23	0-00-10	आबादी						
				21/1/3	0-03	आबादी						
				21/1/4	0-02	आबादी						
				21/1/5	0-01	आबादी						
				21/2	0-01	आबादी						
				21/2/1	0-01	आबादी						
				21/2/10	0-01	आबादी						
				21/2/11	0-01	आबादी						
				21/2/12	0-01	आबादी						
				21/2/13	0-01	आबादी						
				21/2/14	0-01	आबादी						
				21/2/15	0-01	आबादी						
				21/2/16	0-01	आबादी						
				21/2/17	0-01	आबादी						
				21/2/18	0-01	आबादी						

अपना खाता फोन्द से जारी एवं हस्ताक्षरित प्रति

(सुरेन्द्रसिंह)
एल॰ आर॰ डी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

पृष्ठ संख्या 11 of 20

ग्राम का नाम :- बडगांव
तहसील :- शिवगंज
सम्वत :- 2065 - 2068
रोजपत्र :- बीघा-बिस्वा

पटवार हल्का :- बडगांव
जिला :- सिरोही
वास्तविक सम्वत :- 2065

भू.अभि.नि.क्षेत्र :- शिवगंज
दिनांक :- 05/04/2013

खेड़ा(खातोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लगान		सामान्तरण आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (खण्ड1)		राज. सरकार		21/2/2	0-01	आबादी	0-01					
				21/2/20	0-01	आबादी	0-01					
				21/2/3	0-01	आबादी	0-01					
				21/2/4	0-01	आबादी	0-01					
				21/2/5	0-01	आबादी	0-01					
				21/2/6	0-01	आबादी	0-01					
				21/2/7	0-01	आबादी	0-01					
				21/2/8	0-01	आबादी	0-01					
				21/2/9	0-01	आबादी	0-01					
				37/2/2	0-11	आबादी	0-11					
				37/2/3	0-11	आबादी	0-11					
				37/2/4	0-12	आबादी	0-12					
				37/2/5	0-15	आबादी	0-15					
				37/2/6	0-15	आबादी	0-15					
				37/2/7	0-11	आबादी	0-11					
				37/2/861	0-09	आबादी	0-09					
				62/1	5-07	आबादी	5-07					
				62/2	5-17	आबादी	5-17					
				63	0-06	आबादी	0-06					
				64	0-10	आबादी	0-10					
				66/1	11-11	आबादी	11-11					
				78/मिन01	0-02	आबादी	0-02					
				ह.न. 79 मिन								
				78/मिन02	0-01	आबादी	0-01					
				ह.न. 79 मिन								
				78/मिन03	0-01	आबादी	0-01					
				ह.न. 79 मिन								
				78/मिन04	0-02	आबादी	0-02					
				ह.न. 79 मिन								

अपना आज्ञा क्रमांक से जारी प्रथम सत्यापित प्रति

(सुरेन्द्रसिंह)
एल॰ आर॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- बडगांव | पटवार हल्का :- बडगांव | भू.अभि.नि.क्षेत्र :- शिवगंज |

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2065 - 2068 | वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेत(खसरो)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नक्शा	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मजकूर)		राज. सरकार		197	6-08	नाला	6-08						
				218	4-14	नाला	4-14						
				224	14-15	नाला	14-15						
				227	10-15	नाला	10-15						
				231	13-10	नाला	13-10						
				322	1-06	नाला	1-06						
				371	0-18	नाला	0-18						
				408/870	0-01	नाला	0-01						
				434	0-08	नाला	0-08						
				494	1	नाला	1						
				636	0-11	नाला	0-11						
				649	2-12	नाला	2-12						
				664	8-04	नाला	8-04						
				776/2	23-13	नाला	23-13						
				797	2-05	नाला	2-05						
				799	11-05	नाला	11-05						
				814	1-19	नाला	1-19						
				818	4-06	नाला	4-06						
				820	5-10	नाला	5-10						
				822	8-10	नाला	8-10						
				828	8-03	नाला	8-03						
				837	27-05	नाला	27-05						
				839	29-14	नाला	29-14						
				844	0-17	नाला	0-17						
				849	2-11	नाला	2-11						

कुल खसरा : 33 | कुल क्षेत्रफल : 670 | भूमि प्रकार के अनुसार क्षेत्रफल

पक्की 670-08

नाला 199- 2

अपना खाता कोन्द से जारी एवं सत्यापित प्रति

(भूरेन्द्रसिंह)

एल॰ आर॰ सी॰, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

राज्य का नाम :- बड़गांव | पटवार हल्का :- बड़गांव | भू.प्र.नि.क्षेत्र :- शिवगंज | दिनांक :- 05/04/2013
तहसील :- शिवगंज | जिला :- सिरोही
वर्ष :- 2065 - 2069 | वास्तविक सम्वत :- 2065
क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा नम्बर	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	दामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि बन्धरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मकबूजा)		राज सरकार	जलस्रोत(पराताह हेतु)	706	80	तालाब	80						
			कुल खसरा : 1	कुल क्षेत्रफल : 80		भूमि प्रकार के अनुसार क्षेत्रफल							
						तालाब	80						
			पराई के लिए अनुपलब्ध भूमि	24	7-19	कब्रिस्तान	7-19						
				131/2/ब	0-05	दहीवा	0-05						
			कुल खसरा : 2	कुल क्षेत्रफल : 8-04		भूमि प्रकार के अनुसार क्षेत्रफल							
						कब्रिस्तान	7-19						
						दहीवा	0-05						
			निवास या वास (पारावाह के लिए नहीं)	12/1/24	0-08	आबादी	0-08						
				13/2	2-11	आबादी	2-11						
				13/2/मिन01	1-10	आबादी	1-10						
				13/2/1	0-01	आबादी	0-01						
				13/2/13	0-02	आबादी	0-02						
				13/2/14	0-02	आबादी	0-02						
				13/2/15	0-08	आबादी	0-08						
				13/2/16	0-01	आबादी	0-01						
				13/2/2	0-02	आबादी	0-02						
				13/2/28	0-02	आबादी	0-02						
				13/2/3	0-01	आबादी	0-01						
				13/2/39	0-02	आबादी	0-02						
				13/2/4	0-02	आबादी	0-02						
				13/2/5	0-01	आबादी	0-01						
				13/2/6	0-01	आबादी	0-01						
				13/2/7	0-01	आबादी	0-01						

अपना खाता फोल्ड से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)
एल. आर. डी., तहसील
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

पत्रक सी-28(बी)

ग्राम का नाम :- बड़गांव | पटवार हल्का :- बड़गांव | भू.प्र.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 7 of 20

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्षफल :- 2065 - 2068 | वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	सामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मजबूर)		राज. सरकार		838/1	25	खान खहर	25						
				840/6	200-01	खान खहर	200-01						
				841/1	10-10	खान खहर	10-10						
				843	10-10	खान खहर	10-10						
				845	2-09	खान खहर	2-09						
				848/863	5	खान खहर	5						
				850/1	30	खान खहर	30						
			कुल खसरा : 97		कुल क्षेत्रफल : 3076-05	भूमि प्रकार के अनुसार क्षेत्रफल							
						खान खहर	3034-07						
						रेती	11-10						
			पहाड़ी तथा पर्वत (चारागाह हेतु)	229	59-14	पहाड़	59-14						
				306	8-19	पहाड़	8-19						
				353/मिनी1	91-19	पहाड़	91-19						
				438	30-02	पहाड़	30-02						
				680	19-06	पहाड़	19-06						
				761	7-19	पहाड़	7-19						
			कुल खसरा : 6		कुल क्षेत्रफल : 217-19	भूमि प्रकार के अनुसार क्षेत्रफल							
						पहाड़	217-19						
			नदियाँ तथा नाले (चारागाह हेतु)	25	0-13	नाला	0-13						
				54	0-15	नाला	0-15						
				157	261-02	नदी	261-02						
				167/2	3-05	नदी	3-05						
				169/2	1	नदी	1						
				171	66-06	नदी	66-06						
				174	339-16	नदी	339-16						
				484	7-09	नाला	7-09						

अपना खाता खोलने से जारी-पत्र सम्पुष्टित प्रति

(सुरेन्द्रसिंह)

पटवार हल्का-बड़गांव, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- बडगांव पटवार हल्का बडगांव भू.अभि.नि.क्षेत्र शिवगंज पृष्ठ संख्या 6 of 20

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

वर्ष :- 2065 - 2068 नाजरात्मक वर्ष :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेड़ा(खसरो)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि भारा विशिष्टियां जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (गल्लूप)		खा. सरकार		780/1	6-17	खाल खद्दर	6-17					
				782/2	18-17	खाल खद्दर	18-17					
				785/मिल01	2-18	खाल खद्दर	2-18					
				775/2	75-16	खाल खद्दर	75-16					
				782/1	0-18	खाल खद्दर	0-18					
				787	0-17	खाल खद्दर	0-17					
				790/1	4-05	खाल खद्दर	4-05					
				791	7	खाल खद्दर	7					
				792/1	13-06	खाल खद्दर	13-06					
				794/1	16-10	खाल खद्दर	16-10					
				796	15-12	खाल खद्दर	15-12					
				798	20-01	खाल खद्दर	20-01					
				800/मिल01	121	खाल खद्दर	121					
				803/864	54-12	खाल खद्दर	54-12					
				807/2/मिल01	40-06	खाल खद्दर	40-06					
				808/2	10-02	खाल खद्दर	10-02					
				816	2-05	खाल खद्दर	2-05					
				817/3	20	खाल खद्दर	20					
				819	75-01	खाल खद्दर	75-01					
				821/3	300-13	खाल खद्दर	300-13					
				823	73-10	खाल खद्दर	73-10					
				825	12-05	खाल खद्दर	12-05					
				827/5	100	खाल खद्दर	100					
				829/5	60-07	खाल खद्दर	60-07					
				830/2	11-07	खाल खद्दर	11-07					
				831/9	80-02	खाल खद्दर	80-02					
				832	8-07	खाल खद्दर	8-07					
				834	4-08	खाल खद्दर	4-08					
				835/3	20-17	खाल खद्दर	20-17					
				3	14	खाल	10					

अपना खाता फोन से जाड़ी एवं सत्यापित प्रति

(सूरेन्द्रसिंह)
ग्राम अधि. वर्ग., पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- बडगांव | पटवार हल्का बडगांव | भू.अभि.नि.क्षेत्र शिवगंज | पृष्ठ संख्या 5 of 20

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2065 - 2068 | वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेड़त(खतौनी) नया	खेड़त(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1.(मजदूर)		राज. सरकार		442/मिन01	2-11	खाल खद्दर	2-11						
				549	1-13	खाल खद्दर	1-13						
				587/मिन01	1-17	खाल खद्दर	1-17						
				640/2	3-05	खाल खद्दर	3-05						
				644/4	1-04	खाल खद्दर	1-04						
				646/मिन01	0-16	खाल खद्दर	0-16						
				660/1	6-09	खाल खद्दर	6-09						
				663/1/1	70	खाल खद्दर	/0						
				665/मिन01	0-15	खाल खद्दर	0-15						
				665/4	20-04	खाल खद्दर	20-04						
				668/मिन02	66	खाल खद्दर	65						
				668/मिन02	165-10	खाल खद्दर	165-10						
				670/24/1	21-03	खाल खद्दर	21-03						
				691/4/मिन01	2-15	खाल खद्दर	2-15						
				692	11-06	खाल खद्दर	11-06						
				697	2-05	खाल खद्दर	2-05						
				698	4-19	खाल खद्दर	4-19						
				700	0-18	खाल खद्दर	0-18						
				704/11	2-12	खाल खद्दर	2-12						
				705/2	31-02	खाल खद्दर	31-02						
				707/1/2	128-04	खाल खद्दर	128-04						
				710	30-17	खाल खद्दर	30-17						
				712	54	खाल खद्दर	54						
				715	7-03	खाल खद्दर	7-03						
				717	6-05	खाल खद्दर	6-05						
				719	1-15	खाल खद्दर	1-15						
				721/मिन01	26-15	खाल खद्दर	26-15						
				735/2	0-09	खाल खद्दर	0-09						
				741/मिन01	1-09	खाल खद्दर	1-09						

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- बडगांव
तहसील :- शिवगंज
सन्वत :- 2065 - 2068
संचकन :- धीधा-विश्वा

परगना हल्का :- बडगांव
जिला :- सिरोही
वास्तविक सन्वत :- 2065

भू.अभि.नि.क्षेत्र :- शिवगंज
दिनांक :- 05/04/2013

खेवट(खतौनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		सामान्तरण आदेश सं. तथा तारीख	भूमि ब्यौरा जिसिजिसी जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
		आवर (भारवाह हेतु)		5/1	2-10	खाल बहर	2-10			* नामा. क्र.: 3113 - वि.वि.: 03/05/2011 - खर्वेश आवेश वहसीलदार शिवगंज के द्वारा ख.नं.663/1/1 में से ख.नं.663/1226 रकबा 29-16 (4.817 है.) किस्म खा.ख.खनिज विभाग सिरोही के नाम दर्ज हुआ। क्षेत्र बकदूर रहा। * नामा. क्र.: 3313 - वि.वि.: 31/10/2012 - विभागत के द्वारा आर्यंका आवेश शिवगंज के द्वारा ख.नं.230/1254 रकबा 0.79 मीका मेघवाल समाज गलवुलफ संस्थान (बारावला परगना) बडगांव के नाम दर्ज किया। क्षेत्र बकदूर रहा। * नामा. क्र.: 3342 - वि.वि.: 20/02/2013 - आर्यंका के द्वारा आर्यंका आवेश सहसीलदार शिवगंज के ख.नं.707/1/2 में से आर्यंका से ख.नं.707/1259 रकबा0.12मीका किस्म "समिति गोचाम" चनाडा वरा.ख क्षेत्र सहकारी समिति शिवगंज के नाम दर्ज हुआ।
				53	1	खाल बहर	1					
				60	1-12	खाल बहर	1-12					
				158	9-08	खाल बहर	9-08					
				170	29-09	खाल बहर	29-09					
				173	5-08	रेती	5-08					
				183	41	खाल बहर	41					
				192	2-16	खाल बहर	2-16					
				198	6	रेती	6					
				204	0-05	रेती	0-05					
				215/3	28	खाल बहर	28					
				216/मि॰01	39-18	खाल बहर	39-18					
				217/1	40-16	खाल बहर	40-16					
				219	20-19	खाल बहर	20-19					
				221/1	70-10	खाल बहर	70-10					
				222/1	11	खाल बहर	11					
				223/मि॰01	20	खाल बहर	20					
				226	234-12	खाल बहर	234-12					
				230/3/मि॰01	170-13	खाल बहर	170-13					
				286/मि॰01	42-01	खाल बहर	42-01					
				295/मि॰01	7-06	खाल बहर	7-06					
				302	0-10	खाल बहर	0-10					
				303	3-09	खाल बहर	3-09					
				315/मि॰01	1-16	खाल बहर	1-16					
				350/मि॰01	0-06	खाल बहर	0-06					
				332/869	18-10	खाल बहर	18-10					
				352/4/1	1-02	खाल बहर	1-02					
				383	1-08	खाल बहर	1-08					
				5/1	15	खाल बहर	7-6...					

अपना खाता जोड़ने के बाबत् पूर्व सहायिल प्रति

(भूपेन्द्रसिंह)
एल॰ आर॰ पी॰, पटवारी
सर्कल-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-28(बी)

ग्राम का नाम :- बडवांव | पटवार हल्का :- बडवांव | सु.अभि.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 3 of 20

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2065 - 2068 | वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेत(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि ज्यौरा विविधिदों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मकबूजा)		राज. सरकार		850	7-11	बंजर	7-11					

कुल खसरा : 59 कुल क्षेत्रफल : 1004-15 भूमि प्रकार के अनुसार क्षेत्रफल

बारानी 1	364-19
बारानी 2	6
पडत	0-11
बंजर	588-13
आबादी	0-05
अ.घा.	1-08
अ.गै	0-19
I-A	18-15
खदर	0-05

भूमि जो चुडाई के लिए अनुपलब्ध

30	0-07	अ.घा.	0-07
38	0-15	अ.घा.	0-15
47/मिन01	3-10	बरडा	3-10
58	1	अ.घा.	1
131/3	0-05	बरडा	0-05
156	46-04	बरडा	46-04
161	2-03	बरडा	2-03
188	23-04	बरडा	23-04
201	60-19	बरडा	60-19
232/मिन01	85-10	बरडा	85-10
233/1	27-15	बरडा	27-15

* मामा.स.2730-आयोग-07/12/2009 सरकार आयोग आदेश तहसीलदार सा. शिवगंज के द्वारा ख.नं.233/1028 रकबा 10-00 बीघा मिस्र बरडा (शेष अवशिष्ट पदार्थ संवहृण हेतु) नगरपालिका शिवगंज के नाम दर्ज हुआ। * मामा. स.: 3330 - [illegible] 27/11/2012 - आयोग के द्वारा - आयोग आदेश से तहसीलदार शिवगंज के द्वारा ख.नं. 47/मिन01 रकबा 3.10 मिस्र बरडा नगरपालिका शिवगंज के नाम दर्ज।

अधिक जानकारी के लिए संपर्क करें

(सुनिल सिंह)
एस्क- [illegible]
[illegible]

कुल खसरा : 11 कुल क्षेत्रफल : 241-12 भूमि प्रकार के अनुसार क्षेत्रफल

अ.घा.	2-02

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-28(बी)

ग्राम का नाम :- बड़गांव
पटवार हल्का :- बड़गांव
भू.अभि.नि.क्षेत्र :- शिवगंज
पृष्ठ संख्या 17 of 20
तहसील :- शिवगंज
जिला :- सिरोही
दिनांक :- 05/04/2013
सम्वत :- 2065 - 2068
वास्तविक सम्वत :- 2065
क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लिवाई के साधन	लगान		सामान्यरूप आदेश नं. तथा तारीख	भूमि ब्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (अवशेष)	राज			441	4-10	रास्ता	4-10						
	सरकार			491	3-02	रास्ता	3-02						
				495/1	23-16	रास्ता	23-16						
				495/6	1-08	रास्ता	1-08						
				495/7	2-12	रास्ता	2-12						
				508	1-15	रास्ता	1-15						
				530	5-17	रास्ता	5-17						
				571	2-06	रास्ता	2-06						
				573	2-04	रास्ता	2-04						
				576	1-15	रास्ता	1-15						
				584	7-13	रास्ता	7-13						
				597	4-06	रास्ता	4-06						
				599	0-15	रास्ता	0-15						
				604	1-06	रास्ता	1-06						
				612	0-15	रास्ता	0-15						
				619	3-08	रास्ता	3-08						
				627/2	9-06	रास्ता	9-06						
				643	8-16	रास्ता	8-16						
				645	2-15	रास्ता	2-15						
				647	4-06	रास्ता	4-06						
				662/1	3-06	रास्ता	3-06						
				662/2	0-07	रास्ता	0-07						
				667	13-08	रास्ता	13-08						
				669	10-04	रास्ता	10-04						
				671	4-15	रास्ता	4-15						
				673/1	9-03	रास्ता	9-03						
				673/2	0-07	रास्ता	0-07						
				682	7-12	रास्ता	7-12						
				683	3-04	रास्ता	3-04						
				5	2	रास्ता	1-1						

अपना खाता केन्द्र से जारी मूल्य सत्यापित प्रति

(सुरेन्द्रसिंह)
एल॰ आर॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-28(बी)

ग्राम का नाम :-	बड़गांव	पटवार हल्का	बड़गांव	पु.अभि.नि.क्षेत्र	शिवगंज	पृष्ठ संख्या	18 of 20
तहसील :-	शिवगंज	जिला :-	सिरोही	दिनांक :-	05/04/2013		
सम्वत :-	2065 - 2068	वास्तविक सम्वत :-	2065				
क्षेत्रफल :-	बीघा-बिस्वा						

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. एवं तारीख	भूमि और निशानियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नवा	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मकबूर)		राज. सरकार		687	1-14	रास्ता	1-14						
				688	6-10	रास्ता	6-10						
				690	7-18	रास्ता	7-18						
				701	2-11	रास्ता	2-11						
				703	6-17	रास्ता	6-17						
				706	6-18	रास्ता	6-18						
				709	1-11	रास्ता	1-11						
				711	2-13	रास्ता	2-13						
				713	3-10	रास्ता	3-10						
				716	1-19	रास्ता	1-19						
				718	0-19	रास्ता	0-19						
				734/2	1-09	रास्ता	1-09						
				738	1-01	रास्ता	1-01						
				753	1-19	रास्ता	1-19						
				758	2-19	रास्ता	2-19						
				764	2-01	रास्ता	2-01						
				773	0-11	रास्ता	0-11						
				801	4-10	रास्ता	4-10						
				804	1-17	रास्ता	1-17						
				808	7-10	रास्ता	7-10						
				809	1-02	रास्ता	1-02						
				812	0-09	रास्ता	0-09						
				816	0-09	रास्ता	0-09						
				824	0-11	रास्ता	0-11						
				826	4-02	रास्ता	4-02						
				833	6-17	रास्ता	6-17						
				842	0-06	रास्ता	0-06						
				846	1-14	रास्ता	1-14						
				847	0-09	रास्ता	0-09						



आपूर्ति केन्द्र से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)
एल॰ आर॰ सी॰, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- बड़गांव पटवार हल्का बड़गांव भू.प्र.नि.क्षेत्र शिवगंज पृष्ठ संख्या 19 of 20

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2065 - 2068 वास्तविक सम्वत :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खातोनी)		भूमि धारक का नाम	कारणकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		बन्दोबस्त/राज आदेश व तथा तारीख	भूमि और विशिष्टियों जिसके पक्ष में भूमि बन्दरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

कुल खसरा : 112 कुल क्षेत्रफल : 341-12 भूमि प्रकार के अनुसार क्षेत्रफल

सड़क	0-17
रास्ता	340-15

कुल कुल खसरा : 466 कुल क्षेत्रफल : 5902-11-14भूमि प्रकार के अनुसार क्षेत्रफल

बारानी 1	364-19
बारानी 2	6
सड़क	0-17
पहाड़	0-11
बंजर	588-13
काश्त बहर	3034-07
नदी	670-08
गै.मु.आबादी	0-08-14
पहाड़	217-19
नाला	199-12
रास्ता	340-15
आबादी	62-01
अ.चा.	3-10
कब्रिस्तान	7-12
रेही	11-10
तालाब	80
परता	239-10
मा.मे.	0-19
I-A	18-15
बहर	0-05
झाड़ीदा	0-05

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

एल॰ आर॰ सी॰, पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

फारम पी-28(बी)

ग्राम का नाम :- बैलगुरा | पटवार हल्का :- [illegible] | ए.आई.सी.सी.कोड :- शिवगंज | पृष्ठ संख्या 1 of 3

तहसील :- शिवगंज | जिला :- [illegible] | दिनांक :- 05/04/2013

फसली वर्ष :- 2068 - 2069 | वास्तविक वर्ष :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	भारदारकर का नाम	खेवट संख्या	क्षेत्रफल	भूमि का किस्म	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज सरकार	भूमि को चुहाई के लिए अनुपलब्ध	196	1-12	नाला	1-12					
			कुल खसरा : 1	कुल क्षेत्रफल : 1-12		भूमि प्रकार के अनुसार क्षेत्रफल नाला	1-12					
			पहाड़ी ढलवा पर्वत (चारागाह ऐसा)	24	0-08	बंजरी	0-08					
			कुल खसरा : 1	कुल क्षेत्रफल : 0-08		भूमि प्रकार के अनुसार क्षेत्रफल बंजरी	0-08					
			नदियाँ तथा नाले (चारागाह ऐसा)	118	145-10	नाला	145-10					
				155	1-03	नाला	1-03					
				158/345	7-10	नाला	7-10					
				186	3-02	नाला	3-02					
				216	9-19	नाला	9-19					
				221	24-05	नाला	24-05					
				229	9-12	नाला	9-12					
				239	2-02	नाला	2-02					
				335	84	नाला	84					
			कुल खसरा : 9	कुल क्षेत्रफल : 287-03		भूमि प्रकार के अनुसार क्षेत्रफल नाला	287-03					
			जंगल(चारागाह ऐसा)	57	0-08	नाली	0-08					
				155/345	1-19	नाली	1-19					
				186	1-18	नाली	1-18					
				288	0-11	नाली	0-11					
				298	0-10	नाली	0-10					

आपना छाप कोष्ठ से बाहरी भाग सम्बन्धित नहि

(सुरेन्द्रसिंह)
एस. आर. सी., पटवारी
सहलोल-सिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- वडगांव पटवार हल्का वडगांव पू.अभि.नि.क्षेत्र शिवगंज पृष्ठ संख्या 20 of 20

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

वर्ष :- 2065 - 2068 वास्तविक वर्ष :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेसरा(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

* वर्तमान भूमि हेतु उक्त नामान्तरण कोष प्रविष्ट में है।

प्रतिलिपि शुल्क: 200/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक :- 1905153-6267

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

अपना खाता अन्तु खेसरावार एवं सम्पर्कित प्रति

सहायक अभिलेखपाल- सी. पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

पपत्र पी-26(बी)

ग्राम का नाम :- जैतपुरा | पटवार हल्का :- गैतपुरा | भू.प्र.वि.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 2 of 3

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2066 - 2069 | वास्तविक वर्ष :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि स्त्रोत विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (मक्बूर)		राज. सरकार		330	1-19	बारा	1-19						
				341	7-16	नाली	7-16						
			कुल खसरा : 8		कुल क्षेत्रफल : 17-19	भूमि प्रकार के अनुसार क्षेत्रफल							
						नाली	16						
						बारा	1-19						
			पगडंडिया तथा रास्ते (पारावाह के लिए नहीं)	1/343	6-05	रास्ता	6-05						
				10	7-01	रास्ता	7-01						
				29	0-15	रास्ता	0-15						
				43	1-02	रास्ता	1-02						
				51	4-03	रास्ता	4-03						
				52	0-08	रास्ता	0-08						
				68	1-08	रास्ता	1-08						
				68/344	0-17	रास्ता	0-17						
				87	1-11	रास्ता	1-11						
				100	1-16	रास्ता	1-16						
				124	0-18	रास्ता	0-18						
				137	0-19	रास्ता	0-19						
				142	0-14	रास्ता	0-14						
				176	2-14	रास्ता	2-14						
				184	3-12	रास्ता	3-12						
				200	1-01	रास्ता	1-01						
				217	7-12	रास्ता	7-12						
				229	0-19	रास्ता	0-19						
				241	2-09	रास्ता	2-09						
				242	0-10	रास्ता	0-10						
				270	3-09	रास्ता	3-09						
				274	0-18	रास्ता	0-18						

अपना खसरा नंबर की जांच एवं सत्यापित प्रति

(हस्ताक्षर)

एम. आर. पी. पटवारी

पटवार हल्का-जैतपुरा, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-25(बी)

ग्राम का नाम :-	बैतपुरा	पटवार हल्का	बैतपुरा	भू.प्रबं.नि.क्षेत्र	शिवगंज	पृष्ठ संख्या	3 of 3
तहसील :-	शिवगंज	जिला :-	सिरोही	दिनांक :-	05/04/2013		
वर्ष :-	2066 - 2069	वास्तविक वर्ष :-	2066				
क्षेत्रफल :-	बीघा-बिस्वा						

खेवट(खतौनी)		भूमि धारक का नाम	कब्जाकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	नक्शा		गमनान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मयधूर)	194			327	19-13	रामला	19-13					
		सरकार		329	4-12	रास्ता	4-12					

कुल खसरा : 25 कुल क्षेत्रफल : 162-19 भूमि प्रकार के अनुसार क्षेत्रफल

रास्ता 162-19

कुल खसरा : 44 कुल क्षेत्रफल : 470-01 भूमि प्रकार के अनुसार क्षेत्रफल

नाली	16
मकरी	0-08
नाला	287-03
रास्ता	162-19
धारा	1-19
जाटा	1-12

प्रतिलिपि शुल्क 30/-

प्रमाणित किया जाता है कि इस प्रतिलिपि के लिये आवेदन पत्र के समस्त परिवर्तन समाविष्ट कर दिये गये हैं

प्रतिलिपि क्रमांक :- 1906166-6266

प्रतिलिपि तैयार करने का दिनांक- 05/04/2013

अपना खाता कोम्प्यूटरीकृत प्रतिलिपि हस्ताक्षरित मोहर

प्रभारी अधिकारी
(पुष्पेन्द्र सिंह)
तहसील ऑफिसर (ग्रा.), पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- खेरवडिया | पटवार हल्का :- केसरपुरा | भू.अभि.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 1 of 4

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश के क्रमांक एवं दिनांक	भूमि और विशिष्टियां जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		रज. सरकार	भूमि को सडक के लिए सरलबद्ध है	36	1-15	बंजर	1-15						
				77	3-07	बंजर	3-07						
				362/1	15	बंजर	15						
				362/10	12	बंजर	12						
				362/11	15	बंजर	15						
				362/12	15	बंजर	15	1					
				362/13	15	बंजर	15						
				362/14	15	बंजर	15						
				362/15	15	बंजर	15						
				362/16	15	बंजर	15						
				362/17	15	बंजर	15						
				362/18	15	बंजर	15						
				362/19	15	बंजर	15						
				362/20	15	बंजर	15						
				362/5	15	बंजर	15						
				362/6	10	बंजर	10						
				362/8	15	बंजर	15						
				362/9	15	बंजर	15						
				430	5-05	बंजर	5-05						
				430/1	15	बंजर	15						
				430/2	15	बंजर	15						

कुल खसरा : 21 | कुल क्षेत्रफल : 272-07 | भूमि प्रकार के अनुसार योग :- | बंजर | 272-07

अपना खाता खोलें से पाटे एवं सार्वजनिक ऋण

एस. डी. ओ., पटवारी
तहसील-शिवगंज, जिला-सिरोही

भूमि को सुधाई के लिए अनुपलब्ध

9	0-16	खाल खहर	0-16	
61/1	0-19	खाल खहर	0-19	
94	0-13	दरडा	0-13	
115	4-05	दरडा	4-05	

जमाबन्दी (प्रतिलिपि)

गाम का नाम :- खेजडिया
तहसील :- शिवगंज
सम्वत :- 2068 - 2071
खेवपत्र :- बीघा-बिस्वा

पटवार हल्का :- केसरपुरा
जिला :- सिरोही
वास्तविक सम्वत :- 2068

भू.प्र.नि.बोर्ड :- शिवगंज
दिनांक :- 05/04/2013

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कारकदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	तामालसरम आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मक्बूर)		राज. सरकार		133/3	1-11	खाल बहर	1-11					
				133/4	4	खाल बहर	4					
				146	3-13	दरहा	3-13					
				167	1-10	दरहा	1-10					
				243/1	10	बंजर	10					
				274	10	खाल बहर	10					
				276	15-11	खाल बहर	15-11					
				279	4	खाल बहर	4					
				302	1-13	खाल बहर	1-13					
				324/1	8-04	खाल बहर	8-04					
				348	2-06	खाल बहर	2-06					
				359/2	4-19	खाल बहर	4-19					
				362	1-11	खाल बहर	1-11					
				366	2-12	खाल बहर	2-12					
				371	5-11	खाल बहर	5-11					
				387	6-19	खाल बहर	6-19					
				399	0-17	खाल बहर	0-17					
				418/1	0-08	खाल बहर	0-08					
				422/1	0-08	खाल बहर	0-08					
				423	0-03	खाल बहर	0-03					
				428	0-07	खाल बहर	0-07					

कुल खसरा : 26 कुल क्षेत्रफल : 94-14

भूमि प्रकार के अनुसार क्षेत्रफल

बंजर	10
खाल बहर	74-13
दरहा	10-01

आपका खातर भोम से गाम्रो प्रमाणित प्रति

(भूरेखाकित)
एम. आर. सी., बड़लारी
राजस्व-शिवगंज, जिला-सिरोही

गवियों द्वारा नक्शे (चारणवाह हेतु)

21	1-02	नाला	1-02
48	8-07	नाला	8-07
1	7-10	नाला	7-10

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- खेवटिया | पटवार हल्का :- केशरपुरा | भू.अभि.वि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 3 of 4

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सम्वत :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रट(खसरो) नया	क्षेत्रट(खसरो) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि धारक विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सबसूर)		राज. सरकार		62	7-17	नाला	7-17						
				64	4-19	नाला	4-19						
				87/1	0-01	नाला	0-01						
				93	5-18	नाला	5-18						
				113	7-14	नाला	7-14						
				125	3-10	नाला	3-10						
				169	8-08	नाला	8-08						
				191	5	नाला	5						
				199	4-10	नाला	4-10						
				201	1-04	नाला	1-04						
				208	0-09	नाला	0-09						
				217	0-12	नाला	0-12						
				290	4-04	नाला	4-04						
				.879									
				292	1-04	नाला	1-04						
				296	1	नाला	1						
				303	29	नाला	29						
				317	88-04	नाला	88-04						
				344	5-12	नाला	5-12						
				380	3-07	नाला	3-07						
				400	3-03	नाला	3-03						
				406	3-15	नाला	3-15						
				424	1	नाला	1						

कुल खसरा : 25 | कुल क्षेत्रफल : 217-12 | भूमि पटवार के अनुसार योग | नाला | 217-12

जलमार्ग(चरागाह हेतु) | 235 | 0-06 | रोड | 0-06

293 | 0-07 | बहा | 0-07

अपना खाता केन्द्र से प्राप्त-पत्र प्रतिलिपि प्रति

(सुरेन्द्रसिंह)

पटवार सर्कल पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- खेजड़िया | पटवार हल्का :- केसरपुरा | भू.प्र.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 4 of 4

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2068 - 2071 | वास्तविक वर्ष :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेत(खतौनी) नया	खेत(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. एवं दिनांक	भूमि स्थित विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सबसूत्र)		राम		375	0-09	खेड	0-09						
		करसार		379	0-08	खेड	0-08						

कुल खसरा : 5 | कुल क्षेत्रफल : 1-16

भूमि प्रकार के अनुसार क्षेत्रफल

खेड	1-09
बहुड़ा	0-07

कुल

कुल खसरा : 77 | कुल क्षेत्रफल : 586-09

भूमि प्रकार के अनुसार क्षेत्रफल

बंजर	282-07
खाल खद्दर	74-13
खेड	1-09
बहुड़ा	0-07
नाला	217-12
दरदा	10-01

प्रतिलिपि शुल्क: 40/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में लिखित एवं के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1905211-6269

प्रतिलिपि जारी करने का दिनांक- 05/04/2013

अधिकृत खातेदार को जारी एवं मान्यकृत प्रति

(भरतसिंह)
प्रभारी अधिकारी/सहा.भू.प्र.नि.क्षे.
एवं अति. भा., पटवारी
तहसीलदार/उपखण्ड अधिकारी जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- जोबला | पटवार हल्का :- जोबला | भू.अभि.नि.क्षेत्र :- शिवगंज | पृष्ठ संख्या 1 of 2

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2065 - 2068 | वास्तविक वर्ष :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	भूमि नी आवश्त के लिए उपलब्ध है	238/1	5-16	बंजर			5-16			

कुल खसरा : 1 कुल क्षेत्रफल : 5-16 भूमि प्रकार के अनुसार क्षेत्रफल

बंजर 5-16

नदियाँ तथा नाले (चारागाह हेतु)

51	2	खेड	2	आरक्षित
59	3-05	नाली	3-05	ब.नं.107/2
83	0-16	खेड	0-16	रकबा 0-08
89	15-10	नाली	15-10	रिकार्ड
94/1	11-10	नदी	11-10	समान
95	8-16	नाली	8-16	समावत पाट
97/1	4-08	नदी	4-08	M.N.885
97/2	7-16	नदी	7-16	आरक्षित
103/मिन01	40-01	रेती	40-01	ब.नं.392/4
107	11-08	रेती	11-08	रकबा 10-00
123	18-02	रेती	18-02	नदी
137/मिन01	62-05	नदी	62-05	वर्गीकृत
161	10-11	आल पहर	10-11	वर्णनी
174/2	0-05	सडक 1	0-05	समान
242	1-07	नाली	1-07	समावत पाट
392/मिन01	474-07	नदी	474-07	M.N.885
449	7-13	नदी	7-13	
458/मिन01	7-01	नदी	7-01	
461/मिन01	8-15	नदी	8-15	
462	168-06	नदी	168-06	

कुल खसरा : 20 कुल क्षेत्रफल : 864-02 भूमि प्रकार के अनुसार क्षेत्रफल

सडक 1 0-05

आपका खाता फोन्ट से जारी एवं सत्यापित प्रति

(सुरेन्द्रसिंह)

ग्राम- डामर. की., पटवारी

हल्कासोल- शिवगंज, जिला- सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- जोयला पटवार हल्का :- जोकला भू.अभि.नि. क्षेत्र :- शिवगंज
तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013
सम्वत :- 2065 - 2068 वास्तविक सम्वत :- 2065
क्षेत्रफल :- बीघा-बिस्वा

खेसरा(अंतरीम)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

डेढ	2-16
नवी	752-01
गाली	26-16
रेती	69-11

कुल कुल खसरा : 21 कुल क्षेत्रफल : 870

भूमि प्रकार के अनुसार क्षेत्रफल

नलक 1	0-05
नंबर	5-16
काल खट्टर	10-11
डेढ	2-16
नवी	752-01
गाली	26-16
रेती	69-11

प्रतिलिपि शुल्क 20/-
प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।
प्रतिलिपि क्रमांक :- 1905180-6270
प्रतिलिपि जारी करने का दिनांक :- 05/04/2013

अपना खाता केन्द्र से जारी एवं सत्यापित प्रति
सत्य-प्रतिलिपि

(सुरेन्द्रसिंह)
प्रभारी,अपना खाता केन्द्र
एस- आर- सी-, पटवारी
तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

परिशिष्ट पी-26(डी)

ग्राम का नाम :- पोसालिया | पटवार हल्का :- पोसालिया | भू.अभि.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 1 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

समय :- 2067 - 2070 | वास्तविक समय :- 2067

क्षेत्रफल :- बीघा-बिस्वा

बेहड़(अतोली) नया	बेहड़(अतोली) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि ज्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज सरकार	भूमि जो काश्त के लिए उपलब्ध है	41	20-09	व 1	20-09						
				350	1	I	1	426					
				427	0-09	पहड़	0-03						
						I	0-06						
				508	0-03	व 1	0-03						
				511	0-05	व 1	0-05						
				956/18	0-05	व 1	0-05						
				956/19	11-05	व 1	11-05						
				1359/589	0-03	व 1	0-03						
				1362/598	0-01	व 1	0-01						
				1440/947	0-01	व 1	0-01						
				1506/959	4-15	व 1	4-15						
				1507/959	5-01	व 1	4-08						
						नाडी	0-13						
				1508/959	3-05	व 1	3-05						
				1509/959	0-06	व 1	0-06						
				1646/961	5-19	व 1	5-19						
				1574/964	1-15	व 1	1-15						
				1575/964	15	व 1	[illegible]						
				1576/964	1-03	व 1	[illegible]03						
				1577/964	32-04	व 1	2-0[illegible]						

कुल खसरा : 19 | कु.क्षेत्रफल : 103-09 | भूमि [illegible] | [illegible]

पहड़ 0-[illegible]

नाडी 0-13

I 1-06

व 1 101-07

अपना छाता खेत से उसमें रखा सर्वेयर प्लेन

(सुरेन्द्रसिंह)

ग्राम- आर- सी, पटवारी

तहसील-शिवगंज जि

6 वर्ष या अधिक परती(कृषार्ह हेतु) 358 2-04 बंजर 2-04

जमाबन्दी (प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- पोसालिया | पटवार हल्का | पोसालिया | भू.अभि.नि.क्षेत्र | पोसालिया | पृष्ठ संख्या 2 of 6

तहसील :- सिरोंज | जिला :- सिरोही | दिनांक :- 05/04/2013

वर्ष :- 2067 - 2070 | वास्तविक वर्ष :- 2067

क्षेत्रफल :- बीघा-बिस्वा

भू.अ.नि.(कोलोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (अनकृत)		राज सरकार				बंजर	11-04						
				497	1-16	देवस्थान	0-05						
						बंजर	1-11						
				582/2	3-02	बंजर	1-15						
						रास्ता	1-07						
				749	0-04	बंजर	0-04						
				835	5-17	बंजर	5-17						
				868	0-15	बंजर	0-15						
				872	1-17	बंजर	1-17						
				893	2-10	क्षा.भा.	2-10						
				909	1-10	बंजर	1-10						
				914	3-08	बंजर	3-08						
				1059/935	0-02	बंजर	0-02						
				1134/5	8-14	बंजर	8-14						
				1180/356	0-02	बंजर	0-02						
				1251/479	5-01	बंजर	5-01						
				1376/695	1-04	बंजर	0-09						
						गै.मु.	0-15						
				1420/938	5-15	बंजर	4-17						
						रास्ता	0-18						
				1435/946	1-17	बंजर	1-17						
				1631/1430	397-17	नदी	397-17						
				1632/1430	2	श्मशान	2						

कुल खसरा : 20 | कुल क्षेत्रफल : 457-14

भूमि प्रकार के अनुसार क्षेत्रफल

देवस्थान	0-05
बंजर	51-07
नदी	397-17
श्मशान	2

लेखा

हल्का पटवार केन्द्र से जारी एवं सार्वजनिक प्रति

(सुरेन्द्रसिंह)

एल॰ आर॰ सी॰, पटवारी

तहसील-सिरोंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- गोगालिया पटवार हल्का गोगालिया कू.वगि.नि.क्षेत्र गोगालिया पृष्ठ संख्या 3 of 5

तहसील :- शिवगंज जिला :- सिरोही दिनांक :- 05/04/2013

सम्वत :- 2067 - 2070 नास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेड़ट(खडोनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
						आ.चा.	2-10					
						पे.यु.	0-15					
			भूमि की जुदाई के लिए अनुपलब्ध	296	4-04	नदी	4-04					
				429	369-12	रास्ता	0-17					
						नदी	354-15					
				431	16-16	मंजर	16-16					
				437	119-03	नदी	119-03					
				485	1-14	खड्डा	1-14					
				523	21-10	खाल खद्दर	21-10					
				935	11-06	खाल खद्दर	11-06					
				953	3-08	नाली	3-08					
				1155/280	225-12	रास्ता	0-16					
						नदी	224-14					
				1178/310	10	खाल नाली	10					
				1181/358	7-02	खड्डा मकान	7-02					
				1196/430	4-07	ह.1	4-07					
				1210/434	18-18	नदी	18-18					
				1222/462	0-02	पे.यु.रास्ता	0-02					
				1389/747	77-19	नदी	77-19					
				1419/938	21-15	नदी	21-15					
				1547/861	8-03	नाली	8-03					
				1615/945	439-07	नदी	439-07					
			कुल खसरा : 18	कुल क्षेत्रफल :	1366-18	भूमि [illegible] अनुप	[illegible]					
						मंजर	16-16					
						खाल खद्दर	32-16					
						खड्डा	1-14					
						नदी	1270-15					

अपना खाता [illegible] भू-अभिलेख प्रति

(अतिरिक्त)

एल. आर. सी., पटवारी

तहसील-शिवगंज, जिला-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- पोसालिया | पटवार हल्का | पोसालिया | भू.अभि.नि.क्षेत्र | पोसालिया | पृष्ठ संख्या 4 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

तावत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेत(खसरा) नम्बर		भूमि प्रकार का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. एवं दिनांक	भूमि व्यौरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
						रास्ता 1-15						
						नाली 11-11						
						व 1 4-07						
						खदान नाडी 10						
						खुला मकान 7-02						

कुल : कुल खसरा : 57 कुल क्षेत्रफल : 1918-01 भूमि प्रकार के अनुसार क्षेत्रफल

पटत	0-03
देवस्थान	0-05
नाडी	0-13
मंदर	68-03
खान खदर	32-18
खुला	1-14
नदी	1668-12
वै.भू.रास्ता	0-02
एयरपोर्ट	2
रास्ता	4-15
आ.चा.	2-10
वे.भू.	0-15
नाली	11-11
I	1-08
व 1	105-14
खदान नाडी	10
खुला मकान	7-02

अनुरक्षक खसरा क्षेत्र से जमाबंदी की यथावधि प्रति

(सुरेन्द्रसिंह)
एस. आर. बी., पटवारी
भूअभिलेख-निदेशालय, सिरोही-सिरोही

जमाबन्दी (प्रतिलिपि)

ग्राम का नाम :- पोसालिया | पटवार हल्का :- पोसालिया | भू.प्रबं.नि.क्षेत्र :- पोसालिया | पृष्ठ संख्या 5 of 5

तहसील :- शिवगंज | जिला :- सिरोही | दिनांक :- 05/04/2013

सन्वत :- 2067 - 2070 | वास्तविक सन्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विलिहिदों जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि शुल्क 50/-

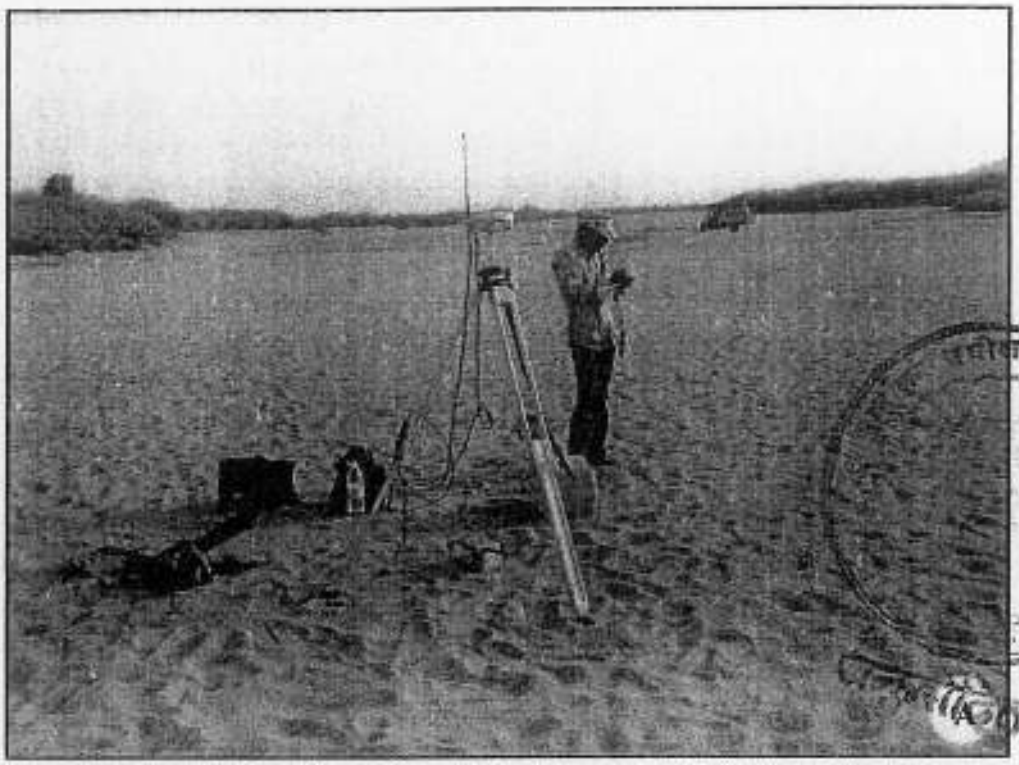
प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।

प्रतिलिपि क्रमांक :- 1905183-6271

प्रतिलिपि जारी करने का दिनांक :- 05/04/2013

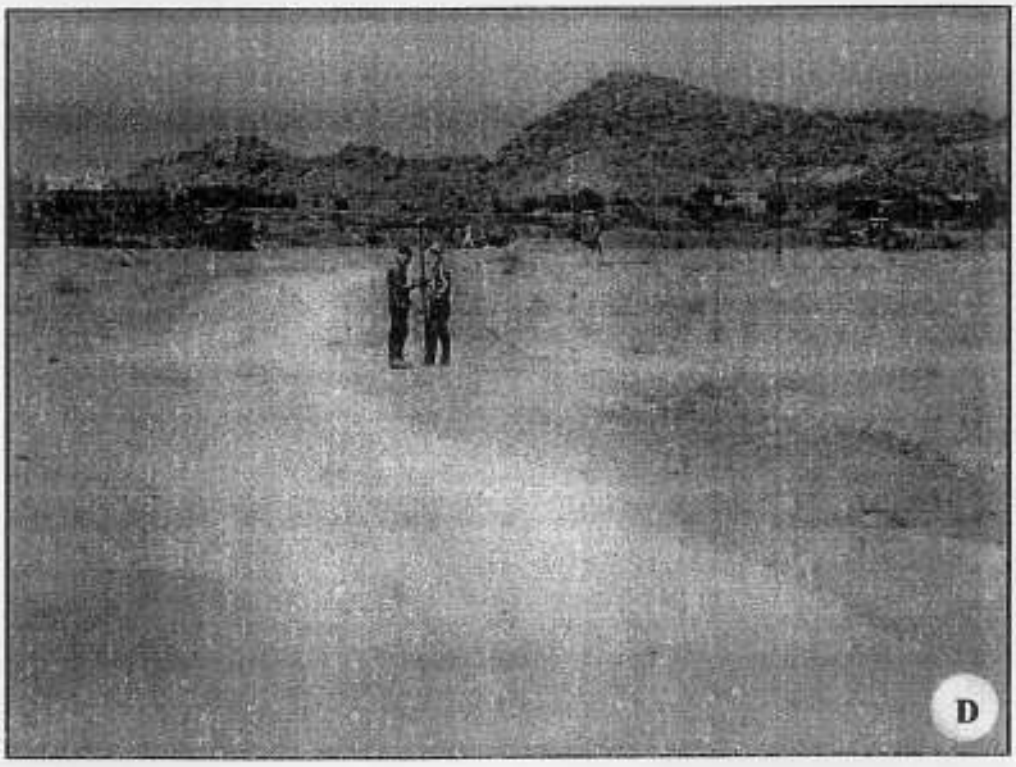
कार्यालय
प्रभारी अधिकारी केन्द्र
शिवगंज

PHOTO OF MINE SITE - SHEOGANJ



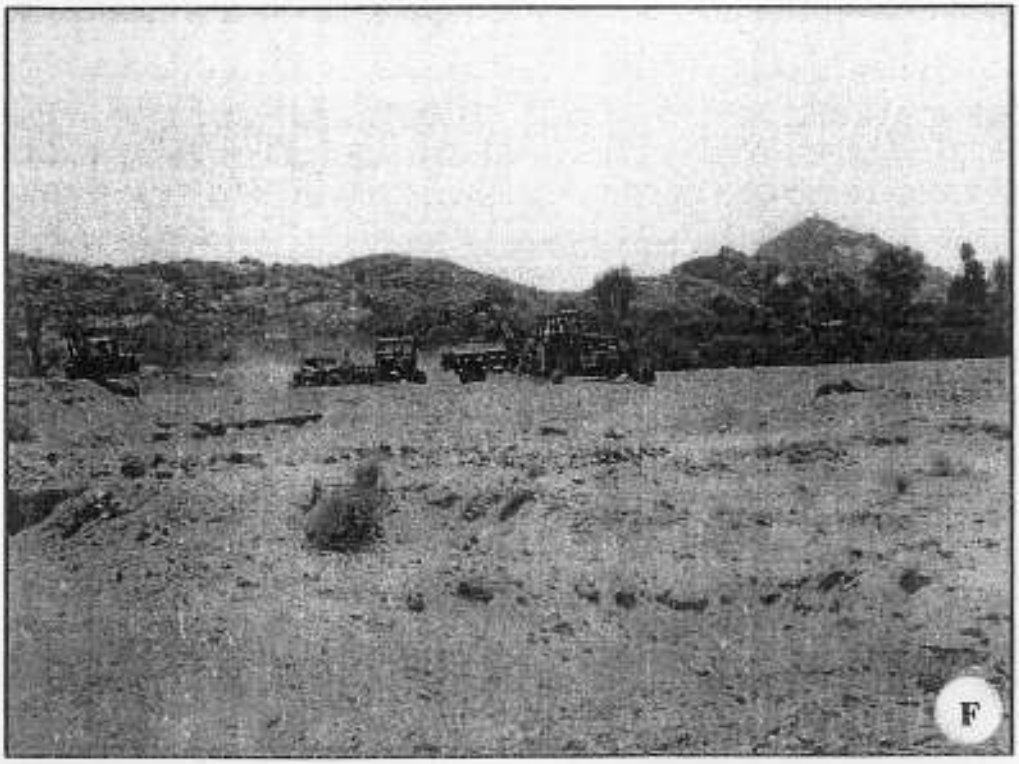



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☎ 02932-231616

क्षेत्रीय कार्यालय

राजस्थान राज्य प्रदूषण नियंत्रण मण्डल,

एस–ए–6, मंडिया रोड औद्योगिक क्षेत्र, पाली

क्रमांक / राप्रनिम / क्षे.का.पाली / 2514 दिनाँक : 14/11/14

सदस्य सचिव
राज.प्रदूषण नियंत्रण मण्डल
जयपुर।

विषय : मैसर्स श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी द्वारा नदी की बजरी के खनन (1414 हैक्टेयर), तहसील शिवगंज, जिला सिरोही में प्रस्तावित नदी की बजरी खनन, उत्पादन क्षमता 28.05 टन प्रतिवर्ष की पर्यावरण स्वीकृति हेतु लोक सुनवाई दिनांक 05.09.2014 से संबंधित कार्यवाही विवरण।

महोदय,

उपरोक्त विषयान्तर्गत लेख है कि श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी द्वारा नदी की बजरी के खनन (1414 हैक्टेयर), तहसील शिवगंज, जिला सिरोही में प्रस्तावित नदी की बजरी खनन, उत्पादन क्षमता 28.05 टन प्रतिवर्ष की पर्यावरण स्वीकृति हेतु लोक सुनवाई दिनांक 05.09.2014 को कार्यालय उप खण्ड अधिकारी, तहसील शिवगंज (सिरोही) में आयोजित की गयी था। जन सुनवाई का कार्यवृत विवरण (Minutes) की हस्ताक्षरित प्रति, फोटोग्राफ एवं विडियोग्राफी से सम्बंधित सीडी सूचनार्थ एवं अग्रिम कार्यवाही हेतु प्रेषित की जा रही है।

संलग्न : उपरोक्तानुसार

भवदीय,

(आर.बी.मौर्य)
क्षेत्रीय अधिकारी
रा.प्र.नि.म.,पाली

क्रमांक / राप्रनिम / क्षे.का.पाली / दिनाँक :

1. जिला कलेक्टर, सिरोही
2. अति. जिला कलेक्टर, सिरोही।
3. उप खण्ड अधिकारी, शिवगंज, सिरोही।
4. ए.सी.पी. राप्रनिम, जयपुर को मण्डल मुख्यालय पत्रांक F.Tech (P-0158)RPCB/CPM/837 दिनांक 09.08.2011 की अनुपालना में जन सुनवाई का कार्यवृत विवरण (Minutes) को मण्डल की वेबसाईट पर दर्शाने हेतु।
5. श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी तहसील शिवगंज, जिला सिरोही

(आर.बी.मौर्य)
क्षेत्रीय अधिकारी
रा.प्र.नि.म.,पाली

क्षेत्रीय कार्यालय, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली

लोक सुनवाई कार्यवाही विवरण

आवेदक मैसर्स श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी निकट ग्राम अखापुराखुणी, बडगांव, छीबागांव, चूली, चोटीला, जैतपुरा, जोयला, खेजडिया, लोटीवाड़ा बड़ा, लोटीवाड़ा छोटा, माडानी, नारादरा, पोसालिया, राडबर, रूखाडा, सवली, सुथारों का गुड़ा व उम्मेदगढ, तहसील– शिवगंज, जिला–सिरोही द्वारा प्रस्तावित बजरी खनन् (लीज क्षेत्रफल–1414 हैक्टेयर) उत्पादन 28.05 लाख टन प्रतिवर्ष की पर्यावरणीय स्वीकृति हेतु दिनांक 05.09.2014 को आयोजित लोकसुनवाई का विवरण:–

स्थान:– कार्यालय उपखण्ड अधिकारी, तहसील– शिवगंज , जिला–सिरोही (राजस्थान)

दिनाँक:– 05.09.2014 (शुक्रवार)

समय:– मध्यान्ह पश्चात् 03:00 बजे

उपस्थिति:– सर्व श्री

1. डॉ. डी. सी. गर्ग, अतिरिक्त जिला कलक्टर, (प्रतिनिधि जिला कलक्टर), सिरोही ।
2. आर. बी. मौर्य, क्षेत्रीय अधिकारी, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली

राजस्थान राज्य प्रदूषण नियंत्रण मण्डल क्षेत्रीय कार्यालय पाली की कार्यालय ज्ञापनांक क्षापनिम/के.एम. पाली/1345 दिनांक 01.08.2014 के अनुसार निर्धारित तिथि 05.09.2014 को कार्यालय उपखण्ड अधिकारी तहसील– शिवगंज जिला–सिरोही में श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी द्वारा **प्रस्तावित खनन् (लीज क्षेत्रफल – 1414 हैक्टेयर) उत्पादन 28.05 लाख टन प्रतिवर्ष करने के लिए पर्यावरणीय स्वीकृति हेतु दिनांक 05.09.2014 को आयोजित लोकसुनवाई डॉ. डी. सी. गर्ग, अतिरिक्त जिला कलक्टर, (प्रतिनिधि जिला कलक्टर), सिरोही एवं श्री आर. बी. मौर्य, क्षेत्रीय अधिकारी,** राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली की उपस्थिति में आयोजित की गई। लोक सुनवाई में नामित अधिकारीगण एवं क्षेत्र के ग्रामवासी व अन्य का उपस्थिति पत्र मय हस्ताक्षर संलग्न है (संलग्नक–ए)। उक्त लोक–सुनवाई के लिए नियमानुसार समाचार पत्र हिन्दुस्तान टाईम्स में एवं राजस्थान पत्रिका में दिनाँक 03.08.2014 को आम सूचना प्रकाशित की गई थी, समाचार पत्रों की फोटो प्रतियाँ संलग्न है (संलग्नक–बी व सी)। यह लोक सुनवाई पर्यावरण संरक्षण अधिनियम–1986 के अन्तर्गत पर्यावरण एवं वन मंत्रालय भारत सरकार, नई दिल्ली द्वारा जारी अधिसूचना दिनांक 14.09.2006 के प्रावधानों के अनुरूप आयोजित की गई। लोक सुनवाई प्रस्तावित स्थल के पास स्थित कार्यालय उपखण्ड अधिकारी, तहसील– शिवगंज, जिला–सिरोही में दिनांक 05.09.2014 को आयोजित की गई। लोक सुनवाई की विडियों रिकोर्डिंग सी. डी. एवं फोटोग्राफ संलग्न है (संलग्नक–डी व ई) ।

लोक सुनवाई की कार्यवाही प्रारम्भ करते हुए क्षेत्रीय अधिकारी श्री आर. बी. मौर्य ने लोक सुनवाई के प्रावधानों, उद्देश्यों तथा महत्व के बारे में बताते हुए उपस्थित जन से यह अपील की, कि वे इस

प्रस्तावित परियोजना से संबधित अपनी आकांक्षाओं और अपेक्षाओं के बारे में विचार मौखिक/लिखित रूप से प्रस्तुत करें।

प्रस्तावित परियोजना मैसर्स श्री मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी के तकनीकी सलाहकार श्री संदीप कुमार, परफेक्ट एनवायरो सोल्यूशन्स प्राइवेट लिमिटेड, नई दिल्ली ने इस परियोजना के प्रतिवेदन का विस्तार से वर्णन किया तथा मैसर्स श्री मंगल सिंह सोलंकी द्वारा की जाने वाली पर्यावरण प्रदूषण नियंत्रण एवं पर्यावरण संरक्षण संबंधी जानकारी बताई।

तत्पश्चात् क्षेत्रीय अधिकारी, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली ने उपस्थित जनसमुदाय से अपेक्षा/सुझाव आमन्त्रित किये।

जनसुनवाई में उपस्थित श्री श्रवण कुमार, निवासी जैतपुरा ने कहा कि पौधारोपण के लिए 5 ₹ प्रतिटन की दर से जो राशि राज्य सरकार को जमा हो रही है उससे कहाँ–कहाँ पर पौधारोपण होगा एवं उनकी देखभाल कौन करेगा। जो पौधे मर जाते है उनके स्थान पर पुनः पौधरोपण कौन करेगा।

इस पर परियोजना प्रस्तावक ने कहा कि खनन पट्टा अनुबंध की तिथि से पाँच साल तक पौधारोपण व उनकी देखभाल भी करेंगे। तकनीकी सलाहकार ने बताया कि 1000 पौधे प्रति वर्ष लगाए जाने का प्रावधान है।

श्री विजेन्द्र सिंह, निवासी अगवाँर ने कहा कि 5 ₹ प्रतिटन की दर से जो राशि राज्य सरकार में जमा हो रही है उसका उपयोग कौन करेगा।

श्री मूलसिंह देवड़ा, खनि अभियन्ता, सिरोही ने बताया कि परियोजना प्रस्तावक व प्रशासन कमेटी यह तय करेगी कि पौधारोपण कहाँ करवाना है। इसके अलावा परिवहन मार्ग की मरम्मत व गड्ढों का भराव समय–समय पर करवाया जायेगा।

श्री महीपाल सिंह, सरपंच मोरली ने कहा कि बजरी खनन् पर जो रॉयल्टी प्राप्त होती है वह पंचायत में जमा नही हो रही है।

श्री एम. आर. मीणा, तहसीलदार शिवगंज ने कहा कि बजरी खनन् में काम करने वाले मजदूरों की सुरक्षा के लिए क्या उपाय है।

डॉ वी. सी. गर्ग, अतिरिक्त जिला कलक्टर, सिरोही ने बताया कि मजदूर विभाग द्वारा काम करने वाले मजदूरों की सुरक्षा के लिए 30 रूपये के कार्ड द्वारा बीमा पॉलिसी की सुविधा दी जाती है।

श्री भवानी सिंह निवासी भारेला ने कहा कि बजरी खनन् से बडे–बडे गड्ढे हो जाते है जिससे पानी का बहाव रूक जाता है, उन्हे ठीक करवाया जाए।

श्री योगेन्द्र सिंह, निवासी सुमेरपुर ने कहा कि मजदूर बडी संख्या में सुमेरपुर से शिवगंज काम करने आते है, तो उनकी वाहन दुर्घटना से सुरक्षा के क्या उपाय है।

तकनीकी सलाहकार श्री चन्द्रशेखर चौहान ने बताया कि वाहन चलाने के लिए केवल लाइसेंस धारक व्यक्ति को प्राथमिकता दी जाएगी।

डॉ वारसिंह, उपखण्ड अधिकारी, शिवगंज ने कहा कि खनन् के दौरान भू–जल स्तर को किसी भी प्रकार से प्रतिच्छेदित नहीं किया जायेगा। लेकिन भू–जल स्तर पहले आने पर क्या किया जाएगा।

तकनीकी सलाहकार श्री चन्द्रशेखर चौहान ने बताया कि भू–जल स्तर पहले आने पर उस स्थान को छोड दिया जाएगा।

लोक सुनवाई के दौरान कोई लिखित प्रतिवेदन प्राप्त नही हुआ है।

अन्त में अतिरिक्त जिला कलेक्टर, सिरोही ने सभी उपस्थित जनो का आभार प्रकट किया गया एवं क्षेत्रीय अधिकारी द्वारा लोक सुनवाई समाप्त करने की घोषणा की गई।

(डॉ. बी. मौर्य)
क्षेत्रीय अधिकारी
राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली

(डॉ. पी. सी. गर्ग)
अतिरिक्त जिला कलेक्टर,
(प्रतिनिधि जिला कलेक्टर) सिरोही

REGIONAL OFFICE, RAJASTHAN STATE POLLUTION CONTROL BOARD, PALI

PUBLIC HEARING PROCEEDING IN DETAILS

Applicant: - Details of Public Hearing held on 05.09.2014 for Environment clearance of river sand (Bajri) (Lease Area 1414 Ha.) for proposed production @ 28.05 Lac TPA of M/s Mangal Singh Solanki S/o Shri Laxman Singh Solanki, near village – Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, & Ummedgarh, Tehsil- Shivganj, District - Sirohi (Rajasthan).

Place: - Office- Subsection Officer, Tehsil – Shivganj, Distrct – Sirohi.

Date: - 05.09.2014

Time: - 03:00 P.M.

The following were present Sarv Shri:-

1. Dr. V.C. Garg, Additional District Collector (Representative District Collector), Sirohi.
2. R. B. Maurya, Regional officer, Rajasthan State Pollution Control Board, Pali.

Public Hearing organized by Rajasthan State Pollution Control Board, Regional office, Pali, via public notice no. RPCB/ROPALI/1345 dated – 01/08/2014 of M/s. Mangal Singh Solanki S/o Shri Laxman Singh Solanki for proposed production of river sand (Bajri) (Lease area 1414 Ha.) @ 28.05 lac TPA has been conducted on 05.09.2014 in the presence of Dr. V.C. Garg, Additional District Collector (Representative District Collector), Sirohi and Shri. R.B. Maurya, Regional officer, RSPCB, Pali.

Attendance sheet with signature of designated officers and local villagers & others present at Public Hearing has been annexed as annexure A.

As per rules, Public Notice regarding Public Hearing has been published in Hindustan Times and Rajasthan Patrika on date 03.08.2014. Photo copies of news papers are annexed as annexure no. B & C.

The public hearing has been organized as per Environment Protection Act, 1986 under provision of EIA Notification dated 14.09.2006 of Ministry of Environment & Forest, Govt. of India, New Delhi.

Public Hearing has been conducted at Office of Subsection Officer, Tehsil–Shivganj, Distrct–Sirohi on dated 05.09.2014 near proposed lease area. Video C.D. and photographs of Public Hearing are annexed as annexure no. D & E.

With initiating Public Hearing Proceeding, Regional officer Shri. R.B. Maurya stated the provision, objectives and importance of Public Hearing and appeals to Public to represent their thoughts, requirement and expectation from proposed project in oral/written form.

Shri. Sandeep Kumar, Perfect Enviro Solution Pvt. Ltd., Technical advisor of proposed mining project of M/s Mangal Singh Solanki S/o Shri. Laxman Singh Solanki, explains the provision of this project in detail and told the information relevent for Pollution Control Measures & Environment Protection Measures to be done by M/s Mangal Singh Solanki.

After that Regional Officer, Rajasthan State Pollution Control Board, Pali invites the objection/Suggestions from gathered peoples.

Shri. Shravan Kumar resident of Jaitpura, presented in Public Hearing asked where will be plantation carried out and who will look after them for which an amount at the rate of ` 5/ton is being deposited to State Govt. And who will replace the dead plants. On this project proponent said that they will do plantation and its care for five year from the date of agreement. Technical advisor told that there is provision for planting 1000 plants per year.

Shri Vijendra Singh resident of Angaur, said that who will utilize the amount that is being deposited to state govt. at the rate of ` 5/ton .

Shri Mool Singh Devra, Mining Engineer, Tehsil- Sirohi, said that project proponent and admin committee will decide where plantation is to be carried out. Apart from this repairing of transportation route and re-leveling of pits would be done time to time.

Shri Mahipal Singh Sarpanch of Morli, said that Panchayat is not getting the royalty received on Bajri mining.

Shri M. R. Meena , Tehsildar- Shivganj asked about the safety measures for the workers indulge in Bajri mining.

Dr. V.C. Garg, Additional District Collector (Representative District Collector), Sirohi told that Insurance policy facility is provided by the Labour department for their safety in ` 30 card.

Shri Bhawani Singh resident of Bharela, said that large pits forms due to mining and restrict the flow of water, they should be repaired.

Shri Yogendra Singh resident of Sumerpur, said that worker travels in large number from sumerpur to shivganj for work, so what are the measures for their safety from accident.

Technical advisor Shri Chandra Shekhar Chouhan told that priority for driving will be given only to the licensed person.

Shri Vaarsingh, Subsection Officer, Shivganj said that ground water level will not be intersected while mining. But what should be done if ground water level comes before.

Technical advisor Shri Chandra Shekhar Chouhan told that if ground water level comes before than that place will be left.

No written report have been received during public hearing.

In the end, Additional District Collector, Sirohi has expressed vote of thanks to all the villagers and all those who present in the Public Hearing & The Regional officer announces the closing of proceeding.

(Mr. R. B. Maurya)
Regional Officer
Rajasthan State Pollution Control Board,
Pali

(Dr. V. C. Garg)
Additional District collector
(Representative District collector)
Sirohi (Rajasthan)

उपस्थिति पंजिका

मैसर्स मंगल सिंह सोलंकी पुत्र श्री लक्ष्मण सिंह सोलंकी की प्रस्तावित बजरी (अप्रधान खनिज) खनन परियोजना (खनन पट्टा क्षेत्र : 1414 हैक्टेयर) (उत्पादन क्षमता : 28.05 लाख टन प्रतिवर्ष) तहसील–शिवगंज के राजस्व गांव – अखापुराखुणी, बडगांव, छीबागांव, चूली, चोटीला, जैतपुरा, जोयला, खेजडिया, लोटीवाड़ा बड़ा, लोटीवाड़ा छोटा, माडानी, नारादरा, पोसालिया, राडबर, रूखाडा, सवली, सुथारों का गुड़ा व उम्मेदगढ, जिला – सिरोही (राजस्थान) हेतु जनसुनवाई

दिनाँक: 05.09.2014 (शुक्रवार) समय : मध्यान्ह पश्चात् 03:00 बजे

स्थान: कार्यालय उपखण्ड अधिकारी, तहसील – शिवगंज, जिला – सिरोही, (राजस्थान)

क्र.सं.	नाम एवं पता	हस्ताक्षर
1.	Dr. V. C. GARG, RAS ADM Sirohi	
2.	Dr. Varsinga. R.A.S. SDM Sheoganj	
3.	आर. पी. मौर्य, क्षे. अ., रा.प.वे.नं.भ. पाली	
4.	मूल सिंह देवड़ा खंड अधिकारी शिवगंज	
5.	Laxman Ram Suseela, Forest Ranger	
6.	[illegible]	
7.	उत्तम सिंह [illegible]	
8.	[illegible]	
9.	[illegible]	
10.	भरत कुमार [illegible]	
11.	Yagya Datt Singh (Jaipur)	
12.	Yogendra Singh Sumerpur	
13.	Ratan Singh - Champawat DySP	
14.	[illegible]	

15.		
16.	रमेश मीना परवारी शिवगंज	
17.	Rajdeep Singh Flying ihc. --	Rajdeep Sin
18.	Gurjant Singh Cheema	Gurjant
19.	दिनेश कुमार - जोगापुरा पुराना	
20.	Narendra Singh Bankli	
21.	Devendra Singh	
22.	जगदीश चन्द्र मीना रोयल्टी	
23.	Mahendra Kumar Chouhan I Shyamgarh.	
24.	Vikram Singh - VM	
25.	करण सिंह पंचपुरा	करण
26.	महेन्द्र सिंह वड़गांव	
27.	पेमाराम सरवाड़ा	
28.	मनोहरलाल सरवाड़ा	
29.	रमेश सरवाड़ा	
30.	राजेन्द्र कुमार (केसरपुरा)	
31.	देवेन्द्र सिंह चौहान पानी	
32.	बीसाराम मेघवाल शिवगंज	
33.	नरेन्द्रसिंह अहीर	
34.	[illegible]	
35.	नंदसिंह [illegible]	
36.	[illegible]	

37.	[illegible]	[illegible]
38.	[illegible]	[illegible]
39.	[illegible]	[illegible]
40.	दिनेशकुमार s/o कान्तिलालजी (कुखाडा)	दिनेश
41.	जगदीश कुमार s/. मांगीलालजी मारवी कुखाडा	[illegible]
42.	[illegible]	[illegible]
43.	[illegible]	[illegible]
44.	[illegible]	[illegible]
45.	[illegible]	[illegible]
46.	Mahendra Singh s/. Jhawar Singh	[illegible]
47.	राजवीर सिंह शेरसिंह Khundara Ardasa	[illegible]
48.	[illegible]	[illegible]
49.	[illegible]	[illegible]
50.	Jhamat Singh	[illegible]
51.	[illegible]	[illegible]
52.	M. R. Meena N. T. [illegible]	[illegible]
53.	Sandeep Kumar, Rajact Enviro solutions Pvt. Ltd. New Delhi	[illegible]
54.	Dr. C. S. Chouhan, Perfect Enviro Engg Pvt. Ltd.	[illegible]
55.	Ajay Kumar, Perfect Environ Consultation Pvt. Ltd.	Ajay Kumar
56.	Sunil Verma, Perfect Enviro Solution New Delhi	[illegible]
57.	Vikram Singh. Perfect Enviro Engg	[illegible]
58.		

PUBLIC HEARING PHOTOGRAPHS

















Public Hearing Compliance.

S.No.	Issues raised by the Public	Response/Commitment of Project Proponents	Suggestions made by the Public Hearing Panel	Budgetary Allocations
1.	Shri Shravan Kumar resident of Jaitpura, asked where will be plantation carried out and who will look after them for which an amount at the rate of ` 5/ton is being deposited to State Govt. And who will replace the dead plants.	Project proponent said that they will do plantation and its care for five year from the date of agreement. Technical advisor told that there is provision for planting 1000 plants per year.	-	To Enhance the Environmental condition of the area Rs. 26.00 Lacs/Year will be spent. out of this Rs. 6.50 Lacs /Year will be spent on plantation. (Ref: chapter – 9, table 9.5 of EIA/ EMP Report.)
2.	Shri Vijendra Singh resident of Angaur said that who will utilize the amount that is being deposited to state govt. at the rate of ` 5/ton.	-	Shri Mool Singh Devra, Mining Engineer, Tehsil- Sirohi, said that project proponent and admin committee of Govt. will decide where plantation is to be carried out. Apart from this repairing of transportation route and re-leveling of pits would be done time to time.	
3.	Shri Mahipal Singh Sarpanch of Morli said that Panchayat is not getting the royalty received on Bajri mining.	-	-	We are paying royalty to state mining department.
4.	Shri M. R. Meena, Tehsildar- Shivganj asked about the safety measures for the workers indulge in Bajri mining.	-	Dr. V.C. Garg, Additional District Collector (Representative District Collector), Sirohi told that Insurance policy facility is provided by the Labour	Rs. 1.0 Lacs/annum will be spent on Occupational health surveillance program of the workers shall be undertaken periodically to

			department for their safety in ` 30 card.	observe any contractions due to exposure to dust and take corrective measures, if needed; Rs. 2.0 Lacs /Annum will be spent on Insurance cover to all workers engaged in mines shall be provided;
5.	Shri Bhawani Singh resident of Bharela said that large pits forms due to mining and obstruct the flow of water that should be repaired.	-	-	Mining will be carried out up to 3 mtr from surface or above water table whatever is earlier achieved as per state mining rule.
6.	Shri Yogendra Singh resident of Sumerpur said that worker travels in large number from sumerpur to shivganj, so what are the measures for their safety from accident.	Technical advisor Shri Chandra Shekhar Chouhan told that priority for driving will be given only to the licensed person.	-	
7.	Shri Vaarsingh, Subsection Officer, Shivganj said that ground water level will not be intersected while mining. But what should be done if ground water level comes before.	Technical advisor Shri Chandra Shekhar Chouhan told that mining will not be done if ground water level achived.	-	Mining will be carried out up to 3 mtr from surface or above water table whatever is earlier achieved as per state mining rule.

राजस्थान सरकार
कार्यालय खनि अभियन्ता, खान एवं भू विज्ञान विभाग, सिरोही

क्रमांक – खअ/सिरोही/अग्रधान/बजरी/2015/ २३६० दिनांक 12/3/015

प्रमाण पत्र एम एल नं. 12/2012

यह प्रमाणित किया जाता है कि श्री शेरसिंह पुत्र श्री मंगल सिंह सोलंकी निवासी 13, शिव नगर, कमला नेहरू नगर अजमेर रोड जयपुर के पक्ष में खनन पट्टा खनिज बजरी क्षैत्रफल 2527 हैक्टर आवंटित करने के लिये शासन द्वारा आदेश क्रमांक प.8 (16) खान/ग्रप–2/2013 जयपुर दिनांक 27.2.2013 को मंशा पत्र जारी किया गया है। खनन पट्टा आवंटन हेतु जारी मंशा पत्र में उल्लेखित क्षैत्र तहसील रेवदर के राजस्व गांवो मे गैर मुमकीन नदी, नालो, बालो से (खसरो के अनुसार) जिला सिरोही में आता हैं। जिसके अक्षान्तर 24° 31' 01.97" से 24° 41' 16.24"एव देशान्तर 72° 24' 44.49"से 72° 38' 23.95" तक जो निदेशालय द्वारा अरावली पर्वतमाला निर्धारण करने के कम में जारी परिपत्र दिनांक 9.01.2006 के अनुसार अरावली प्रतिबंधित क्षैत्र में नही आता है। तथा माननीय सर्वोच्च न्यायालय के आदेश की अवहेलना में नही आता है।

यह प्रमाण पत्र कार्यालय द्वारा मंशा पत्रधारी श्री शेर सिंह की और से प्रस्तुत पृष्छांकन प्रतिलिपी दिनांक 5.1..2015 द्वारा चाहे अनुसार व मंशा पत्रधारक द्वारा प्रस्तुत पृष्ठांकन प्रतिलिपी के साथ संल्गन खनन पट्टा क्षैत्र के जी. टी. शीट पर प्रस्तुत नक्शे के आधार पर इस कार्यालय की मानचित्र शाखा से ली गई टिप्पणी के आधार पर भारत सरकार एवं वन मंत्रालय में लम्बित पर्यावरण सहमती हेतु वांछित पूर्तियो के लिये जारी किया जाता है।

(एम एस देवडा)
खनि अभियंता
सिरोही

कार्यालय उप वन संरक्षक, सिरोही (राजस्थान) 307001

E-Mail ID:def.sirohi forest @rajasthan.gov.in &dfo sirohi@gmail.com Phone.@fax No. 02972 2222277

क्रमांकःएफ 12 ( ) वसु/ख0अ0/उवसं/2014–15/ 3009 दिनांकः– 27/3/2015

निमित्,

मैसर्स श्री मंगल सिंह सोंलकी
पुत्र श्री लक्ष्मण सिंह सोंलकी
निवासी 13 शिवनगर, अजमेर रोड
जयपुर।

विषय :– **LOI NO-** प.8(15) खान/ग्रुप–2/2013, जयपुर दिनांक–27.02.2013 के तहत् बजरी खनन् क्षैत्रफल 1414.00 हैक्टेयर निकट ग्राम लोटीवाडा .....अन्य ग्राम तहसील शिवंगज शिवगंज जिला सिरोही (राज.) के सम्बन्ध में।

सन्दर्भ :– आपका पत्र कमांक शून्य – दिनांक 2.3.2015 के कम में।

उपरोक्त विषयान्तर्गत सन्दर्भित पत्र के कम मे लेख हैं कि बजरी खनन् क्षैत्रफल 1414.00 हैक्टेयर निकट ग्राम लोटीवाडा.....अन्य ग्राम तहसील शिवगंज जिला सिरोही के आवेदित बजरी खनन क्षैत्र के लिए भारत सरकार के वन पर्यावरण मंत्रालय के पत्र कमांक J-11015/310/2013-IA II (M) दिनांक 22/11/2013 के कम मे बिन्दू सं0 10. 15. 16 के सन्दर्भ मे क्लीयेरेन्स प्राप्त करने हेतु आप द्वारा चाही गई सूचना निम्नानुसार प्रस्तुत है।

1 – भारत सरकार के पर्यावरण एवं वन मंत्रालय के बिन्दू सं.10 के कम में आप द्वारा प्रस्तुत दस्तावेजो के अनुकरण उपरान्त यह प्रमाणित किया जाता है कि उक्त बजरी खनन क्षैत्र वन क्षैत्र मे नही आते है।

2 –बिन्दू सं. 15 के कम मे यह प्रमाणित है कि उक्त खनन पट्टा क्षैत्र के 10 कि.मी. परिधि मे नेशनल पार्क, अभयारण्य, बायोस्पेयर रिर्जव, वाईल्ड लाईफ कोरिडोर, टाईगर/एलीफेन्ट रिर्जव क्षैत्र नही है।

3 – बिन्दू सं. 16 के कम में आप द्वारा प्रस्तुत उक्त खनन पट्टे के कोर जोन एवं 10 कि.मी. परिधि (बफर जोन) में पाये जाने वाले फ्लोरा एवं फोना की सूची पूर्ण नही है। फोना की सूची में तेन्दूआ, भालू तथा मोर को सम्मिलित करते हुए सूची प्रमाणित की जाती है।

भवदीय

(शशि शंकर)
उप वन संरक्षक
सिरोही।

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TEST CERTIFICATE

TEST REPORT

Water Sample analysis

Report Code: W-120114-01 **Issue Date: 18/01/2014**

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name : River Sand (Bajri)
Sample Drawn By : Mr. Vakeel Ali (NTL)
Sample Drawn On : 10/01/2014
Sample Received On : 12/01/2014
Sample Quantity : 1.0 Lt.
Analysis Duration : 12/01/2014 To 18/01/2014
Sample Location : Khandra
Source of Water : Ground water

S.NO.	Parameter	Test method	Result	Unit	Desirable Limit Max	Permissible Limit
1.	pH value	IS-3025(P-04)	7.76	-	6.5-8.5	-
2.	Conductivity	IS: 2720 (part-21)	0.75	m/S cm	-	-
3.	Turbidity	IS-3025(P-10)	12.5	NTU	1	5
4.	Colour	IS-3025(P-04)	5	Hazen Unit	5	15
5.	Odour	IS-3025(P-05)	Unobjectionable	-	Unobjectionable	-
6.	Total Solids		692	mg/l	-	-
7.	Total dissolve solid (TDS)	IS-3025(P-16)	687	mg/l	500	2000
8.	Total suspended solids	IS-3025(pt-17)	5	mg/l	<5	-
9.	Chloride (as Cl)	IS: 3025 (P- 32)	90.4	mg/l	250	1000
10.	Alkalinity (as Ca CO_3)	IS: 3025 (P- 23)	187.2	mg/l	200	600
11.	Total hardness (as $CaCO_3$)	IS: 3025 (P- 23)	210.15	mg/l	300	600
12.	Calcium (as Ca)	IS: 3025 (P- 40)	52.4	mg/l	75	200
13.	Magnesium (as mg)	IS: 3025 (P-46)	38.33	mg/l	30	100
14.	Dissolved oxygen	IS: 3025 (pt-38)	-	mg/l	-	-
15.	Sodium (as Na)	Flame photometer	118.22	mg/l	-	-
16.	Potassium	Flame photometer	11.2	mg/l	-	-
17.	Phosphate (as PO_4^{3-}	Lab SOP	N.D		-	-
18.	Iron (as Fe)	IS: 3025(P-53)	N.D	mg/l	0.3	No Relaxation
19.	Fluoride (as F)	IS: 3025 (P-60)	1.96	mg/l	1.0	1.5
20.	Nitrate Nitrogen (as NO_3^-)	IS: 3025 (pt-34)	28.45	mg/l	45	No Relaxation
21.	Sulphate (as SO_4^{2-})	IS: 3025 (pt-24)	60.21	mg/l	200	400

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Website: http://www.noidalabs.com, E-mail: noida.laboratory@gmail.com, info@noidalabs.com

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

TEST REPORT

Water Sample analysis

Report Code: W-120114-06 **Issue Date:** 18/01/2014

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Vakeel Ali (NTL)
Sample Drawn On	:	10/01/2014
Sample Received On	:	12/01/2014
Sample Quantity	:	1.0 Lt.
Analysis Duration	:	12/01/2014 To 18/01/2014
Sample Location	:	Jawel
Source of Water	:	Ground water

S.NO.	Parameter	Test method	Result	Unit	Desirable Limit Max	Permissible Limit
1.	pH value	IS-3025(P-04)	8.02	-	6.5-8.5	-
2.	Conductivity	IS: 2720 (part-21)	0.39	mS/cm	-	-
3	Turbidity	IS-3025(P-10)	11.2	NTU	1	5
4.	Colour	IS-3025(P-04)	5	Hazen Unit	5	15
5.	Odour	IS-3025(P-05)	Unobjectionable	-	Unobjectionable	-
6.	Total Solids		344	mg/l	-	-
7.	Total dissolve solid (TDS)	IS-3025(P-16)	338	mg/l	500	2000
8.	Total suspended solids	IS-3025(pt-17)	6	mg/l	< 5	-
9.	Chloride (as Cl)	IS: 3025 (P- 32)	68.25	mg/l	250	1000
10.	Alkalinity (as Ca CO_3)	IS: 3025 (P- 23)	200.7	mg/l	200	600
11.	Total hardness (as $CaCO_3$)	IS: 3025 (P- 23)	214.4	mg/l	300	600
12.	Calcium (as Ca)	IS: 3025 (P- 40)	67.36	mg/l	75	200
13.	Magnesium (as mg)	IS: 3025 (P-46)	35.63	mg/l	30	100
14.	Dissolved oxygen	IS: 3025 (pt-38)	-	mg/l	-	-
15.	Sodium (as Na)	Flame photometer	87.25	mg/l	-	-
16.	Potassium	Flame photometer	7.6	mg/l	-	
17.	Phosphate (as PO_4^{3-}	Lab SOP	N.D		-	-
18.	Iron (as Fe)	IS: 3025(P-53)	N.D	mg/l	0.3	No Relaxation
19.	Fluoride (as F)	IS: 3025 (P-60)	1.35	mg/l	1.0	1.5
20.	Nitrate Nitrogen (as NO^{3-})	IS: 3025 (pt-34)	25.41	mg/l	45	No Relaxation
21.	Sulphate (as SO_4^{2-})	IS: 3025 (pt-24)	46.8	mg/l		400

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

TEST REPORT

Water Sample analysis

Report Code: W-120114-04 **Issue Date:** 18/01/2014

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name : River Sand (Bajri)
Sample Drawn By : Mr. Vakeel Ali (NTL)
Sample Drawn On : 10/01/2014
Sample Received On : 12/01/2014
Sample Quantity : 1.0 Lt.
Analysis Duration : 12/01/2014 To 18/01/2014
Sample Location : Siyana
Source of Water : Ground water

S.NO.	Parameter	Test method	Result	Unit	Desirable Limit Maz	Permissible Limit
1.	pH value	IS-3025(P-04)	8.04	-	6.5-8.5	-
2.	Conductivity	IS: 2720 (part-21)	0.44	mS/cm	-	-
3.	Turbidity	IS-3025(P-10)	13.8	NTU	1	5
4.	Colour	IS-3025(P-04)	5	Hazen Unit	5	15
5.	Odour	IS-3025(P-05)	Unobjectionable	-	Unobjectionable	-
6.	Total Solids		388	mg/l	-	-
7.	Total dissolve solid (TDS)	IS-3025(P-16)	382	mg/l	500	2000
8.	Total suspended solids	IS-3025(pt-17)	6	mg/l	<5	-
9.	Chloride (as Cl)	IS: 3025 (P- 32)	42.49	mg/l	250	1000
10.	Alkalinity (as Ca CO_3)	IS: 3025 (P- 23)	224.87	mg/l	200	600
11.	Total hardness (as $CaCO_3$)	IS: 3025 (P- 23)	239.58	mg/l	300	600
12.	Calcium (as Ca)	IS: 3025 (P- 40)	57.42	mg/l	75	200
13.	Magnesium (as mg)	IS: 3025 (P-46)	41.26	mg/l	30	100
14.	Dissolved oxygen	IS: 3025 (pt-38)	-	mg/l	-	-
15.	Sodium (as Na)	Flame photometer	115.87	mg/l	-	-
16.	Potassium	Flame photometer	10.66	mg/l	-	-
17.	Phosphate (as PO_4^{-3}	Lab SOP	N.D		-	-
18.	Iron (as Fe)	IS: 3025(P-53)	N.D	mg/l	0.3	No Relaxation
19.	Fluoride (as F)	IS: 3025 (P-60)	1.45	mg/l	1.0	1.5
20.	Nitrate Nitrogen (as NO^{-3})	IS: 3025 (pt-34)	22.54	mg/l	45	No Relaxation
21.	Sulphate (as SO_4^{-2})	IS: 3025 (pt-24)	24.45	mg/l		400

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TEST CERTIFICATE

TEST REPORT

Water Sample analysis

Report Code: W-120114-05

Issue Date: 18/01/2014

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Vakeel Ali (NTL)
Sample Drawn On	:	10/01/2014
Sample Received On	:	12/01/2014
Sample Quantity	:	1.0 Lt.
Analysis Duration	:	12/01/2014 To 18/01/2014
Sample Location	:	Fatehpura
Source of Water	:	Ground water

S.NO.	Parameter	Test method	Result	Unit	Desirable Limit Max	Permissible Limit
1.	pH value	IS-3025(P-04)	8.09	-	6.5-8.5	-
2.	Conductivity	IS: 2720 (part-21)	0.37	mS/cm	-	-
3.	Turbidity	IS-3025(P-10)	12.4	NTU	1	5
4.	Colour	IS-3025(P-04)	5	Hazen Unit	5	15
5.	Odour	IS-3025(P-05)	Unobjectionable	-	Unobjectionable	-
6.	Total Solids		352	mg/l	-	-
7.	Total dissolve solid (TDS)	IS-3025(P-16)	347	mg/l	500	2000
8.	Total suspended solids	IS-3025(pt-17)	5	mg/l	<5	-
9.	Chloride (as Cl)	IS: 3025 (P- 32)	63.74	mg/l	250	1000
10.	Alkalinity (as Ca CO_3)	IS: 3025 (P- 23)	191.04	mg/l	200	600
11.	Total hardness (as $CaCO_3$)	IS: 3025 (P- 23)	207.9	mg/l	300	600
12.	Calcium (as Ca)	IS: 3025 (P- 40)	39.6	mg/l	75	200
13.	Magnesium (as mg)	IS: 3025 (P-46)	40.89	mg/l	30	100
14.	Dissolved oxygen	IS: 3025 (pt-38)	-	mg/l	-	-
15.	Sodium (as Na)	Flame photometer	114.93	mg/l	-	-
16.	Potassium	Flame photometer	9.9	mg/l	-	-
17.	Phosphate (as PO_4^{-3}	Lab SOP	N.D		-	-
18.	Iron (as Fe)	IS: 3025(P-53)	N.D	mg/l	0.3	No Relaxation
19.	Fluoride (as F)	IS: 3025 (P-60)	1.12	mg/l	1.0	1.5
20.	Nitrate Nitrogen (as NO^{-3})	IS: 3025 (pt-34)	22.16	mg/l	45	No Relaxation
21.	Sulphate (as SO_4^{-2})	IS: 3025 (pt-24)	28.72	mg/l	200	400

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Laboratory: B-26, Udyog Kendra-1, Greater Noida, 201306, U.P

M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

TEST REPORT

Water Sample analysis

Report Code: W-120114-02 **Issue Date:** 18/01/2014

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name : River Sand (Bajri)
Sample Drawn By : Mr. Vakeel Ali (NTL)
Sample Drawn On : 10/01/2014
Sample Received On : 12/01/2014
Sample Quantity : 1.0 Lt.
Analysis Duration : 12/01/2014 To 18/01/2014
Sample Location : Sumerpur
Source of Water : Ground water

S.NO.	Parameter	Test method	Result	Unit	Desirable Limit Max	Permissible Limit
1.	pH value	IS-3025(P-04)	7.48	-	6.5-8.5	-
2.	Conductivity	IS: 2720 (part-21)	3.6	mS/cm	-	-
3.	Turbidity	IS-3025(P-10)	8.1	NTU	1	5
4.	Colour	IS-3025(P-04)	5	Hazen Unit	5	15
5.	Odour	IS-3025(P-05)	Unobjectionable	-	Unobjectionable	-
6.	Total Solids		1458	mg/l	-	-
7.	Total dissolve solid (TDS)	IS-3025(P-16)	1454	mg/l	500	2000
8.	Total suspended solids	IS-3025(pt-17)	4	mg/l	5	-
9.	Chloride (as Cl)	IS: 3025 (P- 32)	170.6	mg/l	250	1000
10.	Alkalinity (as Ca CO_3)	IS: 3025 (P- 23)	354.21	mg/l	200	600
11.	Total hardness (as $CaCO_3$)	IS: 3025 (P- 23)	412.85	mg/l	300	600
12.	Calcium (as Ca)	IS: 3025 (P- 40)	210.45	mg/l	75	200
13.	Magnesium (as mg)	IS: 3025 (P-46)	49.18	mg/l	30	100
14.	Dissolved oxygen	IS: 3025 (pt-38)	-	mg/l	-	-
15.	Sodium (as Na)	Flame photometer	126.32	mg/l	-	-
16.	Potassium	Flame photometer	25.47	mg/l	-	-
17.	Phosphate (as PO_4^{3-}	Lab SOP	N.D		-	-
18.	Iron (as Fe)	IS: 3025(P-53)	N.D	mg/l	0.3	No Relaxation
19.	Fluoride (as F)	IS: 3025 (P-60)	2.12	mg/l	1.0	1.5
20.	Nitrate Nitrogen (as NO_3^-)	IS: 3025 (pt-34)	182.05	mg/l	45	No Relaxation
21.	Sulphate (as SO_4^{2-})	IS: 3025 (pt-24)	170.25	mg/l	[illegible]	400

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

TEST REPORT

Water Sample analysis

Report Code: W-120114-03 **Issue Date: 18/01/2014**

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name : River Sand (Bajri)
Sample Drawn By : Mr. Vakeel Ali (NTL)
Sample Drawn On : 10/01/2014
Sample Received On : 12/01/2014
Sample Quantity : 1.0 Lt.
Analysis Duration : 12/01/2014 To 18/01/2014
Sample Location : Bagsin
Source of Water : Ground water

S.NO.	Parameter	Test method	Result	Unit	Desirable Limit Max	Permissible Limit
1.	pH value	IS-3025(P-04)	7.82	-	6.5-8.5	-
2.	Conductivity	IS: 2720 (part-21)	0.68	mS/cm	-	-
3.	Turbidity	IS-3025(P-10)	6.6	NTU	1	5
4.	Colour	IS-3025(P-04)	5	Hazen Unit	5	15
5.	Odour	IS-3025(P-05)	Unobjectionable	-	Unobjectionable	-
6.	Total Solids		580	mg/l	-	-
7.	Total dissolve solid (TDS)	IS-3025(P-16)	574	mg/l	500	2000
8.	Total suspended solids	IS-3025(pt-17)	6	mg/l	<5	-
9.	Chloride (as Cl)	IS: 3025 (P- 32)	124.48	mg/l	250	1000
10.	Alkalinity (as Ca CO_3)	IS: 3025 (P- 23)	210.45	mg/l	200	600
11.	Total hardness (as $CaCO_3$)	IS: 3025 (P- 23)	252.36	mg/l	300	600
12.	Calcium (as Ca)	IS: 3025 (P- 40)	72.45	mg/l	75	200
13.	Magnesium (as mg)	IS: 3025 (P-46)	43.71	mg/l	30	100
14.	Dissolved oxygen	IS: 3025 (pt-38)	-	mg/l	-	-
15	Sodium (as Na)	Flame photometer	114.89	mg/l	-	-
16.	Potassium	Flame photometer	5.92	mg/l	-	-
17.	Phosphate (as PO_4^{2-})	Lab SOP	N.D		-	-
18.	Iron (as Fe)	IS: 3025(P-53)	N.D	mg/l	0.3	No Relaxation
19.	Fluoride (as F)	IS: 3025 (P-60)	1.42	mg/l	1.0	1.5
20.	Nitrate Nitrogen (as NO^{3-})	IS: 3025 (pt-34)	182.05	mg/l	45	No Relaxation
21.	Sulphate (as SO_4^{2-})	IS: 3025 (pt-24)	52.89	mg/l		400

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-270114-08 **Issue Date: 30/01/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheogarh, District - Sirohi (Rajasthan).

Project Name	:	**River Sand (Bajri)**
Sample Drawn By	:	**Mr. Syan & Javed (NTL)**
Sample description	:	**Ambient Air**
Sampling Location	:	**03/01/2014 To 25/01/2014**
Date of Monitoring/Date of sample collection	:	**Village Oru**
Sampling Plan &Procedure	:	**SOP-AAQ/08**
Analysis Duration	:	**27/01/2014 To 30/01/2014**
Sampling Instrument Used	:	**Respirable Dust Sampler**
Weather Condition	:	**Clear**

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	03.01.2014	49.5	7.1	11.5
2	04.01.2014	52.1	7.5	11.7
3	10.01.2014	61.8	8.0	11.0
4	11.01.2014	59.4	7.7	10.7
5	17.01.2014	65.9	8.2	10.2
6	18.01.2014	62.7	7.9	10.6
7	24.01.2014	56.3	7.0	11.2
8	25.01.2014	53.2	6.8	10.8
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-261213-078 Issue Date: 28/12/2013

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Syan & Javed (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Ora
Date of Monitoring/Date of sample collection	:	02/12/2013 To 24/12/2013
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/12/2013 To 28/12/2013
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS				
S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.12.2013	51.9	7.3	10.9
2	03.12.2013	48.6	7.4	11.1
3	09.12.2013	55.1	6.5	12.0
4	10.12.2013	58.3	6.7	12.4
5	16.12.2013	63.7	7.2	13.1
6	17.12.2013	60.4	6.9	13.4
7	23.12.2013	54.0	6.0	12.6
8	24.12.2013	57.2	6.4	12.3
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
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Ambient Air Quality Analysis

Report Code: AAQ-270114-07 **Issue Date: 30/01/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Ravi & Himanshu (NTL)
Sample description	:	Ambient Air
Sampling Location	:	03/01/2014 To 25/01/2014
Date of Monitoring/Date of sample collection	:	Chotila Ki Bhagli
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	27/01/2014 To 30/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	03.01.2014	51.4	7.2	9.7
2	04.01.2014	54.3	6.9	10.0
3	10.01.2014	55.5	6.1	10.6
4	11.01.2014	58.8	6.3	10.4
5	17.01.2014	54.2	7.0	9.8
6	18.01.2014	61.1	7.4	10.2
7	24.01.2014	53.3	8.1	10.1
8	25.01.2014	50.7	7.9	10.5
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample as received & mentioned parameters. The customer asked for the above tests only.
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Ambient Air Quality Analysis

Report Code: AAQ-260214-07 Issue Date: 01/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Ravi & Himanshu (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Chotila Ki Bhagli
Date of Monitoring/Date of sample collection	:	02/02/2014 To 24/02/2014
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/02/2014 To 01/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.02.2014	56.9	8.3	11.1
2	03.02.2014	56.2	8.4	10.8
3	09.02.2014	58.4	7.7	11.7
4	10.02.2014	57.3	7.6	12.2
5	16.02.2014	59.5	6.9	12.9
6	17.02.2014	58.0	7.0	12.6
7	23.02.2014	52.9	6.8	11.4
8	24.02.2014	51.0	6.6	11.0
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above test only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Ambient Air Quality Analysis

Report Code: AAQ-261213-07 Issue Date: 28/12/2013

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Ravi & Himanshu (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Chotila ka Bhagl
Date of Monitoring/Date of sample collection	:	02/12/2013 To 24/12/2013
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/12/2013 To 28/12/2013
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.12.2013	57.1	8.2	11.2
2	03.12.2013	59.8	8.5	11.6
3	09.12.2013	58.4	7.8	12.3
4	10.12.2013	57.3	8.0	12.5
5	16.12.2013	57.2	7.3	11.8
6	17.12.2013	56.5	7.5	11.5
7	23.12.2013	58.7	6.7	10.7
8	24.12.2013	55.6	6.4	10.3
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
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Ambient Air Quality Analysis

Report Code: AAQ-270114-06 **Issue Date:** 30/01/2014

Issued To : M/s. Mangal Singh Solanki,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Anubhav & Dhruv (NTL)
Sample description	:	Ambient Air
Sampling Location	:	03/01/2014 To 25/01/2014
Date of Monitoring/Date of sample collection	:	Chuli
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	27/01/2014 To 30/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	03.01.2014	60.7	7.0	13.0
2	04.01.2014	62.5	6.8	12.8
3	10.01.2014	59.4	7.3	13.7
4	11.01.2014	61.1	7.7	13.4
5	17.01.2014	55.9	8.3	12.5
6	18.01.2014	57.3	8.0	12.2
7	24.01.2014	55.7	7.4	11.8
8	25.01.2014	57.3	7.2	11.4
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
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5. The test samples will be disposed off after two weeks from the date of issue of test report, unless said specified by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-260214-06 Issue Date: 01/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Anubhav & Dhruv (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Chuli
Date of Monitoring/Date of sample collection	:	02/02/2014 To 24/02/2014
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/02/2014 To 01/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.02.2014	58.7	6.5	10.5
2	03.02.2014	57.4	6.3	10.1
3	09.02.2014	50.6	7.9	11.3
4	10.02.2014	52.5	8.2	10.8
5	16.02.2014	56.0	7.6	11.9
6	17.02.2014	53.3	7.2	12.3
7	23.02.2014	61.2	6.1	13.5
8	24.02.2014	62.7	6.0	13.1
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-261213-06 **Issue Date: 28/12/2013**

Issued To

M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Anubhav & Dhruv (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Chuli
Date of Monitoring/Date of sample collection	:	02/12/2013 To 24/12/2013
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/12/2013 To 28/12/2013
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.12.2013	57.6	7.5	11.6
2	03.12.2013	53.9	7.8	11.7
3	09.12.2013	56.3	6.9	10.9
4	10.12.2013	54.0	7.1	10.6
5	16.12.2013	49.8	6.4	11.5
6	17.12.2013	51.5	6.7	11.1
7	23.12.2013	58.2	5.9	12.0
8	24.12.2013	59.3	6.2	12.3
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after four weeks from the date of issue of test report, unless until specified by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-010314-03 Issue Date: 06/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Asutosh & Ajitabh (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Sheoganj
Date of Monitoring/Date of sample collection	:	04/02/2014 To 26/02/2014
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	01/03/2014 To 06/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	04.02.2014	60.4	5.7	11.3
2	05.02.2014	62.7	6.0	11.2
3	11.02.2014	67.3	6.8	10.4
4	12.02.2014	65.0	7.2	10.7
5	18.02.2014	56.5	6.6	11.6
6	19.02.2014	57.1	6.3	11.8
7	25.02.2014	52.8	7.4	12.6
8	26.02.2014	55.4	7.3	12.2
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample(s) as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-281213-07 Issue Date: 03/12/014

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Asutosh & Ajitabh (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Sheoganj
Date of Monitoring/Date of sample collection	:	04/12/2013 To 26/12/2013
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	28/12/2013 To 03/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} (µg /m³)	SO_2 (µg /m³)	NO_2 (µg /m³)
1	04.12.2013	55.1	6.1	10.9
2	05.12.2013	57.3	6.5	11.4
3	11.12.2013	64.9	7.3	12.1
4	12.12.2013	61.7	7.0	11.7
5	18.12.2013	68.5	6.2	11.0
6	19.12.2013	69.4	5.9	10.8
7	25.12.2013	62.2	6.7	10.1
8	26.12.2013	60.0	7.1	10.3
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The extreme limits for the above analysis
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-300114-07 Issue Date: 04/02/2014

Issued To : M/s. Mangal Singh Solanki,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Anurag & Sanjay (NTL)
Sample description	:	Ambient Air
Sampling Location	:	06/01/2014 To 28/01/2014
Date of Monitoring/Date of sample collection	:	Jawai River
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	30/01/2014 To 04/02/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	06.01.2014	49.1	8.1	12.4
2	07.01.2014	53.4	7.9	12.6
3	13.01.2014	58.2	7.0	13.4
4	14.01.2014	56.3	6.8	13.1
5	20.01.2014	58.0	6.2	12.8
6	21.01.2014	56.2	6.3	12.9
7	27.01.2014	49.9	7.1	11.6
8	28.01.2014	51.4	6.7	11.4
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested samples as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited as the invoiced amount only.
3. This test report will not be presented again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-010314-02 Issue Date: 06/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Anurag & Sanjay (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Jawai River
Date of Monitoring/Date of sample collection	:	04/02/2014 To 26/02/2014
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	01/03/2014 To 06/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	04.02.2014	57.4	7.5	10.8
2	05.02.2014	57.1	7.7	10.6
3	11.02.2014	59.8	8.6	10.0
4	12.02.2014	57.1	8.3	10.1
5	18.02.2014	54.2	7.2	11.2
6	19.02.2014	55.6	6.9	10.9
7	25.02.2014	56.5	7.6	11.7
8	26.02.2014	59.9	8.0	12.1
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample as received & mentioned parameters. The customer should be aware of it.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Ambient Air Quality Analysis

Report Code: AAQ-281213-06 Issue Date: 03/12/014

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Anurag & Sanjay (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Jawai River
Date of Monitoring/Date of sample collection	:	04/12/2013 To 26/12/2013
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	28/12/2013 To 03/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} (µg / m³)	SO_2 (µg / m³)	NO_2 (µg / m³)
1	04.12.2013	52.4	6.9	10.4
2	05.12.2013	55.0	7.3	10.7
3	11.12.2013	58.5	6.5	11.5
4	12.12.2013	59.3	6.7	11.8
5	18.12.2013	58.2	7.4	12.3
6	19.12.2013	56.5	7.8	11.9
7	25.12.2013	57.7	8.5	12.7
8	26.12.2013	54.5	8.8	13.0
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer name as the above test sample.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Ambient Air Quality Analysis

Report Code: AAQ-300114-06 **Issue Date: 04/02/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Tintu & Usman (NTL)
Sample description	:	Ambient Air
Sampling Location	:	06/01/2014 To 28/01/2014
Date of Monitoring/Date of sample collection	:	Village Alpa
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	30/01/2014 To 04/02/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	06.01.2014	58.2	6.6	12.3
2	07.01.2014	61.1	6.4	12.6
3	13.01.2014	58.8	7.2	11.2
4	14.01.2014	55.9	7.3	10.9
5	20.01.2014	61.8	8.4	10.1
6	21.01.2014	59.6	8.7	9.9
7	27.01.2014	56.3	7.7	10.5
8	28.01.2014	57.4	8.0	10.7
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be presented again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Ambient Air Quality Analysis

Report Code: AAQ-010314-01 Issue Date: 06/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Tintu & Usman (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Alpa
Date of Monitoring/Date of sample collection	:	04/02/2014 To 26/02/2014
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	01/03/2014 To 06/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	04.02.2014	51.4	7.1	11.6
2	05.02.2014	53.7	7.5	11.8
3	11.02.2014	56.2	6.7	12.4
4	12.02.2014	59.8	6.3	12.7
5	18.02.2014	52.6	5.9	13.3
6	19.02.2014	54.1	6.1	13.1
7	25.02.2014	54.5	6.8	12.7
8	26.02.2014	58.9	6.5	11.9
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above work only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Ambient Air Quality Analysis

Report Code: AAQ-281213-05 **Issue Date: 03/12/014**

Issued To M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Tintu & Usman (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Alpa
Date of Monitoring/Date of sample collection	:	04/12/2013 To 26/12/2013
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	28/12/2013 To 03/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} (µg /m³)	SO_2 (µg /m³)	NO_2 (µg /m³)
1	04.12.2013	58.2	6.7	12.8
2	05.12.2013	57.1	7.0	12.5
3	11.12.2013	57.3	7.8	11.9
4	12.12.2013	60.1	8.1	11.7
5	18.12.2013	59.3	7.4	12.6
6	19.12.2013	55.4	6.9	13.0
7	25.12.2013	56.7	6.2	13.6
8	26.12.2013	60.0	5.8	13.5
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer is not for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be amended again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise informed by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-260214-08 Issue Date: 01/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Syan & Javed (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Ora
Date of Monitoring/Date of sample collection	:	02/02/2014 To 24/02/2014
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/02/2014 To 01/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.02.2014	61.4	7.8	11.6
2	03.02.2014	64.8	8.1	12.1
3	09.02.2014	57.0	7.3	12.7
4	10.02.2014	54.8	7.6	13.0
5	16.02.2014	48.9	6.9	13.8
6	17.02.2014	50.7	6.5	13.5
7	23.02.2014	58.1	6.1	12.2
8	24.02.2014	60.5	6.6	11.9
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any public or legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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TEST CERTIFICATE

Report Code: N-201213-00 Issue Date: 30/12/2014

Issued To M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	18/12/2013 To 19/12/2013
Sample Drawn By	:	Mr. Abhishek (NTL)
Sample Received On	:	20/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Jawai River
Sampling Time	:	24 hrs
Analysis Duration	:	20/12/2013 to 21/12/2013
Category	:	Industrial

RESULTS

S. No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB (A) Leq		
		Min.	Max.				
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	54.6	56.1	dB(A)	Category of Area/ Zone	Day Time	Night Time
					Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	43.6	47.8	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample as received & mentioned on request. The customer should for the above test...all.
2. Responsibility of the Laboratory is limited to the received sample only.
3. This test report will not be produced again, either wholly or in part, without prior written permission of the Laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

Analyzing for an Assured future

TEST CERTIFICATE

Report Code: N-201213-01 **Issue Date:** 30/12/2014

Issued To

M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	16/12/2013 To 17/12/2013
Sample Drawn By	:	Mr. Krishna (NTL)
Sample Received On	:	20/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Dhanpura
Sampling Time	:	24 hrs
Analysis Duration	:	20/12/2013 to 21/12/2013
Category	:	Industrial

RESULTS

S. No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
		Min.	Max.			Day Time	Night Time
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	61.3	65.4	dB(A)	Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	42.6	45.1	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the executed assessment only.
3. This test report will not be presented again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any public/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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TEST CERTIFICATE

Report Code: N-201213-02 **Issue Date:** 30/12/2014

Issued To M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	16/12/2013 To 17/12/2013
Sample Drawn By	:	Mr. Abhishek [NTL]
Sample Received On	:	20/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Chuli
Sampling Time	:	24 hrs
Analysis Duration	:	20/12/2013 to 21/12/2013
Category	:	Industrial

RESULTS

S No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
		Min.	Max.				
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	52.1	53.2	dB(A)	Category of Area/ Zone	Day Time	Night Time
					Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	41.1	43.7	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer shall be the above time only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be granted again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two months from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Report Code: N-201213-05 **Issue Date:** 30/12/2014

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	18/12/2013 To 19/12/2013
Sample Drawn By	:	Mr. Krishna (NTL)
Sample Received On	:	20/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Alpa
Sampling Time	:	24 hrs
Analysis Duration	:	20/12/2013 to 21/12/2013
Category	:	Residential

RESULTS

S. No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
		Min.	Max.		Category of Area/ Zone	Day Time	Night Time
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	61.2	63.1	dB(A)	Industrial Area	75	70
					Commercial Area	65	55
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	38.3	42.1	dB(A)	Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample, mentioned & considered parameters. The customer should use the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be amended again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any public/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

Analysing for an Assured future

TEST CERTIFICATE

Report Code: N-201213-03 Issue Date: 30/12/2014

Issued To M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	17/12/2013 To 18/12/2013
Sample Drawn By	:	Mr. Ankur (NTL)
Sample Received On	:	20/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Ghotile Ki Bhagli
Sampling Time	:	24 hrs
Analysis Duration	:	20/12/2013 to 21/12/2013
Category	:	Residential

RESULTS

S. No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
		Min.	Max.		Category of Area/ Zone	Day Time	Night Time
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	52.7	55.4	dB(A)	Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	39.7	42.5	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The comments issued for the above tests only.
2. Responsibility of the Laboratory is limited to the executed amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Authorized Signatory

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Certificate No.- T-2489

Laboratory: B-26, Udyog Kendra-1, Greater Noida, 201306, U.P.

M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Report Code: N-291213-01 **Issue Date:** 30/12/2014

Issued To: **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	27/12/2013 To 28/12/2013
Sample Drawn By	:	Mr. Krishna[NTL]
Sample Received On	:	29/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Balvan
Sampling Time	:	24 hrs
Analysis Duration	:	29/12/2013 to 30/12/2013
Category	:	Residential

RESULTS

S. No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
		Min.	Max.				
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	59.8	63.4	dB(A)	Category of Area/ Zone	Day Time	Night Time
					Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	41.9	44.2	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample as received & mentioned parameters. The customer satisfies for drawn such sample.
2. Responsibility of the Laboratory is limited to the tested sample only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-270114-05 **Issue Date: 30/01/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Nalin & Ravikant (NTL)
Sample description	:	Ambient Air
Sampling Location	:	03/01/2014 To 25/01/2014
Date of Monitoring/Date of sample collection	:	Dhanapura
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	27/01/2014 To 30/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	03.01.2014	60.7	6.3	10.0
2	04.01.2014	58.9	6.5	9.8
3	10.01.2014	66.8	7.2	10.6
4	11.01.2014	65.3	7.0	10.3
5	17.01.2014	59.2	7.7	11.1
6	18.01.2014	56.4	7.4	11.4
7	24.01.2014	62.0	8.3	12.3
8	25.01.2014	64.8	8.0	12.6
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above test.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be presented again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-260214-05 Issue Date: 01/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Nalin & Ravikant (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Dhanapura
Date of Monitoring/Date of sample collection	:	02/02/2014 To 24/02/2014
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/02/2014 To 01/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.02.2014	55.1	8.9	13.2
2	03.02.2014	52.7	8.7	12.9
3	09.02.2014	57.5	7.4	12.2
4	10.02.2014	60.2	7.1	12.5
5	16.02.2014	62.9	6.4	11.8
6	17.02.2014	66.0	6.7	12.0
7	23.02.2014	58.4	7.2	11.5
8	24.02.2014	54.9	7.5	11.2
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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Ambient Air Quality Analysis

Report Code: AAQ-261213-05 Issue Date: 28/12/2013

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Nalin & Ravikant (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Village Dhanapura
Date of Monitoring/Date of sample collection	:	02/12/2013 To 24/12/2013
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	26/12/2013 To 28/12/2013
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	02.12.2013	57.8	6.8	10.4
2	03.12.2013	55.6	7.1	10.1
3	09.12.2013	61.0	7.9	10.8
4	10.12.2013	62.4	7.6	11.0
5	16.12.2013	54.1	8.2	11.7
6	17.12.2013	51.5	8.4	12.1
7	23.12.2013	50.1	7.3	11.2
8	24.12.2013	53.0	6.9	10.9
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above test only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
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5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-020214-06 **Issue Date:** 08/02/2014

Issued To : M/s. Mangal Singh Solanki
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Atul & Punit (NTL)
Sample description	:	Ambient Air
Sampling Location	:	08/01/2014 To 31/01/2014
Date of Monitoring/Date of sample collection	:	Khari River
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	02/02/2014 To 08/02/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)
1	08.01.2014	47.9	7.5	12.4
2	09.01.2014	49.3	7.8	12.3
3	16.01.2014	57.6	8.4	11.5
4	17.01.2014	59.1	8.2	11.1
5	23.01.2014	54.3	7.6	10.6
6	24.01.2014	57.7	7.4	10.3
7	30.01.2014	58.7	6.5	9.7
8	31.01.2014	56.2	6.8	9.8
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above test(s) only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Ambient Air Quality Analysis

Report Code: AAQ-311213-07 **Issue Date: 04/12/014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Atul & Punit (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Khari River
Date of Monitoring/Date of sample collection	:	06/12/2013 To 28/12/2013
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	31/12/2013 To 04/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	06.12.2013	53.8	6.2	10.9
2	07.12.2013	55.1	5.9	10.7
3	13.12.2013	58.2	6.6	11.4
4	14.12.2013	55.4	6.8	11.9
5	20.12.2013	58.5	7.4	12.1
6	21.12.2013	56.4	7.1	11.8
7	27.12.2013	56.2	7.9	12.6
8	28.12.2013	54.0	8.0	13.0
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Website: http://www.noidalabs.com, E-mail: noida.laboratory@gmail.com, info@noidalabs.com

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

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Ambient Air Quality Analysis

Report Code: AAQ-030314-06 **Issue Date: 08/03/2014**

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Atul & & Puneet (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Khari River
Date of Monitoring/Date of sample collection	:	06/02/2014 To 28/02/2014
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	03/03/2014 To 08/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	06.02.2014	52.5	6.1	10.4
2	07.02.2014	50.8	5.9	10.8
3	13.02.2014	49.6	6.7	11.6
4	14.02.2014	51.4	7.0	12.0
5	20.02.2014	57.0	7.7	13.1
6	21.02.2014	55.9	8.1	13.3
7	27.02.2014	48.8	7.5	12.7
8	28.02.2014	50.2	7.3	12.8
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

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Ambient Air Quality Analysis

Report Code: AAQ-020214-05 **Issue Date:** 08/02/2014

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Saurabh & Suraj (NTL)
Sample description	:	Ambient Air
Sampling Location	:	06/01/2014 To 28/01/2014
Date of Monitoring/Date of sample collection	:	Balvana
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	02/02/2014 To 08/02/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	08.01.2014	52.8	8.1	10.8
2	09.01.2014	54.1	7.7	11.1
3	16.01.2014	61.0	8.5	11.7
4	17.01.2014	62.7	8.2	12.0
5	23.01.2014	67.4	7.4	12.5
6	24.01.2014	66.3	7.3	12.6
7	30.01.2014	59.2	6.9	13.4
8	31.01.2014	56.2	6.7	13.1
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested samples, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-311213-06 **Issue Date: 04/12/014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Saurabh & Suraj (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Balvana
Date of Monitoring/Date of sample collection	:	06/12/2013 To 28/12/2013
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	31/12/2013 To 04/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	06.12.2013	60.3	6.6	12.2
2	07.12.2013	64.7	6.4	11.9
3	13.12.2013	59.1	7.0	11.6
4	14.12.2013	57.6	7.5	11.2
5	20.12.2013	62.4	6.8	10.4
6	21.12.2013	58.9	6.4	10.0
7	27.12.2013	51.5	7.1	10.0
8	28.12.2013	48.0	7.2	10.2
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer mixed for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-030314-05 **Issue Date: 08/03/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Saurabh & Suraj (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Balvana
Date of Monitoring/Date of sample collection	:	06/02/2014 To 28/02/2014
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	03/03/2014 To 08/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	06.02.2014	50.5	6.0	12.4
2	07.02.2014	49.1	6.4	12.7
3	13.02.2014	54.6	7.2	11.8
4	14.02.2014	58.7	7.6	11.4
5	20.02.2014	63.4	8.3	10.6
6	21.02.2014	65.8	8.0	11.0
7	27.02.2014	57.9	7.7	12.3
8	28.02.2014	61.3	7.9	13.0
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any public or legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-300114-09 **Issue Date:** 04/02/2014

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Namit & Bobby (NTL)
Sample description	:	Ambient Air
Sampling Location	:	06/01/2014 To 28/01/2014
Date of Monitoring/Date of sample collection	:	Khejriya
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	30/01/2014 To 04/02/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} (µg /m³)	SO_2 (µg /m³)	NO_2 (µg /m³)
1	06.01.2014	59.4	7.5	11.0
2	07.01.2014	61.3	7.6	10.7
3	13.01.2014	55.6	8.4	9.8
4	14.01.2014	52.9	8.6	10.1
5	20.01.2014	57.2	7.9	11.2
6	21.01.2014	60.4	8.2	11.6
7	27.01.2014	65.0	7.4	12.3
8	28.01.2014	64.1	7.2	12.5
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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Website: http://www.noidalabs.com, E-mail: noida.laboratory@gmail.com, info@noidalabs.com

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

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Ambient Air Quality Analysis

Report Code: AAQ-010314-04 Issue Date: 06/03/2015

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Namit & Bobby (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Khejriya
Date of Monitoring/Date of sample collection	:	04/02/2014 To 26/02/2014
Sampling Plan & Procedure	:	SOP-AAQ/08
Analysis Duration	:	01/03/2014 To 06/03/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	04.02.2014	58.5	6.9	13.2
2	05.02.2014	57.1	6.5	13.5
3	11.02.2014	50.7	5.8	12.7
4	12.02.2014	47.3	6.0	12.3
5	18.02.2014	54.9	6.7	11.1
6	19.02.2014	56.4	7.1	10.8
7	25.02.2014	62.2	7.7	9.9
8	26.02.2014	59.3	8.0	10.2
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any public/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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Laboratory: B-26, Udyog Kendra-1, Greater Noida, 201306, U.P.

M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Ambient Air Quality Analysis

Report Code: AAQ-281213-08 Issue Date: 03/12/014

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Namit & Bobby (NTL)
Sample description	:	Ambient Air
Sampling Location	:	Khejriya
Date of Monitoring/Date of sample collection	:	04/12/2013 To 26/12/2013
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	28/12/2013 To 03/01/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS

S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	04.12.2013	60.9	7.8	11.3
2	05.12.2013	63.0	8.1	11.7
3	11.12.2013	56.7	7.4	12.6
4	12.12.2013	54.2	7.0	12.4
5	18.12.2013	49.5	6.8	13.1
6	19.12.2013	47.5	7.1	12.8
7	25.12.2013	53.1	6.2	11.9
8	26.12.2013	51.8	6.4	11.8
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

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Ambient Air Quality Analysis

Report Code: AAQ-300114-08 **Issue Date: 04/02/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Project Name	:	River Sand (Bajri)
Sample Drawn By	:	Mr. Asutosh & Ajitabh (NTL)
Sample description	:	Ambient Air
Sampling Location	:	06/01/2014 To 28/01/2014
Date of Monitoring/Date of sample collection	:	Sheoganj
Sampling Plan &Procedure	:	SOP-AAQ/08
Analysis Duration	:	30/01/2014 To 04/02/2014
Sampling Instrument Used	:	Respirable Dust Sampler
Weather Condition	:	Clear

RESULTS				
S.No.	Date	PM_{10} ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)
1	06.01.2014	54.3	7.9	11.5
2	07.01.2014	56.8	8.2	11.9
3	13.01.2014	63.4	7.7	12.7
4	14.01.2014	66.1	8.1	12.4
5	20.01.2014	59.5	7.4	13.0
6	21.01.2014	58.2	7.5	13.3
7	27.01.2014	51.2	6.7	12.5
8	28.01.2014	53.1	6.4	12.0
NAAQS for 24 hours Monitoring		100	80	80

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
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4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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TEST CERTIFICATE

TEST REPORT

Soil Sample analysis

Report Code: SS-120114-02 Issue Date: 18/01/2014

Issued To	:	M/s. Mangal Singh Solanki , Tehsil - Sheoganj, District - Sirohi (Rajasthan).
Project Name	:	River Sand (Bajri)
Sample Drawn On	:	10/01/2014
Sample Drawn By	:	Mr. Rahul Kumar (NTL)
Sample Received On	:	10/01/2014
Sample description	:	Soil
Sampling Location	:	Jawai River
Analysis Duration	:	12/01/2014 to 18/01/2014

RESULT

	PARAMETERTS	TEST METHOD	RESULT	UNIT
1.	pH(1:5 suspension)	IS:2720(Part-26)	8.58	-
2.	Electrical Conductivity at 25°C (1:5suspension.)	IS:2720(Part-21)	0.04	mS/cm
3.	Bulk Density	STP/SOIL	1.85	gm /cc
4.	Specific Gravity	STP/SOIL	2.69	-
5.	Porosity	STP/SOIL	31.22	% by mass
6.	Calcium	STP/SOIL	20.04	mg/ kg
7.	Magnesium	STP/SOIL	12.16	mg/ kg
8.	Sodium	STP/SOIL	0.29	mg/ kg
9.	Potassium (as K2O)	STP/SOIL	60.03	kg/ha
10.	Ava. Phosphorus	STP/SOIL	21.23	kg/ha
11.	Ava. Nitrogen	STP/SOIL	689.92	kg/ha
12.	Organic Carbon	STP/SOIL	0.02	%by mass
13.	Chloride	STP/SOIL	17.75	mg/kg
14.	Texture	STP/SOIL	Sand	-
15.	Sand	STP/SOIL	96.62	% by mass
16.	Clay	STP/SOIL	2.7	% by mass
17.	Silt	STP/SOIL	0.68	% by mass

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any public or legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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TEST REPORT

Soil Sample analysis

Report Code: SS-120114-01 **Issue Date: 18/01/2014**

Issued To	:	M/s. Mangal Singh Solanki , Tehsil - Sheoganj, District - Sirohi (Rajasthan)
Project Name	:	River Sand (Bajri)
Sample Drawn On	:	10/01/2014
Sample Drawn By	:	Mr. Rahul Kumar (NTL)
Sample Received On	:	10/01/2014
Sample description	:	Soil
Sampling Location	:	Dhanapura
Analysis Duration	:	12/01/2014 to 18/01/2014

RESULT

	PARAMETERTS	TEST METHOD	RESULT	UNIT
1.	pH(1:5 suspension)	IS:2720(Part-26)	8.1	-
2.	Electrical Conductivity at 25°C (1:5suspension.)	IS:2720(Part-21)	0.03	mS/cm
3.	Bulk Density	STP/SOIL	1.55	gm /cc
4.	Specific Gravity	STP/SOIL	2.58	-
5.	Porosity	STP/SOIL	39.92	% by mass
6.	Calcium	STP/SOIL	28.31	mg/ kg
7.	Magnesium	STP/SOIL	19.35	mg/ kg
8.	Sodium	STP/SOIL	1.1	mg/ kg
9.	Potassium (as K_2O)	STP/SOIL	450.58	kg/ha
10.	Ava. Phosphorus	STP/SOIL	16.9	kg/ha
11.	Ava. Nitrogen	STP/SOIL	545.2	kg/ha
12.	Organic Carbon	STP/SOIL	0.13	%by mass
13.	Chloride	STP/SOIL	20.35	mg/kg
14.	Texture	STP/SOIL	Sandy Loam	-
15.	Sand	STP/SOIL	76.5	% by mass
16.	Clay	STP/SOIL	9.88	% by mass
17.	Silt	STP/SOIL	13.62	% by mass

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any public/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise requested by the customer.

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Report Code: N-281213-01 **Issue Date:** 30/12/2014

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	19/12/2013 To 20/12/2013
Sample Drawn By	:	Mr. Ankur [NTL]
Sample Received On	:	28/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Sheoganj
Sampling Time	:	24 hrs
Analysis Duration	:	28/12/2013 to 30/12/2013
Category	:	Residential

RESULTS

S. No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
		Min.	Max.				
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	71.5	74.9	dB(A)	Category of Area/ Zone	Day Time	Night Time
					Industrial Area	75	70
2	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	44.1	49.5	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample as received & tested in laboratory. The condition stated for the above tests are
2. Responsibility of the Laboratory is confined to the received sample only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any other legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless any if specified in the contract.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Report Code: N-201213-04 **Issue Date: 30/12/2014**

Issued To : **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	17/12/2013 To 18/12/2013
Sample Drawn By	:	Mr. Sanjeev (NTL)
Sample Received On	:	20/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Ora
Sampling Time	:	24 hrs
Analysis Duration	:	20/12/2013 to 21/12/2013
Category	:	Residential

RESULTS

S. No	Test Parameters	Results Min.	Results Max.	Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
					Category of Area/ Zone	Day Time	Night Time
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	64.3	68.4	dB(A)	Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	44.5	47.3	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the sample(s) as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the executed assessment only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any political/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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Report Code: N-281213-01 **Issue Date: 30/12/2014**

Issued To: **M/s. Mangal Singh Solanki , Tehsil - Sheoganj, District – Sirohi (Rajasthan).**

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	19/12/2013 To 20/12/2013
Sample Drawn By	:	Mr. Sanjeev(NTL)
Sample Received On	:	28/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Khejriya
Sampling Time	:	24 hrs
Analysis Duration	:	28/12/2013 to 30/12/2013
Category	:	Residential

RESULTS

S. No	Test Parameters	Results		Units	Requirement (as per CPCB Guidelines Limits in dB(A) Leq		
		Min.	Max.				
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	54.6	58.3	dB(A)	Category of Area/ Zone	Day Time	Night Time
					Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	40.2	43.7	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested samples as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any illegal/unlegal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

Report Code: N-291213-02 **Issue Date:** 30/12/2014

Issued To: **M/s. Mangal Singh Solanki ,**
Tehsil - Sheoganj, District – Sirohi
(Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	27/12/2013 To 28/12/2013
Sample Drawn By	:	Mr. Abhishek (NTL)
Sample Received On	:	29/12/2013
Sample description	:	Ambient Noise
Sampling Location	:	Khari river
Sampling Time	:	24 hrs.
Analysis Duration	:	29/12/2013 to 30/12/2013
Category	:	Industrial

RESULTS

S. No	Test Parameters	Results		Units	Requirement as per CPCB Guidelines Limits in dB (A) Leq		
		Min.	Max.		Category of Area/ Zone	Day Time	Night Time
1.	EQUIVALENT NOISE LEVEL (6.0 AM TO 10.0 PM)	54.4	57.1	dB(A)	Industrial Area	75	70
2.	EQUIVALENT NOISE LEVEL (10.0 PM TO 6.0 AM)	42.5	44.6	dB(A)	Commercial Area	65	55
					Residential Area	55	45
					Silence Zone	50	40

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be quoted in part, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any guilty/illegal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report unless otherwise specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

Analysing for an Assured future

TEST CERTIFICATE

TEST REPORT

Soil Sample analysis

Report Code: SS-120114-03 **Issue Date: 18/01/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	10/01/2014
Sample Drawn By	:	Mr. Rahul Kumar (NTL)
Sample Received On	:	10/01/2014
Sample description	:	Soil
Sampling Location	:	Khari River
Analysis Duration	:	12/01/2014 to 18/01/2014

RESULT

	PARAMETERTS	TEST METHOD	RESULT	UNIT
1.	pH(1:5 suspension)	IS:2720(Part-26)	7.85	-
2.	Electrical Conductivity at 25°C (1:5suspension.)	IS:2720(Part-21)	0.04	mS/cm
3.	Bulk Density	STP/SOIL	1.82	gm /cc
4.	Specific Gravity	STP/SOIL	2.8	-
5.	Porosity	STP/SOIL	35	% by mass
6.	Calcium	STP/SOIL	23.5	mg/ kg
7.	Magnesium	STP/SOIL	16.48	mg/ kg
8.	Sodium	STP/SOIL	1.35	mg/ kg
9.	Potassium (as K_2O)	STP/SOIL	448.45	kg/ha
10.	Ava. Phosphorus	STP/SOIL	11.85	kg/ha
11.	Ava. Nitrogen	STP/SOIL	320.36	kg/ha
12.	Organic Carbon	STP/SOIL	0.17	%by mass
13.	Chloride	STP/SOIL	19.86	mg/kg
14.	Texture	STP/SOIL	Loamy Sand	-
15.	Sand	STP/SOIL	85.5	% by mass
16.	Clay	STP/SOIL	10.55	% by mass
17.	Silt	STP/SOIL	3.95	% by mass

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer would be the sole responsible.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless until specified by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

TEST REPORT

Soil Sample analysis

Report Code: SS-120114-04 **Issue Date: 18/01/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheogani, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Bajri)
Sample Drawn On	:	10/01/2014
Sample Drawn By	:	Mr. Rahul Kumar (NTL)
Sample Received On	:	10/01/2014
Sample description	:	Soil
Sampling Location	:	Naya Jogpura
Analysis Duration	:	12/01/2014 to 18/01/2014

RESULT

	PARAMETERTS	TEST METHOD	RESULT	UNIT
1.	pH(1:5 suspension)	IS:2720(Part-26)	8.25	-
2.	Electrical Conductivity at 25°C (1:5suspension.)	IS:2720(Part-21)	0.07	mS/cm
3.	Bulk Density	STP/SOIL	1.82	gm/cc
4.	Specific Gravity	STP/SOIL	2.77	-
5.	Porosity	STP/SOIL	34.29	% by mass
6.	Calcium	STP/SOIL	28.32	mg/ kg
7.	Magnesium	STP/SOIL	18.4	mg/ kg
8.	Sodium	STP/SOIL	2.56	mg/ kg
9.	Potassium (as K_2O)	STP/SOIL	481.2	kg/ha
10.	Ava. Phosphorus	STP/SOIL	10.58	kg/ha
11.	Ava. Nitrogen	STP/SOIL	510.2	kg/ha
12.	Organic Carbon	STP/SOIL	0.32	%aby mass
13.	Chloride	STP/SOIL	24.52	mg/kg
14.	Texture	STP/SOIL	Loamy Sand	-
15.	Sand	STP/SOIL	82.1	% by mass
16.	Clay	STP/SOIL	8.5	% by mass
17.	Silt	STP/SOIL	9.4	% by mass

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer should use the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless [illegible] by the customer.

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M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

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TEST REPORT

Soil Sample analysis

Report Code: SS-120114-05 **Issue Date: 18/01/2014**

Issued To : M/s. Mangal Singh Solanki ,
Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Project Name	:	River Sand (Baji)
Sample Drawn On	:	10/01/2014
Sample Drawn By	:	Mr. Rahul Kumar (NTL)
Sample Received On	:	10/01/2014
Sample description	:	Soil
Sampling Location	:	Khejriya
Analysis Duration	:	12/01/2014 to 18/01/2014

RESULT

	PARAMETERTS	TEST METHOD	RESULT	UNIT
1.	pH(1:5 suspension)	IS:2720(Part-26)	8.31	-
2.	Electrical Conductivity at 25°C (1:5suspension.)	IS:2720(Part-21)	0.05	mS/cm
3.	Bulk Density	STP/SOIL	1.85	gm /cc
4.	Specific Gravity	STP/SOIL	2.74	-
5.	Porosity	STP/SOIL	42.33	% by mass
6.	Calcium	STP/SOIL	24.04	mg/ kg
7.	Magnesium	STP/SOIL	14.59	mg/ kg
8.	Sodium	STP/SOIL	1.31	mg/ kg
9.	Potassium (as K_2O)	STP/SOIL	444.38	kg/ha
10.	Ava. Phosphorus	STP/SOIL	14.79	kg/ha
11.	Ava. Nitrogen	STP/SOIL	533.12	kg/ha
12.	Organic Carbon	STP/SOIL	0.15	%by mass
13.	Chloride	STP/SOIL	21.3	mg/kg
14.	Texture	STP/SOIL	Sand	-
15.	Sand	STP/SOIL	90.22	% by mass
16.	Clay	STP/SOIL	7.41	% by mass
17.	Silt	STP/SOIL	2.37	% by mass

Notes:

1. The results given above are related to the tested sample, as received & mentioned parameters. The customer asked for the above tests only.
2. Responsibility of the Laboratory is limited to the invoiced amount only.
3. This test report will not be generated again, either wholly or in part, without prior written permission of the laboratory.
4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless otherwise asked by the customer.

Checked By

Authorized Signatory

Head Office: Shop no.-1, 1st Floor, SK-2, Sector-93, Noida-201304

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NOIDA TESTING LABORATORIES

(An ISO 9001: 2008 Certified & NABL Accredited Laboratory)

Certificate No.- T-2489

Laboratory: B-26, Udyog Kendra-1, Greater Noida, 201306, U.P.

M. : 08527870572, 09313611642, 8510081921, 7503031146, 7503031145

TEST CERTIFICATE

TEST REPORT

Soil Sample analysis

Report Code: SS-120114-06 **Issue Date: 18/01/2014**

Issued To	:	M/s. Mangal Singh Solanki , Tehsil - Sheoganj, District - Sirohi (Rajasthan).
Project Name	:	River Sand (Bajri)
Sample Drawn On	:	10/01/2014
Sample Drawn By	:	Mr. Rahul Kumar (NTL)
Sample Received On	:	10/01/2014
Sample description	:	Soil
Sampling Location	:	Las
Analysis Duration	:	12/01/2014 to 18/01/2014

RESULT

	PARAMETERTS	TEST METHOD	RESULT	UNIT
1.	pH(1:5 suspension)	IS:2720(Part-26)	8.2	-
2.	Electrical Conductivity at 25°C (1:5suspension.)	IS:2720(Part-21)	0.08	mS/cm
3.	Bulk Density	STP/SOIL	1.9	gm /cc
4.	Specific Gravity	STP/SOIL	2.75	-
5.	Porosity	STP/SOIL	30.9	% by mass
6.	Calcium	STP/SOIL	22.34	mg/ kg
7.	Magnesium	STP/SOIL	16.52	mg/ kg
8.	Sodium	STP/SOIL	3.78	mg/ kg
9.	Potassium (as K_2O)	STP/SOIL	390.2	kg/ha
10.	Ava. Phosphorus	STP/SOIL	12.2	kg/ha
11.	Ava. Nitrogen	STP/SOIL	490.23	kg/ha
12.	Organic Carbon	STP/SOIL	0.1	%by mass
13.	Chloride	STP/SOIL	24.08	mg/kg
14.	Texture	STP/SOIL	Sandy Loam	-
15.	Sand	STP/SOIL	78.25	% by mass
16.	Clay	STP/SOIL	11.85	% by mass
17.	Silt	STP/SOIL	9.9	% by mass

Notes:

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4. This test report will not be used for any publicity/legal purpose.
5. The test samples will be disposed off after two weeks from the date of issue of test report, unless [illegible] by the customer.

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Meteorological Data of M/s. Mangal Singh Solanki
Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/01	1	2	19.6	75	976	162	3.8	2438	0
13/12/01	2	2	19.5	74	976	160	4.5	2438	0
13/12/01	3	2	19.5	71	976	161	4.7	2438	0
13/12/01	4	3	19.5	68	976	315	4.8	2438	0
13/12/01	5	3	19.4	65	976	176	4.8	2438	0
13/12/01	6	3	19.3	61	976	185	4.7	2438	0
13/12/01	7	3	19.1	59	976	197	4.6	2438	0
13/12/01	8	3	18.6	62	976	219	4	2438	0
13/12/01	9	3	20.5	61	976	246	4.1	2438	0
13/12/01	10	3	22	53	976	259	3.7	2438	0
13/12/01	11	3	22.9	50	976	267	2.6	2438	0
13/12/01	12	2	23.7	48	976	273	1.8	2438	0
13/12/01	13	2	24.6	45	975	282	1.9	2438	0
13/12/01	14	3	25	43	975	282	2.1	2438	0
13/12/01	15	3	25.1	43	974	283	2	2438	0
13/12/01	16	3	24.9	43	974	285	1.9	2438	0
13/12/01	17	2	24.4	49	974	302	1.5	2438	0
13/12/01	18	2	23.3	56	973	315	0.4	2438	0
13/12/01	19	2	22.1	63	974	23	0.3	2438	0
13/12/01	20	2	21	68	974	315	0.7	2438	0
13/12/01	21	2	20.3	72	975	144	1.4	2438	0
13/12/01	22	2	19.7	73	975	149	2.1	77777	0
13/12/01	23	2	19.6	72	975	152	3.4	77777	0
13/12/01	24	2	19.5	70	975	152	4.7	77777	0
13/12/02	1	2	19	69	975	153	5.1	77777	0
13/12/02	2	2	18.6	67	974	155	5.2	2438	0
13/12/02	3	2	18.6	62	974	160	5.1	2438	0
13/12/02	4	2	19	55	974	315	5.1	2438	0
13/12/02	5	2	19.6	58	974	315	4.6	2438	0
13/12/02	6	2	19.7	55	974	175	4.4	2438	0
13/12/02	7	3	19.9	54	975	186	4	2438	0
13/12/02	8	3	20	54	975	200	3.6	2438	0
13/12/02	9	3	21.4	55	975	240	3	2438	0
13/12/02	10	3	23.5	48	975	277	3.8	2438	0
13/12/02	11	3	24.4	49	975	279	3.5	2438	0
13/12/02	12	3	25.1	48	975	284	3.4	2438	0
13/12/02	13	3	25.6	46	974	293	3.4	2438	0
13/12/02	14	3	25.6	45	974	301	3.2	2438	0
13/12/02	15	3	25.5	45	973	306	3	2438	0
13/12/02	16	3	25.1	46	973	310	2.8	2438	0
13/12/02	17	3	24.6	55	973	319	2.4	2438	0
13/12/02	18	2	23.5	58	973	320	1.7	2438	0
13/12/02	19	2	22.4	63	973	298	0.6	2438	0
13/12/02	20	2	21.4	68	973	187	0.5	2438	0
13/12/02	21	2	20.5	72	974	315	0.9	2438	0
13/12/02	22	2	19.7	75	974	162	1.8	2438	0
13/12/02	23	2	19.4	75	974	164	2.7	2438	0
13/12/02	24	2	19.3	73	974	160	3.3	77777	0
13/12/03	1	2	19.1	71	974	155	3.6	77777	0
13/12/03	2	2	18.9	69	974	155	4.3	77777	0
13/12/03	3	2	18.6	68	974	155	4.7	2438	0
13/12/03	4	2	18.4	68	974	155	4.6	2438	0
13/12/03	5	2	18.1	66	974	155	4.1	2438	0
13/12/03	6	2	18.1	63	974	163	3.3	2438	0
13/12/03	7	3	17.9	61	975	174	2.6	2438	0
13/12/03	8	3	17.4	63	975	243	2.2	2438	0
13/12/03	9	3	19.1	57	975	301	2.7	2438	0
13/12/03	10	3	20.6	57	975	316	1.9	2438	0
13/12/03	11	3	22.1	52	975	320	1.5	2438	0
13/12/03	12	2	23	50	974	324	1.3	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/03	13	2	23.6	49	974	332	1.2	2438	0
13/12/03	14	2	24	48	973	336	1.3	2438	0
13/12/03	15	2	24.1	47	973	341	1.3	2438	0
13/12/03	16	2	24	47	973	348	1.6	2438	0
13/12/03	17	2	23.5	53	973	345	1.7	2438	0
13/12/03	18	2	22.4	58	973	348	1.5	2438	0
13/12/03	19	2	21.4	63	973	6	0.9	2438	0
13/12/03	20	2	20.4	68	974	74	0.8	2438	0
13/12/03	21	2	19.5	71	974	104	1.6	2438	0
13/12/03	22	2	19	71	975	109	2.7	2438	0
13/12/03	23	2	18.9	68	975	108	3.6	2438	0
13/12/03	24	2	18.7	64	976	107	4	2438	0
13/12/04	1	2	18.4	61	975	113	4	2438	0
13/12/04	2	2	18	60	975	125	3.9	2438	0
13/12/04	3	2	17.6	59	975	315	3.9	2438	0
13/12/04	4	2	17.6	58	975	139	3.8	2438	0
13/12/04	5	2	17.4	57	975	143	3.4	2438	0
13/12/04	6	2	17	58	975	144	3	2438	0
13/12/04	7	2	16.5	60	976	141	2.5	2438	0
13/12/04	8	2	16.1	63	976	122	1.7	2438	0
13/12/04	9	2	17.6	64	976	62	0.7	2438	0
13/12/04	10	2	20.5	51	976	315	2.4	2438	0
13/12/04	11	2	21.4	51	976	1	2.3	2438	0
13/12/04	12	2	22	51	976	359	1.7	2438	0
13/12/04	13	2	22.6	49	975	355	1.7	2438	0
13/12/04	14	2	23	48	975	346	1.7	2438	0
13/12/04	15	2	23.1	46	975	342	1.9	2438	0
13/12/04	16	2	22.9	48	974	347	2.3	2438	0
13/12/04	17	2	22.3	55	974	347	2.1	2438	0
13/12/04	18	2	21.4	60	974	353	1.5	2438	0
13/12/04	19	2	20.3	64	974	354	0.6	2438	0
13/12/04	20	2	19.3	69	975	170	0.4	2438	0
13/12/04	21	2	18.4	74	975	315	0.6	2438	0
13/12/04	22	2	17.6	76	976	137	1.1	2438	0
13/12/04	23	2	17.3	77	976	138	1.7	2438	0
13/12/04	24	2	17.1	75	976	147	2.6	77777	0
13/12/05	1	2	17.3	70	976	149	3.3	77777	0
13/12/05	2	2	17.4	67	975	315	3.6	77777	0
13/12/05	3	2	17.1	65	975	315	3.5	77777	0
13/12/05	4	2	16.6	66	975	143	3	77777	0
13/12/05	5	2	16.1	67	976	141	2.4	77777	0
13/12/05	6	2	15.5	69	976	141	1.7	77777	0
13/12/05	7	2	14.9	71	976	137	1.2	77777	0
13/12/05	8	2	14.6	73	976	118	0.7	77777	0
13/12/05	9	2	16.7	68	976	83	0.4	77777	0
13/12/05	10	2	19.9	53	976	351	2	77777	0
13/12/05	11	2	21.1	49	976	354	2.6	77777	0
13/12/05	12	2	21.7	47	976	357	2.8	77777	0
13/12/05	13	2	22.3	47	975	1	2.9	77777	0
13/12/05	14	2	22.6	48	975	5	2.8	77777	0
13/12/05	15	2	22.6	48	974	11	2.8	77777	0
13/12/05	16	2	22.6	49	974	315	3	77777	0
13/12/05	17	2	21.9	59	973	10	2.5	77777	0
13/12/05	18	2	21	63	973	21	2.4	77777	0
13/12/05	19	2	20	66	974	315	1.9	77777	0
13/12/05	20	2	19.1	69	974	78	1.4	77777	0
13/12/05	21	2	18.3	72	974	315	1.3	77777	0
13/12/05	22	2	17.5	75	974	126	1.6	77777	0
13/12/05	23	2	16.9	76	975	139	2.1	77777	0
13/12/05	24	2	16.5	76	975	143	2.5	77777	0
13/12/06	1	2	16.1	75	974	141	2.3	77777	0
13/12/06	2	2	15.7	74	974	143	2.1	77777	0
13/12/06	3	2	15.6	73	974	145	2	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/06	4	2	15.4	72	974	142	1.9	77777	0
13/12/06	5	2	15.1	70	973	139	2	77777	0
13/12/06	6	2	15	70	973	138	2	77777	0
13/12/06	7	2	14.9	68	974	141	2.1	77777	0
13/12/06	8	2	15.1	67	974	139	2.1	2438	0
13/12/06	9	2	16.6	69	974	128	0.9	2438	0
13/12/06	10	2	20	53	974	30	0.8	2438	0
13/12/06	11	2	21.4	48	974	19	1.3	2438	0
13/12/06	12	2	22.1	46	974	24	1.3	2438	0
13/12/06	13	2	22.7	44	973	315	1.2	2438	0
13/12/06	14	2	23.1	43	973	23	1	2438	0
13/12/06	15	2	23.3	44	972	8	1	2438	0
13/12/06	16	2	23.1	45	972	1	1.2	2438	0
13/12/06	17	2	22.6	51	972	354	1.2	2438	0
13/12/06	18	2	21.4	57	972	14	0.7	2438	0
13/12/06	19	2	20.1	63	972	92	0.4	2438	0
13/12/06	20	2	19.1	68	973	113	0.7	2438	0
13/12/06	21	2	18.4	73	973	120	1.6	2438	0
13/12/06	22	2	18	73	973	128	2.9	2438	0
13/12/06	23	2	17.7	70	974	140	4.4	77777	0
13/12/06	24	2	17.3	67	974	147	5.1	77777	0
13/12/07	1	2	16.9	65	974	147	5.3	77777	0
13/12/07	2	2	16.6	62	973	145	5.3	77777	0
13/12/07	3	2	16.5	60	973	145	5.3	77777	0
13/12/07	4	2	16.4	57	973	145	5.3	77777	0
13/12/07	5	2	17.5	70	973	145	4.9	2438	0
13/12/07	6	2	17.6	68	973	147	4.9	2438	0
13/12/07	7	2	17.5	67	973	149	5	2438	0
13/12/07	8	2	17.6	67	973	150	4.6	2438	0
13/12/07	9	2	19.9	62	973	155	3.5	2438	0
13/12/07	10	2	22.5	50	973	164	2.3	2438	0
13/12/07	11	2	24	45	973	216	0.7	2438	0
13/12/07	12	2	24.6	41	973	274	0.5	2438	0
13/12/07	13	2	25	41	973	299	0.6	2438	0
13/12/07	14	3	25.1	41	972	311	0.7	2438	0
13/12/07	15	3	25.1	42	972	319	0.6	2438	0
13/12/07	16	3	25.1	43	971	330	0.8	2438	0
13/12/07	17	3	24.5	50	971	331	0.8	2438	0
13/12/07	18	3	23.3	57	971	287	0.5	2438	0
13/12/07	19	2	22	64	971	322	0.3	2438	0
13/12/07	20	2	20.9	70	972	139	0.5	2438	0
13/12/07	21	2	20	75	972	315	1.4	2438	0
13/12/07	22	2	19.5	75	972	144	3.3	2438	0
13/12/07	23	2	19	73	973	153	4.8	2438	0
13/12/07	24	2	18.6	73	973	151	5	2438	0
13/12/08	1	2	18.3	72	972	149	5.1	2438	0
13/12/08	2	2	18.1	70	972	150	5.1	2438	0
13/12/08	3	2	18	68	972	155	5.1	2438	0
13/12/08	4	2	18	65	972	160	5	2438	0
13/12/08	5	3	18	63	972	315	5	2438	0
13/12/08	6	3	17.7	63	972	170	5.1	2438	0
13/12/08	7	3	17.5	63	972	169	5.1	2438	0
13/12/08	8	3	17.7	63	973	170	4.7	2438	0
13/12/08	9	3	20	59	973	178	3.8	2438	0
13/12/08	10	3	21.9	53	973	193	2.9	2438	0
13/12/08	11	3	23.3	51	973	240	1.4	2438	0
13/12/08	12	3	24.1	50	973	287	1.2	2438	0
13/12/08	13	3	24.5	50	972	315	1.4	2438	0
13/12/08	14	4	24.7	50	972	309	1.6	2438	0
13/12/08	15	4	24.6	51	971	313	1.9	2438	0
13/12/08	16	4	24.5	53	971	317	2.3	2438	0
13/12/08	17	3	23.9	60	971	322	2.8	2438	0
13/12/08	18	3	22.9	65	970	321	2.6	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/08	19	3	21.9	70	971	313	1.3	2438	0
13/12/08	20	3	21	75	971	126	0.4	2438	0
13/12/08	21	3	20.1	80	971	315	0.9	2438	0
13/12/08	22	2	19.5	82	972	137	1.9	2438	0
13/12/08	23	2	19.3	81	972	142	3	2438	0
13/12/08	24	2	19.1	80	972	315	3.9	2438	0
13/12/09	1	2	18.9	79	972	149	4.2	2438	0
13/12/09	2	2	18.6	79	971	151	4.4	2438	0
13/12/09	3	2	18.3	78	971	155	4.4	2438	0
13/12/09	4	2	18.3	77	971	160	4.2	2438	0
13/12/09	5	2	18.1	76	971	165	3.6	2438	0
13/12/09	6	2	17.6	77	971	169	2.9	2438	0
13/12/09	7	2	17.3	78	972	170	2.6	2438	0
13/12/09	8	3	17.1	79	972	315	2.2	2438	0
13/12/09	9	3	19	74	972	176	0.9	2438	0
13/12/09	10	3	21.6	62	972	310	1.5	2438	0
13/12/09	11	3	22.5	59	972	328	2	2438	0
13/12/09	12	3	23.1	57	972	334	2.2	2438	0
13/12/09	13	3	23.5	55	971	334	2.3	2438	0
13/12/09	14	3	23.6	56	971	328	2.2	2438	0
13/12/09	15	3	23.6	57	970	322	2.3	2438	0
13/12/09	16	3	23.4	58	970	318	2.4	2438	0
13/12/09	17	3	22.9	64	970	313	2.6	2438	0
13/12/09	18	3	22.1	68	969	309	2.3	2438	0
13/12/09	19	3	21.3	72	970	300	1.5	2438	0
13/12/09	20	3	20.5	76	970	232	0.5	2438	0
13/12/09	21	3	19.6	81	971	151	0.5	2438	0
13/12/09	22	3	18.9	84	971	141	0.9	2438	0
13/12/09	23	2	18.4	86	971	137	1.6	2438	0
13/12/09	24	2	18.1	86	972	128	1.9	2438	0
13/12/10	1	2	17.6	86	971	142	2.1	2438	0
13/12/10	2	2	17.4	86	971	152	2.4	2438	0
13/12/10	3	2	17	86	971	315	2	2438	0
13/12/10	4	2	16.7	86	971	140	2	2438	0
13/12/10	5	2	16.6	85	971	142	2.2	2438	0
13/12/10	6	2	16.5	84	971	315	2.5	2438	0
13/12/10	7	3	16.5	82	971	315	3	2438	0
13/12/10	8	3	16.6	80	971	151	3.2	2438	0
13/12/10	9	3	18.5	74	971	315	2	2438	0
13/12/10	10	3	21.3	61	971	315	0.4	2438	0
13/12/10	11	3	22.5	53	971	297	0.4	2438	0
13/12/10	12	3	23.1	50	971	286	0.4	2438	0
13/12/10	13	3	23.4	49	970	325	0.5	2438	0
13/12/10	14	4	23.6	49	970	330	0.9	2438	0
13/12/10	15	4	23.6	49	970	327	1.4	2438	0
13/12/10	16	4	23.5	51	970	322	2.1	2438	0
13/12/10	17	4	22.9	57	970	321	2.9	2438	0
13/12/10	18	3	22	61	970	318	3.1	2438	0
13/12/10	19	3	21	65	971	314	2.3	2438	0
13/12/10	20	3	20.1	70	971	294	0.7	2438	0
13/12/10	21	3	19.3	75	972	149	0.6	2438	0
13/12/10	22	2	18.5	79	972	149	1	2438	0
13/12/10	23	2	18.1	81	973	315	1.8	2438	0
13/12/10	24	2	17.9	81	973	143	2.5	2438	0
13/12/11	1	2	17.6	80	973	139	3	2438	0
13/12/11	2	2	17.5	80	973	140	3.4	2438	0
13/12/11	3	3	17.3	79	972	145	3.6	2438	0
13/12/11	4	3	17.3	78	972	149	3.6	2438	0
13/12/11	5	3	17.1	77	972	153	3.6	2438	0
13/12/11	6	3	17.1	77	972	156	3.5	2438	0
13/12/11	7	4	16.9	77	973	161	3.4	2438	0
13/12/11	8	4	17	77	973	170	3.2	2438	0
13/12/11	9	3	19	70	973	196	1.8	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/11	10	3	21.3	60	974	272	1.7	2438	0
13/12/11	11	3	22.1	58	974	301	1.8	2438	0
13/12/11	12	3	22.6	55	974	310	1.8	2438	0
13/12/11	13	3	23.1	54	973	314	2.1	2438	0
13/12/11	14	4	23.3	53	973	318	2.5	2438	0
13/12/11	15	5	23.3	54	972	322	2.7	2438	0
13/12/11	16	5	23	55	972	328	2.9	2438	0
13/12/11	17	4	22.4	63	972	332	2.9	2438	0
13/12/11	18	4	21.6	66	971	336	2.8	2438	0
13/12/11	19	3	20.7	69	972	343	1.9	2438	0
13/12/11	20	3	20	73	973	358	0.7	2438	0
13/12/11	21	2	19.1	77	973	159	0.6	2438	0
13/12/11	22	2	18.5	81	974	174	0.8	2438	0
13/12/11	23	2	17.9	83	974	178	1.1	2438	0
13/12/11	24	2	17.4	84	974	171	1.7	2438	0
13/12/12	1	2	17	85	974	161	2.1	2438	0
13/12/12	2	2	16.6	85	974	150	2.1	2438	0
13/12/12	3	2	16.4	84	974	150	1.9	2438	0
13/12/12	4	2	16.1	84	974	158	1.7	2438	0
13/12/12	5	2	15.6	77	973	155	1.5	2438	0
13/12/12	6	2	15.1	77	974	147	1.6	2438	0
13/12/12	7	2	15	77	974	315	2.1	2438	0
13/12/12	8	2	15.1	76	974	150	2.3	2438	0
13/12/12	9	2	17.1	72	974	138	0.9	2438	0
13/12/12	10	2	20.1	56	974	344	0.3	2438	0
13/12/12	11	2	21.3	51	974	345	0.9	2438	0
13/12/12	12	2	22	49	974	350	1.2	2438	0
13/12/12	13	2	22.5	48	973	348	1.5	2438	0
13/12/12	14	2	22.7	47	973	341	2	2438	0
13/12/12	15	2	22.7	47	973	334	2.5	2438	0
13/12/12	16	2	22.6	48	972	327	2.8	2438	0
13/12/12	17	2	21.9	58	972	314	2.7	2438	0
13/12/12	18	2	21	60	972	305	2.7	2438	0
13/12/12	19	2	20.1	63	972	293	2.1	2438	0
13/12/12	20	2	19.1	66	973	254	1.1	2438	0
13/12/12	21	2	18.4	70	973	196	1.1	2438	0
13/12/12	22	2	17.6	73	974	178	1.7	2438	0
13/12/12	23	2	17.1	74	974	180	2.3	2438	0
13/12/12	24	2	17	74	974	182	2.9	2438	0
13/12/13	1	2	16.9	73	974	180	3.3	2438	0
13/12/13	2	2	16.6	73	974	177	3.4	2438	0
13/12/13	3	2	16.4	72	974	175	3.2	2438	0
13/12/13	4	2	16.1	72	974	179	3	2438	0
13/12/13	5	2	16.1	70	974	186	2.8	2438	0
13/12/13	6	2	15.9	70	974	195	2.7	2438	0
13/12/13	7	2	15.6	69	974	200	2.7	2438	0
13/12/13	8	2	15.7	69	974	202	2.7	2438	0
13/12/13	9	2	17.9	62	974	237	2.5	2438	0
13/12/13	10	2	19.9	56	974	270	2.8	2438	0
13/12/13	11	2	21.1	52	974	278	2.6	2438	0
13/12/13	12	2	22	50	974	278	2.3	2438	0
13/12/13	13	2	22.6	48	973	315	2.2	2438	0
13/12/13	14	2	23.1	47	973	284	2.4	2438	0
13/12/13	15	2	23.1	47	972	284	2.7	2438	0
13/12/13	16	2	23	49	972	315	3.1	2438	0
13/12/13	17	2	22.3	59	972	283	2.9	2438	0
13/12/13	18	2	21.3	64	972	266	2.9	2438	0
13/12/13	19	2	20.3	68	972	239	3.2	2438	0
13/12/13	20	2	19.4	71	972	222	3.9	2438	0
13/12/13	21	2	18.9	71	972	214	4.3	77777	0
13/12/13	22	2	18.6	70	973	207	4.3	77777	0
13/12/13	23	2	18.3	68	973	199	4.5	77777	0
13/12/13	24	2	18	66	973	197	4.7	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/14	1	2	17.7	64	973	204	4.7	2438	0
13/12/14	2	2	17.6	63	973	212	4.6	2438	0
13/12/14	3	2	17.6	63	973	221	4.7	2438	0
13/12/14	4	2	17.3	64	973	227	4.9	2438	0
13/12/14	5	2	16.9	66	973	230	4.9	2438	0
13/12/14	6	2	16.6	66	973	229	4.7	2438	0
13/12/14	7	2	16.6	65	973	226	4.5	2438	0
13/12/14	8	2	16.6	65	974	229	3.9	2438	0
13/12/14	9	2	17.9	63	974	264	2.7	77777	0
13/12/14	10	2	19.4	59	974	298	2.4	77777	0
13/12/14	11	2	20.7	54	974	315	2.2	77777	0
13/12/14	12	2	21.5	53	974	300	1.7	77777	0
13/12/14	13	2	22.4	51	973	294	1.6	77777	0
13/12/14	14	2	23.1	48	973	291	2	77777	0
13/12/14	15	2	23.3	47	972	287	2.3	77777	0
13/12/14	16	2	23.1	48	972	280	2.4	77777	0
13/12/14	17	2	22.6	56	972	288	1.8	77777	0
13/12/14	18	2	21.5	62	972	258	1.1	77777	0
13/12/14	19	2	20.4	67	973	206	1.5	77777	0
13/12/14	20	2	19.5	70	973	186	2.3	77777	0
13/12/14	21	2	18.9	70	973	177	3.3	77777	0
13/12/14	22	2	18.6	67	973	171	4.4	77777	0
13/12/14	23	2	18.1	64	973	315	4.9	77777	0
13/12/14	24	2	17.9	60	974	315	5	77777	0
13/12/15	1	2	17.6	57	973	170	5.1	2438	0
13/12/15	2	2	17.7	53	973	174	4.9	2438	0
13/12/15	3	2	17.9	51	973	178	4.6	2438	0
13/12/15	4	2	17.7	50	973	180	4.3	2438	0
13/12/15	5	2	17.5	50	973	179	4	2438	0
13/12/15	6	2	17.1	52	974	175	3.9	2438	0
13/12/15	7	2	16.6	54	974	172	4	77777	0
13/12/15	8	2	16.6	55	974	173	4	77777	0
13/12/15	9	2	17.9	57	974	177	2.9	77777	0
13/12/15	10	2	20.9	47	974	224	1.8	77777	0
13/12/15	11	2	22.1	44	974	249	1	77777	0
13/12/15	12	2	23.1	41	974	258	0.7	77777	0
13/12/15	13	2	23.9	40	973	284	0.6	77777	0
13/12/15	14	2	24.1	40	973	315	0.9	77777	0
13/12/15	15	2	24.3	40	973	315	1.3	77777	0
13/12/15	16	2	24.1	42	972	323	2	77777	0
13/12/15	17	2	23.1	51	972	330	2.8	77777	0
13/12/15	18	2	21.9	57	972	333	2.7	77777	0
13/12/15	19	2	20.6	63	973	343	1.2	77777	0
13/12/15	20	2	19.5	69	974	129	0.5	77777	0
13/12/15	21	2	18.5	74	974	127	1	77777	0
13/12/15	22	2	17.7	77	975	130	1.9	77777	0
13/12/15	23	2	17.5	77	975	315	2.4	77777	0
13/12/15	24	2	17.1	76	976	315	2.6	77777	0
13/12/16	1	2	16.6	76	975	315	2.9	77777	0
13/12/16	2	2	16.5	74	975	315	3.4	2438	0
13/12/16	3	2	16.4	72	975	139	3.2	2438	0
13/12/16	4	2	16.1	71	975	144	2.4	2438	0
13/12/16	5	2	15.6	72	974	315	1.7	2438	0
13/12/16	6	2	15	75	974	150	1.5	2438	0
13/12/16	7	2	14.5	77	975	315	1.6	2438	0
13/12/16	8	2	14.1	78	975	315	1.5	2438	0
13/12/16	9	2	16.3	74	976	99	0.5	2438	0
13/12/16	10	2	19.5	58	976	315	1	2438	0
13/12/16	11	2	20.6	56	976	315	1.6	2438	0
13/12/16	12	2	21.4	54	976	10	1.5	2438	0
13/12/16	13	2	21.9	53	975	315	1.5	2438	0
13/12/16	14	2	22.3	53	974	355	1.5	2438	0
13/12/16	15	2	22.5	52	974	346	1.7	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/16	16	2	22.3	53	973	315	2.2	2438	0
13/12/16	17	2	21.6	61	973	332	2.8	2438	0
13/12/16	18	2	20.6	65	973	329	3	2438	0
13/12/16	19	3	19.7	69	974	326	2.6	2438	0
13/12/16	20	3	19	72	974	319	1.5	2438	0
13/12/16	21	3	18.3	75	975	272	0.3	2438	0
13/12/16	22	2	17.6	79	975	147	0.6	2438	0
13/12/16	23	2	17	82	976	154	1.2	2438	0
13/12/16	24	2	16.6	84	976	154	1.8	2438	0
13/12/17	1	2	16.3	84	976	155	2.4	2438	0
13/12/17	2	2	16.1	82	975	154	2.7	2438	0
13/12/17	3	2	15.9	82	975	151	2.2	2438	0
13/12/17	4	2	15.5	83	975	145	1.7	2438	0
13/12/17	5	2	14.3	80	975	140	1.5	2438	0
13/12/17	6	2	13.6	82	975	315	1.2	2438	0
13/12/17	7	2	13.3	84	975	315	1.2	2438	0
13/12/17	8	2	13.1	84	975	138	1.1	2438	0
13/12/17	9	2	15.3	77	975	91	0.4	2438	0
13/12/17	10	2	18.5	60	975	347	0.9	2438	0
13/12/17	11	2	19.6	56	975	353	1.5	2438	0
13/12/17	12	2	20.4	53	975	353	1.6	2438	0
13/12/17	13	2	21	52	974	347	1.7	2438	0
13/12/17	14	2	21.3	51	973	344	1.5	2438	0
13/12/17	15	2	21.4	52	973	342	1.3	2438	0
13/12/17	16	2	21.3	53	973	338	1.6	2438	0
13/12/17	17	2	20.7	58	972	330	1.7	2438	0
13/12/17	18	2	19.7	63	972	325	1.3	2438	0
13/12/17	19	2	18.6	69	973	313	0.4	2438	0
13/12/17	20	2	17.6	74	973	165	0.5	2438	0
13/12/17	21	2	16.7	79	973	315	0.7	2438	0
13/12/17	22	2	16.1	82	974	147	1.3	2438	0
13/12/17	23	2	15.6	83	974	152	2.1	2438	0
13/12/17	24	2	15.4	82	974	158	2.7	2438	0
13/12/18	1	2	15.3	80	974	162	2.8	77777	0
13/12/18	2	2	15.1	79	974	160	2.9	2438	0
13/12/18	3	2	14.9	78	973	163	2.9	2438	0
13/12/18	4	2	14.6	78	973	176	2.7	2438	0
13/12/18	5	2	14.6	77	973	192	2.6	2438	0
13/12/18	6	2	14.5	76	973	205	2.4	2438	0
13/12/18	7	2	14.3	75	974	204	2.5	2438	0
13/12/18	8	2	14.4	75	974	212	2.6	2438	0
13/12/18	9	2	16.5	70	973	263	3	2438	0
13/12/18	10	3	18	65	973	283	3.3	2438	0
13/12/18	11	3	18.9	61	973	294	3	2438	0
13/12/18	12	3	19.5	59	973	300	2.7	2438	0
13/12/18	13	3	20	54	972	315	3.2	2438	0
13/12/18	14	3	20.1	51	972	305	3.4	2438	0
13/12/18	15	3	20.1	50	972	315	3.4	2438	0
13/12/18	16	2	19.6	50	971	302	3.5	2438	0
13/12/18	17	2	19	59	971	297	2.9	2438	0
13/12/18	18	2	18.3	59	971	286	2.4	2438	0
13/12/18	19	2	17.6	59	972	263	2	2438	0
13/12/18	20	2	17	59	972	247	2.1	2438	0
13/12/18	21	2	16.5	60	972	237	2.1	2438	0
13/12/18	22	2	15.9	60	973	222	2	2438	0
13/12/18	23	2	15.4	60	973	216	1.9	2438	0
13/12/18	24	2	15	60	973	201	2.1	77777	0
13/12/19	1	2	14.7	57	972	196	2.5	77777	0
13/12/19	2	2	14.6	56	972	204	2.5	77777	0
13/12/19	3	2	14.4	54	972	231	2.4	77777	0
13/12/19	4	2	13.6	56	972	278	3.5	77777	0
13/12/19	5	2	12	65	973	291	4	77777	0
13/12/19	6	2	10.9	68	973	287	3.7	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/19	7	2	10	69	973	287	3.5	77777	0
13/12/19	8	2	9.5	72	973	294	2.8	77777	0
13/12/19	9	2	11.5	63	974	335	3.8	77777	0
13/12/19	10	2	13.1	60	974	315	4	77777	0
13/12/19	11	2	14.1	60	973	335	3.7	77777	0
13/12/19	12	2	14.9	60	973	327	3.7	77777	0
13/12/19	13	2	15.9	56	973	325	3.7	77777	0
13/12/19	14	2	16.5	54	973	323	3.4	77777	0
13/12/19	15	2	16.6	53	972	318	3	77777	0
13/12/19	16	2	16.5	54	972	313	2.7	77777	0
13/12/19	17	2	16	58	972	305	2.3	77777	0
13/12/19	18	2	15.3	60	972	291	1.7	77777	0
13/12/19	19	2	14.5	63	972	272	1.1	77777	0
13/12/19	20	2	13.6	65	973	233	0.7	77777	0
13/12/19	21	2	13	67	973	173	0.6	77777	0
13/12/19	22	2	12.3	71	973	150	0.8	77777	0
13/12/19	23	2	11.5	74	974	141	0.8	77777	0
13/12/19	24	2	10.9	77	974	138	1.2	77777	0
13/12/20	1	2	10.5	77	974	137	2.2	77777	0
13/12/20	2	2	10.5	74	973	315	2.9	77777	0
13/12/20	3	2	10.4	73	973	122	2.2	77777	0
13/12/20	4	2	10	73	973	108	1.4	77777	0
13/12/20	5	2	9.6	74	973	106	0.9	77777	0
13/12/20	6	2	9.3	75	974	104	0.9	77777	0
13/12/20	7	2	9.1	76	974	315	1	77777	0
13/12/20	8	2	9.1	76	974	129	0.9	2438	0
13/12/20	9	2	11.5	68	975	78	0.6	2438	0
13/12/20	10	2	14.1	59	975	21	1.2	2438	0
13/12/20	11	2	15.5	55	975	6	2	2438	0
13/12/20	12	2	16.1	57	975	356	2	2438	0
13/12/20	13	2	16.9	58	974	351	2	2438	0
13/12/20	14	2	17.3	59	974	352	2.2	2438	0
13/12/20	15	2	17.3	60	973	354	2.3	2438	0
13/12/20	16	2	17.1	63	973	357	2.5	2438	0
13/12/20	17	2	16.3	72	973	350	2.9	2438	0
13/12/20	18	2	15	80	972	353	3.4	2438	0
13/12/20	19	2	14.1	85	973	11	3.2	2438	0
13/12/20	20	2	13.5	89	973	38	2.9	2438	0
13/12/20	21	2	13	91	974	56	2.5	77777	0
13/12/20	22	2	12.6	92	974	75	2	77777	0
13/12/20	23	2	12.1	92	974	103	1.5	77777	0
13/12/20	24	2	11.7	88	975	132	1.7	77777	0
13/12/21	1	2	11.6	83	974	315	2.4	77777	0
13/12/21	2	2	11.3	78	974	157	2.7	77777	0
13/12/21	3	2	11.1	74	974	160	2.6	77777	0
13/12/21	4	2	10.6	73	973	161	2.2	77777	0
13/12/21	5	2	10	75	973	173	1.8	2438	0
13/12/21	6	2	9.1	80	973	200	1.7	2438	0
13/12/21	7	2	8.6	85	974	220	1.8	2438	0
13/12/21	8	2	8.1	91	974	231	1.5	2438	0
13/12/21	9	2	10.5	89	974	296	1.4	2438	0
13/12/21	10	2	12.4	85	974	297	1.1	2438	0
13/12/21	11	2	14.5	75	974	310	1.7	2438	0
13/12/21	12	2	15.9	67	974	311	2.1	2438	0
13/12/21	13	2	16.7	60	973	309	2.2	2438	0
13/12/21	14	2	17.4	54	973	306	2.4	77777	0
13/12/21	15	2	17.5	50	973	306	2.6	77777	0
13/12/21	16	2	17.3	50	973	310	3	77777	0
13/12/21	17	2	16.4	59	973	319	3.1	77777	0
13/12/21	18	2	15.3	64	973	326	3	77777	0
13/12/21	19	2	14.5	67	974	327	1.8	77777	0
13/12/21	20	2	13.6	70	974	30	0.4	77777	0
13/12/21	21	2	12.7	74	975	143	0.9	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/21	22	2	12.1	76	975	138	1.6	77777	0
13/12/21	23	2	11.7	76	975	143	2.4	77777	0
13/12/21	24	2	11.6	74	976	153	2.5	77777	0
13/12/22	1	2	11.6	70	975	315	2.4	77777	0
13/12/22	2	2	11.5	67	975	178	2.3	77777	0
13/12/22	3	2	11.3	64	975	175	2.1	77777	0
13/12/22	4	2	11.1	62	975	315	1.7	77777	0
13/12/22	5	2	10	51	975	160	1.1	77777	0
13/12/22	6	2	9.6	51	975	172	0.6	77777	0
13/12/22	7	2	9.1	52	976	266	0.6	77777	0
13/12/22	8	2	9	53	977	215	0.7	77777	0
13/12/22	9	2	10.4	53	977	315	0.8	2438	0
13/12/22	10	2	13.3	41	977	270	0.5	2438	0
13/12/22	11	2	15.1	36	977	307	0.8	2438	0
13/12/22	12	2	16.3	33	977	321	1.3	2438	0
13/12/22	13	2	16.9	34	977	326	1.3	2438	0
13/12/22	14	2	17.4	34	976	330	1.7	2438	0
13/12/22	15	2	17.5	36	976	333	2.2	2438	0
13/12/22	16	2	17.1	38	976	337	2.6	2438	0
13/12/22	17	2	16.4	48	975	333	2.8	2438	0
13/12/22	18	2	15.3	52	975	334	2.7	2438	0
13/12/22	19	2	14.3	55	976	336	2.2	2438	0
13/12/22	20	2	13.4	59	976	353	1.3	2438	0
13/12/22	21	2	12.6	61	977	39	0.7	2438	0
13/12/22	22	2	12	64	977	113	0.6	77777	0
13/12/22	23	2	11.4	66	978	315	1.1	77777	0
13/12/22	24	2	10.9	68	978	315	1.5	77777	0
13/12/23	1	2	10.5	69	978	315	1.5	77777	0
13/12/23	2	2	10.1	69	978	129	1.4	77777	0
13/12/23	3	2	9.7	70	978	125	1	77777	0
13/12/23	4	2	9.4	72	978	111	0.7	77777	0
13/12/23	5	2	9.1	72	978	92	0.7	77777	0
13/12/23	6	2	8.9	72	978	86	0.8	77777	0
13/12/23	7	2	8.6	73	979	98	1	77777	0
13/12/23	8	2	8.5	72	979	95	0.9	77777	0
13/12/23	9	2	10.6	61	980	40	1.1	77777	0
13/12/23	10	2	13.1	53	980	315	2	77777	0
13/12/23	11	2	14.9	48	980	315	2.8	77777	0
13/12/23	12	2	15.9	48	980	315	2.9	77777	0
13/12/23	13	2	16.6	48	979	8	3	77777	0
13/12/23	14	2	17.3	47	979	315	3.2	77777	0
13/12/23	15	2	17.4	48	979	315	3.3	77777	0
13/12/23	16	2	17.1	51	978	315	3.6	77777	0
13/12/23	17	2	16.1	63	978	352	3.2	77777	0
13/12/23	18	2	15.3	67	978	359	3.5	77777	0
13/12/23	19	2	14.4	69	979	315	3.5	2438	0
13/12/23	20	2	13.6	71	979	23	3.4	2438	0
13/12/23	21	2	13.1	73	980	38	3.2	2438	0
13/12/23	22	2	12.6	74	980	53	3	2438	0
13/12/23	23	2	12.1	76	981	63	2.7	77777	0
13/12/23	24	2	11.6	77	981	66	2.4	77777	0
13/12/24	1	2	11.1	79	981	62	2.2	77777	0
13/12/24	2	2	10.6	81	980	55	2.2	77777	0
13/12/24	3	2	10.3	83	980	53	2.4	77777	0
13/12/24	4	2	10	85	980	54	2.7	77777	0
13/12/24	5	2	9.6	87	980	53	3.2	77777	0
13/12/24	6	2	9.3	89	979	54	3.7	77777	0
13/12/24	7	2	9.1	90	980	54	3.7	77777	0
13/12/24	8	2	9	91	980	51	3.5	77777	0
13/12/24	9	2	11.9	77	980	38	4.1	77777	0
13/12/24	10	2	13.9	68	980	28	4.3	77777	0
13/12/24	11	2	15.3	63	980	22	4.3	77777	0
13/12/24	12	2	16.1	62	980	18	4.2	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/24	13	2	16.9	60	980	315	4.3	77777	0
13/12/24	14	2	17.6	57	979	315	4.5	77777	0
13/12/24	15	2	17.6	57	979	315	4.6	77777	0
13/12/24	16	2	17.4	60	979	1	4.5	77777	0
13/12/24	17	2	16.4	72	979	349	3.6	77777	0
13/12/24	18	2	15.3	77	979	350	3.8	77777	0
13/12/24	19	2	14.5	78	980	359	3.6	2438	0
13/12/24	20	2	14	78	980	315	3	2438	0
13/12/24	21	2	13.4	79	980	40	2.4	2438	0
13/12/24	22	2	12.7	81	980	65	2	77777	0
13/12/24	23	2	12.3	83	981	90	1.9	77777	0
13/12/24	24	2	11.9	85	981	107	1.9	77777	0
13/12/25	1	2	11.5	86	981	111	1.6	77777	0
13/12/25	2	2	11.1	88	980	99	1.1	77777	0
13/12/25	3	2	10.6	89	980	85	1	77777	0
13/12/25	4	2	10.4	90	980	79	1.1	77777	0
13/12/25	5	2	10.1	90	980	67	1	77777	0
13/12/25	6	2	9.6	91	980	45	0.9	77777	0
13/12/25	7	2	9.3	92	980	53	1	77777	0
13/12/25	8	2	9.1	93	980	68	1.1	77777	0
13/12/25	9	2	11.6	78	980	28	2.2	77777	0
13/12/25	10	2	13.3	68	981	315	2.5	2438	0
13/12/25	11	2	14.7	58	980	8	2.8	2438	0
13/12/25	12	2	15.7	54	980	6	2.8	2438	0
13/12/25	13	2	16.5	53	979	1	2.7	2438	0
13/12/25	14	2	17	51	979	354	3	2438	0
13/12/25	15	2	17.1	51	979	349	3.4	2438	0
13/12/25	16	2	16.7	52	978	346	3.7	2438	0
13/12/25	17	2	15.7	63	978	336	3.3	2438	0
13/12/25	18	2	14.7	66	978	337	3.6	2438	0
13/12/25	19	2	14	66	979	346	3.4	2438	0
13/12/25	20	2	13.3	67	979	5	2.7	2438	0
13/12/25	21	2	12.7	68	980	30	1.9	2438	0
13/12/25	22	2	12.1	70	980	62	1.4	2438	0
13/12/25	23	2	11.7	71	981	85	1.6	2438	0
13/12/25	24	2	11.3	72	981	97	1.4	2438	0
13/12/26	1	2	10.9	74	980	94	1.1	2438	0
13/12/26	2	2	10.5	75	980	100	1.1	2438	0
13/12/26	3	2	10.1	75	980	90	0.9	2438	0
13/12/26	4	2	9.6	76	980	34	0.8	2438	0
13/12/26	5	2	9.1	77	980	22	1	2438	0
13/12/26	6	2	8.7	76	981	40	1.1	2438	0
13/12/26	7	2	8.4	75	981	54	1	2438	0
13/12/26	8	2	8.1	74	981	43	0.9	2438	0
13/12/26	9	2	10.4	54	981	18	2.3	2438	0
13/12/26	10	2	12	48	980	315	2.2	2438	0
13/12/26	11	2	14	42	980	8	2.7	2438	0
13/12/26	12	2	15.6	37	980	315	3.1	2438	0
13/12/26	13	2	16.3	38	979	359	3	2438	0
13/12/26	14	2	16.6	39	979	353	3	2438	0
13/12/26	15	2	16.7	41	978	347	3.1	2438	0
13/12/26	16	2	16.4	43	978	342	3.4	2438	0
13/12/26	17	2	15.4	55	978	334	3.2	2438	0
13/12/26	18	2	14.4	57	978	338	3.3	2438	0
13/12/26	19	2	13.5	59	978	356	2.7	2438	0
13/12/26	20	2	12.7	60	978	30	2.4	2438	0
13/12/26	21	2	12.1	62	979	66	2.9	2438	0
13/12/26	22	2	11.6	64	979	84	3.8	2438	0
13/12/26	23	2	11.5	64	979	95	4.2	2438	0
13/12/26	24	2	11.4	62	979	107	4	2438	0
13/12/27	1	2	11.3	59	979	118	3.7	2438	0
13/12/27	2	2	11.5	54	978	123	3.2	2438	0
13/12/27	3	2	11.6	49	978	121	2.7	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/27	4	2	11.6	46	978	126	2.2	2438	0
13/12/27	5	2	11.6	53	978	132	1.2	2438	0
13/12/27	6	2	10.5	58	978	338	1.2	2438	0
13/12/27	7	2	9.1	67	978	349	1.8	2438	0
13/12/27	8	2	8.6	70	978	315	1	2438	0
13/12/27	9	2	10.9	49	978	11	1.8	2438	0
13/12/27	10	2	12.5	44	978	359	1	2438	0
13/12/27	11	2	14.5	38	977	347	1.4	2438	0
13/12/27	12	2	15.9	34	977	344	2	2438	0
13/12/27	13	2	16.6	35	976	343	2.3	2438	0
13/12/27	14	2	16.9	37	976	344	2.4	2438	0
13/12/27	15	2	17.1	38	976	345	2.8	2438	0
13/12/27	16	2	16.9	39	976	345	3.1	2438	0
13/12/27	17	2	16.1	49	976	338	2.8	77777	0
13/12/27	18	2	15.1	51	976	338	2.6	77777	0
13/12/27	19	2	14.1	53	976	348	1.7	77777	0
13/12/27	20	2	13.1	56	976	35	0.8	77777	0
13/12/27	21	2	12.3	59	976	103	1.1	77777	0
13/12/27	22	2	11.6	61	976	128	1.8	77777	0
13/12/27	23	2	11.1	62	976	315	2.1	77777	0
13/12/27	24	2	10.6	61	976	156	1.8	77777	0
13/12/28	1	2	10.3	61	976	150	1.4	77777	0
13/12/28	2	2	9.9	60	976	138	1.3	77777	0
13/12/28	3	2	9.5	60	976	126	1	77777	0
13/12/28	4	2	9.1	59	976	66	0.8	77777	0
13/12/28	5	2	8.5	62	976	21	1.5	77777	0
13/12/28	6	2	7.9	65	976	37	1.4	77777	0
13/12/28	7	2	7.6	65	976	75	1.2	77777	0
13/12/28	8	2	7.6	62	977	84	1	77777	0
13/12/28	9	2	9.6	49	977	39	0.9	77777	0
13/12/28	10	2	12.3	36	977	315	1.2	77777	0
13/12/28	11	2	14.3	31	977	8	1.9	77777	0
13/12/28	12	2	16	27	977	3	2.7	77777	0
13/12/28	13	2	16.7	28	976	356	2.8	77777	0
13/12/28	14	2	17.1	30	975	352	2.8	77777	0
13/12/28	15	2	17.1	32	975	350	2.8	77777	0
13/12/28	16	2	16.6	36	975	346	3.1	77777	0
13/12/28	17	2	15.6	48	975	336	3.1	77777	0
13/12/28	18	2	14.6	51	975	315	3.1	77777	0
13/12/28	19	2	13.6	53	975	359	2.1	77777	0
13/12/28	20	2	12.6	57	976	50	1.2	77777	0
13/12/28	21	2	11.7	59	977	99	1.4	77777	0
13/12/28	22	2	11.3	61	977	315	1.7	77777	0
13/12/28	23	2	10.7	62	978	127	2.2	77777	0
13/12/28	24	2	10.5	63	978	315	2.6	77777	0
13/12/29	1	2	10.3	63	977	315	3	77777	0
13/12/29	2	2	10.3	61	977	315	3.5	77777	0
13/12/29	3	2	10.4	59	977	138	3.7	77777	0
13/12/29	4	2	10.3	57	976	142	3.7	77777	0
13/12/29	5	2	9.9	55	976	144	3.3	77777	0
13/12/29	6	2	9.1	56	976	141	2.5	77777	0
13/12/29	7	2	8.1	60	977	128	1.5	77777	0
13/12/29	8	2	7.6	62	977	118	1	77777	0
13/12/29	9	2	9.4	65	977	104	0.6	77777	0
13/12/29	10	2	13.7	45	977	33	1.2	77777	0
13/12/29	11	2	15.1	44	977	21	1.1	77777	0
13/12/29	12	2	16.7	39	976	10	0.9	77777	0
13/12/29	13	2	17.6	34	976	315	1.2	77777	0
13/12/29	14	2	18	37	975	355	1.4	77777	0
13/12/29	15	2	18	40	975	351	1.7	77777	0
13/12/29	16	2	17.6	43	974	347	2.3	77777	0
13/12/29	17	2	16.6	54	974	315	2.8	77777	0
13/12/29	18	2	15.5	57	974	344	2.7	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/29	19	2	14.4	61	975	358	1.9	2438	0
13/12/29	20	2	13.4	65	975	315	1	2438	0
13/12/29	21	2	12.6	68	975	83	0.7	2438	0
13/12/29	22	2	11.9	70	976	119	0.8	2438	0
13/12/29	23	2	11.3	72	976	127	1.2	2438	0
13/12/29	24	2	10.9	73	976	128	1.5	2438	0
13/12/30	1	2	10.6	73	976	130	1.6	2438	0
13/12/30	2	2	10.3	72	976	126	1.7	2438	0
13/12/30	3	2	10.1	72	976	123	1.7	2438	0
13/12/30	4	2	9.7	71	976	119	1.6	2438	0
13/12/30	5	2	9.5	71	976	105	1.3	2438	0
13/12/30	6	2	9.1	71	976	84	1.1	2438	0
13/12/30	7	2	8.9	70	976	75	1.1	2438	0
13/12/30	8	2	8.9	69	977	74	1.3	2438	0
13/12/30	9	2	11.1	58	977	42	1.7	2438	0
13/12/30	10	2	13.6	46	977	315	2.2	2438	0
13/12/30	11	2	15.1	43	977	6	2	2438	0
13/12/30	12	2	16.5	37	976	353	2.1	2438	0
13/12/30	13	2	17.1	35	976	341	2.3	2438	0
13/12/30	14	2	17.4	38	975	330	2.7	2438	0
13/12/30	15	3	17.1	41	975	324	3.2	2438	0
13/12/30	16	3	16.6	44	975	322	3.8	2438	0
13/12/30	17	3	15.6	56	975	317	3.2	2438	0
13/12/30	18	3	14.7	56	975	316	2.9	2438	0
13/12/30	19	3	14.1	56	975	319	2.1	2438	0
13/12/30	20	3	13.5	56	976	330	1.5	2438	0
13/12/30	21	3	12.6	57	976	335	1.9	2438	0
13/12/30	22	3	11.7	58	976	352	1.7	2438	0
13/12/30	23	2	11.1	58	976	39	1	2438	0
13/12/30	24	2	10.9	56	977	77	0.9	2438	0
13/12/31	1	2	10.4	56	976	67	0.9	2438	0
13/12/31	2	2	9.9	57	976	61	0.8	2438	0
13/12/31	3	2	9.4	57	976	20	0.5	2438	0
13/12/31	4	2	8.7	57	976	311	0.7	2438	0
13/12/31	5	2	8.1	57	976	315	1	2438	0
13/12/31	6	2	7.4	58	976	266	1.3	2438	0
13/12/31	7	2	6.6	58	977	261	1.2	2438	0
13/12/31	8	2	6.1	59	978	266	0.7	2438	0
13/12/31	9	2	7.6	46	978	337	1.6	2438	0
13/12/31	10	2	9.5	43	978	348	1.1	2438	0
13/12/31	11	2	11.9	40	978	359	0.7	2438	0
13/12/31	12	2	13.9	34	978	349	1.6	2438	0
13/12/31	13	2	14.7	35	978	343	2	2438	0
13/12/31	14	2	15.4	37	978	341	2.2	2438	0
13/12/31	15	2	15.5	39	977	315	2.8	2438	0
13/12/31	16	2	15.1	41	977	342	3.3	77777	0
13/12/31	17	2	14.3	52	977	337	3.2	77777	0
13/12/31	18	2	13.4	54	977	315	3.5	2438	0
13/12/31	19	2	12.6	55	978	350	3.2	2438	0
13/12/31	20	2	11.9	56	978	8	2.6	2438	0
13/12/31	21	2	11.1	58	979	39	1.9	77777	0
13/12/31	22	2	10.6	60	979	75	1.7	77777	0
13/12/31	23	2	10.1	61	980	92	1.8	77777	0
13/12/31	24	2	9.7	61	980	95	1.7	77777	0
14/01/01	1	2	9.6	100	973	54	4	77777	0
14/01/01	2	2	9.4	100	973	51	4.2	77777	0
14/01/01	3	2	9.3	100	973	270	4.3	77777	0
14/01/01	4	2	9.1	100	973	270	4.4	77777	0
14/01/01	5	2	8.7	76	972	55	4.8	77777	0
14/01/01	6	2	8.6	78	972	55	4.6	77777	0
14/01/01	7	2	8.4	79	973	55	4.5	77777	0
14/01/01	8	2	8.6	79	973	57	3.9	77777	0
14/01/01	9	2	12	65	973	270	4.5	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/01	10	2	14.1	58	973	37	3.8	77777	0
14/01/01	11	2	16	51	973	23	2.9	77777	0
14/01/01	12	2	17.5	46	972	10	2.7	77777	0
14/01/01	13	2	18.1	46	972	270	2.4	77777	0
14/01/01	14	2	18.4	48	972	352	2.3	77777	0
14/01/01	15	2	18.4	51	971	343	2.5	77777	0
14/01/01	16	2	18.1	54	971	337	3	77777	0
14/01/01	17	2	17.1	64	971	328	3	77777	0
14/01/01	18	2	16.1	67	971	329	3	77777	0
14/01/01	19	2	15.3	70	972	270	2.1	77777	0
14/01/01	20	2	14.4	72	973	11	1	77777	0
14/01/01	21	2	13.6	74	973	78	0.9	77777	0
14/01/01	22	2	13	77	974	106	1.3	77777	0
14/01/01	23	2	12.4	78	974	118	1.4	77777	0
14/01/01	24	2	11.9	79	975	129	1.4	77777	0
14/01/02	1	2	11.6	78	974	270	1.7	77777	0
14/01/02	2	2	11.1	78	974	125	1.1	77777	0
14/01/02	3	2	10.7	77	974	43	0.5	77777	0
14/01/02	4	2	10.4	78	974	346	1.1	77777	0
14/01/02	5	2	9.9	80	975	334	1	77777	0
14/01/02	6	2	9.3	80	975	336	1.3	2438	0
14/01/02	7	2	8.6	80	975	343	1.8	2438	0
14/01/02	8	2	8.1	82	976	349	2.1	2438	0
14/01/02	9	2	10.5	72	976	270	4.1	2438	0
14/01/02	10	2	12.7	65	976	270	4.3	2438	0
14/01/02	11	2	14.3	62	977	270	4.4	2438	0
14/01/02	12	2	15.1	62	977	270	4.1	2438	0
14/01/02	13	2	16.1	60	976	1	4.1	2438	0
14/01/02	14	2	16.6	60	976	359	3.8	2438	0
14/01/02	15	2	16.6	61	976	358	3.7	2438	0
14/01/02	16	2	16.6	62	975	358	3.7	2438	0
14/01/02	17	2	16.1	71	975	351	3.1	77777	0
14/01/02	18	2	15.1	75	975	353	3.5	77777	0
14/01/02	19	2	14.4	78	976	270	3.7	77777	0
14/01/02	20	2	13.3	84	976	270	3.9	77777	0
14/01/02	21	2	12.1	91	977	23	3.8	77777	0
14/01/02	22	2	11.3	95	977	42	3.5	77777	0
14/01/02	23	2	10.7	98	978	64	3.2	77777	0
14/01/02	24	2	10.4	100	978	90	2.7	77777	0
14/01/03	1	2	10	100	977	113	3	77777	0
14/01/03	2	2	8.6	100	977	113	3.3	77777	0
14/01/03	3	2	7.7	100	977	119	2.9	77777	0
14/01/03	4	2	7.4	100	977	124	2.6	77777	0
14/01/03	5	2	7.1	100	977	120	2.4	77777	0
14/01/03	6	2	6.9	100	977	115	2.3	77777	0
14/01/03	7	2	6.7	100	977	270	2.6	77777	0
14/01/03	8	2	7.1	99	977	111	2.5	77777	0
14/01/03	9	2	10.6	78	977	96	2	77777	0
14/01/03	10	2	13.6	66	977	91	1.2	77777	0
14/01/03	11	2	15.9	57	977	73	0.5	77777	0
14/01/03	12	2	17.9	46	976	334	0.3	77777	0
14/01/03	13	2	19	42	975	323	0.4	77777	0
14/01/03	14	2	19.6	38	975	291	0.4	77777	0
14/01/03	15	2	20.1	36	974	334	0.5	77777	0
14/01/03	16	2	19.9	37	974	338	1.6	77777	0
14/01/03	17	2	18.9	49	974	343	2.9	77777	0
14/01/03	18	2	17.1	60	974	353	3.7	77777	0
14/01/03	19	2	15.5	69	975	14	3.5	77777	0
14/01/03	20	2	14.3	75	975	44	3.1	77777	0
14/01/03	21	2	13.5	78	975	74	2.7	77777	0
14/01/03	22	2	13	79	976	100	2.1	77777	0
14/01/03	23	2	12.5	80	976	122	2	77777	0
14/01/03	24	2	12.1	79	976	270	2.4	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/04	1	2	12	77	976	137	2.7	77777	0
14/01/04	2	2	12	73	975	137	3	77777	0
14/01/04	3	2	12	70	975	140	2.9	77777	0
14/01/04	4	2	11.6	67	975	143	2.7	77777	0
14/01/04	5	2	11.4	66	975	142	2.2	77777	0
14/01/04	6	2	10.9	66	975	138	1.6	77777	0
14/01/04	7	2	10.1	67	975	138	1.1	77777	0
14/01/04	8	2	10	68	975	270	0.8	77777	0
14/01/04	9	2	11.6	71	975	270	0.4	77777	0
14/01/04	10	2	15.3	52	975	331	0.4	77777	0
14/01/04	11	2	16.9	46	975	310	0.5	77777	0
14/01/04	12	2	18.3	37	975	317	1	77777	0
14/01/04	13	2	19	37	974	314	1.3	77777	0
14/01/04	14	2	19.4	36	974	316	1.9	77777	0
14/01/04	15	2	19.3	37	973	320	2.5	77777	0
14/01/04	16	2	18.9	40	973	326	3	77777	0
14/01/04	17	2	17.6	53	972	330	3.2	77777	0
14/01/04	18	2	16.5	56	972	331	3.3	77777	0
14/01/04	19	2	15.5	58	972	331	2.4	77777	0
14/01/04	20	2	14.6	62	973	342	1.1	77777	0
14/01/04	21	2	13.6	65	973	74	0.5	77777	0
14/01/04	22	2	12.9	68	974	120	0.8	77777	0
14/01/04	23	2	12.3	70	974	127	1	77777	0
14/01/04	24	2	11.6	72	974	129	1.1	77777	0
14/01/05	1	2	11.3	73	974	137	1.1	77777	0
14/01/05	2	2	10.9	73	974	139	1.1	77777	0
14/01/05	3	2	10.5	73	974	137	0.6	77777	0
14/01/05	4	2	10.3	72	974	337	0.7	77777	0
14/01/05	5	2	9.7	74	974	331	1	77777	0
14/01/05	6	2	9.1	75	974	327	0.7	2438	0
14/01/05	7	2	8.7	75	975	335	0.9	2438	0
14/01/05	8	2	8.4	75	975	344	1.1	2438	0
14/01/05	9	2	10.5	62	975	6	3	2438	0
14/01/05	10	2	12.1	56	975	1	2.9	2438	0
14/01/05	11	2	13.9	49	975	357	3.2	2438	0
14/01/05	12	2	14.6	49	975	352	2.9	77777	0
14/01/05	13	2	15.6	46	974	345	3	77777	0
14/01/05	14	2	16	46	973	345	3.2	77777	0
14/01/05	15	2	16.1	47	973	347	3	77777	0
14/01/05	16	2	15.9	49	973	351	3	77777	0
14/01/05	17	2	15.1	57	972	353	2.7	77777	0
14/01/05	18	2	14.3	61	972	359	2.8	77777	0
14/01/05	19	2	13.5	64	973	8	2.7	77777	0
14/01/05	20	2	12.6	68	973	21	2.6	77777	0
14/01/05	21	2	12	71	974	42	2.5	77777	0
14/01/05	22	2	11.1	76	974	57	2.6	77777	0
14/01/05	23	2	10.6	80	975	63	2.7	77777	0
14/01/05	24	2	10	85	975	68	2.9	77777	0
14/01/06	1	2	9.5	89	975	78	3.2	77777	0
14/01/06	2	2	9.1	91	975	82	3.5	77777	0
14/01/06	3	2	8.1	96	975	71	3.8	77777	0
14/01/06	4	2	7.1	100	975	60	3.8	77777	0
14/01/06	5	2	8	62	975	59	2.5	77777	0
14/01/06	6	2	7.6	63	975	54	3.3	77777	0
14/01/06	7	2	7.5	64	975	60	3.5	77777	0
14/01/06	8	2	7.6	63	975	68	3.4	77777	0
14/01/06	9	2	10.5	52	975	52	3.6	77777	0
14/01/06	10	2	12.6	45	975	37	3.6	77777	0
14/01/06	11	2	14.6	41	975	27	3.8	77777	0
14/01/06	12	2	15.6	41	975	21	3.8	77777	0
14/01/06	13	2	16.4	41	975	19	4	77777	0
14/01/06	14	2	17	40	974	22	4.1	77777	0
14/01/06	15	2	17	41	974	24	4.2	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/06	16	2	16.6	44	973	27	4.3	77777	0
14/01/06	17	2	15.6	59	973	24	3.5	77777	0
14/01/06	18	2	14.3	63	973	33	4.1	77777	0
14/01/06	19	2	13.1	66	974	270	4.3	77777	0
14/01/06	20	2	12.4	67	974	57	4.4	77777	0
14/01/06	21	2	11.9	68	974	65	4.5	77777	0
14/01/06	22	2	11.6	68	975	70	4.4	77777	0
14/01/06	23	2	11.3	68	975	73	3.8	77777	0
14/01/06	24	2	10.9	68	975	80	3.3	77777	0
14/01/07	1	2	10.5	69	975	87	2.9	77777	0
14/01/07	2	2	10.1	68	975	88	2.5	77777	0
14/01/07	3	2	9.9	68	975	70	2.4	77777	0
14/01/07	4	2	9.4	69	975	51	3.2	77777	0
14/01/07	5	2	8.6	72	975	43	4.5	77777	0
14/01/07	6	2	7.7	75	976	51	4.6	77777	0
14/01/07	7	2	7.7	74	976	64	4.5	77777	0
14/01/07	8	2	8.1	70	976	71	4.1	77777	0
14/01/07	9	2	11.3	57	976	62	4.5	77777	0
14/01/07	10	2	14	44	977	52	4.7	77777	0
14/01/07	11	2	16	39	976	270	4.4	77777	0
14/01/07	12	2	17.1	38	976	45	4	77777	0
14/01/07	13	2	17.9	39	975	41	3.7	77777	0
14/01/07	14	2	18.3	39	975	36	3.5	77777	0
14/01/07	15	2	18.4	41	975	28	3.8	77777	0
14/01/07	16	2	17.9	46	974	23	4.3	77777	0
14/01/07	17	2	16.4	62	974	23	3.7	77777	0
14/01/07	18	2	14.7	68	975	34	4.2	77777	0
14/01/07	19	2	13.6	72	975	43	4.3	77777	0
14/01/07	20	2	12.6	74	976	56	4.4	77777	0
14/01/07	21	2	12.1	76	976	69	4.6	77777	0
14/01/07	22	2	12.1	74	976	82	4.2	77777	0
14/01/07	23	2	12.3	71	976	101	3.9	77777	0
14/01/07	24	2	12.1	66	977	270	4.2	77777	0
14/01/08	1	2	11.9	62	976	270	4.4	77777	0
14/01/08	2	2	11.7	58	976	270	4.2	77777	0
14/01/08	3	2	11.5	55	976	118	3.6	77777	0
14/01/08	4	2	11.1	55	976	110	2.8	77777	0
14/01/08	5	2	10.5	56	976	94	2.4	77777	0
14/01/08	6	2	9.9	59	976	84	2.3	77777	0
14/01/08	7	2	9.5	61	976	86	2.4	77777	0
14/01/08	8	2	9.5	61	976	89	2.5	77777	0
14/01/08	9	2	12.3	54	976	64	3.5	77777	0
14/01/08	10	2	15	47	976	270	3.6	77777	0
14/01/08	11	2	16.7	42	976	44	3.4	77777	0
14/01/08	12	2	18	40	976	39	3.2	77777	0
14/01/08	13	2	18.6	42	975	35	2.9	77777	0
14/01/08	14	2	19	44	975	30	2.7	77777	0
14/01/08	15	2	19	47	974	25	2.6	77777	0
14/01/08	16	2	18.6	50	974	23	2.7	77777	0
14/01/08	17	2	18	60	974	270	2.4	77777	0
14/01/08	18	2	16.7	65	974	27	2.3	77777	0
14/01/08	19	2	15.7	68	974	42	2.2	77777	0
14/01/08	20	2	14.9	71	975	56	2.3	2438	0
14/01/08	21	2	14.1	73	975	73	2.2	77777	0
14/01/08	22	2	13.4	76	976	103	1.7	77777	0
14/01/08	23	2	12.7	78	976	132	1.9	77777	0
14/01/08	24	2	12.5	77	976	139	2.7	77777	0
14/01/09	1	2	12.4	75	976	137	3.1	77777	0
14/01/09	2	2	12.3	71	975	270	2.8	77777	0
14/01/09	3	2	12.1	69	975	126	2.3	77777	0
14/01/09	4	2	11.6	69	975	119	2	77777	0
14/01/09	5	2	11.3	70	975	270	1.6	77777	0
14/01/09	6	2	10.9	70	975	113	1.4	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/09	7	2	10.6	71	975	270	1.3	77777	0
14/01/09	8	2	10.7	71	976	109	1.2	77777	0
14/01/09	9	2	12.6	67	976	105	0.9	77777	0
14/01/09	10	2	16.1	54	976	39	1.3	77777	0
14/01/09	11	2	17.7	49	976	270	1.2	77777	0
14/01/09	12	2	19.4	39	976	357	1.8	77777	0
14/01/09	13	2	19.9	39	975	356	2.1	77777	0
14/01/09	14	2	20.1	41	975	356	2.4	77777	0
14/01/09	15	2	20.1	42	975	354	3	2438	0
14/01/09	16	2	19.7	44	974	356	3.5	2438	0
14/01/09	17	2	18.7	57	974	356	3.2	2438	0
14/01/09	18	2	17.6	60	974	270	3.8	2438	0
14/01/09	19	2	16.6	63	975	25	4	2438	0
14/01/09	20	2	15.7	64	975	42	3.9	2438	0
14/01/09	21	2	15.1	66	975	63	3.6	2438	0
14/01/09	22	2	14.6	67	975	86	3.4	2438	0
14/01/09	23	2	14.1	67	975	102	3.1	2438	0
14/01/09	24	2	13.7	66	975	270	2.7	2438	0
14/01/10	1	2	13.4	66	975	123	2.3	2438	0
14/01/10	2	2	13.1	65	975	270	2	2438	0
14/01/10	3	2	12.6	65	975	97	1.6	2438	0
14/01/10	4	2	12.3	66	975	71	1.5	2438	0
14/01/10	5	2	11.9	68	976	61	1.8	2438	0
14/01/10	6	2	11.6	69	976	66	2.1	2438	0
14/01/10	7	2	11.4	70	976	80	2.5	2438	0
14/01/10	8	2	11.5	68	976	92	2.7	2438	0
14/01/10	9	2	14.1	59	976	68	2.7	2438	0
14/01/10	10	2	16.6	52	976	270	2.3	2438	0
14/01/10	11	2	18.6	46	976	29	2.3	2438	0
14/01/10	12	2	20	40	975	270	2.7	2438	0
14/01/10	13	2	20.6	40	975	11	2.7	2438	0
14/01/10	14	2	21	41	975	8	2.7	2438	0
14/01/10	15	2	21.1	42	975	270	2.9	2438	0
14/01/10	16	2	20.7	45	974	6	3.1	2438	0
14/01/10	17	2	19.9	55	974	270	2.9	2438	0
14/01/10	18	2	18.7	58	974	20	3.2	2438	0
14/01/10	19	2	17.6	61	975	270	3.5	2438	0
14/01/10	20	2	16.6	64	975	67	3.9	2438	0
14/01/10	21	2	16.1	65	975	86	4.1	2438	0
14/01/10	22	2	15.6	63	975	101	4.1	2438	0
14/01/10	23	2	15.3	61	975	113	3.7	2438	0
14/01/10	24	2	15	59	976	131	3.8	2438	0
14/01/11	1	2	14.7	57	975	145	4	2438	0
14/01/11	2	2	14.6	54	975	150	3.5	2438	0
14/01/11	3	2	14.3	54	976	147	2.4	2438	0
14/01/11	4	2	13.6	56	976	131	1.5	2438	0
14/01/11	5	2	13.4	53	976	113	1	2438	0
14/01/11	6	2	13.1	54	976	115	1.2	2438	0
14/01/11	7	2	12.9	54	976	115	1.7	2438	0
14/01/11	8	2	13	54	976	115	1.9	2438	0
14/01/11	9	2	15.1	49	976	101	1.6	2438	0
14/01/11	10	2	18.1	38	976	58	1.5	2438	0
14/01/11	11	2	19.7	36	976	34	1.5	2438	0
14/01/11	12	2	21	33	976	21	1.8	2438	0
14/01/11	13	2	21.6	35	975	270	1.8	2438	0
14/01/11	14	2	22	36	975	315	1.8	2438	0
14/01/11	15	2	22.1	37	975	8	2	2438	0
14/01/11	16	2	22	39	974	315	2.3	2438	0
14/01/11	17	2	21.3	48	974	355	2.1	2438	0
14/01/11	18	2	20.3	52	974	359	1.5	2438	0
14/01/11	19	2	19.1	57	975	62	0.6	2438	0
14/01/11	20	2	18.1	61	975	147	0.9	2438	0
14/01/11	21	2	17.3	65	975	151	1.7	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/11	22	2	16.7	65	975	155	2.5	2438	0
14/01/11	23	2	16.6	62	976	158	3.2	2438	0
14/01/11	24	2	16.7	58	976	159	3.6	2438	0
14/01/12	1	2	16.9	54	976	160	3.6	2438	0
14/01/12	2	2	16.6	53	976	164	3.4	2438	0
14/01/12	3	2	16.5	52	976	171	3	2438	0
14/01/12	4	2	16.3	52	976	179	2.6	2438	0
14/01/12	5	2	16.1	52	976	183	2.3	2438	0
14/01/12	6	2	15.7	53	976	179	2.2	2438	0
14/01/12	7	2	15.5	53	976	171	2.5	2438	0
14/01/12	8	2	15.6	53	975	315	3	2438	0
14/01/12	9	2	17.3	53	975	158	2.3	2438	0
14/01/12	10	2	20.7	42	974	178	1.1	2438	0
14/01/12	11	2	22.6	37	974	208	0.6	2438	0
14/01/12	12	2	24.1	31	973	242	1.2	2438	0
14/01/12	13	2	25	30	973	256	1.5	2438	0
14/01/12	14	2	25.5	29	972	268	1.8	2438	0
14/01/12	15	2	25.6	29	972	277	2.5	2438	0
14/01/12	16	2	25	37	972	286	2.9	2438	0
14/01/12	17	2	23.7	48	972	297	3.4	2438	0
14/01/12	18	2	22.4	53	972	300	3.5	2438	0
14/01/12	19	2	21.3	56	973	287	2.5	2438	0
14/01/12	20	2	20.4	59	973	238	1.6	2438	0
14/01/12	21	2	19.6	61	973	193	2.1	2438	0
14/01/12	22	2	19.1	62	973	180	2.7	2438	0
14/01/12	23	3	19	61	973	182	3	2438	0
14/01/12	24	3	19	59	973	188	3.1	2438	0
14/01/13	1	3	19	57	973	205	3	2438	0
14/01/13	2	4	18.9	56	973	231	2.9	2438	0
14/01/13	3	4	18.1	60	973	279	4.7	2438	0
14/01/13	4	4	16	78	974	298	3.9	2438	0
14/01/13	5	4	15.5	85	974	297	3.3	2438	0
14/01/13	6	4	15.1	85	974	292	3.2	2438	0
14/01/13	7	4	14.6	84	974	292	2.9	2438	0
14/01/13	8	3	14.5	82	974	293	2.5	2438	0
14/01/13	9	3	16.1	63	975	332	3.6	2438	0
14/01/13	10	3	17.6	53	975	332	3.5	2438	0
14/01/13	11	2	18.5	50	975	328	3.5	2438	0
14/01/13	12	2	19.1	48	974	323	3.5	2438	0
14/01/13	13	2	19.7	45	974	318	3.6	2438	0
14/01/13	14	2	20	44	974	313	3.5	2438	0
14/01/13	15	2	20.1	43	973	309	3.5	2438	0
14/01/13	16	2	19.9	42	973	305	3.4	2438	0
14/01/13	17	2	19.1	51	973	296	2.7	2438	0
14/01/13	18	2	18.4	51	973	288	2.6	77777	0
14/01/13	19	2	17.6	51	974	282	2.4	77777	0
14/01/13	20	2	16.7	52	974	278	2.1	77777	0
14/01/13	21	2	16.1	53	974	282	1.4	77777	0
14/01/13	22	2	15.5	54	974	313	0.6	77777	0
14/01/13	23	2	14.7	55	975	59	0.5	77777	0
14/01/13	24	2	14	58	975	315	0.8	77777	0
14/01/14	1	2	13.4	61	974	120	1.4	77777	0
14/01/14	2	2	13.1	61	974	120	1.9	77777	0
14/01/14	3	2	12.9	60	974	118	1.9	77777	0
14/01/14	4	2	12.6	60	975	107	1.5	77777	0
14/01/14	5	2	12.3	60	975	76	1	77777	0
14/01/14	6	2	11.9	61	975	315	1.1	77777	0
14/01/14	7	2	11.4	62	975	67	1.2	77777	0
14/01/14	8	2	11.4	61	975	80	1.3	77777	0
14/01/14	9	2	14.1	44	975	43	2	77777	0
14/01/14	10	2	15.6	40	975	315	1.7	77777	0
14/01/14	11	2	17.4	37	975	315	1.5	77777	0
14/01/14	12	2	18.6	33	975	5	1.6	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/14	13	2	19.4	35	974	353	1.5	77777	0
14/01/14	14	2	19.9	36	974	342	1.6	77777	0
14/01/14	15	2	20	37	973	333	1.8	77777	0
14/01/14	16	2	19.7	39	973	325	2.1	77777	0
14/01/14	17	2	19	46	973	317	2.3	77777	0
14/01/14	18	2	17.7	51	972	311	2	77777	0
14/01/14	19	2	16.6	57	973	296	0.8	77777	0
14/01/14	20	2	15.6	62	973	131	0.6	77777	0
14/01/14	21	2	14.6	67	973	128	1	77777	0
14/01/14	22	2	14	70	973	315	1.7	77777	0
14/01/14	23	2	13.6	69	973	315	2.3	77777	0
14/01/14	24	2	13.6	67	973	138	2.6	77777	0
14/01/15	1	2	13.6	64	973	315	2.5	77777	0
14/01/15	2	2	13.6	59	973	160	2.3	2438	0
14/01/15	3	2	13.9	54	973	179	2.2	2438	0
14/01/15	4	2	13.9	51	973	200	2.1	2438	0
14/01/15	5	2	13.7	49	973	215	2.1	2438	0
14/01/15	6	2	13.4	50	974	218	2.2	2438	0
14/01/15	7	2	13	51	974	219	1.8	2438	0
14/01/15	8	2	12.7	53	974	225	1.1	2438	0
14/01/15	9	2	14.6	50	974	300	0.5	2438	0
14/01/15	10	2	16.6	46	974	321	0.4	2438	0
14/01/15	11	2	18.5	39	974	335	0.9	2438	0
14/01/15	12	2	19.6	34	973	315	1.3	2438	0
14/01/15	13	2	20.4	34	973	337	1.1	2438	0
14/01/15	14	2	21	31	973	335	1.4	2438	0
14/01/15	15	2	21.1	31	973	337	1.6	2438	0
14/01/15	16	2	21	32	973	342	1.9	2438	0
14/01/15	17	2	20.3	39	973	341	2	2438	0
14/01/15	18	2	19.1	44	973	342	1.4	2438	0
14/01/15	19	2	18	49	974	6	0.4	2438	0
14/01/15	20	2	17	55	974	130	0.5	2438	0
14/01/15	21	2	16.1	58	974	118	1	2438	0
14/01/15	22	2	15.6	61	974	315	1.7	2438	0
14/01/15	23	2	15.4	61	975	122	2.5	2438	0
14/01/15	24	2	15.3	59	975	128	3	2438	0
14/01/16	1	2	15.4	56	975	131	3.3	2438	0
14/01/16	2	2	15.5	53	974	315	3.5	2438	0
14/01/16	3	2	15.6	50	974	139	3.6	2438	0
14/01/16	4	2	15.6	47	974	315	3.4	2438	0
14/01/16	5	2	16	56	974	153	3	2438	0
14/01/16	6	2	15.7	56	974	165	2.7	2438	0
14/01/16	7	2	15.5	56	974	180	2.6	2438	0
14/01/16	8	3	15.5	57	975	199	2.6	2438	0
14/01/16	9	3	17.9	49	975	245	2.2	2438	0
14/01/16	10	3	19.6	44	975	295	3.2	2438	0
14/01/16	11	3	20.4	43	975	308	2.6	2438	0
14/01/16	12	3	21.1	43	975	312	1.9	2438	0
14/01/16	13	3	21.6	41	975	321	1.7	2438	0
14/01/16	14	3	22.1	41	974	325	1.7	2438	0
14/01/16	15	3	22.1	41	974	330	1.9	2438	0
14/01/16	16	3	22	43	974	333	2.5	2438	0
14/01/16	17	3	21.1	52	974	331	3.1	2438	0
14/01/16	18	3	20.3	55	974	327	3.3	2438	0
14/01/16	19	3	19.6	57	974	319	2.6	2438	0
14/01/16	20	3	18.7	60	975	314	1.1	2438	0
14/01/16	21	3	18	64	975	142	0.4	2438	0
14/01/16	22	3	17.3	68	976	121	0.8	2438	0
14/01/16	23	2	16.6	71	976	315	1.2	2438	0
14/01/16	24	2	16.3	72	976	315	1.4	2438	0
14/01/17	1	2	15.9	72	976	120	1.6	2438	0
14/01/17	2	3	15.6	71	976	118	1.7	2438	0
14/01/17	3	3	15.4	71	975	315	1.8	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/17	4	3	15.1	70	975	118	2	2438	0
14/01/17	5	3	15.1	67	975	120	2.2	2438	0
14/01/17	6	3	15.3	65	975	125	2.1	2438	0
14/01/17	7	3	15.4	63	975	130	2	2438	0
14/01/17	8	3	15.6	62	975	141	1.5	2438	0
14/01/17	9	3	17.6	57	975	315	2.4	2438	0
14/01/17	10	3	18.5	56	975	343	3.6	2438	0
14/01/17	11	3	19.3	51	975	342	3.6	2438	0
14/01/17	12	3	19.6	48	975	346	3.7	2438	0
14/01/17	13	3	20	46	975	344	4.3	2438	0
14/01/17	14	3	19.9	47	975	344	4.6	2438	0
14/01/17	15	3	19.5	50	975	342	5	2438	0
14/01/17	16	3	18.4	62	975	338	5.4	2438	0
14/01/17	17	3	16.7	72	975	315	5.1	2438	0
14/01/17	18	4	15.6	76	975	352	4.2	2199	0
14/01/17	19	4	15.1	79	975	315	2.9	2438	0
14/01/17	20	4	15.1	80	975	66	2	2438	0
14/01/17	21	3	14.6	83	976	91	0.5	2438	0
14/01/17	22	3	14.1	85	976	205	0.6	2438	0
14/01/17	23	3	13.7	86	976	202	0.8	2438	0
14/01/17	24	3	13.6	84	976	209	1.2	2438	0
14/01/18	1	3	13.5	79	976	214	1.6	2438	0
14/01/18	2	2	13.4	74	975	220	2.1	2438	0
14/01/18	3	2	13.1	70	975	247	3.3	2438	0
14/01/18	4	2	11.6	74	976	274	4.7	2438	0
14/01/18	5	2	10.3	77	976	279	4.2	2438	0
14/01/18	6	2	9.5	72	976	277	4	2438	0
14/01/18	7	2	8.9	71	977	277	3.9	2438	0
14/01/18	8	2	9.3	64	978	289	4.2	2438	0
14/01/18	9	2	11	46	979	315	5.1	2438	0
14/01/18	10	2	12	42	979	309	4.5	2438	0
14/01/18	11	2	12.6	42	979	311	3.9	2438	0
14/01/18	12	2	13.6	41	979	310	3.9	2438	0
14/01/18	13	2	14.4	39	979	306	3.8	2438	0
14/01/18	14	2	14.7	39	978	302	3.9	2438	0
14/01/18	15	2	14.9	39	978	302	4	2438	0
14/01/18	16	2	14.9	38	978	315	3.8	2438	0
14/01/18	17	2	14.3	46	978	301	2.8	77777	0
14/01/18	18	2	13.6	47	978	298	2.5	77777	0
14/01/18	19	2	12.9	47	978	287	2.1	77777	0
14/01/18	20	2	12.1	48	979	261	1.3	77777	0
14/01/18	21	2	11.6	50	979	215	0.8	77777	0
14/01/18	22	2	10.7	53	979	161	1.2	77777	0
14/01/18	23	2	10.1	56	980	155	1.9	77777	0
14/01/18	24	2	9.6	56	980	147	2.5	77777	0
14/01/19	1	2	9.5	55	980	140	2.8	77777	0
14/01/19	2	2	9.3	53	979	140	3	77777	0
14/01/19	3	2	9.1	51	980	142	2.8	77777	0
14/01/19	4	2	9.1	49	980	141	2.2	77777	0
14/01/19	5	2	8.7	49	980	315	1.5	77777	0
14/01/19	6	2	8.1	51	980	123	0.9	77777	0
14/01/19	7	2	7.7	52	981	126	0.8	77777	0
14/01/19	8	2	7.6	54	981	315	0.8	77777	0
14/01/19	9	2	10.1	46	981	71	0.7	77777	0
14/01/19	10	2	12.7	36	981	33	0.9	77777	0
14/01/19	11	2	14.5	31	981	6	1.2	77777	0
14/01/19	12	2	15.5	31	981	6	1.2	77777	0
14/01/19	13	2	16.4	30	980	315	1.3	77777	0
14/01/19	14	2	16.9	30	980	358	1.6	77777	0
14/01/19	15	2	17.1	31	979	353	1.9	77777	0
14/01/19	16	2	16.9	33	979	355	2.3	77777	0
14/01/19	17	2	16.1	42	979	357	2.6	77777	0
14/01/19	18	2	15.1	46	979	5	2.9	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/19	19	2	14.1	50	979	21	2.8	77777	0
14/01/19	20	2	13.1	53	979	41	2.6	77777	0
14/01/19	21	2	12.3	56	980	64	2.5	77777	0
14/01/19	22	2	11.6	58	980	84	2.6	77777	0
14/01/19	23	2	11.1	60	980	95	2.8	77777	0
14/01/19	24	2	10.9	61	980	97	2.8	77777	0
14/01/20	1	2	10.5	62	980	95	2.4	77777	0
14/01/20	2	2	9.9	64	980	95	2	77777	0
14/01/20	3	2	9.6	64	980	89	2	77777	0
14/01/20	4	2	9.1	65	980	86	2	77777	0
14/01/20	5	2	9	64	980	74	2.4	77777	0
14/01/20	6	2	8.7	64	980	62	3.3	77777	0
14/01/20	7	2	8.6	65	981	62	4.2	77777	0
14/01/20	8	2	8.6	65	981	68	4.1	77777	0
14/01/20	9	2	11.7	50	981	61	4.4	77777	0
14/01/20	10	2	13.9	41	981	53	4	77777	0
14/01/20	11	2	15.7	34	980	44	3.9	77777	0
14/01/20	12	2	16.7	34	980	40	3.8	77777	0
14/01/20	13	2	17.6	31	979	35	3.9	77777	0
14/01/20	14	2	18.1	30	978	28	4.1	77777	0
14/01/20	15	2	18.1	32	978	23	4.4	77777	0
14/01/20	16	2	17.6	37	978	21	4.7	77777	0
14/01/20	17	2	16.1	55	978	18	3.6	77777	0
14/01/20	18	2	14.6	60	978	28	4.2	77777	0
14/01/20	19	2	13.6	62	979	43	4.2	77777	0
14/01/20	20	2	13	63	979	57	4.3	77777	0
14/01/20	21	2	12.5	63	980	67	4.4	77777	0
14/01/20	22	2	12.1	63	980	75	4.4	77777	0
14/01/20	23	2	11.9	63	981	85	4.1	77777	0
14/01/20	24	2	11.6	62	981	95	3.6	77777	0
14/01/21	1	2	11.3	62	981	315	3.2	77777	0
14/01/21	2	2	10.9	61	981	119	2.6	77777	0
14/01/21	3	2	10.5	62	981	100	1.8	77777	0
14/01/21	4	2	9.9	63	981	76	1.8	77777	0
14/01/21	5	2	9.1	59	981	75	2.1	77777	0
14/01/21	6	2	8.7	58	981	72	2.5	77777	0
14/01/21	7	2	8.6	57	981	78	2.9	77777	0
14/01/21	8	2	8.9	55	981	86	3.2	77777	0
14/01/21	9	2	11.9	45	981	62	3.4	77777	0
14/01/21	10	2	14	40	982	45	3	77777	0
14/01/21	11	2	15.9	35	981	26	3.2	77777	0
14/01/21	12	2	16.7	36	981	22	3.4	77777	0
14/01/21	13	2	17.3	37	980	18	3.6	77777	0
14/01/21	14	2	17.7	37	980	90	4.1	77777	0
14/01/21	15	2	17.7	38	979	18	4.3	77777	0
14/01/21	16	2	17.4	42	979	23	4.4	77777	0
14/01/21	17	2	16.1	58	978	24	3.5	77777	0
14/01/21	18	2	14.9	63	978	36	4.2	77777	0
14/01/21	19	2	13.6	68	979	51	4.5	77777	0
14/01/21	20	2	12.7	71	979	61	4.5	77777	0
14/01/21	21	2	12.1	73	980	65	4.5	77777	0
14/01/21	22	2	11.9	74	980	68	4.5	77777	0
14/01/21	23	2	11.6	75	981	71	4.5	77777	0
14/01/21	24	2	11.6	75	981	72	4.5	77777	0
14/01/22	1	2	11.6	74	981	73	4.3	2438	0
14/01/22	2	2	11.5	73	981	69	4.1	2438	0
14/01/22	3	2	11.1	74	981	61	4.4	2438	0
14/01/22	4	2	10.6	78	981	54	4.8	2438	0
14/01/22	5	2	9.7	83	981	55	4.6	2438	0
14/01/22	6	2	9.5	86	981	62	4.4	2438	0
14/01/22	7	2	9.6	86	981	71	4.2	2438	0
14/01/22	8	2	10	86	981	74	3.8	2438	0
14/01/22	9	2	13.3	74	980	54	4.3	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/22	10	2	15.6	62	980	44	4.4	77777	0
14/01/22	11	2	17	57	979	39	4.4	77777	0
14/01/22	12	2	18	55	979	37	4.3	77777	0
14/01/22	13	2	18.9	52	978	33	4.5	77777	0
14/01/22	14	2	19.3	51	978	29	4.6	77777	0
14/01/22	15	2	19.3	52	977	27	4.7	77777	0
14/01/22	16	2	18.9	55	977	27	4.7	2438	0
14/01/22	17	2	17.9	69	977	24	3.6	2438	0
14/01/22	18	2	16.4	76	976	90	4.1	2438	0
14/01/22	19	3	15.1	80	977	90	4.3	2438	0
14/01/22	20	3	14.4	83	978	60	4.4	2438	0
14/01/22	21	2	14	85	978	70	4.6	2438	0
14/01/22	22	2	13.9	83	978	82	4.4	2438	0
14/01/22	23	2	14	78	979	98	4.5	2438	0
14/01/22	24	2	14	72	979	107	4.6	77777	0
14/01/23	1	2	13.9	66	978	109	4.3	77777	0
14/01/23	2	2	13.6	62	978	109	4	77777	0
14/01/23	3	2	13.1	60	978	109	3.5	77777	0
14/01/23	4	2	12.5	60	978	106	2.8	77777	0
14/01/23	5	2	12	62	978	96	2.3	77777	0
14/01/23	6	2	11.4	65	978	85	2.1	77777	0
14/01/23	7	2	11	68	978	82	2.2	77777	0
14/01/23	8	2	11.1	69	979	90	2	77777	0
14/01/23	9	2	14.5	60	978	61	2.8	77777	0
14/01/23	10	2	16.9	56	979	40	2.6	77777	0
14/01/23	11	2	18.7	50	978	37	2.4	77777	0
14/01/23	12	2	20.1	47	978	33	2.3	77777	0
14/01/23	13	2	20.9	48	977	29	2.3	77777	0
14/01/23	14	2	21.5	47	977	24	2.5	77777	0
14/01/23	15	2	21.6	45	977	19	3	77777	0
14/01/23	16	2	21.5	48	977	90	3.6	77777	0
14/01/23	17	2	20.1	62	976	10	3.5	77777	0
14/01/23	18	2	18.5	69	977	22	4.3	77777	0
14/01/23	19	2	16.9	74	977	40	4.5	77777	0
14/01/23	20	2	15.7	77	978	54	4.6	77777	0
14/01/23	21	2	15.1	78	978	64	4.6	77777	0
14/01/23	22	2	15.1	77	979	71	4.3	77777	0
14/01/23	23	2	15.1	75	979	82	4.1	77777	0
14/01/23	24	2	14.9	72	980	94	4.1	77777	0
14/01/24	1	2	14.7	69	980	100	4.1	77777	0
14/01/24	2	2	14.6	65	980	107	3.9	77777	0
14/01/24	3	2	14.6	62	980	107	3.3	77777	0
14/01/24	4	2	13.7	64	980	73	2.4	77777	0
14/01/24	5	2	12.6	71	981	44	3.8	77777	0
14/01/24	6	2	11.7	76	981	52	4.4	2438	0
14/01/24	7	2	11.6	75	981	58	3.7	2438	0
14/01/24	8	2	11.6	74	981	90	3	2438	0
14/01/24	9	2	14.6	61	980	30	4.3	2438	0
14/01/24	10	2	16.9	53	980	90	4.9	2438	0
14/01/24	11	2	18.5	49	980	90	5.3	2438	0
14/01/24	12	2	19.3	48	979	29	5.4	2438	0
14/01/24	13	2	20	45	979	25	5.5	2438	0
14/01/24	14	2	20.1	45	978	18	5.6	2438	0
14/01/24	15	2	19.9	47	978	90	5.6	2438	0
14/01/24	16	2	19.5	51	978	14	5.4	2438	0
14/01/24	17	2	18.3	65	977	11	3.6	2438	0
14/01/24	18	2	17	69	977	21	4	2438	0
14/01/24	19	2	15.7	73	978	37	4.3	2438	0
14/01/24	20	2	14.9	76	979	90	4.4	2438	0
14/01/24	21	2	14.1	79	979	56	4.5	2438	0
14/01/24	22	2	13.6	81	980	64	4.5	2438	0
14/01/24	23	2	13.3	81	980	72	4.5	77777	0
14/01/24	24	2	13.1	80	981	74	4.5	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/25	1	2	13.1	77	981	80	4.2	77777	0
14/01/25	2	2	13.1	75	980	83	3.7	77777	0
14/01/25	3	2	12.6	74	981	70	3.1	77777	0
14/01/25	4	2	12.1	77	981	90	3.2	77777	0
14/01/25	5	2	11.5	81	981	45	3.6	77777	0
14/01/25	6	2	11.1	84	981	56	3.7	77777	0
14/01/25	7	2	10.9	84	981	67	3.4	77777	0
14/01/25	8	2	11	83	981	72	3.2	77777	0
14/01/25	9	2	14.1	70	981	90	3.7	77777	0
14/01/25	10	2	16.3	58	980	34	3.9	77777	0
14/01/25	11	2	17.7	51	980	28	4	77777	0
14/01/25	12	2	18.6	48	980	26	3.7	77777	0
14/01/25	13	2	19.6	42	979	23	4	77777	0
14/01/25	14	2	20	39	978	20	4.2	77777	0
14/01/25	15	2	20.1	38	978	21	4.3	77777	0
14/01/25	16	2	19.6	41	978	24	4.2	77777	0
14/01/25	17	2	18.6	57	977	23	3.2	77777	0
14/01/25	18	2	17.5	60	977	34	3.8	77777	0
14/01/25	19	2	16.5	62	978	44	4.2	77777	0
14/01/25	20	2	15.6	63	978	53	4.2	77777	0
14/01/25	21	2	15	65	979	65	3.9	77777	0
14/01/25	22	2	14.4	66	979	81	3.3	77777	0
14/01/25	23	2	13.7	68	980	94	2.9	77777	0
14/01/25	24	2	13.1	70	980	105	2.8	77777	0
14/01/26	1	2	12.6	71	980	121	2.8	77777	0
14/01/26	2	2	12.5	70	980	131	2.8	77777	0
14/01/26	3	2	12.3	70	980	131	2.3	77777	0
14/01/26	4	2	11.9	71	980	115	1.8	77777	0
14/01/26	5	2	11.3	58	980	102	2.4	77777	0
14/01/26	6	2	11.1	57	980	103	2.5	77777	0
14/01/26	7	2	11	55	981	109	2.6	77777	0
14/01/26	8	2	11.3	54	981	90	2.3	77777	0
14/01/26	9	2	14.1	44	981	84	1.9	77777	0
14/01/26	10	2	16.6	40	981	53	1.2	77777	0
14/01/26	11	2	18.4	36	981	18	0.9	77777	0
14/01/26	12	2	19.6	32	981	90	1.3	77777	0
14/01/26	13	2	20.3	33	980	5	1.6	77777	0
14/01/26	14	2	20.9	31	979	90	2	77777	0
14/01/26	15	2	21.1	30	979	6	2.6	77777	0
14/01/26	16	2	20.6	32	978	90	3.2	77777	0
14/01/26	17	2	19.6	48	978	5	3.2	77777	0
14/01/26	18	2	18.4	51	978	18	4	77777	0
14/01/26	19	2	17.1	55	979	90	4.2	77777	0
14/01/26	20	2	16.1	57	979	75	4.5	77777	0
14/01/26	21	2	15.6	57	979	95	4.6	77777	0
14/01/26	22	2	15.1	55	980	90	4.6	77777	0
14/01/26	23	2	14.9	53	980	125	4.6	77777	0
14/01/26	24	2	14.6	50	980	138	5	77777	0
14/01/27	1	2	14.3	48	979	151	5	77777	0
14/01/27	2	2	14.5	45	979	160	4.6	77777	0
14/01/27	3	2	14.4	44	979	159	4	77777	0
14/01/27	4	2	13.7	46	979	153	2.9	77777	0
14/01/27	5	2	13	49	979	145	1.4	77777	0
14/01/27	6	2	12.1	54	979	90	0.8	77777	0
14/01/27	7	2	11.5	56	979	90	0.9	77777	0
14/01/27	8	2	11.7	55	979	104	1.1	2438	0
14/01/27	9	2	14.6	49	979	89	1.1	2438	0
14/01/27	10	2	17.6	38	979	63	1.5	2438	0
14/01/27	11	2	19.3	37	978	54	1.7	2438	0
14/01/27	12	2	20.6	35	978	90	2	2438	0
14/01/27	13	2	21.3	38	977	39	2.2	77777	0
14/01/27	14	2	21.7	38	977	90	2.5	77777	0
14/01/27	15	2	22.1	39	976	25	3	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/27	16	2	21.7	41	976	21	3.4	77777	0
14/01/27	17	2	20.7	54	976	19	2.9	77777	0
14/01/27	18	2	19.6	58	976	90	3.4	77777	0
14/01/27	19	2	18.6	60	977	52	3.9	2438	0
14/01/27	20	2	17.6	63	977	67	4.5	2438	0
14/01/27	21	2	16.9	65	978	83	4.6	77777	0
14/01/27	22	2	16.6	64	978	107	4.6	77777	0
14/01/27	23	2	16.3	60	978	90	5.1	77777	0
14/01/27	24	2	15.6	57	978	142	5.4	77777	0
14/01/28	1	2	15.5	53	978	144	5.4	77777	0
14/01/28	2	2	15.6	49	978	145	5.4	6412	0
14/01/28	3	2	15.6	46	978	90	5.3	6412	0
14/01/28	4	2	15.7	45	977	147	5.2	6412	0
14/01/28	5	2	15.7	44	977	150	5.2	77777	0
14/01/28	6	2	15.6	44	977	152	5.3	77777	0
14/01/28	7	2	15.5	46	978	150	5.5	77777	0
14/01/28	8	2	15.3	50	978	90	4.8	77777	0
14/01/28	9	2	17	54	978	90	3	77777	0
14/01/28	10	2	20.6	43	978	179	0.4	77777	0
14/01/28	11	2	22.6	33	977	307	0.3	77777	0
14/01/28	12	2	23.4	29	977	24	0.9	77777	0
14/01/28	13	2	23.7	29	977	90	1.5	77777	0
14/01/28	14	2	24.1	29	976	28	2	77777	0
14/01/28	15	2	24.1	31	976	23	2.7	2438	0
14/01/28	16	2	23.6	35	975	19	3.5	2438	0
14/01/28	17	2	22.1	52	975	90	3.4	2438	0
14/01/28	18	2	20.7	57	975	33	4	2438	0
14/01/28	19	2	19.9	60	975	54	4.2	2438	0
14/01/28	20	2	19.1	61	976	76	4.4	2438	0
14/01/28	21	2	18.6	63	976	105	4.5	2438	0
14/01/28	22	2	17.7	65	976	129	5	77777	0
14/01/28	23	2	17.1	65	977	132	5.1	77777	0
14/01/28	24	2	17.1	60	977	90	4.9	77777	0
14/01/29	1	2	17.1	55	977	138	4.6	77777	0
14/01/29	2	2	16.7	53	977	139	4.2	7988	0
14/01/29	3	2	16.6	51	977	138	3.9	7988	0
14/01/29	4	2	16.5	50	977	137	3.5	77777	0
14/01/29	5	2	16	52	977	90	3.2	77777	0
14/01/29	6	2	15.5	55	977	125	2.9	6412	0
14/01/29	7	2	15.1	57	977	121	2.9	6412	0
14/01/29	8	2	15.3	58	977	115	2.5	2438	0
14/01/29	9	2	17.7	49	977	85	1.7	2438	0
14/01/29	10	2	20.3	41	977	90	1.6	2438	0
14/01/29	11	2	21.5	43	977	36	0.9	2438	0
14/01/29	12	2	23	38	976	90	0.4	77777	0
14/01/29	13	2	23.7	37	976	332	0.4	77777	0
14/01/29	14	2	24.3	35	975	90	0.8	77777	0
14/01/29	15	2	24.5	35	975	346	1.3	77777	0
14/01/29	16	2	24.3	36	974	353	2	2438	0
14/01/29	17	2	23.5	45	974	359	2.6	2438	0
14/01/29	18	2	22.3	50	974	90	2.4	2438	0
14/01/29	19	2	21	55	974	37	1.6	2438	0
14/01/29	20	2	19.9	60	975	85	1.8	2438	0
14/01/29	21	2	19	63	975	104	2.4	2438	0
14/01/29	22	2	18.4	65	975	90	2.5	77777	0
14/01/29	23	2	17.7	66	976	125	2.7	77777	0
14/01/29	24	2	17.5	66	976	139	3.3	77777	0
14/01/30	1	2	17.3	64	975	150	3.9	7988	0
14/01/30	2	2	17.6	60	975	153	4.2	7988	0
14/01/30	3	2	17.6	58	975	151	3.8	2438	0
14/01/30	4	2	17.3	58	975	149	3.6	2438	0
14/01/30	5	2	17.1	57	974	154	3.7	2438	0
14/01/30	6	2	17.1	56	974	160	3.4	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/01/30	7	2	17.1	55	975	164	3.3	2438	0
14/01/30	8	2	17.3	54	975	90	3.3	2438	0
14/01/30	9	2	17.6	54	976	170	3	2438	0
14/01/30	10	2	20.4	50	976	182	1.3	2438	0
14/01/30	11	2	22.6	39	976	259	0.7	2438	0
14/01/30	12	2	23.9	32	976	218	0.4	2438	0
14/01/30	13	2	24.6	30	975	242	0.4	2438	0
14/01/30	14	2	25.1	30	975	246	0.4	2438	0
14/01/30	15	2	25.3	30	974	321	0.4	2438	0
14/01/30	16	2	25.3	30	974	62	0.4	2438	0
14/01/30	17	2	24.6	37	974	90	0.6	2438	0
14/01/30	18	2	23.1	45	974	30	0.3	2438	0
14/01/30	19	2	21.5	53	975	142	0.7	2438	0
14/01/30	20	2	20.3	57	975	90	1.9	2438	0
14/01/30	21	2	19.6	57	976	144	3.7	2438	0
14/01/30	22	2	19	56	976	145	4.6	2438	0
14/01/30	23	2	18.3	57	977	137	4.8	2438	0
14/01/30	24	2	18.1	55	977	90	4.7	2438	0
14/01/31	1	2	18.1	53	977	131	4.7	2438	0
14/01/31	2	2	17.9	51	976	129	4.9	2438	0
14/01/31	3	2	17.5	49	976	128	5.1	2438	0
14/01/31	4	2	17.3	49	976	129	5.2	2438	0
14/01/31	5	2	18.3	52	975	129	4.8	2438	0
14/01/31	6	2	18.1	52	975	125	4.8	2438	0
14/01/31	7	2	18.1	53	976	122	5	2438	0
14/01/31	8	2	18.3	55	976	122	4.5	2438	0
14/01/31	9	2	21.1	50	976	109	3.3	2438	0
14/01/31	10	2	23.6	41	976	92	2.6	2438	0
14/01/31	11	2	25.1	38	976	72	1.9	2438	0
14/01/31	12	2	26.1	36	975	90	1.5	2438	0
14/01/31	13	2	26.5	34	975	24	1.7	2438	0
14/01/31	14	2	26.6	33	975	90	2.2	2438	0
14/01/31	15	2	26.6	33	974	90	2.9	2438	0
14/01/31	16	2	26.1	37	974	90	3.5	2438	0
14/01/31	17	2	24.7	52	974	90	3.3	2438	0
14/01/31	18	2	23.5	56	974	33	4	2438	0
14/01/31	19	2	21.9	61	975	58	4.5	2438	0
14/01/31	20	2	20.9	63	975	74	4.6	2438	0
14/01/31	21	2	20.3	63	975	83	4.7	2438	0
14/01/31	22	2	20.1	63	975	95	4.5	2438	0
14/01/31	23	2	20.1	63	975	113	4.6	2438	0
14/01/31	24	2	19.9	61	975	125	4.9	2438	0
14/02/01	1	2	19.6	59	975	128	4.9	2438	0
14/02/01	2	2	19.5	56	975	131	4.9	2438	0
14/02/01	3	2	19.5	54	974	90	4.8	2438	0
14/02/01	4	2	19.4	53	974	90	4.5	2438	0
14/02/01	5	2	19.1	52	974	90	3.6	2438	0
14/02/01	6	2	18.3	56	975	107	1.8	2438	0
14/02/01	7	2	17.1	64	975	90	3.4	2438	0
14/02/01	8	2	17	66	975	68	2.9	2438	0
14/02/01	9	2	20.3	52	975	58	2.9	2438	0
14/02/01	10	2	22.1	47	975	36	1.7	2438	0
14/02/01	11	2	23.6	43	975	90	1.6	2438	0
14/02/01	12	2	24.4	43	975	356	1.6	2438	0
14/02/01	13	2	24.7	42	975	353	2.1	2438	0
14/02/01	14	2	25.1	43	974	358	2.4	2438	0
14/02/01	15	2	25.1	44	974	90	2.5	2438	0
14/02/01	16	2	25	46	974	8	2.8	2438	0
14/02/01	17	2	24.1	57	974	8	2.5	2438	0
14/02/01	18	3	23.4	61	974	14	2.1	2438	0
14/02/01	19	3	22.4	66	974	28	1.5	2438	0
14/02/01	20	3	21.5	70	975	71	1	2438	0
14/02/01	21	3	21	72	975	118	1	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/01	22	3	20.6	73	976	123	1.2	2438	0
14/02/01	23	2	20.3	75	976	160	1.3	2438	0
14/02/01	24	2	20.1	75	977	194	1.4	2438	0
14/02/02	1	2	20	75	976	90	1.2	2438	0
14/02/02	2	2	20	74	976	156	1.5	2438	0
14/02/02	3	2	19.9	74	976	155	1.2	2438	0
14/02/02	4	2	19.6	76	975	119	0.9	2438	0
14/02/02	5	2	19.4	77	975	101	1.1	2438	0
14/02/02	6	2	19.1	78	975	110	1.2	2438	0
14/02/02	7	2	19.3	77	976	90	1.3	2438	0
14/02/02	8	2	19.4	76	976	115	1.3	2438	0
14/02/02	9	2	22.1	59	976	70	1.3	2438	0
14/02/02	10	2	23.7	51	976	36	1.4	2438	0
14/02/02	11	2	24.7	45	976	20	1.4	2438	0
14/02/02	12	2	25.6	40	976	90	1.5	2438	0
14/02/02	13	2	26	38	975	10	1.7	2438	0
14/02/02	14	2	26.1	37	975	18	1.7	2438	0
14/02/02	15	3	26.1	37	974	27	1.8	2438	0
14/02/02	16	2	26	38	973	40	2.2	2438	0
14/02/02	17	2	25.1	47	973	51	2.3	2438	0
14/02/02	18	2	24.3	51	972	64	2.6	2438	0
14/02/02	19	2	23.4	53	973	77	3.1	2438	0
14/02/02	20	2	22.5	55	973	91	4.1	2438	0
14/02/02	21	2	21.4	58	973	102	4.7	2438	0
14/02/02	22	2	20.6	62	974	113	4.7	2438	0
14/02/02	23	2	20.1	67	974	129	4.8	2438	0
14/02/02	24	2	19.6	68	974	137	5	2438	0
14/02/03	1	2	19.6	67	974	141	5	2438	0
14/02/03	2	2	19.6	65	973	145	5	2438	0
14/02/03	3	2	19.6	64	973	147	4.9	2438	0
14/02/03	4	2	19.6	62	972	145	4.9	2438	0
14/02/03	5	2	19.5	62	972	143	4.8	2438	0
14/02/03	6	2	19.4	61	972	143	4.7	2438	0
14/02/03	7	2	19.5	58	972	135	4.4	2438	0
14/02/03	8	2	19.9	58	973	147	3.8	2438	0
14/02/03	9	2	21.7	58	973	147	2.1	2438	0
14/02/03	10	2	24.6	47	973	200	0.7	2438	0
14/02/03	11	2	25.5	43	973	269	1.2	2438	0
14/02/03	12	2	26	42	972	279	1.4	2438	0
14/02/03	13	3	26.3	43	972	282	1	2438	0
14/02/03	14	3	26.4	43	971	295	0.8	2438	0
14/02/03	15	3	26.4	44	970	309	0.8	2438	0
14/02/03	16	3	26.1	49	970	330	1	2438	0
14/02/03	17	3	25.6	55	969	338	0.8	2438	0
14/02/03	18	3	24.6	61	969	159	0.4	2438	0
14/02/03	19	3	24	66	970	181	0.7	2438	0
14/02/03	20	3	23.5	69	970	180	1.3	2438	0
14/02/03	21	2	23.1	70	970	135	1.6	2438	0
14/02/03	22	2	22.9	70	971	135	2.6	2438	0
14/02/03	23	2	22.7	69	971	169	3.9	2438	0
14/02/03	24	3	22.3	70	971	173	4.5	2438	0
14/02/04	1	3	21.7	72	971	179	4.8	2438	0
14/02/04	2	3	21.5	74	970	186	5	2438	0
14/02/04	3	3	21.1	77	970	194	4.9	2438	0
14/02/04	4	3	20.6	80	970	204	4.7	2438	0
14/02/04	5	3	20.4	81	970	213	4.6	2438	0
14/02/04	6	3	20.1	82	970	217	4.5	2438	0
14/02/04	7	3	19.9	83	970	220	4.4	2438	0
14/02/04	8	3	19.9	83	971	227	4.3	2438	0
14/02/04	9	3	21.6	70	971	250	4.9	2438	0
14/02/04	10	3	23	56	971	268	4.9	2438	0
14/02/04	11	3	23.6	53	972	268	4.4	2438	0
14/02/04	12	4	24.1	50	972	262	4.2	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/04	13	4	24.5	48	971	255	4.5	2438	0
14/02/04	14	4	24.6	46	971	247	4.9	2438	0
14/02/04	15	4	24.6	48	971	242	5.7	2438	0
14/02/04	16	4	24.1	53	971	233	5	2438	0
14/02/04	17	5	23.6	65	971	233	3.4	2199	0
14/02/04	18	6	22.5	72	971	248	4.1	2199	1
14/02/04	19	6	21.6	77	972	254	3.8	2199	4
14/02/04	20	7	21.1	80	972	259	3.8	2438	4
14/02/04	21	7	20.6	83	973	257	4	2438	6
14/02/04	22	6	20.3	83	974	255	3.5	2438	4
14/02/04	23	5	20	82	974	244	3.2	2438	4
14/02/04	24	4	19.9	80	974	229	3.5	2438	5
14/02/05	1	5	19.5	80	974	217	3.8	2438	4
14/02/05	2	4	18.6	84	974	216	4.3	2438	2
14/02/05	3	4	17.9	89	973	222	4.8	2438	0
14/02/05	4	4	17.1	90	973	228	5	2438	0
14/02/05	5	3	15.1	87	973	230	5.3	2438	0
14/02/05	6	3	14.6	88	973	230	5.3	2438	0
14/02/05	7	3	14.1	90	974	228	4.9	2438	0
14/02/05	8	2	15.3	84	975	235	5.2	2438	0
14/02/05	9	2	17.4	66	975	254	6	2438	0
14/02/05	10	3	18.6	55	975	259	5.6	2438	0
14/02/05	11	3	19.5	49	975	257	5.3	2438	0
14/02/05	12	3	20.1	46	975	256	5.4	2438	0
14/02/05	13	3	20.4	42	975	255	5.5	2438	0
14/02/05	14	3	20.6	40	975	255	5.6	2438	0
14/02/05	15	3	20.5	39	974	255	5.7	2438	0
14/02/05	16	3	20.1	39	974	256	5.2	2438	0
14/02/05	17	3	19.3	51	974	264	3.2	2438	0
14/02/05	18	2	18.6	52	974	271	2.7	2438	0
14/02/05	19	2	17.7	53	975	275	1.7	2438	0
14/02/05	20	2	16.7	57	976	284	0.6	2438	0
14/02/05	21	2	15.7	62	976	132	0.4	2438	0
14/02/05	22	2	14.7	68	977	125	0.3	2438	0
14/02/05	23	2	14	72	977	150	0.4	2438	0
14/02/05	24	2	13.4	75	978	137	0.4	2438	0
14/02/06	1	2	12.9	75	978	140	0.6	2438	0
14/02/06	2	2	12.6	74	978	140	0.9	2438	0
14/02/06	3	2	12.3	73	978	145	1.1	2438	0
14/02/06	4	2	12	71	978	151	1	2438	0
14/02/06	5	2	11.7	69	978	175	0.5	2438	0
14/02/06	6	2	11.1	69	979	312	1.5	2438	0
14/02/06	7	2	10.6	70	980	336	0.7	2438	0
14/02/06	8	2	11	66	980	83	0.6	2438	0
14/02/06	9	2	13.6	47	980	5	1.8	2438	0
14/02/06	10	2	15.4	41	980	357	2.1	2438	0
14/02/06	11	2	16.9	37	980	354	2.5	2438	0
14/02/06	12	2	17.9	35	980	350	2.7	77777	0
14/02/06	13	2	18.6	34	980	346	3.3	77777	0
14/02/06	14	2	19	34	979	344	4	77777	0
14/02/06	15	2	19	35	979	346	4.5	77777	0
14/02/06	16	2	18.6	37	979	351	4.8	77777	0
14/02/06	17	2	17.6	52	979	351	3.4	77777	0
14/02/06	18	2	16.6	56	978	3	3.7	2438	0
14/02/06	19	2	16	57	979	21	3.5	2438	0
14/02/06	20	2	15.3	59	979	135	2.9	2438	0
14/02/06	21	2	14.5	62	980	78	2.4	2438	0
14/02/06	22	2	13.7	64	980	108	2.4	77777	0
14/02/06	23	2	13.3	65	980	129	2.5	77777	0
14/02/06	24	2	12.7	66	980	140	2.1	77777	0
14/02/07	1	2	12.3	68	980	131	1.2	77777	0
14/02/07	2	2	11.7	70	980	93	0.8	77777	0
14/02/07	3	2	11.4	72	979	71	1.2	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/07	4	2	11.1	73	980	56	1.7	2438	0
14/02/07	5	2	10.6	74	980	53	2.1	2438	0
14/02/07	6	2	10.5	75	980	65	2.2	2438	0
14/02/07	7	2	10.1	75	980	79	2	2438	0
14/02/07	8	2	10.4	74	980	71	1.7	2438	0
14/02/07	9	2	13.6	58	980	35	3.4	2438	0
14/02/07	10	2	15.6	51	980	135	3.7	2438	0
14/02/07	11	2	16.7	49	980	135	3.5	2438	0
14/02/07	12	2	18.1	45	979	28	3.5	2438	0
14/02/07	13	2	18.9	43	978	21	3.7	2438	0
14/02/07	14	2	19.4	41	978	135	4.1	77777	0
14/02/07	15	2	19.5	41	977	135	4.4	77777	0
14/02/07	16	2	19.3	43	977	18	4.7	77777	0
14/02/07	17	2	18.1	59	977	135	3.6	77777	0
14/02/07	18	2	16.6	66	977	135	4.3	77777	0
14/02/07	19	2	15.4	71	977	30	4.4	77777	0
14/02/07	20	2	14.6	74	978	43	4.3	77777	0
14/02/07	21	2	13.9	77	978	54	4.3	77777	0
14/02/07	22	2	13.4	79	978	63	4.3	77777	0
14/02/07	23	2	13.1	81	979	72	4.4	77777	0
14/02/07	24	2	12.9	81	979	77	4.5	77777	0
14/02/08	1	2	12.7	80	979	77	4.4	77777	0
14/02/08	2	2	12.6	79	979	68	4.4	77777	0
14/02/08	3	2	12.1	80	979	57	4.7	77777	0
14/02/08	4	2	11.3	84	979	135	4.6	77777	0
14/02/08	5	2	10.6	89	979	45	4.3	2438	0
14/02/08	6	2	10.1	93	980	135	4	2438	0
14/02/08	7	2	9.7	95	980	50	4	2438	0
14/02/08	8	2	11	89	980	135	4.5	2438	0
14/02/08	9	2	13.5	68	980	35	5.8	2438	0
14/02/08	10	2	14.6	62	979	30	5.6	77777	0
14/02/08	11	2	15.9	57	979	25	5.4	77777	0
14/02/08	12	2	16.6	56	979	22	5.2	77777	0
14/02/08	13	2	17.3	56	978	22	5.1	77777	0
14/02/08	14	2	17.9	53	977	20	5.3	77777	0
14/02/08	15	2	17.9	55	977	22	5.6	77777	0
14/02/08	16	2	17.6	60	977	28	5.6	77777	0
14/02/08	17	2	16.6	73	976	37	4.9	77777	0
14/02/08	18	2	14.6	87	976	45	5.1	77777	0
14/02/08	19	2	13	89	977	135	5.4	77777	0
14/02/08	20	2	12	90	978	52	5.1	2438	0
14/02/08	21	2	11.3	92	978	55	4.4	2438	0
14/02/08	22	2	11	94	979	64	3.7	77777	0
14/02/08	23	2	10.9	94	979	82	3.4	77777	0
14/02/08	24	2	11.1	92	979	104	3.1	77777	0
14/02/09	1	2	11.1	90	978	119	2.9	2438	0
14/02/09	2	2	11.1	87	978	126	2.7	2438	0
14/02/09	3	2	11.1	85	977	122	2.2	2438	0
14/02/09	4	2	10.9	84	977	99	1.2	2438	0
14/02/09	5	2	10.5	85	977	71	0.9	2438	0
14/02/09	6	2	10.3	85	977	63	1.1	2438	0
14/02/09	7	2	10.1	85	977	73	1.2	2438	0
14/02/09	8	2	10.6	83	978	76	1.4	2438	0
14/02/09	9	2	14	67	978	36	2.4	2438	0
14/02/09	10	2	16	61	978	37	2.2	2438	0
14/02/09	11	2	18.1	54	978	35	2.2	2438	0
14/02/09	12	2	19.3	53	977	135	2.1	2438	0
14/02/09	13	2	20.1	52	976	26	2.4	2438	0
14/02/09	14	2	21	50	975	22	2.6	2438	0
14/02/09	15	2	21.4	50	975	21	3	2438	0
14/02/09	16	2	21.1	52	974	20	3.6	2438	0
14/02/09	17	2	20.1	64	973	135	3.4	2438	0
14/02/09	18	2	18.7	70	973	22	3.8	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/09	19	2	17.6	74	974	37	4	2438	0
14/02/09	20	2	16.6	77	974	50	4.2	2438	0
14/02/09	21	2	15.9	78	975	61	4.3	2438	0
14/02/09	22	2	15.6	78	975	72	4.2	2438	0
14/02/09	23	2	15.6	76	975	94	3.8	77777	0
14/02/09	24	2	15.6	74	976	135	4	77777	0
14/02/10	1	2	15.4	71	975	124	4.6	77777	0
14/02/10	2	2	15.3	67	974	128	4.8	77777	0
14/02/10	3	2	15.4	62	974	135	4.3	77777	0
14/02/10	4	2	15.3	58	974	132	3.3	77777	0
14/02/10	5	2	15.1	45	974	123	3.2	77777	0
14/02/10	6	2	14.5	47	974	106	2.8	77777	0
14/02/10	7	2	13.9	49	974	94	2.5	77777	0
14/02/10	8	2	14	51	974	85	2.4	77777	0
14/02/10	9	2	17.6	40	974	50	3.6	77777	0
14/02/10	10	2	19.1	39	975	39	3.6	77777	0
14/02/10	11	2	20.6	39	975	34	3.1	77777	0
14/02/10	12	2	22.1	35	974	22	3.2	77777	0
14/02/10	13	2	22.5	37	974	14	3.4	77777	0
14/02/10	14	2	22.6	40	973	8	3.5	77777	0
14/02/10	15	2	22.7	41	973	5	3.8	2438	0
14/02/10	16	2	22.5	43	973	135	4	2438	0
14/02/10	17	2	21.6	56	973	135	3.1	2438	0
14/02/10	18	2	20.6	59	973	8	3.4	2438	0
14/02/10	19	2	19.9	61	973	19	3.4	2438	0
14/02/10	20	2	19.1	63	974	135	3.2	2438	0
14/02/10	21	3	18.5	66	975	44	3.3	2438	0
14/02/10	22	3	18	68	975	61	3.2	2438	0
14/02/10	23	2	17.6	71	976	88	2.5	2438	0
14/02/10	24	2	17.4	72	976	120	2.5	2438	0
14/02/11	1	2	17.3	73	975	135	2.9	2438	0
14/02/11	2	2	17.1	73	975	135	3.4	77777	0
14/02/11	3	2	16.9	71	975	135	3.4	77777	0
14/02/11	4	2	16.6	71	975	122	2.7	77777	0
14/02/11	5	2	16	72	975	105	2.1	77777	0
14/02/11	6	2	15.5	74	975	92	1.8	77777	0
14/02/11	7	2	14.9	77	976	54	1.9	77777	0
14/02/11	8	2	15.1	78	976	135	3.1	77777	0
14/02/11	9	2	18.4	66	976	43	4	77777	0
14/02/11	10	2	20.4	59	976	35	3.6	77777	0
14/02/11	11	2	21.9	54	976	27	3.7	77777	0
14/02/11	12	2	22.9	50	976	22	3.7	77777	0
14/02/11	13	2	23.5	48	975	18	3.9	77777	0
14/02/11	14	2	23.7	47	975	135	3.9	77777	0
14/02/11	15	2	23.9	46	974	135	4	77777	0
14/02/11	16	2	23.6	47	974	135	4.3	77777	0
14/02/11	17	2	22.6	62	974	135	3.3	77777	0
14/02/11	18	2	21.4	67	974	8	3.9	77777	0
14/02/11	19	2	20.1	70	974	22	4.1	2438	0
14/02/11	20	2	19.4	72	975	39	4.1	2438	0
14/02/11	21	2	18.7	74	976	54	4.3	2438	0
14/02/11	22	2	18.1	76	976	60	4.5	2438	0
14/02/11	23	2	17.6	79	977	67	4.6	2438	0
14/02/11	24	2	17.6	78	977	77	4.6	77777	0
14/02/12	1	2	17.7	75	976	82	4.5	77777	0
14/02/12	2	2	17.7	73	976	79	4.5	77777	0
14/02/12	3	2	17.7	70	976	75	4.6	77777	0
14/02/12	4	2	17.6	69	976	74	4.6	77777	0
14/02/12	5	2	16.7	71	976	56	5.2	77777	0
14/02/12	6	2	14.7	82	977	50	5.1	77777	0
14/02/12	7	2	14.6	81	977	62	4.5	77777	0
14/02/12	8	2	15.9	73	977	61	4.1	77777	0
14/02/12	9	2	19.5	58	977	50	6.2	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/12	10	2	21.6	48	977	50	7	77777	0
14/02/12	11	2	22.9	44	977	135	6.5	77777	0
14/02/12	12	2	23.6	41	976	135	6.2	77777	0
14/02/12	13	2	24.4	38	975	135	5.9	77777	0
14/02/12	14	2	24.7	35	975	44	5.7	77777	0
14/02/12	15	2	24.9	34	974	42	5.5	77777	0
14/02/12	16	2	24.3	43	974	38	4.7	77777	0
14/02/12	17	2	23.1	56	974	30	3.7	77777	0
14/02/12	18	2	21.6	60	973	34	4.3	77777	0
14/02/12	19	2	20.1	64	974	45	4.5	77777	0
14/02/12	20	2	19.1	69	974	59	4.4	77777	0
14/02/12	21	2	18.7	71	975	74	4.2	77777	0
14/02/12	22	2	18.5	73	975	93	3.9	77777	0
14/02/12	23	2	18.1	72	976	108	4.4	77777	0
14/02/12	24	2	18	71	976	135	4.7	77777	0
14/02/13	1	2	17.9	71	975	135	4.4	77777	0
14/02/13	2	2	17.6	71	975	111	3.7	2438	0
14/02/13	3	2	17.1	74	975	98	2.9	2438	0
14/02/13	4	2	16.4	77	975	69	2.6	2438	0
14/02/13	5	2	15.6	80	975	56	2.8	2438	0
14/02/13	6	2	15.3	81	975	69	2.5	2438	0
14/02/13	7	2	15.1	82	975	104	2	2438	0
14/02/13	8	2	15.6	80	975	118	1.8	2438	0
14/02/13	9	2	19.4	64	975	91	0.9	2438	0
14/02/13	10	2	21.5	58	975	35	1	2438	0
14/02/13	11	2	23	54	974	38	1.9	2438	0
14/02/13	12	2	24	52	974	135	2.1	2438	0
14/02/13	13	2	24.6	49	973	21	2.2	2438	0
14/02/13	14	2	25.1	46	973	135	2.4	2438	0
14/02/13	15	2	25.3	45	972	135	2.9	2438	0
14/02/13	16	2	25	46	972	135	3.5	2438	0
14/02/13	17	3	23.9	59	972	10	3.5	2438	0
14/02/13	18	3	22.4	65	971	23	3.9	2438	0
14/02/13	19	3	21.3	67	972	41	4	2438	0
14/02/13	20	2	20.6	67	972	56	4	2438	0
14/02/13	21	2	20.1	66	972	67	4.1	2438	0
14/02/13	22	2	19.7	65	972	76	4	2438	0
14/02/13	23	2	19.5	66	973	87	3.7	2438	0
14/02/13	24	2	19.1	69	973	104	3.4	2438	0
14/02/14	1	2	18.6	74	972	124	3.5	2438	0
14/02/14	2	2	18.3	77	972	135	3.7	2438	0
14/02/14	3	2	18	78	972	138	3.3	2438	0
14/02/14	4	2	17.5	79	972	135	2.2	2438	0
14/02/14	5	2	17	81	972	126	1.2	2438	0
14/02/14	6	2	16.5	83	972	128	1	2438	0
14/02/14	7	2	16	84	973	129	0.8	2438	0
14/02/14	8	2	16.1	85	973	91	0.5	77777	0
14/02/14	9	2	19.9	67	973	135	1.2	2438	0
14/02/14	10	2	21.4	63	973	6	0.9	2438	0
14/02/14	11	2	23.3	53	973	354	0.4	2438	0
14/02/14	12	3	24.6	45	972	355	0.3	2438	0
14/02/14	13	3	25.4	42	971	272	0.4	2438	0
14/02/14	14	3	25.9	40	971	309	0.8	2438	0
14/02/14	15	3	26.1	39	970	313	1.7	2438	0
14/02/14	16	3	25.9	40	970	316	2.8	2438	0
14/02/14	17	3	24.7	52	970	322	3.6	2438	0
14/02/14	18	3	23.1	58	970	327	3.9	2438	0
14/02/14	19	3	22.3	59	970	338	2.9	2438	0
14/02/14	20	2	21.4	61	971	29	1.3	2438	0
14/02/14	21	2	20.6	65	971	98	2.1	2438	0
14/02/14	22	2	20.1	67	971	110	2.9	2438	0
14/02/14	23	2	19.7	69	971	119	3.2	2438	0
14/02/14	24	2	19.5	69	972	129	3.1	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/15	1	2	19.1	70	971	138	2.5	2438	0
14/02/15	2	2	18.6	71	971	149	1.8	2438	0
14/02/15	3	2	18.1	72	971	160	1.5	2438	0
14/02/15	4	2	17.6	74	971	175	1.4	2438	0
14/02/15	5	3	18.1	78	972	231	2.9	2438	0
14/02/15	6	3	17.6	80	972	249	4	2438	0
14/02/15	7	3	17	82	972	250	3.5	2438	0
14/02/15	8	3	17.6	79	973	282	2.1	2438	0
14/02/15	9	3	19.7	67	973	312	1.7	2438	0
14/02/15	10	3	21.6	57	972	135	1.5	2438	0
14/02/15	11	2	22.9	49	972	290	2.1	2438	0
14/02/15	12	3	23.7	40	972	283	2.8	2438	0
14/02/15	13	2	24.1	34	971	278	3.4	2438	0
14/02/15	14	2	24.4	32	970	272	4.2	2438	0
14/02/15	15	3	24.3	33	970	266	4.8	2438	0
14/02/15	16	3	23.7	36	970	257	5.1	2438	0
14/02/15	17	3	22.7	52	969	248	3.5	2438	0
14/02/15	18	3	22	53	969	228	3.8	2438	0
14/02/15	19	3	21.1	53	969	208	4	2438	0
14/02/15	20	3	20.6	53	969	187	3.9	2438	0
14/02/15	21	3	20	54	969	170	4	2438	0
14/02/15	22	3	19.4	55	969	161	3.9	2438	0
14/02/15	23	3	18.7	57	969	159	4.2	2438	0
14/02/15	24	3	18.1	59	969	160	4.5	2438	0
14/02/16	1	3	17.7	59	968	135	4.1	2438	0
14/02/16	2	3	17.6	57	968	188	3.6	2438	0
14/02/16	3	3	17.5	57	968	219	4	2438	0
14/02/16	4	3	16	67	968	259	5.2	2438	1
14/02/16	5	3	14.5	84	968	283	3.8	2438	0
14/02/16	6	3	14	87	968	271	3.3	2438	0
14/02/16	7	3	13.9	85	969	252	2.7	2438	0
14/02/16	8	3	15	76	969	288	4.1	2438	0
14/02/16	9	3	16.6	64	970	135	5.3	2438	0
14/02/16	10	3	17.9	59	970	135	5.5	2438	0
14/02/16	11	3	18.9	55	970	298	5.6	2438	0
14/02/16	12	3	19.6	52	970	294	5.8	2438	0
14/02/16	13	4	20.1	50	969	292	5.9	2438	0
14/02/16	14	4	20.4	48	969	290	5.9	2438	0
14/02/16	15	4	20.6	46	969	290	6.1	2438	0
14/02/16	16	3	20.6	46	968	289	6.1	2438	0
14/02/16	17	3	20	60	968	280	3.8	2438	0
14/02/16	18	3	19	63	968	267	4.1	2438	0
14/02/16	19	3	18.1	65	969	255	4.4	2438	0
14/02/16	20	3	17.1	67	969	248	4.5	2438	0
14/02/16	21	3	16.5	67	970	246	4.5	2438	0
14/02/16	22	3	15.9	67	970	250	4.6	2438	0
14/02/16	23	2	15.3	67	971	255	4.6	2438	0
14/02/16	24	2	14.6	67	971	258	4.6	2438	0
14/02/17	1	2	14.1	68	971	262	4.5	2438	0
14/02/17	2	2	13.6	68	971	267	4.4	2438	0
14/02/17	3	2	13	70	971	273	4.2	2438	0
14/02/17	4	2	12.6	71	971	277	4.1	2438	0
14/02/17	5	2	12.1	71	971	282	4	2438	0
14/02/17	6	2	11.9	70	972	282	3.9	2438	0
14/02/17	7	2	11.6	69	972	277	3.9	2438	0
14/02/17	8	2	12.7	64	973	289	3.5	2438	0
14/02/17	9	2	15.5	48	973	312	4.3	2438	0
14/02/17	10	2	16.7	44	973	314	3.3	2438	0
14/02/17	11	2	18	42	973	308	2.2	2438	0
14/02/17	12	2	19	40	973	297	1.4	77777	0
14/02/17	13	2	19.9	37	972	288	1.2	77777	0
14/02/17	14	2	20.4	36	972	286	1.2	77777	0
14/02/17	15	2	20.6	36	972	286	1.3	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/17	16	2	20.6	37	971	288	1.5	77777	0
14/02/17	17	2	20.4	40	971	293	1.9	77777	0
14/02/17	18	2	19.6	46	971	296	1.6	77777	0
14/02/17	19	2	18.4	52	972	258	1.1	77777	0
14/02/17	20	2	17.3	57	973	196	1.3	77777	0
14/02/17	21	2	16.5	61	973	135	2.2	77777	0
14/02/17	22	2	15.9	63	974	153	3	77777	0
14/02/17	23	2	15.6	63	974	147	3.9	2438	0
14/02/17	24	2	15.3	62	974	147	4.8	2438	0
14/02/18	1	2	14.6	62	974	135	5	2438	0
14/02/18	2	2	14.3	63	974	145	5	2438	0
14/02/18	3	2	14.1	61	974	135	4.8	2438	0
14/02/18	4	2	14.5	57	974	135	4.4	2438	0
14/02/18	5	2	14.6	54	974	154	3.7	2438	0
14/02/18	6	2	14.3	53	974	164	3.2	2438	0
14/02/18	7	2	14.1	53	974	173	3.1	2438	0
14/02/18	8	2	14.4	53	974	179	2.8	2438	0
14/02/18	9	2	17.9	42	974	217	1.4	2438	0
14/02/18	10	2	19.9	38	974	273	1.2	2438	0
14/02/18	11	2	20.9	37	974	291	0.5	2438	0
14/02/18	12	2	21.7	36	974	314	0.5	2438	0
14/02/18	13	2	22.3	35	973	327	0.9	2438	0
14/02/18	14	3	22.6	35	973	338	1.3	2438	0
14/02/18	15	3	22.6	35	973	347	1.6	2438	0
14/02/18	16	3	22.6	36	972	354	1.9	2438	0
14/02/18	17	2	22.1	44	972	1	2.2	2438	0
14/02/18	18	2	21.1	48	972	135	2.3	2438	0
14/02/18	19	2	20	53	973	43	2.2	2438	0
14/02/18	20	2	19	56	974	74	2.6	2438	0
14/02/18	21	2	18.1	58	974	90	3.3	2438	0
14/02/18	22	2	17.6	59	975	99	3.5	2438	0
14/02/18	23	2	17.1	60	975	119	3.5	2438	0
14/02/18	24	2	16.6	61	976	141	4.2	2438	0
14/02/19	1	2	16.1	62	975	149	4.8	77777	0
14/02/19	2	2	15.9	61	975	149	4.8	77777	0
14/02/19	3	2	15.7	60	975	149	4.8	77777	0
14/02/19	4	2	16	57	974	152	4.5	77777	0
14/02/19	5	2	16.1	55	974	158	3.9	77777	0
14/02/19	6	2	15.7	56	974	135	3.1	2438	0
14/02/19	7	2	15.1	58	974	173	2.7	2438	0
14/02/19	8	2	15.3	60	974	170	2.1	2438	0
14/02/19	9	2	18.1	58	974	135	0.3	2438	0
14/02/19	10	2	20.9	44	974	323	1	2438	0
14/02/19	11	2	21.7	40	974	329	1.2	2438	0
14/02/19	12	2	22.6	38	973	326	1.2	2438	0
14/02/19	13	2	23.1	36	973	329	1.6	2438	0
14/02/19	14	2	23.4	36	972	334	2	2438	0
14/02/19	15	2	23.5	36	972	341	2.4	2438	0
14/02/19	16	2	23.3	38	972	348	2.7	2438	0
14/02/19	17	2	22.6	47	972	350	2.6	2438	0
14/02/19	18	2	21.7	51	972	354	2.6	2438	0
14/02/19	19	2	20.9	54	972	14	1.9	2438	0
14/02/19	20	2	19.9	58	973	61	1.7	2438	0
14/02/19	21	2	19	61	973	93	2.3	2438	0
14/02/19	22	2	18.4	62	974	111	3.1	2438	0
14/02/19	23	2	18	61	974	126	3.3	2438	0
14/02/19	24	2	17.6	61	975	141	2.9	2438	0
14/02/20	1	2	17.1	61	974	154	2.2	2438	0
14/02/20	2	2	16.6	63	974	135	1.5	2438	0
14/02/20	3	2	16	66	974	135	1.3	2438	0
14/02/20	4	2	15.6	67	974	107	1.7	2438	0
14/02/20	5	2	15.6	58	974	102	2.1	2438	0
14/02/20	6	2	15.4	58	974	100	2.1	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/20	7	2	15.1	58	974	103	2.2	2438	0
14/02/20	8	2	15.9	56	975	97	2.6	2438	0
14/02/20	9	2	19.3	41	975	62	3.1	2438	0
14/02/20	10	2	20.9	37	975	135	3.1	2438	0
14/02/20	11	2	22	36	975	43	3	2438	0
14/02/20	12	2	22.9	34	974	41	3	2438	0
14/02/20	13	2	23.5	34	974	34	2.9	2438	0
14/02/20	14	2	23.9	33	973	29	3.1	2438	0
14/02/20	15	2	24	34	973	27	3.2	2438	0
14/02/20	16	2	23.7	36	973	28	3.3	2438	0
14/02/20	17	2	22.9	47	972	26	2.7	2438	0
14/02/20	18	2	22	52	972	35	3.1	2438	0
14/02/20	19	2	21	55	973	51	3.6	2438	0
14/02/20	20	2	20.1	57	973	64	4.1	2438	0
14/02/20	21	2	19.5	60	974	81	4.1	2438	0
14/02/20	22	2	19.1	63	974	108	4	2438	0
14/02/20	23	2	19.1	64	974	132	4.4	2438	0
14/02/20	24	2	19.1	62	974	138	4.4	2438	0
14/02/21	1	2	19.5	58	974	135	4.2	2438	0
14/02/21	2	2	19.6	56	974	132	4.1	5081	0
14/02/21	3	2	19.6	54	974	135	4.2	3925	0
14/02/21	4	2	19.7	53	974	135	4.1	3925	0
14/02/21	5	2	20	52	974	139	4.1	2438	0
14/02/21	6	2	20	50	974	143	4.2	2438	0
14/02/21	7	2	19.6	49	974	149	4.8	2438	0
14/02/21	8	2	19.5	52	974	153	4.3	2438	0
14/02/21	9	2	22.9	39	974	171	3.3	2438	0
14/02/21	10	2	24.9	34	974	195	2.7	2438	0
14/02/21	11	2	26	30	973	219	2.3	2438	0
14/02/21	12	2	26.9	28	973	218	2.2	2438	0
14/02/21	13	2	27.6	28	972	221	2.5	2438	0
14/02/21	14	2	28.1	27	972	234	3.4	2438	0
14/02/21	15	2	28.1	28	972	246	4.7	2438	0
14/02/21	16	2	27.3	39	971	256	4.7	2438	0
14/02/21	17	2	25.7	54	971	264	4.1	2438	0
14/02/21	18	2	24.4	58	971	259	4.2	2438	0
14/02/21	19	2	23.6	58	972	238	3.6	2438	0
14/02/21	20	2	23	59	972	211	3.2	2438	0
14/02/21	21	2	22.4	60	972	183	3.4	2438	0
14/02/21	22	2	21.7	61	973	135	3.8	2438	0
14/02/21	23	2	21.4	63	973	164	4.1	2438	0
14/02/21	24	2	21	64	974	162	4	2438	0
14/02/22	1	2	20.5	65	973	162	3.5	2438	0
14/02/22	2	2	20.1	64	973	174	2.4	2438	0
14/02/22	3	2	19.6	65	973	178	1.4	2438	0
14/02/22	4	2	18.9	68	973	163	0.9	2438	0
14/02/22	5	2	18.1	71	973	144	0.8	2438	0
14/02/22	6	2	17.5	74	973	127	0.8	2438	0
14/02/22	7	2	17.1	75	973	129	1	2438	0
14/02/22	8	2	17.6	75	974	131	1.1	2438	0
14/02/22	9	2	21.1	59	974	50	0.4	2438	0
14/02/22	10	2	23.1	53	974	311	0.3	2438	0
14/02/22	11	2	24.7	47	974	285	0.4	2438	0
14/02/22	12	2	26	43	974	298	0.4	2438	0
14/02/22	13	2	26.7	39	974	310	0.8	2438	0
14/02/22	14	2	27.1	37	973	319	1.5	2438	0
14/02/22	15	2	27.4	37	973	322	2.1	2438	0
14/02/22	16	2	27.1	38	973	324	2.7	2438	0
14/02/22	17	2	26.1	49	973	325	3.1	2438	0
14/02/22	18	2	25.1	55	973	327	3.7	2438	0
14/02/22	19	2	24	59	973	334	3.1	2438	0
14/02/22	20	2	23	62	973	23	1.9	2438	0
14/02/22	21	2	22.1	65	973	87	3.1	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/22	22	2	21.7	65	973	107	4.1	2438	0
14/02/22	23	2	21.6	62	973	113	4	2438	0
14/02/22	24	2	21.1	61	973	122	3.5	2438	0
14/02/23	1	2	20.6	61	973	139	2.2	2438	0
14/02/23	2	2	20.1	62	973	160	1.4	2438	0
14/02/23	3	2	19.6	64	973	223	1.1	2438	0
14/02/23	4	3	19.5	65	973	267	3.2	2438	0
14/02/23	5	3	17.4	81	974	306	4.1	2438	0
14/02/23	6	3	16.9	85	974	327	3	2438	0
14/02/23	7	3	16.6	83	976	323	2.7	2438	0
14/02/23	8	2	17.9	69	976	341	3	2438	0
14/02/23	9	2	19.6	52	976	343	4	2438	0
14/02/23	10	2	20.6	49	976	337	3.4	2438	0
14/02/23	11	2	21.7	47	977	326	3.2	2438	0
14/02/23	12	2	22.6	45	976	316	3	2438	0
14/02/23	13	2	23.3	43	976	312	3.5	2438	0
14/02/23	14	3	23.6	43	975	313	3.6	2438	0
14/02/23	15	3	23.7	42	975	314	3.5	2438	0
14/02/23	16	3	23.7	42	975	314	3.2	2438	0
14/02/23	17	3	23.4	49	975	306	2.3	2438	0
14/02/23	18	3	22.7	51	975	289	1.8	2438	0
14/02/23	19	3	21.7	54	975	252	1.3	2438	0
14/02/23	20	3	20.6	60	975	204	0.9	2438	0
14/02/23	21	3	19.6	65	976	171	0.7	2438	0
14/02/23	22	2	19	68	976	154	1.4	2438	0
14/02/23	23	2	18.6	67	977	158	1.7	2438	0
14/02/23	24	2	18	69	977	229	0.7	2438	0
14/02/24	1	2	17.4	71	977	283	1.1	2438	0
14/02/24	2	2	17	72	977	288	1	2438	0
14/02/24	3	2	16.6	73	977	312	0.9	2438	0
14/02/24	4	2	16.4	72	977	349	1.2	2438	0
14/02/24	5	2	15.9	73	977	22	1.7	2438	0
14/02/24	6	2	15.4	75	977	40	2.7	2438	0
14/02/24	7	2	14.9	77	977	44	3.4	2438	0
14/02/24	8	2	16.1	75	977	42	4.1	2438	0
14/02/24	9	2	18.5	60	978	36	5.5	2438	0
14/02/24	10	2	19.6	55	978	33	5	2438	0
14/02/24	11	2	20.6	53	978	30	4.4	2438	0
14/02/24	12	2	21.5	50	977	23	3.8	2438	0
14/02/24	13	2	22.1	49	977	135	3.5	2438	0
14/02/24	14	2	22.4	49	976	135	3.4	2438	0
14/02/24	15	2	22.6	49	976	315	3.3	2438	0
14/02/24	16	2	22.6	49	976	6	3.3	2438	0
14/02/24	17	2	22.1	57	975	359	2.8	2438	0
14/02/24	18	2	21.4	62	975	355	2.9	2438	0
14/02/24	19	2	20.6	65	976	8	2.7	2438	0
14/02/24	20	3	19.7	68	976	33	2.4	2438	0
14/02/24	21	3	19.1	71	976	64	2.5	2438	0
14/02/24	22	3	18.5	73	976	88	3.1	2438	0
14/02/24	23	3	18.1	73	976	98	3.9	2438	0
14/02/24	24	2	17.9	73	976	97	3.9	2438	0
14/02/25	1	2	17.6	73	976	102	3.9	2438	0
14/02/25	2	2	17.3	73	976	113	4	2438	0
14/02/25	3	2	17	73	976	125	3.5	2438	0
14/02/25	4	2	16.6	73	976	132	2.9	2438	0
14/02/25	5	2	15.3	66	976	315	2.2	77777	0
14/02/25	6	2	15	67	977	109	2	77777	0
14/02/25	7	2	14.6	67	977	106	2	77777	0
14/02/25	8	2	15.5	66	977	100	2	77777	0
14/02/25	9	2	19.1	51	976	58	2.2	77777	0
14/02/25	10	2	20.6	50	976	45	1.6	77777	0
14/02/25	11	2	22.1	44	976	35	0.6	77777	0
14/02/25	12	2	23.5	39	975	287	0.4	77777	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/25	13	2	24.6	34	975	257	0.4	77777	0
14/02/25	14	2	25.3	31	975	308	0.6	2438	0
14/02/25	15	2	25.6	30	974	315	1.1	2438	0
14/02/25	16	2	25.6	31	974	323	1.6	2438	0
14/02/25	17	2	24.9	38	974	338	2.5	2438	0
14/02/25	18	2	23.6	46	974	350	2.9	2438	0
14/02/25	19	2	22.3	52	974	315	2.2	2438	0
14/02/25	20	2	21	58	975	60	1.9	2438	0
14/02/25	21	2	19.9	62	975	94	2.5	77777	0
14/02/25	22	2	19.3	63	975	107	3	77777	0
14/02/25	23	2	18.9	62	975	315	3.3	77777	0
14/02/25	24	2	18.6	59	975	124	3.7	77777	0
14/02/26	1	2	18.6	56	975	315	4	77777	0
14/02/26	2	2	18.6	52	975	143	4.4	2438	0
14/02/26	3	2	18.7	48	974	149	4.4	2438	0
14/02/26	4	2	18.7	45	974	155	4.3	2438	0
14/02/26	5	2	18.7	44	974	162	4.1	2438	0
14/02/26	6	2	18.6	43	974	169	4.3	2438	0
14/02/26	7	2	18.6	43	974	172	4.7	2438	0
14/02/26	8	2	19.1	45	974	169	4.4	2438	0
14/02/26	9	2	22.5	40	974	183	3.3	2438	0
14/02/26	10	2	24.9	33	974	192	2.5	2438	0
14/02/26	11	2	26.3	30	974	198	2.2	2438	0
14/02/26	12	2	27.4	26	973	209	2.8	2438	0
14/02/26	13	2	28.1	23	973	226	3.9	2438	0
14/02/26	14	2	28.3	23	972	238	4.6	2438	0
14/02/26	15	2	28.1	25	972	247	5.1	2438	0
14/02/26	16	2	27	36	972	256	4.8	2438	0
14/02/26	17	2	25.6	50	972	259	3.9	2438	0
14/02/26	18	2	24.6	51	972	251	3.8	2438	0
14/02/26	19	2	23.7	51	973	234	2.9	2438	0
14/02/26	20	2	22.7	52	973	202	2.3	2438	0
14/02/26	21	2	21.7	56	972	162	2.6	2438	0
14/02/26	22	2	21.1	57	973	156	3.7	2438	0
14/02/26	23	2	21	55	973	315	4.4	2438	0
14/02/26	24	2	20.7	52	973	189	5.2	2438	0
14/02/27	1	2	19.1	59	973	211	5.9	2438	0
14/02/27	2	2	17.3	68	973	231	6	2438	0
14/02/27	3	2	16.4	70	973	243	5.7	2438	0
14/02/27	4	2	15.6	72	973	241	5.3	2438	0
14/02/27	5	2	15.1	75	973	239	5.2	2438	0
14/02/27	6	2	14.7	80	974	237	5	2438	0
14/02/27	7	2	14.6	84	974	231	4.5	2438	0
14/02/27	8	2	16.6	78	975	248	4.4	2438	0
14/02/27	9	2	19.3	61	975	276	4.7	2438	0
14/02/27	10	2	20.6	52	975	288	4.2	2438	0
14/02/27	11	2	21.6	47	975	291	3.8	2438	0
14/02/27	12	2	22.4	44	975	293	3.7	2438	0
14/02/27	13	2	22.9	42	975	297	4	2438	0
14/02/27	14	3	23.1	41	975	296	3.9	2438	0
14/02/27	15	3	23.1	41	974	298	3.6	2438	0
14/02/27	16	3	23.1	41	974	301	3.2	2438	0
14/02/27	17	3	22.6	47	974	311	2.6	2438	0
14/02/27	18	3	22.1	49	974	325	2	2438	0
14/02/27	19	2	21.1	53	975	333	0.7	2438	0
14/02/27	20	2	20	59	975	163	0.9	2438	0
14/02/27	21	2	19.1	63	975	157	1.8	2438	0
14/02/27	22	2	18.4	66	975	157	2.5	2438	0
14/02/27	23	2	17.9	66	975	154	2.8	2438	0
14/02/27	24	2	17.7	64	975	162	3.5	77777	0
14/02/28	1	2	17.6	62	975	175	3.8	77777	0
14/02/28	2	2	17.3	61	974	181	3.6	2438	0
14/02/28	3	2	17	60	974	187	3.1	2438	0

Date	Hour	Stabilty clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
14/02/28	4	2	16.7	58	974	201	2.8	2438	0
14/02/28	5	2	16.6	55	975	225	2.7	2438	0
14/02/28	6	2	16	57	975	280	4.1	2438	0
14/02/28	7	2	14	70	976	296	3.7	2438	0
14/02/28	8	2	15.1	64	976	314	3.1	2438	0
14/02/28	9	2	17.1	50	976	324	3.3	2438	0
14/02/28	10	2	19.1	43	976	328	3.1	2438	0
14/02/28	11	2	20.3	42	977	332	2.8	2438	0
14/02/28	12	2	21.4	40	977	333	3.1	2438	0
14/02/28	13	2	22.1	39	976	334	3.5	77777	0
14/02/28	14	2	22.6	38	976	337	3.8	77777	0
14/02/28	15	2	22.6	38	976	341	4	77777	0
14/02/28	16	2	22.6	39	976	346	4.1	77777	0
14/02/28	17	2	21.9	50	976	346	3.1	77777	0
14/02/28	18	2	21.1	54	976	353	3.2	77777	0
14/02/28	19	2	20.3	55	976	11	3	2438	0
14/02/28	20	2	19.5	57	976	36	2.5	77777	0
14/02/28	21	2	18.6	60	977	66	2.4	77777	0
14/02/28	22	2	17.9	62	977	90	2.5	77777	0
14/02/28	23	2	17.3	64	978	105	3.1	77777	0
14/02/28	24	2	16.9	63	978	113	3.5	77777	0

Table 1 Ambient air quality monitoring at Dhanapura

S.No.	Date	PM_{10}	SO_2	NO_2
1	02.12.2013	57.3	6.8	10.4
2	03.12.2013	55.6	7.1	10.1
3	09.12.2013	61.0	7.9	10.8
4	10.12.2013	62.4	7.6	11.0
5	16.12.2013	54.1	8.2	11.7
6	17.12.2013	51.5	8.4	12.1
7	23.12.2013	50.1	7.3	11.2
8	24.12.2013	53.0	6.9	10.9
9	03.01.2014	60.7	6.3	10.0
10	04.01.2014	58.9	6.5	9.8
11	10.01.2014	66.8	7.2	10.6
12	11.01.2014	65.3	7.0	10.3
13	17.01.2014	59.2	7.7	11.1
14	18.01.2014	56.4	7.4	11.4
15	24.01.2014	63.0	8.3	12.3
16	25.01.2014	64.8	8.0	12.6
17	02.02.2014	55.1	8.9	13.2
18	03.02.2014	52.7	8.7	12.9
19	09.02.2014	57.5	7.4	12.2
20	10.02.2014	60.2	7.1	12.5
21	16.02.2014	62.9	6.4	11.8
22	17.02.2014	66.0	6.7	12.0
23	23.02.2014	58.4	7.2	11.5
24	24.02.2014	54.9	7.5	11.2
Min.		**50.1**	**6.3**	**9.8**
Max.		**66.8**	**8.9**	**13.2**
98 Percentile		**66.43**	**8.81**	**13.06**

Table 2 Ambient air quality monitoring at Chuli

S.No.	Date	PM_{10}	SO_2	No_2
1	02.12.2013	57.6	7.5	11.6
2	03.12.2013	53.4	7.8	11.7
3	09.12.2013	56.3	6.9	10.9
4	10.12.2013	54.0	7.1	10.6
5	16.12.2013	49.8	6.4	11.5
6	17.12.2013	51.5	6.7	11.1
7	23.12.2013	58.2	5.9	12.0
8	24.12.2013	59.3	6.2	12.3
9	03.01.2014	60.7	7.0	13.0
10	04.01.2014	62.5	6.8	12.8
11	10.01.2014	59.4	7.3	13.7
12	11.01.2014	61.1	7.7	13.4
13	17.01.2014	55.9	8.3	12.5
14	18.01.2014	57.3	8.0	12.2
15	24.01.2014	55.7	7.4	11.8
16	25.01.2014	57.3	7.2	11.4
17	02.02.2014	58.7	6.5	10.5
18	03.02.2014	57.4	6.3	10.1
19	09.02.2014	50.6	7.9	11.3
20	10.02.2014	52.5	8.2	10.8
21	16.02.2014	56.0	7.6	11.9
22	17.02.2014	53.3	7.2	12.3
23	23.02.2014	61.2	6.1	13.5
24	24.02.2014	62.7	6.0	13.1
Min.		**49.8**	**5.9**	**10.1**
Max.		**62.7**	**8.3**	**13.7**
98 Percentile		**62.61**	**8.25**	**13.61**

Table 3 Ambient air quality monitoring at Chotila ki Bhagli

S.No.	Date	PM_{10}	SO_2	NO_2
1	02.12.2013	57.1	8.2	11.2
2	03.12.2013	59.8	8.5	11.6
3	09.12.2013	59.4	7.8	12.3
4	10.12.2013	57.3	8.0	12.5
5	16.12.2013	57.2	7.3	11.8
6	17.12.2013	56.5	7.5	11.5
7	23.12.2013	58.7	6.7	10.7
8	24.12.2013	55.6	6.4	10.3
9	03.01.2014	51.4	7.2	9.7
10	04.01.2014	54.3	6.9	10.0
11	10.01.2014	55.5	6.1	10.6
12	11.01.2014	58.8	6.3	10.4
13	17.01.2014	54.2	7.0	9.8
14	18.01.2014	61.1	7.4	10.2
15	24.01.2014	53.1	8.1	10.1
16	25.01.2014	50.7	7.9	10.5
17	02.02.2014	56.9	8.3	11.1
18	03.02.2014	56.2	8.4	10.8
19	09.02.2014	58.4	7.7	11.7
20	10.02.2014	57.3	7.6	12.2
21	16.02.2014	59.5	6.5	12.9
22	17.02.2014	58.0	7.0	12.6
23	23.02.2014	52.9	6.8	11.4
24	24.02.2014	51.0	6.6	11.0
Min.		**50.7**	**6.1**	**9.7**
Max.		**61.1**	**8.5**	**12.9**
98 Percentile		**60.50**	**8.45**	**12.76**

Table 4 Ambient air quality monitoring at Ora

S.No.	Date	PM_{10}	SO_2	NO_2
1	02.12.2013	51.9	7.3	10.9
2	03.12.2013	48.6	7.4	11.1
3	09.12.2013	55.1	6.5	12.0
4	10.12.2013	58.3	6.7	12.4
5	16.12.2013	63.7	7.2	13.1
6	17.12.2013	60.4	6.9	13.4
7	23.12.2013	54.0	6.0	12.6
8	24.12.2013	57.2	6.4	12.3
9	03.01.2014	49.5	7.1	11.5
10	04.01.2014	52.1	7.5	11.7
11	10.01.2014	61.8	8.0	11.0
12	11.01.2014	59.4	7.7	10.7
13	17.01.2014	65.9	8.2	10.2
14	18.01.2014	62.7	7.9	10.6
15	24.01.2014	56.3	7.0	11.2
16	25.01.2014	53.2	6.8	10.8
17	02.02.2014	61.4	7.8	11.6
18	03.02.2014	64.8	8.1	12.1
19	09.02.2014	57.0	7.3	12.7
20	10.02.2014	54.8	7.6	13.0
21	16.02.2014	48.9	6.9	13.8
22	17.02.2014	50.7	6.5	13.5
23	23.02.2014	58.1	6.1	12.2
24	24.02.2014	60.5	6.6	11.9
Min.		**48.6**	**6.0**	**10.2**
Max.		**65.9**	**8.2**	**13.8**
98 Percentile		**65.39**	**8.15**	**13.66**

Table 5 Ambient air quality monitoring at Alpa

S.No.	Date	PM_{10}	SO_2	NO_2
1	04.12.2013	58.2	6.7	12.8
2	05.12.2013	57.1	7.0	12.5
3	11.12.2013	57.3	7.8	11.9
4	12.12.2013	60.1	8.1	11.7
5	18.12.2013	59.3	7.4	12.6
6	19.12.2013	55.4	6.9	13.0
7	25.12.2013	56.7	6.2	13.6
8	26.12.2013	60.0	5.8	13.5
9	06.01.2014	58.2	6.6	12.3
10	07.01.2014	61.1	6.4	12.0
11	13.01.2014	58.8	7.2	11.2
12	14.01.2014	55.9	7.3	10.9
13	20.01.2014	61.8	8.4	10.1
14	21.01.2014	59.6	8.7	9.9
15	27.01.2014	56.3	7.7	10.5
16	28.01.2014	57.4	8.0	10.7
17	04.02.2014	51.4	7.1	11.6
18	05.02.2014	53.7	7.5	11.8
19	11.02.2014	56.2	6.7	12.4
20	12.02.2014	59.8	6.3	12.7
21	18.02.2014	52.6	5.9	13.3
22	19.02.2014	54.1	6.1	13.1
23	25.02.2014	54.5	6.8	12.2
24	26.02.2014	58.9	6.5	11.9
Min.		**51.4**	**5.8**	**9.9**
Max.		**61.8**	**8.7**	**13.6**
98 Percentile		**61.48**	**8.56**	**13.55**

Table 6 Ambient air quality monitoring at Jawai River

S.No.	Date	PM_{10}	SO_2	NO_2
1	04.12.2013	52.4	6.9	10.4
2	05.12.2013	55.0	7.3	10.7
3	11.12.2013	58.5	6.5	11.5
4	12.12.2013	59.3	6.7	11.8
5	18.12.2013	58.2	7.4	12.3
6	19.12.2013	56.5	7.8	11.9
7	25.12.2013	57.7	8.5	12.7
8	26.12.2013	54.5	8.8	13.0
9	06.01.2014	49.1	8.1	12.4
10	07.01.2014	53.4	7.9	12.6
11	13.01.2014	58.2	7.0	13.4
12	14.01.2014	56.3	6.8	13.1
13	20.01.2014	58.0	6.2	12.8
14	21.01.2014	56.2	6.3	12.9
15	27.01.2014	49.9	7.1	11.6
16	28.01.2014	51.4	6.7	11.4
17	04.02.2014	57.4	7.5	10.8
18	05.02.2014	57.1	7.7	10.6
19	11.02.2014	59.8	8.6	10.0
20	12.02.2014	57.1	8.3	10.1
21	18.02.2014	54.2	7.2	11.2
22	19.02.2014	55.6	6.9	10.9
23	25.02.2014	56.5	7.6	11.7
24	26.02.2014	59.9	8.0	12.1
Min.		**49.1**	**6.2**	**10.0**
Max.		**59.9**	**8.8**	**13.4**
98 Percentile		**59.85**	**8.71**	**13.26**

Table 7 Ambient air quality monitoring at Sheoganj

S.No.	Date	PM_{10}	SO_2	NO_2
1	04.12.2013	55.1	6.1	10.9
2	05.12.2013	57.3	6.5	11.4
3	11.12.2013	64.9	7.3	12.1
4	12.12.2013	61.7	7.0	11.7
5	18.12.2013	68.5	6.2	11.0
6	19.12.2013	69.4	5.9	10.8
7	25.12.2013	62.2	6.7	10.1
8	26.12.2013	60.0	7.1	10.3
9	06.01.2014	54.3	7.9	11.5
10	07.01.2014	56.8	8.2	11.9
11	13.01.2014	63.4	7.7	12.7
12	14.01.2014	66.1	8.1	12.4
13	20.01.2014	59.5	7.4	13.0
14	21.01.2014	58.2	7.5	13.3
15	27.01.2014	51.2	6.7	12.5
16	28.01.2014	53.1	6.4	12.0
17	04.02.2014	60.4	5.7	11.3
18	05.02.2014	62.7	6.0	11.2
19	11.02.2014	67.3	6.8	10.4
20	12.02.2014	65.0	7.2	10.7
21	18.02.2014	56.5	6.6	11.6
22	19.02.2014	57.1	6.3	11.8
23	25.02.2014	52.8	7.4	12.6
24	26.02.2014	55.4	7.3	12.2
Min.		**51.2**	**5.7**	**10.1**
Max.		**69.4**	**8.2**	**13.3**
98 Percentile		**68.99**	**8.15**	**13.16**

Table 8 Ambient air quality monitoring at Khejriya

S.No.	Date	PM_{10}	SO_2	NO_2
1	04.12.2013	60.9	7.8	11.3
2	05.12.2013	63.0	8.1	11.7
3	11.12.2013	56.7	7.4	12.6
4	12.12.2013	54.2	7.0	12.4
5	18.12.2013	49.5	6.8	13.1
6	19.12.2013	47.5	7.1	12.8
7	25.12.2013	53.1	6.2	11.9
8	26.12.2013	51.8	6.4	11.8
9	06.01.2014	59.4	7.5	11.0
10	07.01.2014	61.3	7.6	10.7
11	13.01.2014	55.6	8.4	9.8
12	14.01.2014	52.9	8.6	10.1
13	20.01.2014	57.2	7.9	11.2
14	21.01.2014	60.4	8.2	11.6
15	27.01.2014	65.0	7.4	12.3
16	28.01.2014	64.1	7.2	12.5
17	04.02.2014	58.5	6.9	13.2
18	05.02.2014	57.1	6.5	13.5
19	11.02.2014	50.7	5.8	12.7
20	12.02.2014	47.3	6.0	12.3
21	18.02.2014	54.9	6.7	11.1
22	19.02.2014	56.4	7.1	10.8
23	25.02.2014	62.2	7.7	9.9
24	26.02.2014	59.3	8.0	10.2
Min.		**47.3**	**5.8**	**9.8**
Max.		**65.0**	**8.6**	**13.5**
98 Percentile		**64.59**	**8.51**	**13.36**

Table 9 Ambient air quality monitoring at Balvana

S.No.	Date	PM_{10}	SO_2	NO_2
1	06.12.2013	60.3	6.6	12.2
2	07.12.2013	64.7	6.4	11.9
3	13.12.2013	59.1	7.0	11.6
4	14.12.2013	57.6	7.5	11.2
5	20.12.2013	62.4	6.8	10.4
6	21.12.2013	58.9	6.4	10.0
7	27.12.2013	51.5	7.1	10.0
8	28.12.2013	48.0	7.2	10.2
9	08.01.2014	52.8	8.1	10.8
10	09.01.2014	54.1	7.7	11.1
11	16.01.2014	61.0	8.5	11.7
12	17.01.2014	62.7	8.2	12.0
13	23.01.2014	67.4	7.4	12.5
14	24.01.2014	66.3	7.3	12.6
15	30.01.2014	59.2	6.9	13.4
16	31.01.2014	56.2	6.7	13.1
17	06.02.2014	50.5	6.0	12.4
18	07.02.2014	49.1	6.4	12.7
19	13.02.2014	54.6	7.2	11.8
20	14.02.2014	58.7	7.6	11.4
21	20.02.2014	63.4	8.3	10.6
22	21.02.2014	65.8	8.0	11.0
23	27.02.2014	57.9	7.7	12.3
24	28.02.2014	61.3	7.9	13.0
Min.		**48.0**	**6.0**	**10.0**
Max.		**67.4**	**8.5**	**13.4**
98 Percentile		**66.89**	**8.41**	**13.26**

Table 10 Ambient air quality monitoring at Khari River

S.No.	Date	PM_{10}	SO_2	NO_2
1	06.12.2013	53.8	6.2	10.9
2	07.12.2013	55.1	5.9	10.7
3	13.12.2013	58.2	6.6	11.4
4	14.12.2013	55.4	6.8	11.9
5	20.12.2013	58.5	7.4	12.1
6	21.12.2013	56.4	7.1	11.8
7	27.12.2013	56.2	7.9	12.6
8	28.12.2013	54.0	8.0	13.0
9	08.01.2014	47.9	7.5	12.4
10	09.01.2014	49.3	7.8	12.3
11	16.01.2014	57.6	8.4	11.5
12	17.01.2014	59.1	8.2	11.1
13	23.01.2014	54.3	7.6	10.6
14	24.01.2014	57.7	7.4	10.3
15	30.01.2014	58.7	6.5	9.7
16	31.01.2014	56.2	6.8	9.8
17	06.02.2014	52.5	6.1	10.4
18	07.02.2014	50.8	5.9	10.8
19	13.02.2014	49.6	6.7	11.6
20	14.02.2014	51.4	7.0	12.0
21	20.02.2014	57.0	7.7	13.1
22	21.02.2014	55.9	8.1	13.3
23	27.02.2014	48.8	7.5	12.7
24	28.02.2014	50.2	7.3	12.8
Min.		**47.9**	**5.9**	**9.7**
Max.		**59.1**	**8.4**	**13.3**
98 Percentile		**58.92**	**8.31**	**13.21**

MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No. – 0141-2333907

Ref.: EP/05 Date: 17/05/2015

ENVIRONMENTAL POLICY

We are committed to provide environment friendly, safe and healthy work culture for employees take measure to minimize potential impact on the environment. We will operate in compliance with all relevant environmental legislation and strive to use pollution prevention and environmental best practices.

We will:

(i) Committed to integrate the policy with all stages of project and activities.

(ii) Committed to comply with applicable statutory requirements, proper implementation, and management for prevention of pollution as per Environment Clearance/Clearance from pollution control board / Environmental Laws / CPCB norms / guidelines issued from time to time by related department.

(iii) Continue to improve the effectiveness of environment and management system by regular training with optimum use of natural resources, better productivity, and waste management by regular internal audit and up gradation of technology.

(iv) Committed to operate mines involving Stake holder participation.

(v) The mine owner appointed a specific representative who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for ensuring that environmental management system requirements are established, implemented and maintained in accordance with this standard.

(vi) Management is committed to provide necessary resources, financial, manpower, technology and other resources for environmental performance.

(vii) Reporting on the performance of the deviations if any in environmental management system arising out of violations of environmental conditions pointed out by government bodies or other public authorities and the plan of action taken by mine owner for review and to include in board meeting and circulate the guidelines issued by the board to all concerned in writing and will be termed as environmental performance compliance report.

(viii) Scientific mining practices will be adopted with proper care of environment..

Signature of the person responsible for policy

Name Mangal Singh Solanki

Signature ..... LOI HOLDER

Position Owner

Date 17/05/2015

MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)
Contact No. – 0141-2333907

Ref.: NCRS/02 Date: 17/05/2015

NON – COMPLIANCE REPORTING SYSTEM

- In case of violation of Environmental Norms, the case will be put up to the highest authority.
- The directions will be conveyed to respective person for taking up the necessary corrective action.
- Monitoring of the action taken as per the instruction from authority will be regularly carried out to ensure compliance.

For

Mangal Singh Solanki
(Project Proponent)

LOI HOLDER

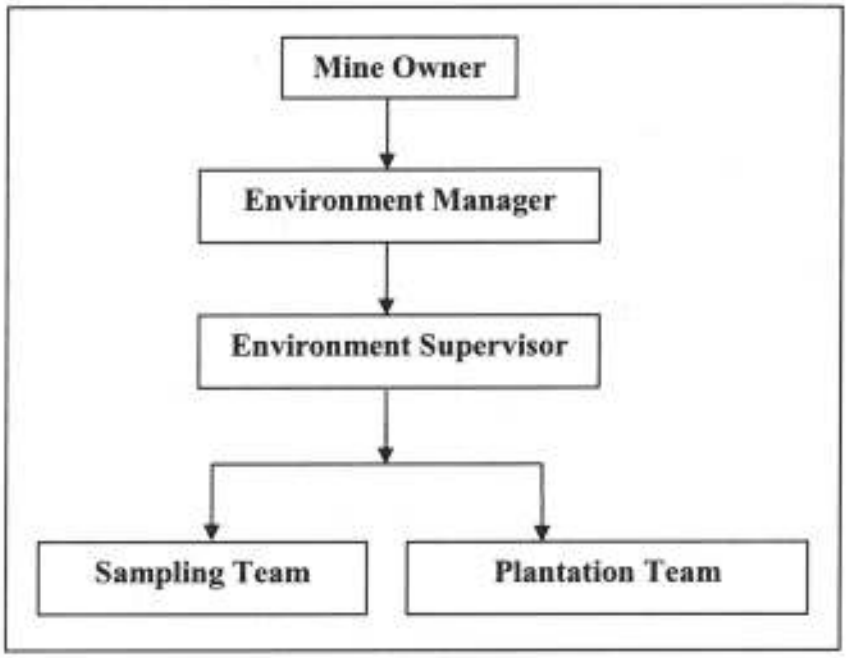
MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No. – 0141-2333907

Ref.: Date:

ORGANIZATIONAL STRUCTURE OF ENVIRONMENT MONITORING CELL (EMC)



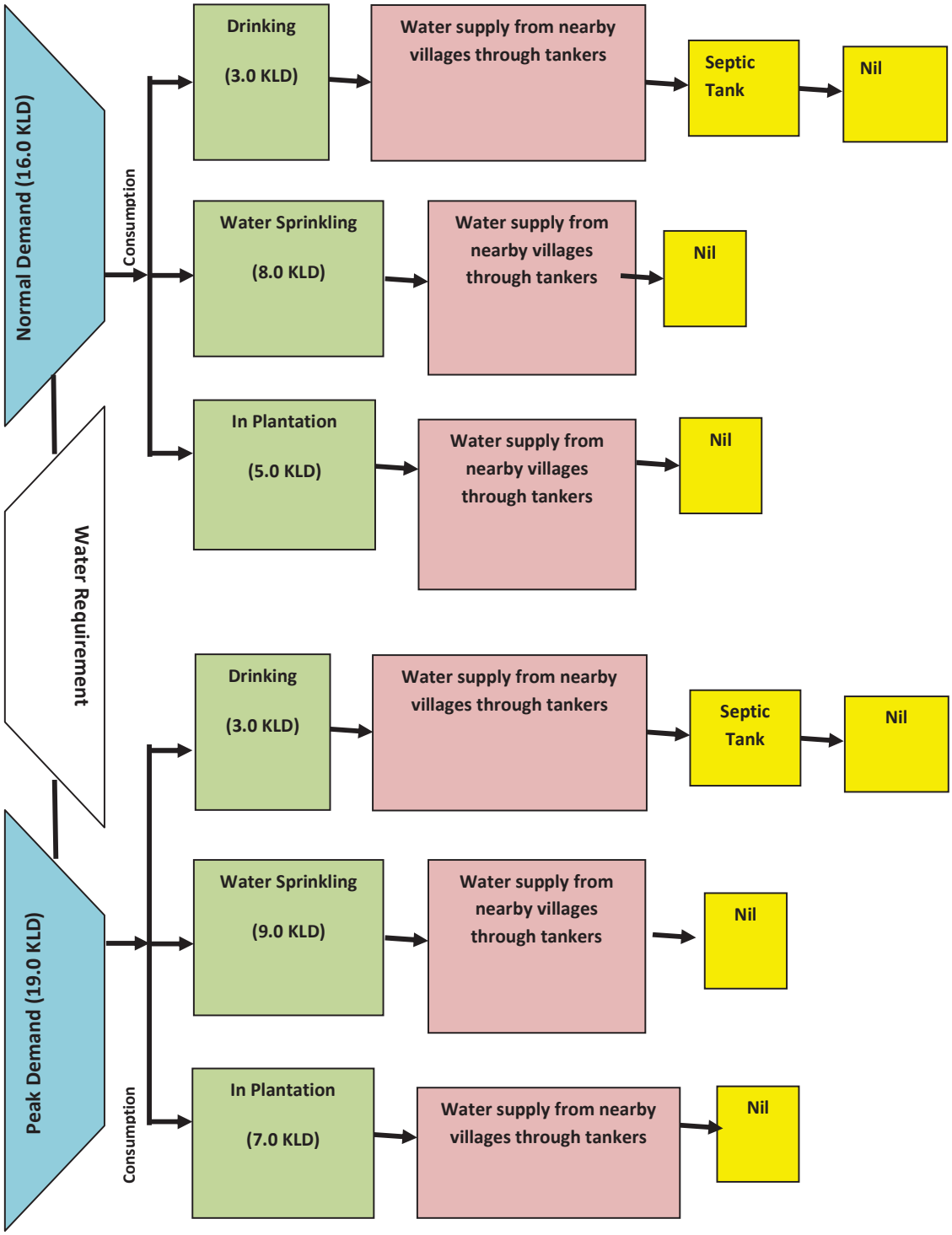
For

LOI HOLDER

Mangal Singh Solanki

(Project Proponent)

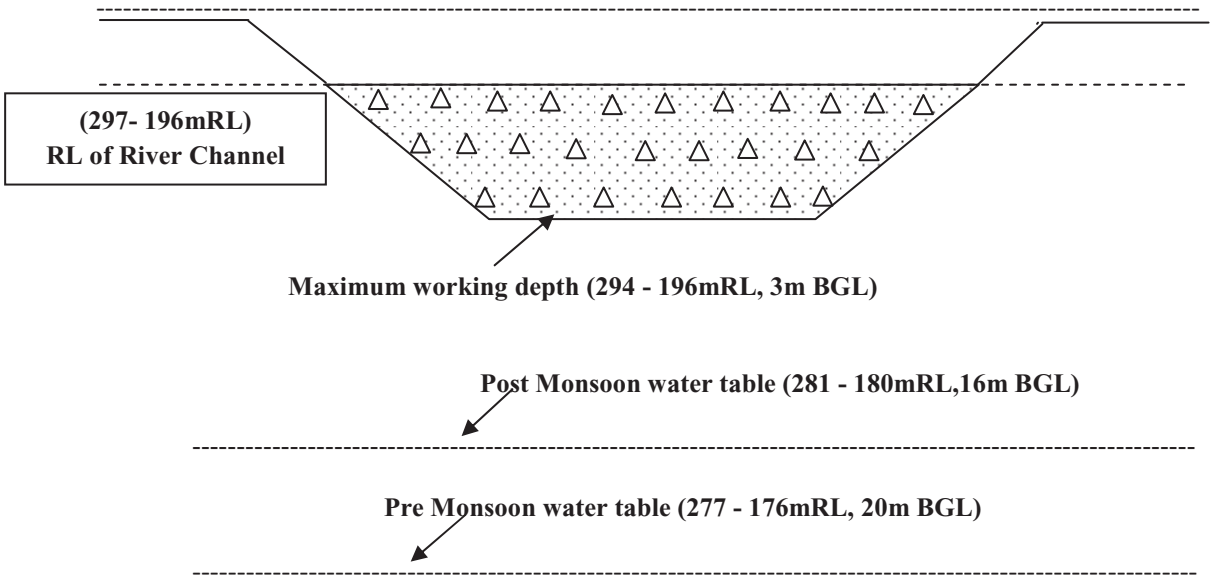
Water Balance Diagram



M/s. Mangal Singh Solanki

Tehsil - Sheoganj, District - Sirohi (Rajasthan)

Schematic Presentation of Elevation, Working Depth & Ground Water Table in Situ



REPLENISHMENT STUDY, TEH. - SHEOGANJ

Computation of sediment Budget in Applied lease area for mining of Mineral River sand(Bajri) by **Shri Mangal Singh Solanki, - Tehsil- Sheoganj, District-Sirohi (Lease area 1414 Ha.).**

Location of the mining lease area

Location of the River is shown in as under:

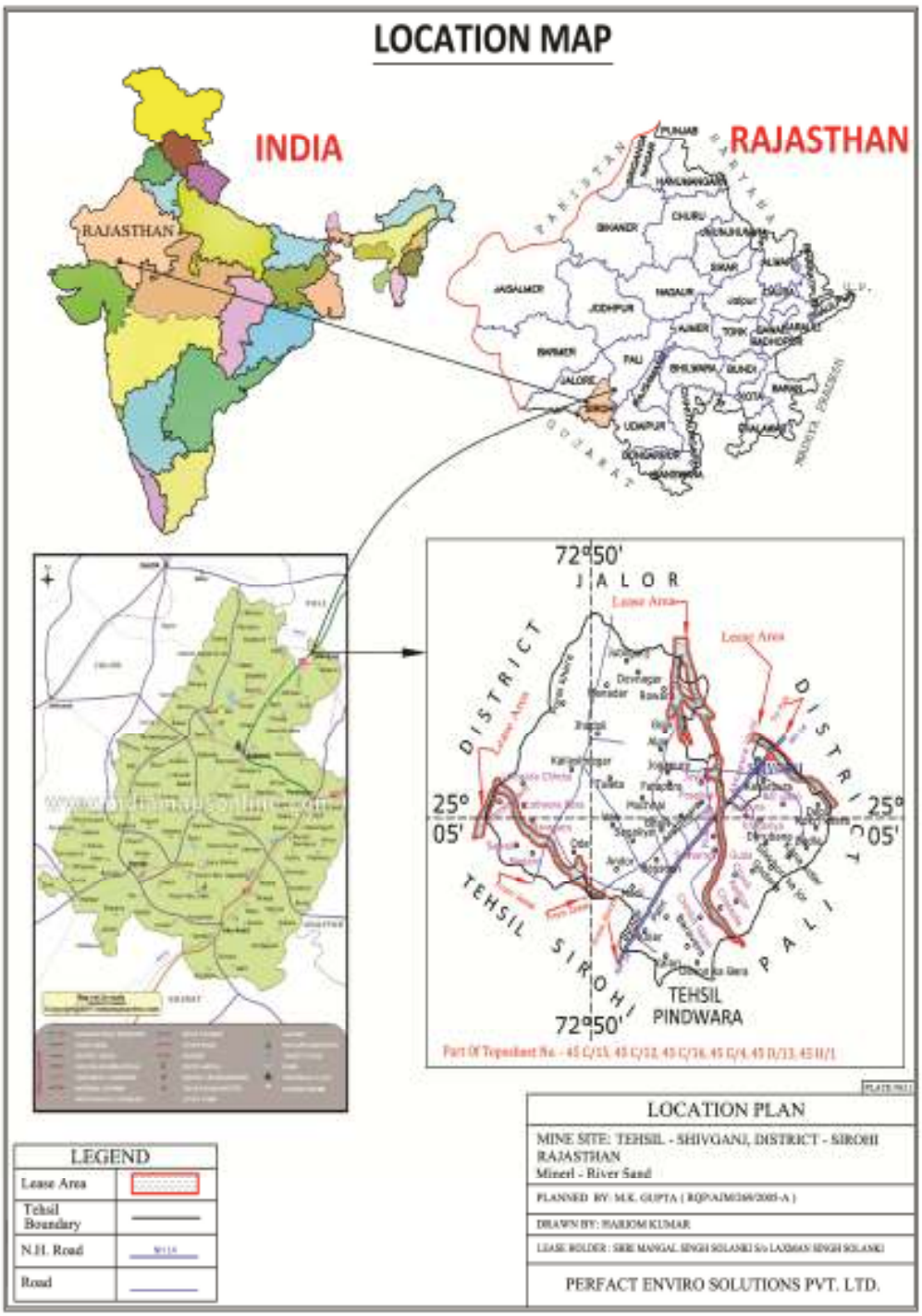


Fig. 1 Location Map of Mining Lease

The mining lease area for mineral riversand (Bajri) near villages- Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh **Tehsil - Sheoganj, District - Sirohi (Rajasthan).** LOI granted in favour of **Shri Mangal Singh Solanki lies** between latitude 25°09'43.14" N to 24°59'33.19" N and longitude 73°02'50.44" E to 72°59'28.53" E on Survey of India 45 C/12, 45 C/16, 45 G/4.

Mine site is well connected by road network. NH-14 passes through the lease area and SH-38 Passes from North West Direction from lease area. Nearest Railway station is Jawai Bandh Railway Station approx. 4.5 km in East direction from Jawai River Lease area. Nearest Airport is Udaipur Airport approx. 98.0 km in South East direction.

Topography and Drainage

Topographically, the area is undulated. The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges divides the district into two parts. In the western portion, for group of scattered hills are available one each in tehsil Sirohi and Shivganj and two in Revdar tehsil.

Detached hills of the Aravalli range are situated in the south east of the district, Mount Abu is situated at about 1219 m above sea level. Another important plateau is Oriya in Abu Road tehsil and lies below the main peak of Guru Shikhar which is 1722 metre above the mean sea level.

In general, the district as a whole reveals dendritic drainage pattern which shows general flow direction towards NW and SE respectively. South Easterly flowing streams feeds run off to the Banas River. North Westerly flowing streams feeds run off to River Jawai, Khari, Kapalganga and Krishnawati whereas, River Sipu receives run off from streams flowing towards North West as well as towards South Easterly. Jawai is the longest and largest river of North West which eventually joins Luni River. Other important rivers of Sirohi District are Banas, Khari, Sukri, Badi, Kapal Ganga & Krishnawati. All the aforesaid rivers are seasonal rivers i.e., water flows in rivers during rainy season and becomes dry during summer season.

A Study by Dandy and Bolton showed that sediment yield can be related to catchment area and mean annual runoff.

Sediment Yield versus Drainage Area Dandy and Bolton studied sedimentation data from about 1500 reservoirs, ponds, and sediment detention basins. In developing their formulas,

they used data from about 800 of these reservoirs with drainage areas greater than or equal to 1 mi^2. The smaller watersheds-those of drainage area less than 1 mi^2-were excluded because of their large variability of sediments yield, reflecting the diverse effects of soils, local terrain, vegetation, land use, and agricultural practices.

For drainage areas between 1 and 30,000 mi^2, Dandy and Bolton found that the annual sediment yield per unit area was inversely related to the 0.16 power of the drainage area:

$$\frac{S}{S_R} = \left(\frac{A}{A_R}\right)^{-0.16}$$

In which S= sediment yield in tons per square mile per year; S_R = Reference sediment yield corresponding to a 1-mi^2 drainage area, equal to 1645 tons per year; A = drainage area in square miles; and A_R = reference drainage area (1 mi^2)

Sediments Yield versus Mean Annual Runoff. Dandy and Bolton studied sedimentation data from 505 reservoirs having mean annual runoff data. Annual sediment yield per unit area was shown to increase sharply as mean annual runoff Q in- ceased from 0 to 2 in. Thereafter, for mean annual runoff from 2 to 50 in. annual sediment yield per unit area decreased exponentially. This led to the following equations.

For Q <2 in.: $$\frac{S}{S_R} = 1.07\left(\frac{Q}{Q_R}\right)^{0.46}$$

For Q ≥2 in.: $$\frac{S}{S_R} = 1.19\ e^{(-0.11\ Q/Q_R)}$$

In which Q_R = reference mean annual runoff Q_R = 2 in.

Dandy and Bolton combined Eqs. 15-10 and 15-11 into a set of equations to express sediment yield in terms of drainage area and mean annual runoff.

For Q <2 in.: $$\frac{S}{S_R} = 1.07\left(\frac{Q}{Q_R}\right)^{0.46} \times [1.43 - 0.26\ \text{Log}\ (A/A_R)]$$

For Q ≥2 in.: $$\frac{S}{S_R} = 1.19\ e^{(-0.11\ Q/Q_R)} \times [1.43 - 0.26\ \text{Log}\ (A/A_R)]$$

Sec: 15.2 Sediment Production.

For S_R = 1645 tons/mi^2/y, Q_R = 2 in., and A_R = 1 mi_2, E_q. 15-12 reduces to the followings:

For Q <2 in.: $S = 1280\ Q^{0.46}(1.43 - 0.26 \log A)$

For Q ≥2 in.: $S = 1965_e^{-0.055Q}(1.43 - 0.26 \log A)$

Equations 5-12 and 5-13 are based on average values of grouped data; therefore, they should be used with caution. In Certain cases, local factors such as soils, geology, topography, land

use, and vegetation may have greater influence on sediment yield than either mean annual runoff or drainage area. Nevertheless, these equations provide a first approximation to be regional assessment of sediment yield for watershed planning purposes.

Example:

Calculate the sediment yield by the Dandy and Bolton formula for a 150-mi^2 watershed with 3.5 in. of mean annual runoff.

The application of Eq. 15-13b leads to:

$$S= 1965 \text{ X } e^{(-0.055.3.5)}[1.43 – 0.26 \log (150)] = 1400 \text{ ton/mi}^2\text{/y}$$

Therefore, the sediment yield is 210,000 ton/y.

The equations express the general relationships between sediment yield runoff and drainage area. They may provide a quick rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. Because Dandy & Bolton have derived the equation form average values computed sediment yields normally would be low for highly erosive area and high for well stabilized drainage basins with high plant density.

Factors which have direct bearing on sediments yield & limitations of Dandy & Bolton equation.

Sediment yield of a sediment basin has direct impact of local terrain, climate, vegetation, soils, agricultural practices & land use pattern of catchment area of the sediment basin aforesaid factors varies from basin to basin therefore, Dandy & Bolton has categorily stated that use of the equation to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equation development. Actual sediment yield form individual drainage basins may vary 10-fold or even 100-fold from computed yields.

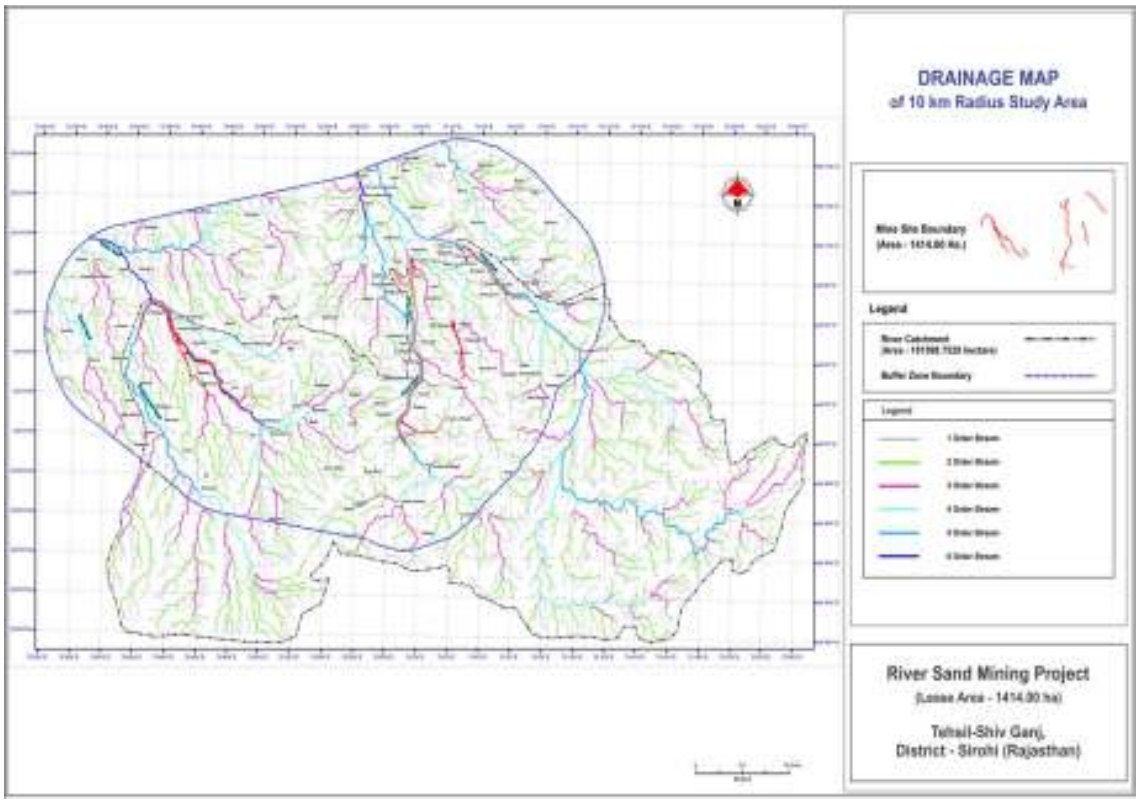
Sediment yield computation for applied lease area for mining of Mineral sand Bajri by Shri-Mangal Singh Solanki, near village- Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh, Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Rainfall data relied on for computation sediment yield in the instant case are as under:

Table 1.5 Rainfall Data of Past 23 Years of Tehsil- Sheoganj, District-Sirohi

S.No.	Year	Rainfall in mm.
1	1990	0.0
2	1991	339.0
3	1992	943.4
4	1993	578.0
5	1994	704.2
6	1995	590.6
7	1996	743.6
8	1997	645.2
9	1998	452.2
10	1999	278.4
11	2000	477.4
12	2001	647.4
13	2002	236.0
14	2003	581.0
15	2004	296.0
16	2005	289.8
17	2006	965.0
18	2007	490.4
19	2008	254.8
20	2009	275.8
21	2010	618.3
22	2011	568.2
23	2012	437.4
Average Annual Rainfall in mm.		**496.2**

The annual rainfall in instant case is **496.2 i.e. 19.535433 inches** & catchment area of sediment basin is 181598.7529 Ha. i.e.1815.987529 Sq kms. (701.156704 Sq.miles) **GIS Map (map enclosed)**. On substitution aforesaid values in Dandy & Bolton equation, the sediment yield of the basin comes out to be 294654.66 tons per year. The maximum targeted production of river sand in the instant case is @ 28.05 Lac TPA. Hence the annual replenishment of sediment comes out to be 9.43 %. However actual amount of sediment replenishment may vary from computed sedimented inview of catchment topography, lithology, soil erodibility, and vegetation & land use pattern and river channel morphology.


DRAINAGE MAP
of 10 km Radius Study Area
Legend
River Sand Mining Project
Tehsil-Shiv Ganj,
District - Sirohi (Rajasthan)

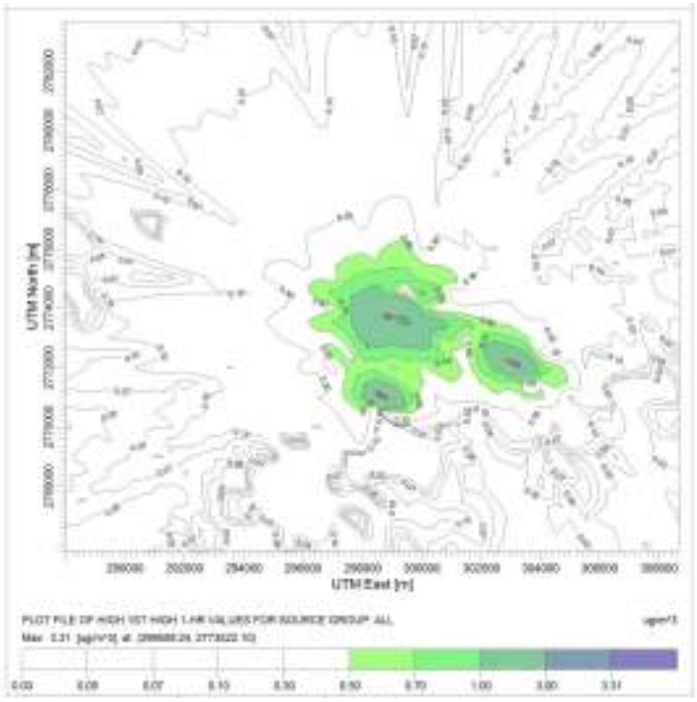
IMPACT PREDICTION OF NON POINT EMISSIONSON AMBIENT AIR QUALITY

For

RIVERSAND (Baji) (MINOR MINERAL)

At

TEHSIL- SHEOGANJ, DISTRICT-SIROHI
RAJASTHAN
[AREA-1414Ha]



BY:

M/s PERFACT ENVIRO SOLUTIONS PVT. LTD.
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CONTENT

No.	CHAPTER
1.	INTRODUCTION
2.	METHODOLOGY
3.	INPUT DATA
4.	IMPACT PREDICTION
5.	RESULT AND DISCUSSIONS

CHAPTER 1

INTRODUCTION

The ambient air quality Ground Level Concentration (GLC) of the area near any project is impacted due to air pollution sources in the project.
The air pollution sources are of two types:

1. Point Sources – Chimneys/ duct
2. Non Point Sources – Vehicles, machinery, blasting, drilling etc.

The emissions from these sources spread or disperse in the air and cause increase in the pollution level in ambient air. This cause increase in Ground LevelConcentration (GLC). This increase in GLC can be predicted for proposed project using Air Dispersion Modelling.
It is a River Sand (Bajri) Project with leased hold area about 1414 hectares and the longitude & latitude of lease boundary is given below:
The coordinates of the individual lease boundary pillars are given in the table ahead —

Latitude	longitude	River Name
25°08’52.08’’ N to 24°59’33.19’’ N	72°59’26.61’’ E to 72°59’28.53’’ E	Sukri River
25°06’33.59’’ N to 25°01’57.59’’ N	72°43’00.45’’ E to 72°47’58.02’’ E	Khari River
25°09’43.14’’ N to 25°07’12.94’’ N	73°02’50.44’’ E to 73°05’57.82’’ E	Jawai River

As in this case, AERMOD model developed by Lake Environmental Software is used to predict the GLC, when blasting/drilling in the mine is undertaken without taking any control measures. Thereafter the model was again used to check the GLC if appropriate control Measures are taken before blasting or drilling is done in the mine area. As this is a river sand mining, no blasting or drilling will be done.

CHAPTER 2
METHODOLOGY

For Air Dispersion Modelling following methodology shall be used:
Modelling Procedure

Methodology:
Prediction of ground level concentrations (GLC) due to proposedRiver Sand (Bajri) (minor mineral) mining in Sirohi, Rajasthan have been made by **Aermod model.**

Gaussian Plume Model

Ground Level Concentration χ, from a point source at any receptor under unlimited mixing is given by (USEPA ,1987).

$$\chi = \frac{Qg_1g_2}{(2\pi\sigma_y\sigma_z u)}$$

where,

$g_1 = \exp(-y^2/2\sigma y^2)$

$g_2 = \exp[-(z-H)^2/2\sigma_z^2] + \exp[-(z+H)^2/2\sigma_z^2]$

In unstable or neutral conditions if $\sigma z > 1.6$ L (limited mixing) the distribution below the mixing height is uniform with height provided that both the effective height H, and the receptor height z are below the mixing height

$$\chi = \frac{Qg_1}{(\sigma_y Lu\sqrt{2\pi})}$$

In unstable or neutral conditions when $\sigma z < 1.6$ L

$$\chi = \frac{Qg_1}{(2\pi\sigma_y\sigma_z u)}$$

where,
Q = source strength

Z = receptor height above the ground

H_e = effective stack height (Plume rise + Physical stack height)

u = wind speed at stack level

L = mixing height and
σ_y &σ_z = dispersion parameters
$g_3 = \Sigma\exp[-(z-H+2NL)^2/2\sigma_z^2] + \exp[-(z+H+2NL)^2/2\sigma_z^2]$
Evaluation with N the number of reflections, varying from –4 to +4 is usually sufficient

Plume Rise

Plume rise Δh has been determined according to Brigg's formula (CPCB guideline)

$$\Delta h = 21.425 \frac{F^{3/4}}{U_s} \quad \text{for } F<55$$

and

$$\Delta h = 38.71 \frac{F^{3/5}}{U_s} \quad \text{for } F>55$$

$F = g\, V_s D^2 (T_s - T_a)/4T_s$
Where
U_s = wind speed at stack level (m/s)

V_s = stack gas velocity (m/s)

T_s = stack gas temperature (^{0}K)

T_a = ambient temperature (^{0}K)

F = Buoyancy flux parameter (m^4/s^3)

Δh = Plume rise (m)

D = Diameter of the stack (m)

g = acceleration due to gravity, 9.807 (m/s^2)

Extrapolation of Wind Speed

Wind speed at stack level is calculated by power law as given below.

$U_{stack} = U_{10}(\text{Stack height}/10)^p$

Where U_{10} is the wind speed at 10 meter level and p is the power law coefficient (0.07, 0.07, 0.10, 0.15, 0.35 and 0.55 for stability classes A,B,C,D,E and F respectively) as per Irwin for rural areas (USEPA, 1987).

Stability Classification

Hourly stability is determined by wind direction fluctuation method as suggested by Slade(1965)and recommended by CPCB (PROBES/70/1997-1998).

$$\sigma_\theta = Wd_r/6$$

σ_θ, is standard deviation of wind direction fluctuation, W_{dr} is the overall wind direction fluctuation or width of the wind direction in degrees. The table for stability classes is given as under.

Stability Class	σ_θ **(degree)**
A	> 22.5
B	22.4 – 17.5
C	17.4 – 12.5
D	12.4 – 7.5
E	7.4 – 3.5
F	< 3.5

Dispersion Parameters

Dispersion parameters σ_y and σ_z for open country conditions (Briggs, 1974) are used as the project is locatedon a flat terrain in a rural area. Atmospheric dispersion coefficients vary with downwind distance (x) from emission sources for different atmospheric stability conditions. (CPCB – PROBES/70/1997-98).

Rural Conditions

Stability Class	σ_y	σ_z
A	$0.22x(1+0.0001x)^{-.5}$	$0.20x$
B	$0.16x(1+0.0001x)^{-.5}$	$0.12x$
C	$0.11x(1+0.0001x)^{-.5}$	$0.08x(1+0.0002x)^{.5}$
D	$0.08x(1+0.0001x)^{-.5}$	$0.06(1+0.0015x)^{.5}$
E	$0.06x(1+0.0001x)^{-.5}$	$0.03x(1+0.0003x)^{-1}$
F	$0.04x(1+0.0001x)^{-.5}$	$0.16x(1+0.0003x)^{-1}$

CHAPTER 3

INPUT DATA

1. **Point Source:**

Since it is a day time activity and all the machineries are diesel operating there is no point source emissions.

2. **Non-Point Source:**

As described in chapter 2 the mining process will have following fugitive emission sources:

- Loading /Semi mechanized mining
- Transportation

➢ **Emission Sources and Characteristics**

- No. of pit – 3
- Size of pit –11m x16m x 3m

The other details are as follows:

Release height – 1m.

Pit volume –532 m^3

Emission Rate of PM_{10} without control = 0.00031g/s/m^2

Emission Rate of PM_{10} with control = 0.0000157 g/s/m^2

Haul Road

No. of Haul Road- 3

Length – 600m

Width – 6m

Emission Rate of without control = 0.00012 g/s/m^2

Emission Rate of with control = 0.0000868 g/s/m^2

3. Meteorological Data

Hourly meteorological data project site for the period (Dec2013-Feb 2014) in respect of wind speed, wind direction, temperature and cloud amount are utilized in this study. Mean mixing heights for each hour for region are extracted from the IMD data. These data are used in air quality modelling.

➢ Ambient Air Quality Standards andBackground Concentrations

Ambient air quality standards promulgated by Central Pollution Control Board (CPCB) for different areas are as follows:

S. No	Pollutant	Time Weighted Average	Concentration in Ambient Air	
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area(Notified by Central Government)
1.	Particulate Matter(size less than 10µm) or PM_{10} µg/m^3	Annual* 24 hours**	60 100	60 100

*Annual arithmetic mean of minimum 104 measurements in a year at particular site taken twice a week 24 hourly at uniform intervals

**24 hours monitored values, shall be compiled with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of the morning.

The above standards are for a sampling period of 24 hours.

Location	**Distance from Site**	**Direction**	**Background Concentration PM_{10}(µg/m^3) (Mean)**
Dhanpura	0.5 km	E	58.66
Chuli	-	-	56.70
Chotila ki Bhagli	0.5 km	S	56.28
Ora	0.5 km	E	56.92
Alpa	3.5 km	NW	57.27
Jawai River	-	-	55.90
Sheoganj	0.5 km	S	59.95
Khejriya	0.5 km	E	54.96
Balvana	6.0 km	W	58.47
Khari River	-	-	54.36

The measured maximum values of pollutants at various ambient air quality monitoring stations are as given above:

4. Plan and Frame Work of Computations

➢ Selection of Locations

The locations have been selected around project site covering an area of 10 km radius from the centre of the project site. The entire area has been put on grid network and grid spacing has been taken as 500 m.

➢ Plan of Computation

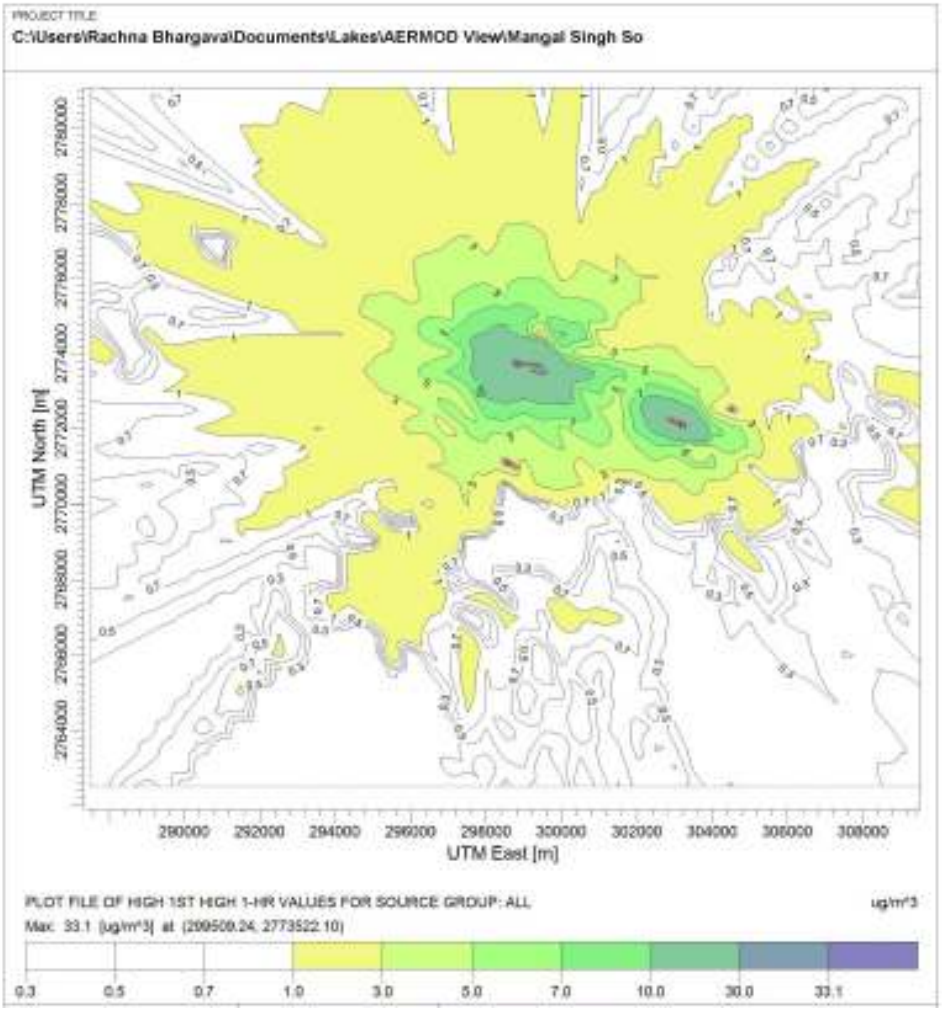
The emission rate, dispersion coefficients and other input data being now available; it was planned to compute the following:

- The 24 hourly averaged incremental concentration with hourly data.
- The identification of grid point having peak concentration for the incremental values.
- Preparation of isopleths of for various pollutants.

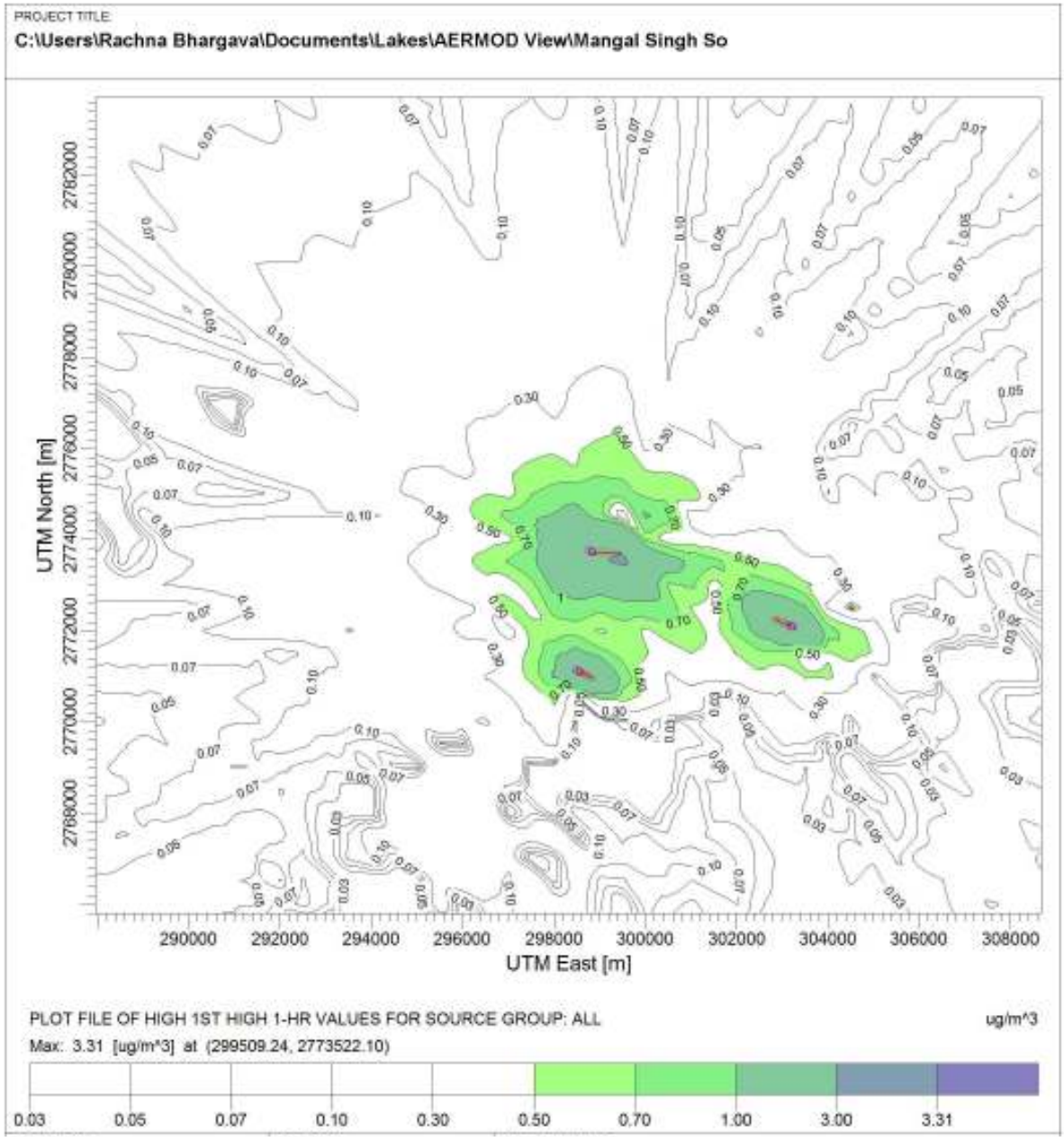
CHAPTER 4

IMPACT PREDICTION

1. **Impact Prediction from Non Point:**
   On applying the input data in the software for Air Dispersion AERMOD the output gives the following results



2. After using control measures:



CHAPTER 5
RESULT AND DISCUSSIONS

PREDICTED AMBIENT AIR QUALITY FOR NON POINT SOURCE IMPACT OF PM (AREA & LINE SOURCE)

With a wide fluctuation in meteorological parameters it is a complex task to predict post project ambient air quality. With available ambient air quality data and incremental concentrations computed through mathematical modelling the following post project ambient air quality has been predicted. The maximum GLC with taking control measures will be within core zone.

Location	Background Concentration PM_{10} ($\mu g/m^3$)	Predicted Incremental Concentration PM_{10} ($\mu g/m^3$) without control measures	Post Project Air Quality PM_{10} without control measures ($\mu g/m^3$)	Predicted Incremental Concentration PM_{10} ($\mu g/m^3$) with control measures	Post Project Air Quality PM_{10} with control measures ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Dhanpura	58.66	1.99	60.65	0.22	58.88	100
Chuli	56.70	4.19	60.89	2.51	59.21	100
Chotila ki Bhagli	56.28	0.78	57.06	0.04	56.32	100
Ora	56.92	0.68	57.6	0.05	56.97	100
Alpa	57.27	0.72	57.99	0.07	57.34	100
Jawai River	55.90	0.25	56.15	0.03	55.93	100
Sheoganj	59.95	0.4	60.35	0.06	60.01	100
Khejriya	54.96	0.67	55.63	0.16	55.12	100
Balvana	58.47	0.32	58.79	0.03	58.5	100
Khari River	54.36	0.95	55.31	0.09	54.45	100

MANGAL SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No. – 0141-2333907

Ref.: **Date:**

To,

The D.F.O.
Forest Department
Sirohi, Rajasthan

Subject: -

Submission of conservation Plan for Scheduled-I faunal species as per wild life protection Act. 1972. For the river sand project of M/s. Mangal Singh Solanki, 18 revenue Villages of Tehsil- Sheoganj District- Sirohi (Rajasthan). For which LOI has been issued by State Government vide Order No.8 (15) Khan/Group-2/2013dated 27th February 2013.

Reference: - TOR vide letter No. J-11015/310/2013-IA.II (M) Dated 22nd November, 2013.

Your letter no. एफ()वसु/ख0 अ0/उवसं/2014–15/3009 dated 27.03.15

Sir,

According to aforesaid subject Project Proponent obtained LOI from the mining department of State Govt. Rajasthan. Environmental clearance is being obtained for this project from the Ministry of Environment & Forest (MoEF), Government of India. In the reference of Point no 16 of TOR Letter, In case of any scheduled-I fauna found in the study area, their conservation should be prepared in consultation with State Forest and Wildlife Department. Scheduled-I fauna, Peacock (Pavocristatus), Leopard (Panthera pardus) and Sloth Bear (Melursus ursinus) was observed in the study area during our field study.

So we are submitting the conservation plan for Scheduled-I faunal species for your kind consultation and 10 KM radius topographical map supported by Location map for Authentication.
We are seeking for necessary action as soon as possible.

Yours Faithfully

M/s. Mangal Singh Solanki
(LOI Holder)

Enclosures: -

1. TOR Letter
2. LOI Letter
3. List of Flora & Fauna
4. conservation plan for Scheduled-I faunal species

27-07-15

Conservation plan

For

Peafowl (*Pavo cristatus, Linnaeus, 1758*)



Mangal Singh Solanki
S/o Laxman Singh Solanki
13, Shiv Nagar, Behind of
Kamla Nehru Nagar, Ajmer Road
Jaipur

Prepared by:

RAMJI MINE ENVIROTECH

Plot No.-21, First Floor, Aarna-2 Tower,

Kartarpura Industrial Area, Jaipur, Rajasthan – 302006

Ph.No: 0141-4036199, 9799744347 Fax No. 0141-4036199

E-mail: mkguptarqp@gmail.com, rme.envirotech@gmail.com

1. Introduction of the project:

This is a fresh mining lease applied for mining of mineral River Sand. Annual production for Minerals River Sand 28.05 Lac TPA over an area of 1414 ha.

This is a necessitated by the Ministry of Environment and Forest, Government of India a detailed biological survey of the core zone and buffer zone (10km. radius) has been carried out and submitted in the EIA Report. In case of fauna, the schedule of the Wildlife (protection) Act 1972 has been referred.

Peafowl (Pavo cristatus, Linnaeus, 1758) belonging to schedule I of the Wildlife (Protection) Act 1972 is the species of fauna found in the buffer zone of the study area.

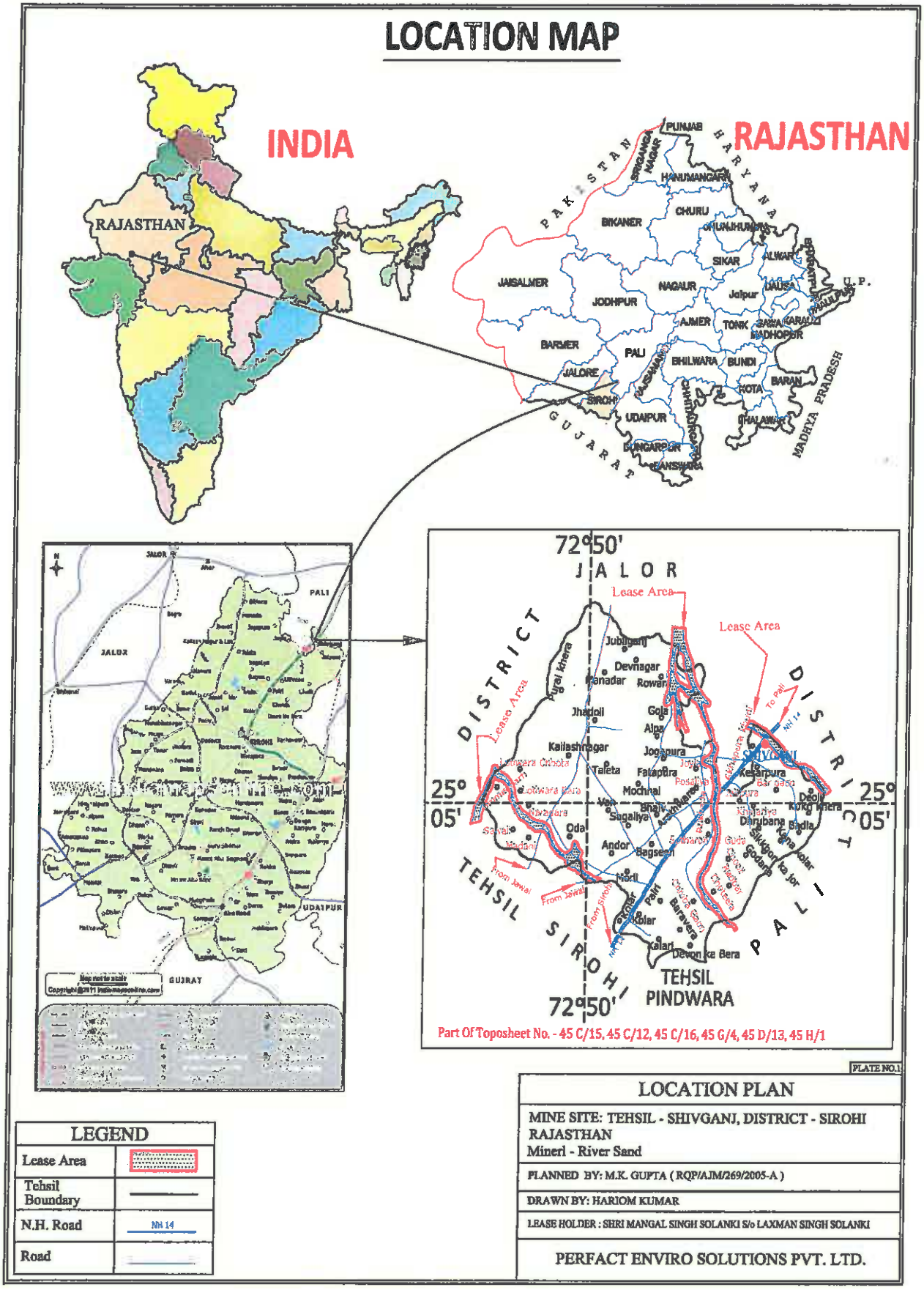
2. Location of the area

A. Villages: River Sand (Bajri) mining project located near Village - Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil - Sheoganj, District - Sirohi (Rajasthan).

B. Tehsil: Shivganj

C. District: Sirohi

D. State: Rajasthan


LOCATION MAP
INDIA
RAJASTHAN
RAJASTHAN
PUNJAB
HARYANA
PAKISTAN
GUJARAT
MADHYA PRADESH
U.P.
SRIGANGA NAGAR
HANUMANGARH
BIKANER
CHURU
JHUNJHUNUN
SIKAR
ALWAR
JAISALMER
NAGAUR
JODHPUR
Jaipur
DAUSA
AJMER
TONK
SAWAI MADHOPUR
KARAULI
BARMER
PALI
BHILWARA
BUNDI
JALORE
RAJSAMAND
KOTA
BARAN
SIROHI
CHITTORGARH
UDAIPUR
BHALAWAR
DUNGARPUR
BANSWARA
JALOR
PALI
UDAIPUR
GUJRAT
72°50'
JALOR
Lease Area
Lease Area
DISTRICT
DISTRICT
PALI
25° 05'
25° 05'
TEHSIL SIROHI
TEHSIL PINDWARA
72°50'
Jubiganj
Devnagar
Kanadar
Rowan
Jhadoli
Goja
Alpa
Kailashnagar
Jogapura
Taleta
Fatapura
Mochhal
Sugaliya
Oda
Andor
Bagseeri
Mordi
Kolar
Kalari
Devon ka Bera
Kesarpura
Dhrubana
Badla
Deoli
Khuri Antera
Shivganj
To Pali
From Jawai
From Sirohi
Part Of Toposheet No. - 45 C/15, 45 C/12, 45 C/16, 45 G/4, 45 D/13, 45 H/1
PLATE NO.1
LEGEND
Lease Area
Tehsil Boundary
N.H. Road
NH 14
Road
LOCATION PLAN
MINE SITE: TEHSIL - SHIVGANJ, DISTRICT - SIROHI RAJASTHAN
Mineri - River Sand
PLANNED BY: M.K. GUPTA (RQP/AJM/269/2005-A)
DRAWN BY: HARIOM KUMAR
LEASE HOLDER : SHRI MANGAL SINGH SOLANKI S/o LAXMAN SINGH SOLANKI
PERFACT ENVIRO SOLUTIONS PVT. LTD.

3. Introduction of the Indian Peafowl

The Indian Peafowl (Pavo cristatus) has been an integral part of the people of the India and their culture for centuries. From religion and mythology to civilization and socio-culture, the Indian Peafowl occupies an important place in the lives of the people. In addition to this, the Indian Peafowl is well recognized for its ecological and aesthetical values, and hence aptly declared as the 'National Bird' of India in the year 1963.

Since the early 1990s, there have been reports of increasing illegal trade in peafowl feathers, large-scale mortalities due to increased use of insecticides/pesticides in agricultural lands, poaching, and retaliatory killings by people due to alleged crop depredation by peafowl. Several peafowl stronghold areas in the country are now concerned about the current declining status.

3.1 Status

IUCN : Others

WL (P) Act-1972: Schedule I

CITES: Not listed

3.2 Classification

Kingdom	Animala
Phylum	Chordata
Class	Aves
Order	Galliformes
Family	Phasianidae
Genus	Pavo
Species	*Pavo cristatus*

3.3 Distribution

The natural range of Indian Peafowl is essentially the Indian Subcontinent, with India covering a vast majority of its range from the outer Himalaya (up to 2000m) through much of the country including the peninsula. Other countries where the species still survives in good numbers are Nepal and Sri Lanka, while there are only two populations in Pakistan, it is rare in

Bhutan and possible extinct in Bangladesh. It has been introduced in Andaman Island (Ali & Ripley 1980).

3.4 Habitat and Behavior

It is a bird of scrub-jungles and forest edges, showing affinity to moist and dry deciduous and semi-arid biomes. It is also found in agriculture fields, along streams with good vegetation and close to human habitation in a semi-feral condition (Johnsgard 1986). It roosts on tree and also uses tall building where trees are scarce. It generally prefer a habitat mosaic of scrub and open areas, with adequate sites for dust bathing and lekking, a phenomenon where males are known to congregate in open areas for displaying to attract females (Yasmin & Yahya1996). Dust bathing is critical as this bird has to condition its feathers and remove feather – degrading bacteria and other external parasites. It is likely that the availability of such habitats partly explains the relatively high abundance of this species in semiarid and flood plains.

3.5 Breeding

Peafowl normally reach breeding age at two years. Peahens will sometimes lay fertile eggs as yearlings. They will lay these eggs late in the summer after they have turned one year old. The best chance for a yearling hen to lay eggs is when she is in the same pen as a mature male. A mature male is a peacock which is at least three years old. The peacock will molt the tail in late summer and this is when the breeding season will end. A two year old peacock that has a one to two foot long tail train will be a better breeder at this age than a peacock of the same age that doesn't have a tail train of any size.

A mature peacock in prime condition can be mated to as many as five peahens. The eggs are light brown in color and are similar in size to turkey eggs. If the eggs are collected from the nest for artificial incubation, a peahen may lay as many as thirty eggs. Peahens which are allowed to roam freely about a farm will hide their nests in tall grass, around shrubs, and in brush piles. The nest is a depression scratched out in the ground and lined

with grass. Nests in such locations are many times destroyed by possums, raccoons, and skunks which will eat the eggs.

4. **Threats**

- The Indian peafowl is under threat from various quarters that include the demand for feathers and wild meat, conflict with farmers during cropping season, increased use of chemical fertilizers and pesticides, and habitat degradation.
- Habitat degradation and loss –more significantly from conversion of their habitat to agriculture, habitation and industrial growth, poisoning to counter crop damage, consumption of eggs and fat extracts for alleged medicinal values, and killing for wild meat.
- Although these threats are beloved to be causing an alarming decline in population, the magnitude and pattern of the effects in project study area are yet to be quantified.
- Habitat loss, specially the shortage of tall trees in and around the villages for roosting and for providing shade during hot summer months.
- Shortage of drinking water for the birds during the hot summer days
- Casualties caused by eating chemically treated agricultural crop seeds
- Illegal hunting by some communities.

5. **Action plan for Conservation of peafowl : -**

- Mapping of habitat and distribution status of the species across the 10 km radius from project site.
- Time series analysis of habitat change to quantify the rate of change and identify high risk areas and potential sites for further affirmative action.
- Estimation population size by established count method such as line transect, call counts and roost counts.
- Intensive ecological investigation in reprehensive sites in major biogeography zone with focus on the effects of threats in relation to breeding success and survival probability.
- Quantification of trade, with details on source and people involved.

6. Conservation Plan for the National Bird "Peacock"

- Increases the tree cover in the buffer area of the limestone mine for shelter and roosting of peacocks. This will be achieved by planting of tree groves (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. Some native species such as Neem, Kassod tree,Ber, Shisham, Mahaneem, Peepal, Siris tree etc. will be planted. Planting of tree groves in school compounds in the villages of buffers area will be planted as per the plantation programme.
- Publicity for generating public awareness for conservation of peacocks in the area. Generating awareness in school children by organizing competitions during "Wildlife Week" and "Van Mahotsave" celebrations.
- The human population in buffer area is pre-dominantly of such casts who have some religious feelings to protect the peacocks. Yet occasionally some people include in poaching of peacocks for its meat and feathers. Therefore, some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Elimination of all kinds of human activity in the core zone and minimization of activity in the buffer zone.
- Restricting use of pollutants in their habitat.
- Stop the increased vehicle pollution, wildlife road fatalities and damage to precious habitat by peoples to start movement towards these areas.
- Restrict the meat of "Peacock". Monitoring the changes taking place and studying the reasons for the same.
- Carrying out census and research projects to know the potential threats.
- Assessing the damage done to the eco-system by human activity and efforts to recover it to its original form.
- Provision of veterinary care and cages for injured or sick deformed birds

Plans are in progress to develop wireless communication systems to curb the problem of poaching.

- Suggest strategies to minimize negative impacts of changing environment in nearby area of peacock populations and to promote conservation of peacock habitats. Another way to help preserve the endangered species is to create a new professional society dedicated to ecological ethics.
- Notify to catch or kill the national bird as crime and no Legal support for defending in court cases. Therefore, laws need to be amended to make penalties harsher for poaching.

7. **Budget Conservation of Peafowl:** The proponent has proposed a sum of Rs. 1, 58,000 for the "Peacock" conservation plan under the following heads:

BUDGET FOR CONSERVATION OF PEAFOWL

S.No	Work or Activity	Year wise expenditure in Rs.				
		I year (A)	II year (B)	III year (C)	IV year (D)	V year (E)
1	Plantation- 200 tree plants (5 feet height, including manure and digging cost of pit as per the plant species- Cost of sapling will be changed per year)	10,000/- (@ 50/- per plant)	11,000/- (@ 55/- per plant)	12,000/- (@ 60/- per plant)	13,000/- (@ 65/- per plant)	14,000/- (@ 70/- per plant)
2	Small water tank or tanka – 10 in number @ 10000/- per tank	50000/-	1000/- (repair cost)	1000/- (repair cost)	1000/- (repair cost)	1000/- (repair cost)
3	One awareness programme for "Peacock" conservation will be scheduled in 3 months.	5000/-	5000/-	7000/-	7000/-	10000/-
4	2 cash prizes @ 1000 in a year will be awarded to the informer of poachers.	2000/-	2000/-	2000/-	2000/-	2000/-
		67000/-	**19000/-**	**22000/**	**23000**	**27000/-**

				-		
	Total= A+B+C+D+E= 67000/- + 19000/- + 22000/- + 23000/- + 27000/- = **1,58,000**					

Mangal Singh Solanki
S/o Laxman Singh Solanki
13, Shiv Nagar, Behind of
Kamla Nehru Nagar, Ajmer Road
Jaipur

Conservation plan

For

Sloth Bear *(Melursus ursinus)*



Prepared by:

RAMJI MINE ENVIROTECH

Plot No.-21, First Floor, Aarna-2 Tower,

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Ph.No: 0141-4036199, 9799744347 Fax No. 0141-4036199

E-mail: mkguptarqp@gmail.com, rme.envirotech@gmail.com

Mangal Singh Solanki
S/o Laxman Singh Solanki
13, Shiv Nagar, Behind of
Kamla Nehru Nagar, Ajmer Road
Jaipur

River sand (Bajri) Mining project, M.L. Area 1414 ha, at Tehsil- Shivganj, District - Sirohi (Rajasthan)

1. Introduction of the project:

This is a fresh mining lease applied for mining of mineral River Sand. Annual production for Minerals River Sand 28.05 Lac TPA over an area of 1414 ha.

This is A necessitated by the Ministry of Environment and Forest, Government of India a detailed biological survey of the core zone and buffer zone (10km. radius) has been carried out and submitted in the EIA Report.

In case of fauna, the schedule of the Wildlife (protection) Act 1972 has been referred.

Sloth Bear (Melursus ursinus) belonging to schedule I of the Wildlife (Protection) Act 1972 is the species of fauna found in the buffer zone of the study area.

2. Location of the area:

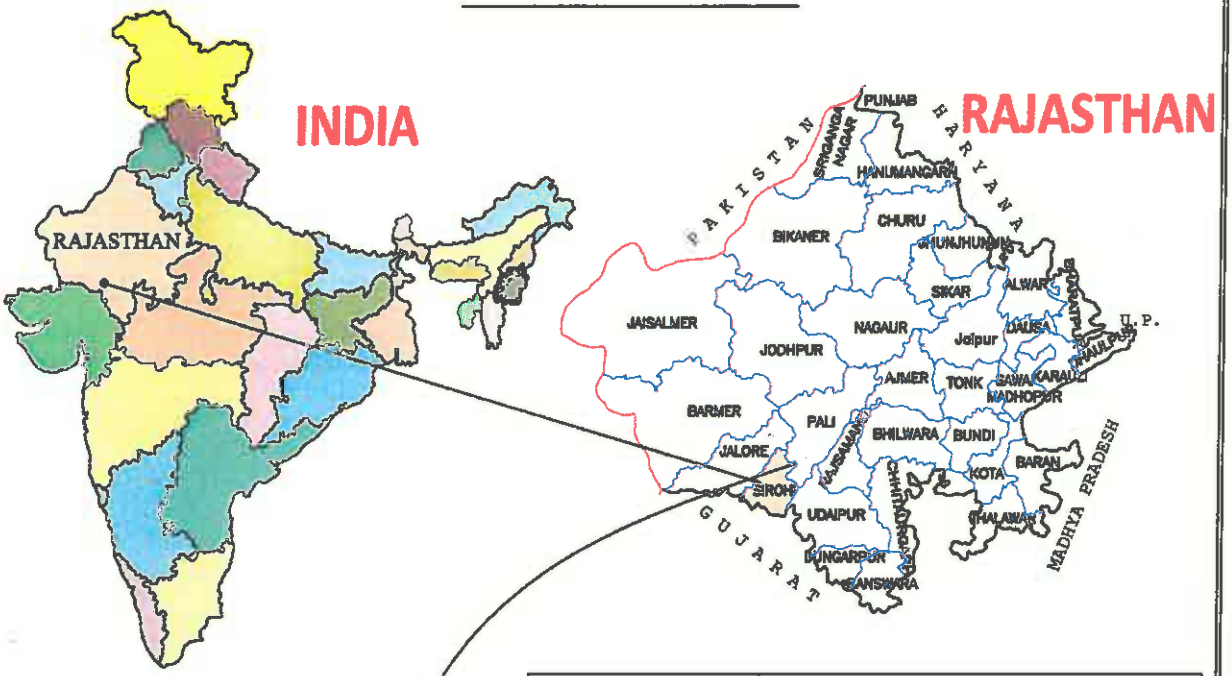
A. Villages: Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil - Sheoganj, District - Sirohi (Rajasthan).

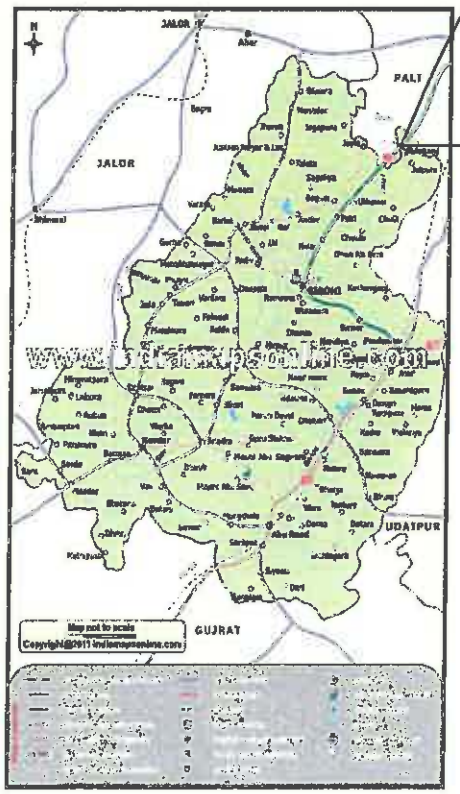
B. Tehsil: Shivganj

C. District: Sirohi

D. State: Rajasthan

LOCATION MAP





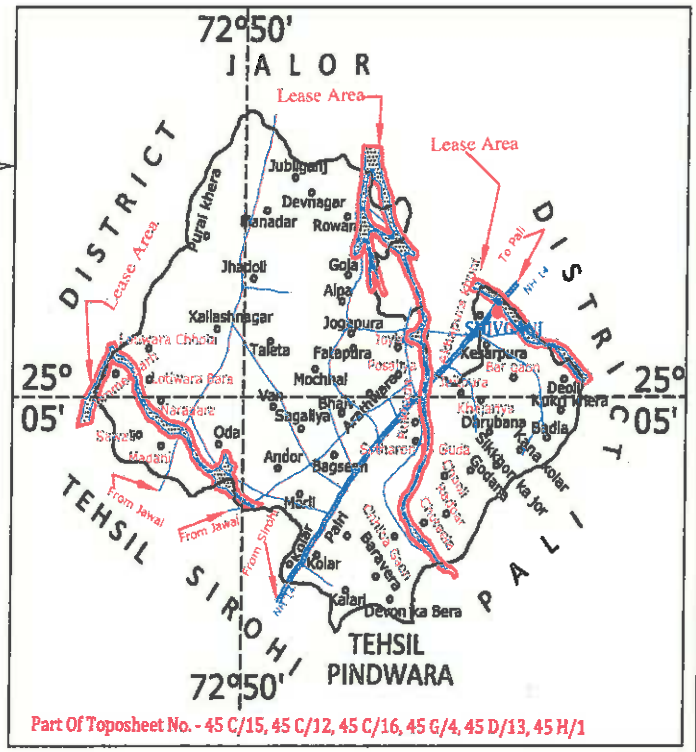


PLATE NO.1

LEGEND	
Lease Area	
Tehsil Boundary	
N.H. Road	NH 14
Road	

LOCATION PLAN
MINE SITE: TEHSIL - SHIVGANJ, DISTRICT - SIROHI RAJASTHAN Minerl - River Sand
PLANNED BY: M.K. GUPTA (RQP/AJM/269/2005-A)
DRAWN BY: HARIOM KUMAR
LEASE HOLDER : SHRI MANGAL SINGH SOLANKI S/o LAXMAN SINGH SOLANKI
PERFACT ENVIRO SOLUTIONS PVT. LTD.

Prepared by: M/s Ramji Mine Envirotech, Jaipur (Rajasthan)

3. Introduction of the Sloth Bear: -

The sloth bear known as Labiated bear is a nocturnal insectivores, sickle-shaped clawsand a specially adapted lower lip and palate used for sucking insects. Sloth bear fur is completely black and a whitish Y or U shaped monk on chest. It is capable of galloping faster than running human. Although it appear slow and clumsy. Sloth bear are excellent climber including cubs. They climb to feed and rest on long trees. They are capable of climbing on smooth surface and hanging upside down.

Its presence is observed in winter season as per told by local people of study area. They also mentioned that sloth bear with cubs walked in the sugarcane cultivation and came for drinking water in water ponds nearby in the area. There are few numbers of sloth bear present in study area as per census report.

3.1.1 Status: -

The sloth bear is listed as vulnerable on the World Conservation Union's Red List of Threatened Animals And recognized under Schedule I species of Wild Life Protection Act 1972 in India.

3.1.2 Classification:-

Kingdom	Animala
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Ursidae
Genus	Melursus
Species	Melursus ursinus

3.2 Distribution:-

Most sloth bears live in India and Sri Lanka; others live in southern Nepal, and they have been reported in Bhutan and Bangladesh.

3.3 SIZE:

Sloth bears grow five to six feet long, stand two to three feet high at the shoulder, and weigh from 120 (in lighter females) to 310 pounds (in heavy males).

3.4 Habitat and Behavior

Sloth bearlives lives in dense forest. It like fruits of Diospyros melanoxylon (Tendu), Ficus glomerata (Gular), Ficus religiosa (Pipal), Ficus benghalensis (Bar), Mangifera indica (Mango), Syzygium cumini (Jamun), Madhuca indica (Mahua) and other fruits trees. Also it eats gums of the trees. It is found of termites. They make their territories. Sloth bear scraps trees with their fore-paws and rub against them with their flanks. For cubs it collect wood apples and honey comb.

3.5 Breeding-

Sloth bear breed during spring and early summers and give birth near the beginning of winter. It gestation period is 210 days or about six months. Sloth bear mother gives birth 2 to 3 cubs in caves or in shelter under boulders. Mother bear carry cubs upto 9 month old on their back primary defense against attack by predators such as tigers, leopards and other bears. Cubs separate after 2 to 3 years old.

3.6 REPRODUCTION:

Sloth bears mate during the hot season—May, June, and July—and females usually give birth to two cubs six to seven months later. Cubs are born in an underground den, and stay there for several months. After emerging from the den, cubs stay at their mother's side for two to three years before heading off on their own.

3.7 Threats: -

(i) Hunting for valuable fur Bacula and Claws.

(ii) Used as performing Pets due to their tamable nature.

(iii) For Meat.

(iv) Habitatdestruction: destruction of honey bee colonies for collection of honey and fruits by local people in study area.

There is a conflict between human and sloth bear for destruction habitat. Human have drastically reduce their habitat and diminish their population by hunting them for food and for products such as backula and claws.

4. Conservation Measures:-

- **Habitat:** Forest are deteriorating by local people for their basic needs like agriculture and fuel wood and over grazing for their cattle. Local people encroach the forest land for extension of cultivation land by felling and cutting the trees. The local people should be

educated and aware for conserving flora and fauna. Good forest is good habitat for sloth bear regeneration to improve the degraded forest planting of the trees should be done through Village Forest Protection Committee and NGO's in forest land and panchayat land also. To resolve the conflict the basic issue of deteriorating habitat which is the reason for the conflict between people and bears, improvement through government or community based re-forestation may be promoted.

- **Awareness and Training Program:** This program may be done by Plant Administration for local people to educate and aware regarding conservation of sloth bear. The local people should aware that hunting of sloth bear is illegal and punishable. The sloth bear is found of honey. Sometimes local people collect honey for sale from honey bee colonies in habitat of sloth bear. Local people should aware about not to disturb honey bee colonies for the collection of honey.
- **Hunting:** Sloth bear hunt for fur and claws, fur is used for backula and trade outside the country. It is listed in Sch. I animals of WPA, 1972 which provide for legal protection of sloth bear. International Trade of sloth bear is prohibited as it is listed in Appendix of the Convention of International Trade in Endangered Species (CITES).
- **People's Participation:** There are so many VFPMC's and NGO's are working for the protection and conservation of sloth bear in protected areas. The Company administration or the plant operators may take help from them in protecting and conserving sloth bears walking in plant area or study area.
- **Rescue Centre:** To provide immediate help for ill, wounded and accidented sloth bear and their cubs rescue operation is a must. For this purpose a rescue centre should be open in study area. The rescue centre will be operated both company and concern forest department.

5.0 BUDGETS FOR CONSERVATION OF Sloth Bear-

The total budget for environmental conservation including Sloth Bear conservation will be around Rs. 3, 30,000 for five years.

BUDGET FOR CONSERVATION OF SLOTH BEAR

S.No	Conservation Action	Expenditure in Ist year	2 year	3rd year	4th year	5th year	Total
1	Awareness programme for protect the threatened species through Wild life week and Biodiversity day, Environment day and others i.e. Poster campaign, Speech on particular species , seminar etc.	10,000	10,000	10,000	10,000	10,000	50000
2	Creation of Water bodies or tanka and its maintinance	30,000	10000	10000	10000	10000	70000
3	Release fund to Veterinary hospital for Medical facilities for treatment of injured Sloth Bear species	20000	20000	20000	20000	20000	100000
5	Release fund for development of Afforestation programme in protective and sensitive areas of habitat of Sloth Bear with District Forest department	30000	20000	20000	20000	20000	110000
Total		**90000**	**60,000**	**60,000**	**60,000**	**60,000**	**330000**

Mangal Singh Solanki
S/o Laxman Singh Solanki
13, Shiv Nagar, Behind of
Kamla Nehru Nagar, Ajmer Road
Jaipur

CONSERVATION PLAN

FOR

LEOPARD (*Panthera pardus*)



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1.0 INTRODUCTION-

River Sand (Bajri) mining project located near Village - Akhapura Khuni, Bar Gaon, Chhiba Gaon, Chooli, Choteela, Jaitpura, Joyla, Khejariya, Lotiwara Bara, Lotiwara Chhota, Madani, Naradara, Posaliyan, Radbar, Rukhada, Sawali, Sutharon Ka Gurha, Ummedgarh Tehsil - Sheoganj, District - Sirohi (Rajasthan).

Annual production for minerals River Sand 28.05 Lac TPA over an area of 1414 hectares.

1.1 Leopard-

The leopard (*Panthera pardus*) is an old world mammal of the Felidae family and the smallest of the four 'big cats' of the genus Panthera, along with the tiger, lion, and jaguar. Leopards that are melanistic, either all-black or very dark in coloration, are known colloquially as Black Panthers.

There are fragmented populations in the Indian subcontinent, Indochina, Malaysia, and western China. Despite the loss of range and continued population declines, the cat remains a least concern species; its numbers are greater than that of the other Panthera species, all of which face more acute conservation concerns.

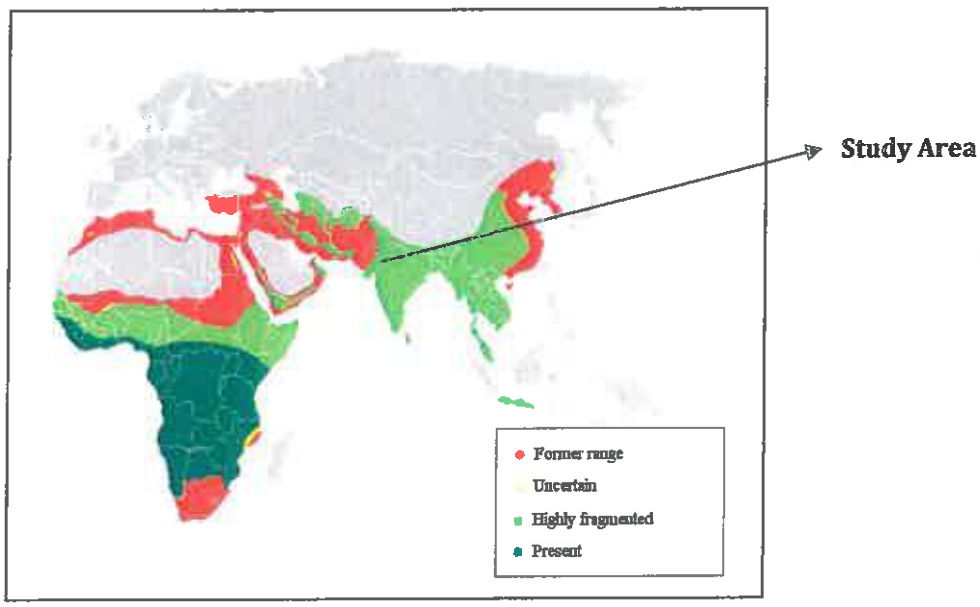


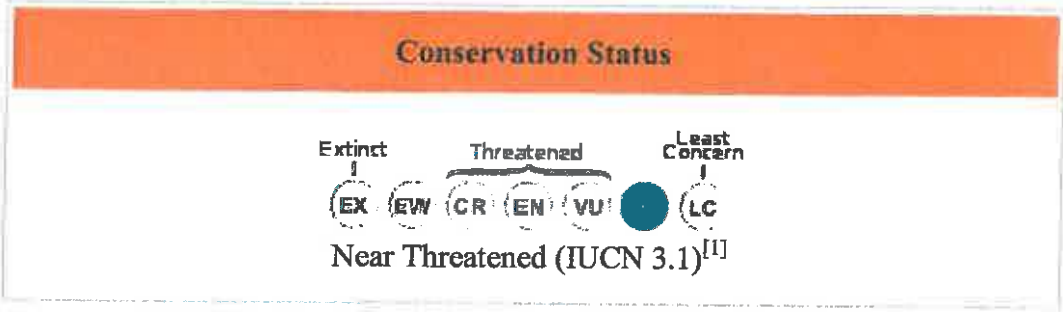
Fig. 1.1 Distributional pattern of Leopard across the world

The species' success owes in part to its opportunistic hunting behavior and its adaptability to a variety of habitats. The leopard consumes virtually any animal it can

catch and ranges from rainforest to desert. Its ecological role resembles that of the similarly-sized cougar in the Americas. Physically, the spotted cat most closely resembles the jaguar, although it is of lighter build.

1.2 STATUS-

The leopard (*Panthera pardus*) is near threatened to the Indian Sub-continent in the IUCN Red list. With in the country, the species is protected under Schedule-I species of Wild Life Protection Act -1972 in India.



1.3 SCIENTIFIC CLASSIFICATION-

Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Felidae
Genus	Panthera
Species	P. pardus
Binomial Name	*Panthera pardus*

1.4 DISTRIBUTION AND HABITAT-

As of 1996, the leopard had the largest distribution of any wild cat, although populations before and since have shown a declining trend and are fragmented outside of sub-Saharan Africa. The IUCN notes that within sub-Saharan Africa the species is "still numerous and even thriving in marginal habitats" where other large cats have disappeared, but that populations in North Africa may be extinct. In Asia, data on distribution are mixed: populations in Southwest and Central Asia are small and fragmented; in the northeast portion of the range, they are critically endangered; and in Indian, Southeast Asia, and China, the cat is still relatively abundant. Leopards also like to live in grasslands, woodlands and riverside forests.

1.5 BIOLOGY AND BEHAVIOR-

Graceful and stealthy, leopards are famous for their ability to go undetected. They are good, agile climbers, but cannot get down from a tree headfirst, because they do not have the ankle flexibility.

Along with climbing, they are strong swimmers but not as fond of water as tigers; for example, leopards will not normally lie in water. They are mainly nocturnal but can be seen at any time of day and will even hunt during daytime on overcast days. In regions where they are hunted, nocturnal behavior is more common. These cats are solitary, avoiding one another. However, three or four are sometimes seen together. Hearing and eyesight are the strongest of these cats' senses and are extremely acute. Olfaction is relied upon as well, but not for hunting. When making a threat, leopards stretch their backs, depress their ribcages between their shoulder blades so they stick out, and lower their heads (similar to domestic cats). During the day they may lie in bush, on rocks, or in a tree with their tails hanging below the treetops and giving them away.

1.6 DIET AND HUNTING-

Leopards are opportunistic hunters. Although mid-sized animals are preferred, the leopard will eat anything from dung beetles to 900 kg male giant elands. Their diet consists mostly of ungulates and monkeys, but rodents, reptiles, amphibians, birds and fish are also eaten. In fact, they hunt about 90 different species of animals. The leopard stalks its prey silently and at the last minute pounces on its prey and strangles its throat with a quick bite. Leopards often hide their kills in dense vegetation or take them up trees, and are capable of carrying animals up to three times their own weight this way. Storing carcasses up trees keeps them away from other predators such as spotted hyenas, jackals, tigers and lions, though the latter will occasionally be successful in climbing and fetching the leopard kills.

1.7 REPRODUCTION-

A male may follow a female who catches his attention. Eventually fighting for reproductive rights can take place. Depending on the region, leopards may mate all year round (India and Africa) or seasonally during January to February. The estrous cycle lasts about 46 days and the female usually is in heat for 6-7 days. Cubs are

usually born in a litter of 2-3, but infant mortality is high and mothers are not commonly seen with more than 1-2 cubs. The pregnant females find a cave, crevice among boulders, hollow tree, or thicket to give birth and make a den. Cubs open their eyes after a period of 10 days. The fur of the young tends to be longer and thicker than that of adults. Their pelage is also grayer in color with less defined spots. Around three months the infants begin to follow the mother out on hunts. At one year of age leopard young can probably fend for themselves but they remain with the mother for 18-24 months.

2.0 THREATS-

- The Leopard is under threats from various quarters that include the demand for Skin conflict with habitat degradation.
- Habitat degradation and loss - more significantly from conversion of their habitat to agriculture, habitation and industrial growth.
- Hunting and poaching of Leopard for his Skin.
- The rapidly growing human population needs more food and timber off the same land.
- Grazing by domestic livestock is dramatically increasing as pastoralists sink new waterholes and transport animals by truck to temporary pastures.
- Presence of weed such as *prosopis juliflora* in habitation of Leopard.
- Human–leopard conflict-Expansion of agriculturally used land, encroachment of humans and their livestock into protected areas are main factors contributing to habitat loss and decrease of wild prey. As a result, leopards approach human settlements, where they are tempted to prey on dogs, pigs and goats -domestic livestock, which constitutes an important part of their diet, if they live on the periphery of human habitations. Human–leopard conflict situations ensue, and have increased in recent years. In retaliation for attacks on livestock, leopards are shot, poisoned and trapped in brutal snares.

2.1 COMMON FACTOR OF DECLINING OF POPULATION OF LEOPARD-

Wildlife species may become totally extinct if no measures are taken to protect them. Some of reasons for extinction of wild life are:

- Destruction of their natural habitats-by environmental pollution, deforestation, soil erosion, overgrazing, increased urbanization, forest fires, and developmental works.
- Poaching
- Introduction of exotic species.
- Over exploitation of natural resource.
- Disturbance in migratory routes.
- International trade in rare animals.
- Lack of education.
- Loss of forest quality in terms of prey biomass to support large carnivores like tiger and leopard.
- Fragmentation leading to loss of gene flow from source populations.
- Loss of reproduction owing to disturbance on account of heavily used infrastructure like highways, etc.
- Mortality of wild animals due to man-animal conflicts.
- Lack of awareness of people resides in nearby area.
- Disturb prey-predator relationship.

2.1.1 DESTRUCTION OF THEIR NATURAL HABITATS-

By Environmental pollution:

Water pollution need to be monitored on a continuous basis so that surface water contamination of ground water leaching is avoided. Dust is also generated during transport of construction materials, site development and mining activity. Dust gets deposited over surrounding vegetation being carried by wind. Dust has an inhibiting growth on plants and creates allergy and respiratory disorder in animals. The soil property and micro flora and fauna are also affected by dust.

By Deforestation:

Increases deforestation activities in another major cause of degradation of natural habitat of wild fauna.

By Soil erosion:

Illegal quarrying for building stone cutting of trees, clearance of ground flora for vegetable cultivation fires and pollution may result in soil erosion. Soil erosion leads

to increased run off and progressive deterioration of site quality. This will make natural restoration of forest cover extremely difficult, unless aggressive measures are initiated to arrest the accelerated soil loss and nutrient drain. Maintenance of soil fertility is key to better forest growth and better status of animals.

By Forest fires, If any:

Forest fire, which is usually severe, affects habitat adversely and the extent of change in structure and composition of vegetation affects animal communities. Severity, frequency, size and uniformity of burn are important in determining the destiny of species. Fauna usually respond by emigration from the scene of fire and immigration in post fire situations, when there is re growth of forage and browse, which is soon exhausted. Severe fire may entrap young ones and charred them to death. Ground nesting birds may be affected by losing their chicks and eggs. Slow moving animals like pangolin, python and burrowing animals like monitor lizard are at risk in fast spreading fire. It can create snags by killing trees, toppling down old snags and destroying down-wood. Ground cover at ground and field levels are destroyed, humus is lost and mineral soil exposed.

By Loss of biodiversity:

Of the total number of species in a plant community, a relatively small percent are abundant while large number is rare. While the few abundant species regulate the energy flow in the community, the large numbers of rare species determine the species diversity. Higher diversity in plant means longer food chains, more species interactions, greater possibilities for negative feed-back control, which reduces oscillations in species structure and increase stability. This condition is obtained in climax mature forests. Such a community is vulnerable to external stressors like pollution, fire and thinning up of trees. Once, the plant species start disappearing by selective removal, dependent animal communities loose out in the struggle for survival. Plant species of interior habitats may be lost at a faster rate compared to edge habitats.

2.1.2 Poaching:

A significant immediate threat to wild leopard populations is the illegal trade in poached skins and body parts. There are well-organized gangs of professional poachers, who move from place to place and set up camp in vulnerable areas. Skins

are rough-cured in the field and handed over to dealers, who send them for further treatment to Indian tanning centers. Buyers choose the skins from dealers or tanneries and smuggle them through a complex interlinking network to markets outside India.

2.2 STRATEGIES OF CONSERVATION OF WILD LIFE

- Protection and encouraging their breeding.
- Preservation of their habitats.
- Regulation on hunting.
- Ban on international trade in rare animals.
- Stopping overexploitation of useful products from wildlife.
- No commercial mono-culture to replace natural forests.

2.3 ACTION PLAN FOR CONSERVATION OF LEOPARD-

- Mapping of habitat and distribution status of the species across the 10 km radius from project site.
- Time series analysis of habitat change to quantify the rate of change and identify high risk areas and potential sites for further affirmative action.
- Estimation population size by established count method such as line transect, call counts.
- Intensive ecological investigation sites in major biogeography zone with focus on the effects of threats in relation to breading success and survival probability.
- Quantification of poaching and hunting, with details on sources and people involved.

3.0 WILDLIFE MANAGEMENT PLAN-

Wildlife management consists of habitat evaluation and assessment, periodic vegetation and animal status monitoring, identification of habitat factors favorable to growth and which act against the population. Welfare factors are promoted, decimating factors are arrested and limiting factors mitigated so that habitat carrying capacity is optimized and populations attain the saturation point intrinsic to the species. Participation and support of local public is enlisted to make the conservation plan work and outcome becomes sustainable.

The state needs growth and a vibrant economy. However, protection of nature and environment and development of economy are not alternatives, not mutually

exclusive. Both have to proceed hand in hand so that natural ecosystems are maintained or better, restored for uninterrupted flow of goods and services, on which human survival is dependent. Every entrepreneur need to be sensitive of the ecological impact of setting an industry and forge a connection with natural objects and dependent societies. This will make the development sustainable and bring lasting cheer in the society.

3.1 OBJECTS OF MANAGEMENT-

The objects of management are:-

1. To maintain the existing wildlife habitats in optimal state of productivity by alleviating the impairing forces.
2. To restore degrading habitats and nurture biodiversity.
3. To protect the resident fauna and long ranging Leopard through mass awareness and timely damage control measures.
4. To provide alternatives of livelihood to consumptive use of biomass for auto-resuscitation of habitats and elicit public support to maximize above objectives.

4 IMPACT ON ENVIRONMENT AND WILD ANIMALS

4.1 Impact of mine project on biodiversity

The native flora and fauna of core and buffer areas will be affected due to proposed mining Project. During operation phase, fugitive emission, noise pollution due to transportation and operation of mine machinery will cause negative impact on wild animals.

4.2 Mitigation majors to reduce unavoidable impacts during Mining Operation.

1. **Transportation: -**

   Vehicles and Machinery would be properly maintained and periodically checked pollution level to reduce noise level and gases emission surrounding environment. Transported sand would also be covered.

2. **Fugitive Emission: -**

   Water sprinkler would be used on connecting roads for transportation of mine operation to control fugitive emission surrounding environment.

3. **Pollution: -**

The green belt would be developed according to the guidelines prescribe by the CPCB. The green belt would be developed. The plant species for green belt would be drought resistance and can be control air pollution, fugitive emission and noise pollution of surrounding environment. The species for green belt plantation would be *Acacia nilotica*, *Alstonia scholaris*, *Albizia lebbeck*, *leucaena leucocephala*, *Delbergia sissoo*, *Peltophorum pterocarpum*, *Azardirachta indica*, *Cassia fistula*, *Delonix regia*, *Albizia procera*, *Bougainvillea*, *Nerium indicum*, *Rosa indica* and *Ficus benghalensis*.

4. Creation of live hedges bamboos and tall grasses: -

Live hedge of sturdily woody shrubs on the road on the either side of the road or path would restrict the wildlife to cross the road connected project site. For the same tail grasses and packed bamboo could be used.

4.3 Green belt development and plantation programme

Project Proponent has a social obligation to create environmental status by providing thick canopy cover to suppress fugitive emission and provide aesthetic beauty. Tree forms important part of biosphere in the ecosystem.

4.3.1 Plantation programme

The proposal has been made for the plantation over 5.0 ha area.

5.0 CONSERVATION MEASURES FOR LEOPARD-

- **Habitat Protection:** local people and their increasing population destroying the forest as well as habitat of the panther for their basic needs. Local people should educate through camps or in functions not to destroy the habitat of panther. Save and conserve this valuable species. To promote the density of forest, plantation programme by the government, NGO's and forest protection committees should be taken. The planting in Panchyat lands should also be done for the sake of panther and other wild animals.
- **Protection from poaching:** Panther is listed as near threatened on the IUCN. Red list because it is declining in large parts of its range due to hunting and for trade. The local people kill these wild animals for skin, bones, meat, paws, nails and fur and trade them outside. The Wildlife Protection Act, 1972 provide protection for the panther which is Sch. I animal. Illegal hunting is strictly prohibited and offensive. The

local people should aware not to kill this valuable wild animal and give protection and conserve its species.

- **Awareness and Training Program:** The plant operators may manage the local people and their working labour in the study area regarding protection and conservation of panther living or wandering thereby. They should protect their breeding home in closing season. The local people should aware not to trespass their breeding centre in the forest centre in closing season. They himself try and make other people not to go in such period.
- **People's Participation**: Now days there are so many protection committees in local areas and NGO's working for conservation of panthers. The Plant Administration with the help of such organization's and committees may conserve this transient wild animals.

6.0 BUDGETS FOR CONSERVATION OF LEOPARD-

The total budget for environmental conservation including Leopard conservation will be around Rs. 4, 85,000 for five years.

Table 1.1 BUDGETS FOR CONSERVATION OF LEOPARD

S.No	Conservation Action	Expenditure in Ist year	2 year	3rd year	4th year	5th year	Total
1	Awareness programme for protect the threatened species through Wild life week and Biodiversity day, Environment day and others i.e. Poster campaign, Speech on particular species , seminar etc.	15,000	15000	15000	15000	15000	75000
2	Release fund for fencing in surrounding area with the help of DFO, and Forest department.	30000	20000	20000	20000	20000	110,000
3	Development of water resources in protected areas with the help of DFO and Wild life conservator	30,000	15000	15000	15000	15000	90000
4	Release fund to Veterinary hospital for Medical facilities for treatment of injured Panther species	20000	20000	20000	20000	20000	100000
5	Release fund for development of Afforestation programme in protective and sensitive areas of habitat of Panther with District Forest department	30000	20000	20000	20000	20000	110000
	Total	125000	90,000	90,000	90,000	90,000	4,85,000/-

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Biological Study

Plant and animal communities are indicators of the environment. They respond not only to one environmental factor, but also to an interacting group of factors. The plant and animal communities integrates these influences and reacts sensitively to changes in the balance of environmental stresses such as biotic and abiotic factors and anthropogenic activities. Ecological integrity is one of the fundamental factors towards attaining a sustainable ecosystem.

Biodiversity studies comprise the systematic examination of the full array of different kinds of organisms together with the technology by which the diversity can be maintained and used for the benefit of humanity. Current basic research at the species level focuses on the process of species formation the standing level of species numbers in various higher taxonomic categories and the phenomena of hyper diversity and extinction proneness. The major practical concern is the massive extinction rate now caused by human activity which threatens losses in the esthetic quality of the world, in economic opportunity and in vital ecosystem services.

Biodiversity and ecosystems need to be protected in order to preserve the quality of life on Earth; many plants and animals have already become extinct through human actions Habitat loss and fragmentation are major threats to biodiversity. It is estimated that if trends do not change 44,000 plant species will become extinct.

Biological impact assessment is an integral and important component of "Environmental Impact Assessment" (EIA). Biological impact assessment (BIA) generally includes lists of plants and animals present in the core and buffer areas of the proposed project site. The identified species then check for their status according to an IUCN list of threat categories viz., endemic, endangered, vulnerable, rare, indeterminate and insufficiently known. In certain cases it is also considered desirable to conduct vegetation analysis using standard phyto-sociological methods.

BIA documents and collates the baseline data and information on the status of biodiversity and bio-resources likely to be impacted by the proposed activity and suggests measures for mitigation of the impact. Thus the fundamental objective of the BIA is to conserve the biodiversity and ensure its sustainable utilization.

In India BIA comes under the purview of the Environmental Protection Act 1986, Environmental Impact Assessment Notification of 1994, Wildlife Act of 1972, Forest Conservation Act 1980 amended in 1988, Biodiversity Act 2002.

The detailed environmental study was conducted in the project area to assess all possible consequences on the biological environment for river sand mining project. The present study is highlighting the various issues pertaining to floristic diversity and the faunal wealth in and surrounding of river sand mine area in District Sheoganj - Rajasthan

Objectives of the study:

The biological study of the area has been conducted in order to understand the ecological status of the existing flora and fauna to generate baseline information and evaluate the probable impacts on the biological environment.

The present objectives were undertaken with the following objectives:

- To collect the baseline terrestrial biodiversity status regarding flora and fauna in the project area.
- To assess the frequency, density, abundance, Importance Value Index (IVI) and Shannon-Wiener Diversity Index (flora).
- To evaluate the dominant species of plant and animal. Secondary data also be collected from the local residents and authenticated list of flora and fauna by the Department of Forest, Govt. of Rajasthan, Rajasthan.
- To identify the endangered / threatened / scheduled species in the study area (both flora and fauna). The conservation plan will be given if any wildlife species of schedule I is present there.
- To mark the wetlands and other ecologically sensitive areas such as national parks/ sanctuaries, if present there.
- To provide the conservation plan and suggestion / recommendation for social forestry green belt / plantation.
- To assess the effect of construction and operation of the project on existing ecology.

On the basis of on-site observations a checklist of flora and fauna was prepared.

STUDY APPROACH AND METHODOLOGY

Delineation of the Study Area

The project study area was delineated into two zones for biodiversity inventory. The existing project lease boundary was considered as Core Zone while, the area encompassing 10 km radius from the project boundary was designated as Buffer Zone. Field survey was carried out in all major habitats covering both core and buffer zones.

Methodology:

1. **Floral Study**

Floral study is based on extensive field survey of the area. The study has been conducted in winter season**.** The plant species were identified taxonomically through available literature, consultation with forest department and local people. A nested quadrate technique was used for sampling the vegetation. The size and number of quadrates needed were determined using the species area curve (Mishra,1968) and running mean method (Kershaw ,1973) .Summarization of previously used method and recommendations led to the use of more than often (10*10 m) quadrates laid out of sampling the tree stratum at different altitudinal gradients and (1*1 m) for herbs and grasses. DBH of trees was also determined. All individuals > 10 cm GBH (Girth at Breast Height) were included in tree category. However, for examining the shrub species 3x3m sample plots were laid out.

The vegetation data collected for biological study were quantitative analyzed for density, Frequency and Abundance according to Curtis and McIntosh (1950). The relative value of frequency, density, and dominance of all the species were summed up to represent Importance Value Index (IVI). The following are the formulae to derive frequency, density, dominance, IVI etc.

$$\text{Frequency} = \frac{\text{Total number of quadrate in which species occurred}}{\text{Total number of quadrate studied}} \times 100$$

$$\text{Density} = \frac{\text{Total number of individuals of a species}}{\text{Total number of quadrate studied}}$$

$$\text{Abundance} = \frac{\text{Total number of individuals of species in all quadrate}}{\text{Total number of quadrate in which species occurred}}$$

$$\text{Dominance} = \frac{\text{Total Basal Area}}{\text{Total area sampled}}$$

$$\text{Relative Frequency} = \frac{\text{Frequency of the species}}{\text{Total frequency of all species}} \times 100$$

$$\text{Relative Density} = \frac{\text{Density of the species}}{\text{Total density of all species}} \times 100$$

$$\text{Relative Abundance} = \frac{\text{Abundance of the species}}{\text{Total abundance of all species}} \times 100$$

$$\text{Relative Dominance} = \frac{\text{Dominance of the species}}{\text{Total Dominance of all species}} \times 100$$

Importance Value Index (IVI) = Relative frequency + Relative density +Relative dominance

Shanon – Weaver Index (1948) :

The number of species and number of individuals in a community is measure of species diversity which depends on stability of the habitat. Vegetation of the study area was assess by determining Shannon – Weaver diversity index (1948)

$D = -\Sigma (ni / n) \log_2 (ni / n)$

ni = Number of individuals of each species in the sample

n = Total number of individuals

Terrestrial Flora in the study area

Plant species were recorded during biodiversity assessment in study area including RF/PF in which are described in below:

Table 1. Flora of RF/PF of project study area

S.No.	Scientific Name	Local name	Family	Habitat
1	*Anogeissus pendula*	Dhok	Combretaceae	T
2	*Azadirachta indica*	Neem	Meliaceae	T
3	*Acacia leucophloea*	Ronjh	Fabaceae	T
4	*Acacia nilotica*	Babool	Fabaceae	T
5	*Balanites aegyptiaca*	Higot/ Desert date	Zygophyllaceae	T
6	*Boswellia serrata*	Salai	Burseraceae	T
7	*Butea monosperma*	Dhak	Fabaceae	T
8	*Calotropis procera*	Aak	Asclepiadaceae	S
9	*Capparis decidua*	Kair	Capparaceae	S
10	*Ficus benghalensis*	Bargad	Moraceae	T
11	*Ficus religiosa*	Pipal	Moraceae	T
12	*Euphorbia neriifolia*	Dandathor	Euphorbiaceae	S
13	*Phoenix sylvestris*	Khajoor	Arecaceae	T
14	*Prosopis juliflora*	Vilayati Babool	Fabaceae	T
15	*Pithecellobium dulce*	Jungal jalebi	Fabaceae	T
16	*Ziziphus mauritiana*	Ber	Rhamnaceae	T
17	*Holoptelea integrifolia*	Papri,Chilbul	Utreaceae	T
18	*Grewia tenex*	White crossberry	Tiliaceae	S
19	*Opuntia elatior*	Nag phani	Cactaceae	S
20	*Ricinus communis*	Arandi	Euphorbiaceae	S
21	*Argemone mexicana*	Pili Kantili	Papaveraceae	H
22	*Amaranthus spinosus*	Jangli chaulai	Amaranthaceae	H
23	*Aerva tomentosa*	Bui	Amaranthaceae	H
24	*Datura metel*	Dhatura	Solanaceae	H
25	*Indigofera cordifolia*	Gokhru	Fabaceae	H
26	*Lantana camara*	Raimuniya	Verbenaceae	H
27	*Tephrosia purpurea*	Sarphonk	Fabaceae	H
28	*Achyranthes aspera*	Apamarga	Amaranthaceae	H
29	*Bidens pilosa*	Burr marigold	Asteraceae	H
30	*Commelina benghalensis*	Kanchara	Commelinaceae	H
31	*Euphorbia hirta*	Bara dudhi	Euphorbiaceae	H
32	*Ocimum gratissimum*	Van tulsi	Lamiaceae	H
33	*Sida acuta*	Chikana	Malvaceae	H
34	*Tribulus terrestris*	Gokharu	Zygophyllaceae	H
35	*Tridax procumbens*	Tal muriya	Asteraceae	H
36	*Triumfetta rhomboidea*	Chiriyari	Tiliaceae	H
37	*Ipomoea eriocarpa*	-	Convolvulaceae	C

38	*Cuscuta reflexa*	Akashbel	Convolvulaceae	C
39	*Aristida depressa*	Bristle grass	Poaceae	G
40	*Cynodon dactylon*	Doob ghas	Poaceae	G
41	*Dichanthium cardicosum*	Badi	Poaceae	G
42	*Cenchrus setigerus*	Bhurat	Poaceae	G
43	*Dendrocalamus strictus*	Bans	Poaceae	G

Table 1.1 Flora of core and buffer zone of project study site

S.No.	Scientific Name	Local name	Family	Habitat	Core area	Buffer area
1	*Albizia lebbeck*	Siris	Mimosaceae	T	-	+
2	*Ailanthus excelsa*	Ardu	Simaroubaceae	T	-	+
3	*Acacia senegal*	Cumta	Fabaceae	T	-	+
4	*Acacia leucophloea*	Ronjh	Fabaceae	T	-	+
5	*Acacia nilotica*	Babool	Fabaceae	T	-	+
6	*Azadirachta indica*	Neem	Meliaceae	T	-	+
7	*Butea monosperma*	Dhak	Fabaceae	T	-	+
8	*Cassia siamea*	Kassod	Fabaceae	T	-	+
9	*Cassia fistula*	Amaltash	Fabaceae	T	-	+
10	*Dalbergia sissoo*	Shesham	Fabaceae	T	-	+
11	*Delonix regia*	Gulmohar	Caesalpiniaceae	T	-	+
12	*Ficus religiosa*	Pipal	Moraceae	T	-	+
13	*Ficus benghalensis*	Bargad	Moraceae	T	-	+
14	*Eucalyptus globulus*	Safeda/Sugandhapatra	Myrtaceae	T	-	+
15	*Ficus racemosa*	Gular	Moraceae	T	-	+
16	*Mangifera indica*	Aam	Anacardiaceae	T	-	+
17	*Phoenix sylvestris*	Khajoor	Arecaceae	T	+	+
18	*Pithecellobium dulce*	Jungal jalebi	Fabaceae	T	-	+
19	*Pongamia pinnata*	Karanj	Fabaceae	T	-	+
20	*Polyalthia longifolia*	Ashok	Annonaceae	T	-	+
21	*Prosopis juliflora*	Vilayati Babool	Fabaceae	T	+	+
22	*Terminalia arjuna*	Arjun	Combretaceae	T	-	+
23	*Syzygium cumini*	Jamun	Myrtaceae	T	-	+
24	*Salvadora persica*	Pilu	Salvadoraceae	T	-	+
25	*Ziziphus mauritiana*	Ber	Rhamnaceae	T	+	+
26	*Holoptelea integrifolia*	Papri,Chilbul	Utreaceae	T	-	+
27	*Bougainvillea sp.*	-	Nyctaginaceae	S	-	+
28	*Calotropis procera*	Aak	Asclepiadaceae	S	+	+
29	*Capparis decidua*	Kair	Capparaceae	S	+	+
30	*Hibiscus rosa-sinensis*	Jasband	Malvaceae	S	-	+
31	*Euphorbia neriifolia*	Dandathor	Euphorbiaceae	S	-	+
32	*Grewia tenex*	White crossberry	Tiliaceae	S	-	+
33	*Opuntia elatior*	Nag phani	Cactaceae	S	-	+
34	*Tecoma stans*	-	Bignoniaceae	S	-	+
35	*Nerium oleander*	Kaner	Apocynaceae	S	-	+

36	*Plumeria alba*	Champa	Apocynaceae	S	-	+
37	*Ricinus communis*	Arandi	Euphorbiaceae	S	+	+
38	*Ziziphus nummularia*	Jharberi	Rhamnaceae	S	+	+
39	*Argemone mexicana*	Pili Kantili	Papaveraceae	H	+	+
40	*Amaranthus spinosus*	Jangli chaulai	Amaranthaceae	H	+	+
41	*Aerva tomentosa*	Bui	Amaranthaceae	H	+	+
42	*Acalypha indica*	Muktajhuri	Euphorbiaceae	H	+	+
43	*Catharanthus roseus*	Sadabhar	Apocynaceae	H	-	+
44	*Cucurbita pepo*	Pumpkin	Cucurbitaceae	C	-	+
45	*Trichosanthes cucumerina*	-	Cucurbitaceae	C	-	+
46	*Datura metel*	Dhatura	Solanaceae	H	+	+
47	*Helianthus annuus*	Peli Dhoodhak	Asteraceae	H	+	+
48	*Indigofera cordifolia*	Gokhru	Fabaceae	H	+	+
49	*Lantana camara*	Raimuniya	Verbenaceae	H	+	+
50	*Ocimum tenuiflorum*	Tulsi	Lamiaceae	H	-	+
51	*Tephrosia purpurea*	Sarphonk	Fabaceae	H	+	+
52	*Pedalium murex*	Bada gokhru	Pedaliacae	H	+	+
53	*Ipomoea nil*	kaladana	Convolvulaceae	C	-	+
54	*Aristida depressa*	Bristle grass	Poaceae	G	+	+
55	*Chloris dolichostachys*	-	Poaceae	G	-	+
56	*Cynodon dactylon*	Doob ghas	Poaceae	G	-	+
57	*Cenchrus biflorus*	-	Poaceae	G	+	+
58	*Eragrostis tremula*	Chiri Bajra	Poaceae	C	-	+
59	*Saccharin spontaneum*	-	Poaceae	G	+	+

Where, T = Tree, S = Shrub, H = Herb, G = Grass, C= Climber, (-) = absent, (+) = Present

1.2 Floral study: Trees (10x10m)

Core zone : It was observed that three trees Khajoor(*Phoenix sylvestris)* , Ber (*Ziziphus mauritiana*) and vilayati babool (*Prosopis juliflora)* were observed at core zone of project site during survey.

Buffer zone: Trees(10x10)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Dom	IVI	SWD Index $H= -\sum P_i (\ln P_i)$
1	Siris	*Albizia lebbeck*	6.814	7.186	7.902	21.902	-0.1830
2	Ardu	*Ailanthus excelsa*	5.451	5.589	4.489	15.529	-0.1586
3	Cumta	*Acacia senegal*	3.748	3.792	4.607	12.147	-0.1231
4	Ronjh	*Acacia leucophloea*	3.237	2.794	3.449	9.481	-0.1110
5	Babool	*Acacia nilotica*	3.407	3.593	3.464	10.464	-0.1151
6	Neem	*Azadirachta indica*	6.644	6.188	6.257	19.088	-0.1801
7	Dhak	*Butea monosperma*	6.814	5.988	3.742	16.545	-0.1830

8	Kassod	*Cassia siamea*	6.474	6.587	6.465	19.526	-0.1772
9	Amaltash	*Cassia fistula*	3.748	3.792	5.216	12.756	-0.1231
10	Shesham	*Dalbergia sissoo*	4.940	5.389	9.766	20.096	-0.1486
11	Gulmohar	*Delonix regia*	5.451	5.589	3.532	14.572	-0.1586
12	Pipal	*Ficus religiosa*	3.748	4.192	4.788	12.727	-0.1231
13	Bargad	*Ficus benghalensis*	4.259	2.994	2.668	9.921	-0.1344
14	Safeda/Sugandha patra	*Eucalyptus globulus*	2.385	2.395	2.101	6.881	-0.0891
15	Gular	*Ficus racemosa*	1.363	1.397	3.222	5.982	-0.0585
16	Aam	*Mangifera indica*	1.874	1.796	1.461	5.131	-0.0745
17	Khajoor	*Phoenix sylvestris*	4.089	4.192	2.316	10.596	-0.1307
18	Jungal jalebi	*Pithecellobium dulce*	4.770	4.990	1.838	11.599	-0.1451
19	Karanj	*Pongamia pinnata*	6.474	7.385	3.669	17.528	-0.1772
20	Ashok	*Polyalthia longifolia*	2.215	2.395	1.253	5.863	-0.0844
21	Vilayati Babool	*Prosopis juliflora*	4.600	4.391	5.149	14.140	-0.1416
22	Arjun	*Terminalia arjuna*	1.363	1.397	6.336	9.096	-0.0585
23	Jamun	*Syzygium cumini*	1.363	1.597	0.887	3.846	-0.0585
24	Pilu	*Salvadora persica*	1.022	1.198	1.063	3.283	-0.0468
25	Ber	*Ziziphus mauritiana*	1.193	0.998	2.557	4.748	-0.0528
26	Papri,Chilbul	*Holoptelea integrifolia*	2.555	2.196	1.804	6.555	-0.0937
							-3.1308

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ Pi (lnPi)= Shanon – Weaver Index

It was observed that Siris *(Albizia lebbeck,* IVI -21.902 *)* was dominant species in buffer zone of project study area. The other some dominate species as per the IVI were Sisham (*Dalbergia sissoo* , IVI- 20.096), Kasod tree (*Cassia siamea*, IVI-19.526), Neem(*Azadirachta indica*, IVI-19.088), and Karanj(*Pongamia pinnata*,IVI-17.528). The other trees species were also well in number in nearby area.

Shrubs :Core zone(3x3m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Aak	*Calotropis procera*	38.04	37.50	25.01	100.55	-0.368
2	Kair	*Capparis decidua*	23.91	28.57	20.63	73.12	-0.342
3	Arandi	*Ricinus communis*	11.96	16.07	18.34	46.37	-0.254
4	Ber	*Zyzipus nummularia*	26.09	17.86	36.02	79.96	-0.351
							1.314

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

Shrub:Buffer zone (3x3m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Bougainvillea	*Bougainvillea sp.*	7.71	4.02	15.52	27.26	-0.1976
2	Aak	*Calotropis procera*	18.09	13.79	10.61	42.49	-0.3093
3	Kair	*Capparis decidua*	11.97	10.92	8.87	31.76	-0.2541
4	Jasband	*Hibiscus rosa-sinensis*	9.57	9.20	8.43	27.20	-0.2246
5	Dandathor	*Euphorbia neriifolia*	9.31	6.32	11.92	27.55	-0.2210
6	White crossberry	*Grewia tenex*	3.99	4.02	8.03	16.04	-0.1285
7	Nag phani	*Opuntia elatior*	7.18	6.90	8.43	22.51	-0.1891
8	Yellow bells	*Tecoma stans*	2.93	4.60	5.15	12.67	-0.1033
9	Jharberi	*Ziziphus nummularia*	10.90	10.92	8.08	29.91	-0.2416
10	Champa	*Plumeria alba*	3.99	7.47	4.32	15.78	-0.1285
11	Arandi	*Ricinus communis*	6.65	10.34	5.20	22.20	-0.1802
12	Kaner	*Nerium oleander*	7.71	11.49	5.43	24.64	-0.1976
							2.3756

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

It was observed that Aak (*Calotropis procera* ,IVI-100.51) and Ber(IVI-79.96) were dominant shrub species in core zone. In buffer zone Aak (*Calotropis procera,* IVI- 42.49) was dominant shrubs observed in buffer zone. The other species which were also well in number i.e. Kair(*Capparis deciduas*, IVI-31.76), Ber (*Ziziphus nummularia*, IVI-29.91) and Dandathor (*Euphorbia neriifolia*, IVI- 27.55).

Herbs,grasses and climbers: Core zone(1x1m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Pili Kantili	*Argemone mexicana*	7.01	10.57	5.11	22.68	-0.1863
2	Jangli chaulai	*Amaranthus spinosus*	7.77	9.81	6.09	23.67	-0.1984
3	Bui	*Aerva tomentosa*	4.55	5.28	6.63	16.45	-0.1405
4	Muktajhuri	*Acalypha indica*	3.03	4.15	5.62	12.80	-0.1060
5	Dhatura	*Datura metel*	3.79	4.91	5.95	14.64	-0.1240
6	Peli Dhoodhak	Launaea nudicaulis	12.69	11.32	8.63	32.64	-0.2620

7	Gokhru	*Indigofera cordifolia*	8.71	7.17	9.36	25.24	-0.2126
8	Raimuniya	*Lantana camara*	5.49	8.68	4.87	19.04	-0.1594
9	Sarphonk	*Tephrosia purpurea*	6.63	5.28	9.66	21.57	-0.1799
10	Bada gokhru	*Pedalium murex*	3.60	4.53	6.12	14.25	-0.1196
11	Bristle grass	*Aristida depressa*	10.98	10.19	8.30	29.48	-0.2426
12	Doob ghas	*Cynodon dactylon*	15.34	12.45	9.49	37.28	-0.2876
13	Chiri Bajra	*Saccharun spontaneum*	10.42	5.66	14.17	30.25	-0.2356
							2.4544

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

Herb ,grasses and climbers ; Buffer zone(1x1m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Pili Kantili	*Argemone mexicana*	8.53	9.51	4.43	22.48	-0.2100
2	Jangli chaulai	*Amaranthus spinosus*	7.03	7.97	4.36	19.35	-0.1866
3	Bui	*Aerva tomentosa*	6.15	4.63	6.57	17.34	-0.1715
4	Muktajhuri	*Acalypha indica*	4.64	3.60	6.38	14.62	-0.1425
5	Sadabhar	*Catharanthus roseus*	2.38	2.06	5.73	10.17	-0.0891
6	Pumpkin	*Cucurbita pepo*	1.00	1.54	3.22	5.76	-0.0462
7	serpent gourd	*Trichosanthes cucumerina*	0.88	1.03	4.22	6.13	-0.0416
8	Dhatura	*Datura metel*	3.01	4.11	3.62	10.74	-0.1055
9	Peli Dhoodhak	*Launaea nudicaulis*	9.66	10.03	4.76	24.45	-0.2258
10	Gokhru	*Indigofera cordifolia*	7.28	6.17	5.83	19.28	-0.1907
11	Raimuniya	*Lantana camara*	4.64	5.66	4.06	14.36	-0.1425
12	Tulsi	*Ocimum tenuiflorum*	3.64	3.60	5.00	12.24	-0.1206
13	Sarphonk	*Tephrosia purpurea*	3.89	3.60	5.34	12.83	-0.1263
14	Bada gokhru	*Pedalium murex*	2.51	3.08	4.02	9.62	-0.0925
15	kaladana	*Ipomoea nil*	1.13	1.80	3.10	6.03	-0.0506
16	Bristle grass	*Aristida depressa*	6.40	6.94	4.56	17.90	-0.1759
17	Kerela grass	*Chloris dolichostachys*	0.75	1.29	2.90	4.93	-0.0368
18	Doob ghas	*Cynodon dactylon*	11.54	10.03	5.69	27.26	-0.2492
19	Bhurat	*Cenchrus biflorus*	5.77	4.37	6.53	16.67	-0.1646
20	Chiri Bajra	*Eragrostis tremula*	2.63	3.08	4.22	9.94	-0.0958
21	Kans grass	*Saccharum spontaneum*	6.52	5.91	5.46	17.89	-0.1781
							-2.8423

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

Some herbs, grasses and climbers were also densely populated in study area. Doob grass (*Cynodon dactylon*,) and Peeli doodhak(*Launaea nudicaulis*) were dominant species in both core (IVI- 37.28 & IVI 32.64) and buffer zone (IVI-27.26 & IVI- 24.45). The other dominant species in buffer zone were pili kantili(*Argemone mexicana*, IVI-22.48), jungle chulai (*Amaranthus spinosus* , IVI-19.35) and gokhru(*Indigofera cordifolia*, IVI-19.28),

Threat Status of the floristic diversity

Flora recorded from the study sites during the survey when compared with the available literature revealed that none of the species recorded from the region fall under any category of threat status.

Table 1.3 Results of Phytosociology study of woody vegetation of Rewara Reserved forest

S.No	Common Name of Species	Binomial Name of Species	Types		
			Tree	Shrub	Herb
1	Chakwa	*Anogeissus pendula*	+	-	-
2	Vilayati babool	*Acacia nilotica*	++	-	-
3	Khejri	*Prosopis cineraria*	+	-	-
4	Ber	*Ziziphus nummularia*	-	++	-
5	Aak	*Capparis decidua*	-	++	-
6	Dhak	*Butea monosperma*	++	-	-
7	Wild sage	*Lantana camera*	-	+	-
8	Thor	*Euphorbia neriifolia*	-	+	-

Vilayat babool and Dhak trees were more in number while the other species. Shrubs i.e. ber and wild sage were more then the other shrubs in Rewara Reserve forest.

Table 1.4 Results of Phytosociology study of woody vegetation of Protected forest near village Alpa

S.No	Common Name of Species	Binomial Name of Species	Types		
			Tree	Shrub	Herb
1	Chakwa	*Anogeissus pendula*	++	-	-
2	Vilayati babool	*Acacia nilotica*	+	-	-
3	Khejri	*Prosopis cineraria*	+	-	-
4	Ber	*Ziziphus nummularia*	-	+	-
5	Aak	*Capparis decidua*	-	++	-
6	Dhak	*Butea monosperma*	++	-	-
7	Wild sage	*Lantana camera*	-	++	-
8	Thor	*Euphorbia neriifolia*	-	+	-

It was observed that *Anogeissus pendula* and *Butea monosperma* were two most dominant trees species in protected forest of near Alpa village while the other species less in number. In shrubs Aak and wild sage were more in number.

Table 1.5 Results of Phytosociology study of woody vegetation Of Darla Jod Reserve forest

S.No	Common Name of Species	Binomial Name of Species	Types		
			Tree	Shrub	Herb
1	Chakwa	*Anogeissus pendula*	+	-	-
2	Khejri	*Prosopis cineraria*	++	-	-
3	Ber	*Ziziphus nummularia*	-	+	-
4	Aak	*Capparis decidua*	-	++	-
5	Dhak	*Butea monosperma*	+	-	-
6	Wild sage	*Lantana camera*	-	+	-
7	Thor	*Euphorbia neriifolia*	-	++	-
8	Neem	*Azadirachta indica*	++	-	-

In Darla Jod reserve forest it was observed that neem and khejri were more in number then the other species. Aak and thor species which were showing the local semi arid environment conditions, present more in number. Ber was also in other significant species present in Darla Jod reserve forest.

2. Faunal study:

i. Avifauna

Point count method was followed for counting the birds. Opportunistic surveys were also carried out with respect to avifaunal checklist. Identification by calls was also made for species which were not directly encountered or were hidden in the vegetation or canopy. Secondary data collected from the literature.

ii. Herpetofauna

Amphibians and reptiles recorded during area searches were identified by visual characteristics. Aquatic searches involved examining each type of aquatic habitat.

iii. Mammals

Presence of mammals were documented by using both direct sightings and indirect evidences i.e. animal burrows/holes, scats, pellets, droppings and tracks. Opportunistic sightings were also included. Circular Plots were used to search indirect evidences.

Fauna of Project study area

During the study in the field and concern with local stakeholder, 9 species of Mammals, 5 species of Reptiles, 2 species of Amphibians, 5 species of

Butterflies, 3 species of Arthropods, 4 species of fish and 43 species of Birds were recorded on project study area.

Table 1.6 Fauna were recorded in Core and Buffer Zone of Project Study Site

S.No	Common Name	Binomial Name of Species	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
	Mammals					
1	Nilgai	*Boselaphus tragocamelus*	Bovidae	III	-	+
2	Langur	*Presbytis entallus*	Cercoppithecidae	II	-	+
3	Bandar	*Macaca mulatta*	Cercoppithecidae	II	-	+
4	Jackal/Siyar	*Canis aureus*	Canidae	II	-	+
5	Hare	*Lepus nigricollis*	Leporidae	IV	+	+
6	House Rat	*Rattus rattus*	Muridae	V	-	+
7	Common Mongoose	*Herpestes edwardsii*	Herpestidae	II	-	+
8	Four Striped Palm Squirrel	*Funambulus pennanti*	Sciuridae	IV	+	+
9	Indian Flying Fox	*Pteropus giganteus*	Pteropodidae	LC	-	+
10	Sloth Bear	*Melursus ursinus*	Ursidae	I	-	+
11	Panther	*Panthera pardus*	Felidae	I	-	+
	Reptiles					
9	Red sand Boa	*Eryx johnii*	Boidae	V	-	+
10	Brahminy Skink/ Bahmani	*Mabuya carinata*	Scincidae	LC	+	+
11	Common Garden Lizard/Girgit	*Calotes versicolor*	Agamidae	LC	+	+
12	House Gecko/Chhipkali	*Hemidactylus flaviviridis*	Gekkonidae	LC	-	+
13	Kobra	*Naja naja*	Elapidae	II	-	+
	Amphibians					
14	Indian Bull Frog	*Hoplobatrachus* tigerinus	Dicroglossidae	IV	-	+
15	Indian cricket Frog	*Fejervarya limnocharis*	Dicroglossidae	IV	-	+
	Pisces					
21	Common carp	*Cyprinus carpio*	Cyprinidae	VU	-	+
22	Snakehead fish	*Channa punctatus*	Channidae	LC	-	+
23	Indian Carp	*Catla catla*	Cyprinidae	LC	-	+
24	Mosqito fish	*Gambusia affinis*	Poeciliidae	LC	-	+

Table 1.7 Birds species recorded on project study area

S.No.	Scientific Name	Common Name	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
1	Indian Peafowl	*Pavo cristatus*	Phasianidae	I	-	+
2	*Mycteria leucocephala*	Painted stork	Ciconiidae	IV	-	+
3	*Actitis hypoleucos*	Common Sandpiper	Scolopacidae	IV	-	+
4	*Ceryle rudis*	Pied Kingfisher	Cerylidae	IV	-	+
5	*Ardeola grayii*	Indian Pond Heron	Ardeidae	IV	-	+
6	*Fulica atra*	Common coot	Rallidae	IV	-	+
7	*Ardea cinerea*	Grey Heron	Ardeidae	IV	-	+
8	*Vanellus cinereus*	Red-wattled lapwing	Charadriidae	IV	-	+
9	*Ploceus philippinus*	Baya weaver	Ploceidae	IV	+	+
10	*Francolinus pondicerianus*	Grey francolin	Phasianidae	IV	+	+
11	*Upupa epops*	Common hoopoe	Upupidae	IV,LC	-	+
12	*Merops orientalis*	Green bee-eater	Meropidae	LC	+	+
13	*Centropus bengalensis*	Lesser coucal	Cuculidae	IV	-	+
14	*Psittacula krameri*	Rose-ringed parakeet	Psittacidae	IV	-	+
15	*Halcyon smyrnensis*	White-throated kingfisher	Halcyonidae	IV	-	+
16	*Apus affinis*	House swift	Apodidae	LC	-	+
17	*Columba livia*	Rock pigeon	Columbidae	IV	-	+
18	*Streptopelia enegalensis*	Laughing dove	Columbidae	IV	+	+
19	*Streptopelia decaocto*	Eurasian dove	Columbidae	IV	-	+
20	*Streptopelia tranquebarica*	Red Collared dove	Columbidae	IV	-	+
21	*Egretta garzetta*	Little egret	Ardeidae	IV	-	+
22	*Bubulcus ibis*	Cattle egret	Ardeidae	IV	+	+
23	*Corvus splendens*	House crow	Corvidae	IV	-	+
24	*Dicrurus macrocercus*	Black drongo	Dicruridae	IV	+	+
25	*Saxicoloides fulicata*	Indian robin	Muscicapidae	IV	+	+
26	*Sturnus contra*	Asian Pied starling	Sturnidae	IV	-	+
27	*Acridotheres tristis*	Common myna	Sturnidae	IV	-	+
28	*Pycnonotus cafer*	Red-vented bulbul	Pycnonotidae	IV	+	+
29	*Corvus macrorhynchos*	Jungle crow	Corvidae	IV	-	
30	*Turdoides striatus*	Jungle babbler	Leiothrichidae	IV	+	+
31	*Nectarinia asiatica*	Purple sunbird	Nectariniidae	IV	-	+
32	*Passer domesticus*	House sparrow	Passeridae	IV	-	+
33	*Motacilla maderaspatensis*	White-browed wagtail	Motacillidae	LC	-	+
34	*Motacilla flava*	Yellow wegtail	Motacillidae	LC	-	+

35	*Microcarbo niger*	Little cormorant	Phalacrocoracidae	IV	-	+
36	*Himantopus himantopus*	Black wing Still	Recurvirostridae	IV	-	+
37	*Saxicola caprata*	Pied Bush chat	Muscicapidae	IV	-	+
38	*Prinia socialis*	Ashy Warn-Warbler	Cisticolidae	IV	+	+
39	*Chrysocola ptes festivus*	Wood piker	Picidae	IV	-	+
40	*Amaurornis phoenicurus*	White-breasted waterhen	Rallidae	IV	-	+
41	*Dendrocitta vagabunda*	Rufous tree pie	Corvidae	IV	-	+
42	*Anas poecilorhyncha*	Spotted bill duck	Anatidae	IV	-	+



Halcyon smyrnensis



Anas poecilorhyncha



Psittacula krameri



Presbytis entallus



Pteropus giganteus

Fig. 4.8 Fauna of study area

3.0 Aquatic diversity

Riparian, free floating and submerge vegetation were observed in project study area which are described in Table 1.8.

Table 1.8 Aquatic vegetation recorded in project study area

S.No.	Local name	Scientific Name	Family
1	Bathua	*Chenopodium album*	*Amaranthaceae*
2	Nutgrass, Coco	*Cyperus rotundus*	*Cyperaceae*
3	Small Duckweed	*Lemna perpusilla*	*Lemnaceae*
4	knotweed	*Polygonum species*	*Polygonaceae*
5	Low Bulrush	*Scirpus cernuus*	*Cyperaceae*
6	Giant Duckweed	*Spirodela polyrhiza*	*Araceae*
7	Era	*Typha elephantina*	*Typhaceae*

4.0 Endangered Species

No plant or animal species recorded is endangered as per the Red Data Book as well as under IUCN category in the study area.

5.0 Eco-sensitive Zone

There is no Wildlife Sanctuary, National Park or Biosphere Reserves in the Core as well as buffer zone.

IMPACTS - DUE TO MINES

NATURE OF IMPACTS

Impact of mining on land environment gets reflected in land-use pattern of the respective area because the more the land gets exposed to erosion by loosing its green cover or by getting disturbed otherwise due to mining and related activities, its water resources gets damaged, soils get contaminated, part or total of flora and fauna gets lost, air and water gets polluted and the more damages go on proceeding in accelerated rates and the cumulative effects push the land towards degradation.

Mines and their associated infrastructure may impact terrestrial flora and fauna in diverse ways during operational phase. The main impacts the loss and fragmentation of habitats, with a consequent loss of biodiversity and possibly loss of species of special concern. This may result from direct land clearance, or occur indirectly via loss or changes in habitats due to consequent changes in drainage patterns, increased fire risk, or secondary impacts associated socio-economic factors resulting from changes in surrounding land use. During the operational life of the mine, small accumulative impacts also occur Including ongoing

mortalities resulting from increased road traffic, increased disturbance (noise and light), dust generation, air pollution, increased litter and change in the incidence of fire. All of these factors may impact the surrounding fauna and ecological processes in different ways.

However, in most of the cases it has been observed that the damage due to mining activity has been reflected on decrease in green cover or water resource or both. Greenery bears a pivotal role in protecting the quality of all aspects of environment, also in many cases it is considered as a desired indicator of protector of environmental quality in the region. Regarding desired land use pattern, our National Forest Policy has fixed the national average forest cover at 33%. This fact indicates that there is still some drawback in the land-use management system. Strategies need to be developed including policy intervention, promoting research and stakeholder participation, and technological intervention to check land degradation.

EXISTING IMPACTS:

Many existing impacts occur in the region, particularly the loss of sensitive habitats (via primary destruction and secondarily via contamination), loss of faunal diversity (particularly large mammals and birds), loss of species of special concern, and disruption to faunal movements. The direct impacts of mining disturbances to land surfaces are usually significant, with the likelihood of destruction of local biodiversity within natural ecosystems through the removal of natural soils, plants and animals. However, mining is a temporary land use because the mineral deposit is finite and eventually gets exhausted.

The Key environmental problem and impacts of mining /quarrying are:

- Degradation of forest and loss of biodiversity
- Air and noise pollution
- Surface and ground water pollution
- Land degradation
- Environmental degradation due to abandoned and closed mine

MITIGATION MEASURES

The impact on land cannot be fully eliminated because there are some mining impacts such as loss of agricultural land, water pollution, fall in water table etc are inevitable but its impact can be reduced to an acceptable level by adopting suitable mitigation measures and by doing adequate planning at the initial stage of mine development. Setting aside or exclusion of critically important areas, compensatory afforestation, creation of green belts, rehabilitation of species or individuals are basic actions taken for mitigation of impact. While creating green belt and undertaking the afforestation works, it is required to plant indigenous/local plants and as far as possible exotics should not be introduced. The cost of eco-restoration of the site

should be included in the project cost. Some of the land related mitigation measures are as follows:

- Topsoil can be conserved by implementing adequate mitigation and cons -ervation plan.
- Open area should be planted with trees.
- Stabilization of overburden dumps by mechanical and biological reclamation.
- No mining in area support unique habitant, endemic, threatened or declining species, or species of high economic and cultural value to society.
- Natural drains or nallah should not be disturbed; Incase of diversion - alignments should be made by constructing artificial drain.

Plantation is a principal goal of reclamation and results in many desirable secondary water quality and aesthetic benefits. Plantation goals are from simple erosion control to the full restoration of complex native communities. The approaches and protocols employed, therefore, are specific for region, site and land use. The development of a permanent vegetation cover should aim to establish a plant community that will maintain itself indefinitely without attention or artificial aid, and support native fauna. To extract better results, some ecological variables must be considered while selecting species for plantation. These are; their capacity to stabilize soil, soil organic matter and available soil nutrients, and under storey development. In the initial stages of revegetation quick growing grasses with short life cycle and forage crops are recommended. It will improve the nutrient and organic matter content in soil. Plantation of mixed species of economic importance should be done after 2-3 years of growing grasses. While selecting suitable species for plantation in mine area, the following considerations have to be taken into account:

- Planting, pollutant tolerant species.
- Plants of fast growing with thick vegetation foliage
- Indigenous plants species with easy adaptability to the locality.
- Socio economic requirement of the people of the surrounding area.

There is need for creating green belt (approximately 7.5 to 15 m wide) in the safety area to provide an effective dust, noise and sight curtain in the periphery of the mining area. The trees to be planted in the green belt area shall act as buffers and shock absorber against dusts, noise and stone flying. Trees in the green belt will be tall, wind firm, broad leaved and evergreen.

Greenbelt development program will be designed within the natural constraints of the river sand area and in particular species selection reflects flora known to be resistant to the local conditions.

A 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) Prevent soil erosion to great extent
6) Improve ecological conditions.
7) Improves the aesthetics & beneficially influence the microclimate of the surrounding.

SPECIES FOR PLANTATION AND GREEN BELT DEVELOPMENT

The species selected for plantation will be of mixed type having a combination of fast and slow growing species with an ultimate aim to have triple storey plantation i.e. a combination of species of tall, intermediate and short height in zigzag lining. A list of the species suggested for afforestation is giving for the development of mining site for sustainable environment of area. All these plants and shrubs can be cultivated in less water and have tolerance power of heat and dry conditions of atmosphere.

SUGGESTED PLANTS FOR RECLAMATION OF THE MINING SITE

TREE		
S. No	**Species name**	**Binomial name**
1	Shisham	*Delbergia sisso*
2	Ardu or Mahaneem	*Ailanthus excelsa*
3	Khejri	*Prosopis cineraria*
4	Indian Elm	*Holoptelea integrifolia*
5	Gum Arabic tree	*Acacia senegal*
6	Israyali Babool	*Acacia toratalis*
7	Imli	*Tamarindus indica*
8	Babool	*Acacia nilotica*
9	Jungle Jalebi	*Pithecellobium dulce*
10	Ronj	*Acacia leucophloea*
11	Neem	*Azadirachta indica*
12	Ber	*Zizyphus mauritiana*
13	Siris tree	*Albizia lebbeck*
14	Rohira	*Tecomell undulata*
SHRUBS / HERBS		
1	Munja grass	*Saccharum munja*
2	Peeli Kaner	*Thevetia peruviana*
3	Vilayati Babool	*Prosopis juliflora*
4	Arandi	*Ricinus cummunis*
5	Kaner	*Nerium Indicum*
6	Sarphonka	*Tephrosia hamiltonii*
7	"Red (Yellow, Wild) Sage"	*Lantana camara*

8	Kans grass	*Saccharum spontaneum*
9	Bui	*Aerva tomentosa*

CONSERVATION MEASURES

Ecological restoration is about a broad set of activities (enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns). In essence, the restoration of mined land is based around ecosystem reconstruction. It is usually a question of the re-establishment of the capability of the land to capture and retain fundamental resources (energy, water, nutrients and species). With this view, it is proposed to plant the trees and undertake development of green belt in the project area at all possible places. As a trend, the faunal population is on decreasing trend in general. Arrangement of adequate funds has been made for enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns.

Suggestion for conservation of Threatened Species

Direct and indirect approach is required to provide effective conservation, which is suggested as under.

- Some provision of rewards for growing maximum threatened plant species.
- Aware the villagers and encourage them to grow threatened plant species in their farms by mentioning their medicinal and economic value.
- Another way to help preserve the endangered species is to create society dedication towards the ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the state forest department.
- Organized workshop for conservation awareness of threatened plant species. A series of conservation awareness workshops for village and school children should be conducted in the different villages. Interactive discussion will be carried out participants.
- Encourage afforestation activities around by maintaining them.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of promote conservation.

The lease is in the river bed and devoid of any vegetation. Mining activities will not cause any harm to riparian vegetation cover as the working will not extend beyond the offset left against the banks. It is proposed to have plantation on both sides of the roads & along the bank of river as greenbelt 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. Green belts are created not only for the purpose of protecting sensitive areas or to maintain ecological balance but also act as efficient biological filters.

Green belt development provides an important tool to address the issue of mitigating the adverse effect of fugitive emission on surrounding environment.

CONCLUSION

The present study of Biological Impact Assessment (BIA) with the objective is to minimize adverse environmental impacts as discussed. The study covers all possible environmental issues involved in the project and the necessary mitigation measures. The present study reveals that only local and native species of plants (Trees, shrubs, herbs and grasses) were present at the buffer zone of mining site. No adverse impact of mining site was noticed on the flora and fauna present nearby area of mines.

No schedule I faunal species of was observed nearby the mining area. The habitats of human beings were far from the mining site therefore the air pollution and other environmental Impact will be negligible. Taking appropriate mitigation measures for enhances the surrounding environment of the mining site and the nearby area is our sole responsibility for the "Sustainable Environment".

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CUMULATIVE JOINT TRAFFIC STUDY

1.0 INTRODUCTION

European Commission guidelines (European Commission, 1999)
Define 'cumulative impacts' as follows: 'Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project'.

There are 4 river sand mining leases are located nearby, those are as follows:

1. River Sand (Bajri) from 26.40 Lac TPA. Lease area of this mine is 2527 ha at Tehsil - Sirohi, District - Sirohi (Rajasthan).
2. River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1286 ha at Tehsil-Reodar, District - Sirohi (Rajasthan).
3. River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1414 ha at Tehsil-Sheoganj District - Sirohi (Rajasthan).
4. River sand (Bajri) from 48.0 Lac TPA. Lease area of this mine is 588.14 ha at Tehsil-Pindwara District - Sirohi (Rajasthan).

Independent as well as Cumulative joint traffic study has been done for all four projects. Cumulative impacts on highways calculated by adding impacts of all independent projects. Proposed Traffic will be distributed on different roads to different destinations, so negligible impact will be occurred on particular road.

1.1 Methodology

(i) **Volume (flow)** is the number of vehicles that pass through a given point on the road during a designated time interval. The time unit selected is an hour or a day.

(ii) **Capacity:** The maximum hourly volume (Vehicle per hour) at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under the prevailing roadway, traffic and control conditions.

(iii) **LOS (Level of Services):** A qualitative measurement describing operational conditions within a traffic stream and their perception by drivers/passengers.

CAPACITY AS PER IRC: 64 (1990)

Volume/ Capacity	Level of Services	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
0.8-1.0	E	Very Poor

2.0 IMPACTS ON HIGHWAYS BY INDEPENDENT RIVER SAND MINE

2.1 River Sand (Bajri) from 26.40 Lac TPA. Lease area of this mine is 2527 ha at Tehsil - Sirohi, District - Sirohi (Rajasthan).

Total Capacity of Mine : 2640000Tonne per Annum

Number of Working Days : 330 Days

Truck Capacity : 20 Tonne

Number of Trucks Deployed : 350 Trucks

Number of Trolley Deployed : 250 Trolley

Working Hours per day : 8 Hours

There will be 8,000 TPD production @ 26, 40,000 Lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as **Sheoganj, Sirohi, Jalore, Abu Road** etc. connecting via route SH-38, SH-27, SH-31.

Table- 1Details of Existing vehicle on major roads observed during field study on routes

		SH-38		SH-27		SH-31		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	217	217	148	148	156	156	54	54
Two wheeler,	0.5	169	85	156	78	128	64	68	34
Trucks	3.0	240	720	172	516	154	462	78	234
trolleys,	1.5	141	211	78	117	69	104	43	65
Total		767	1233	554	859	507	786	243	387
Proposed V/C Ratio		0.08		0.05		0.05		0.06	
Level of Service (LOS)		"A"		"A"		"A"		"A"	

V= Volume in PCU's/Day C=Capacity in PCU's/Day

Addition to Traffic due to proposed Project

		SH-38		SH-27		SH-31		MDR (Reodar-Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Trucks	3.0	300	900	200	600	150	450	50	150
trolleys,	1.5	200	300	150	225	125	188	25	37
Total		500	1200	350	825	275	638	75	187

Impact on Carrying capacity of SH-38, SH-27, SH-31

About 2.64 million tonne of material / annum shall be transported through SH-38, SH-27, SH-31, and will be 8,000 tonne / day, which will be transported by 350 trucks (20 tonne capacity) and 250 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be **2850 PCU/day** which will be distributed to different roads to different destination.

Table-2 Incremental rise in existing average daily traffic due to proposed transport activity

		SH-38		SH-27		SH-31		MDR (Reodar-Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	217	217	148	148	156	156	54	54
Two wheeler,	0.5	169	85	156	78	128	64	68	34

Trucks	3.0	540	1620	372	1116	304	912	128	384
trolleys,	1.5	341	511	228	342	194	291	68	102
Total		1267	2433	904	1684	782	1423	318	574
Proposed V/C Ratio		0.16		0.11		0.09		0.098	
Level of Service (LOS)		"A"		"A"		"A"		"A"	

Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.09 to 0.16 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8,000 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 11 blocks having stretch of around 8-9 Km of each. There will be maximum trolley assumed per block is 20-25 and trucks per block will be 30-35. Separate route for each block will be maintained so that congestion on any route does not take place

2.2 River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1286 ha at Tehsil-Reodar, District - Sirohi (Rajasthan).

Total Capacity of Mine	:	2805000 TonnePer Annum
Number of Working Days	:	330 Days
Truck Capacity	:	20 Tonne
Number of Trucks Deployed	:	350 Trucks
Number of Trolley Deployed	:	375 Trolley
Working Hours per day	:	8 Hours

There will be 8500 TPD production @ 2805000 lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as Sirohi,

Abu Road, Mandar and Jaswantpur and connecting via route SH-27, SH-11 and Reodhar-Jaswantpur District Road.

Table- 3 Details of vehicle on major roads observed during field study on routes

		SH-27		SH-11		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	148	148	345	345	54	54
Two wheeler,	0.5	156	78	265	132.5	68	34
Trucks	3.0	172	516	357	1071	78	234
trolleys,	1.5	78	117	98	147	43	65
Total		554	859	1065	1696	243	387
Proposed V/C Ratio		0.05		0.11		0.06	
Level of Service (LOS)		"A"		"A"		"A"	

Addition to Traffic due to proposed Project

		SH-27		SH-11		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		5800	
Trucks	3.0	400	1200	230	690	70	210
trolleys,	1.5	327	491	214	321	209	314
Total		727	1691	444	1011	279	524

Impact on Carrying capacity of SH-27, SH-11and ReodharJaswantpur-MDR

About 2.8 million tonne of material / annum shall be transported through SH-27, SH-11and ReodharJaswantpur-MDR, this tantamount to 8500 tonne / day for transportation of which 350 trucks (20 tonne capacity) and 375 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be **3226 PCU/day** which will be distributed to different roads to different destination.

Table-4 Incremental rise in existing average daily traffic due to proposed transport activity

		SH-27		SH-11		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	148	148	345	345	54	54
Two wheeler,	0.5	156	78	265	265	68	34
Trucks	3.0	572	1716	587	1761	148	444
trolleys,	1.5	405	608	312	468	252	378
Total		1281	2550	1509	2839	522	910
Proposed V/C Ratio		0.17		0.18		0.15	
Level of Service (LOS)		"A"		"A"		"A"	

Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.15 to 0.18 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 7 blocks having starch of around 9 Km. There will be maximum trolley assumed per block is 50-55 and trucks per block will be about 50-55. Separate route for each block will be maintained so that congestion on any route does not take place.

2.3 River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1414 ha so it comes in Category 'A' project at Tehsil- Sheoganj District - Sirohi (Rajasthan).

Total Capacity of Mine : 28,05,000Tonne per Annum
Number of Working Days : 330 Days
Truck Capacity : 20 Tonne
Number of Trucks Deployed : 375 Trucks
Number of Trolley Deployed : 250
Working Hours per day : 8 Hours

There will be 8,500 TPD production @ 28,05,000 Lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in **cities as Sheoganj, Sirohi, Jalore, Abu Road etc. connecting via route NH-14,SH-38 and by Dhruwana- Jaitpura Rd. (MDR).**

Table-5 Details of vehicle on major roads observed during field study on routes

		NH-14		SH-38		MDR (Dhruwana- Jaitpura)	
Design service volume PCU/Day (C)		35000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	289	289	217	217	43	43
Two wheeler,	0.5	179	90	169	85	78	39

Trucks	3.0	440	1320	240	720	58	174
trolleys,	1.5	188	282	141	211	33	49.5
Total		1096	1981	767	1233	212	306
Proposed V/C Ratio		0.05		0.08		0.05	
Level of Service (LOS)		"A"		"A"		"A"	

Addition to Traffic due to proposed Project

		NH-14		SH-38		MDR (Dhruwana- Jaitpura)	
Design service volume PCU/Day (C)		35000		15000		5800	
Trucks	3.0	400	1200	300	900	50	150
trolleys,	1.5	265	398	200	300	35	52
Total		665	1598	500	1200	85	202

Impact on Carrying capacity of NH-14, and MDR

About 2.805 million tonne of material / annum shall be transported through NH-14, SH-38 and by Dhruwana- Jaitpura Rd. (MDR) will be 8,500 tonne / day, which will be transported by 375 trucks (20 tonne capacity) and 250 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be **3000 PCU/day** which will be distributed to different roads to different destination.

Table-6 Incremental rise in existing average daily traffic due to proposed transport activity

	NH-14	SH-38	MDR (Dhruwana- Jaitpura)
Design service volume PCU/Day (C)	35000	15000	5800

Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	289	289	217	217	43	43
Two wheeler,	0.5	179	89	169	85	78	39
Trucks	3.0	840	2520	540	1620	108	324
trolleys,	1.5	453	679	341	512	68	102
Total		1761	3577	1267	2434	297	508
Proposed V/C Ratio		0.10		0.16		0.08	
Level of Service (LOS)		"A"		"A"		"A"	

Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.07 to 0.13 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8,500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 4 blocks having stretch of around 8-9 Km of each. There will be maximum trolley assumed per block is 40-45 and trucks per block will be 60-65. Separate route for each block will be maintained so that congestion on any route does not take place.

2.4 River sand (Bajri) from 48.0 Lac TPA. Lease area of this mine is 588.14 ha at Tehsil-Pindwara District - Sirohi (Rajasthan).

Total Capacity of Mine	:	48.0 Lac TonnesPer Annum
Number of Working Days	:	300 Days
Truck Capacity	:	20 Tonne
Number of Trucks Deployed	:	700 Trucks
Number of Trolley	:	500 Trolley

Working Hours per day : 8 Hours

There will be 16,000 TPD production @ 48.0 lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as Sirohi, Abu Road, Mandar and Jaswantpur and connecting via route NH-14, NH-927A and SH- 62.

Table- 7 Details of vehicle on major roads observed during field study on routes

		NH-14		NH- 927 A		SH- 62	
Design service volume PCU/Day (C)		35000		15000		15000	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	289	289	236	236	267	267
Two wheeler,	0.5	179	89.5	389	194.5	359	179.5
Trucks	3.0	440	1320	342	1026	135	405
trolleys,	1.5	188	282	192	288	123	184.5
Total		1096	1981	1159	1745	884	1036
Proposed V/C Ratio		0.05		0.04		0.06	
Level of Service (LOS)		"A"		"A"		"A"	

Addition to Traffic due to proposed Project

	NH-14	NH- 927 A	SH- 62

Design service volume PCU/Day (C)		35000		15000		15000	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Trucks	3.0	1000	3000	200	600	200	600
trolleys,	1.5	600	900	200	300	200	300
Total		1600	3900	400	900	400	900

Impact on Carrying capacity of NH-14, NH-927A and SH-62

About 4.8 million tonne of material / annum shall be transported through NH-14, NH-927A and SH-62. Total production of mineral will be 16,000 tonne / day and total 700 trucks (20 tonne capacity) and 500 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall **be 5700 PCU/day** which will be distributed to different roads to different destination.

Table- 8 Incremental rise in existing average daily traffic due to proposed transport activity

		NH-14		**NH- 927 A**		**SH- 62**	
Design service volume PCU/Day (C)		35000		15000		15000	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	289	289	236	236	267	267
Two wheeler,	0.5	179	90	389	195	359	180
Trucks	3.0	1440	4320	542	1626	335	1005
trolleys,	1.5	788	1182	392	588	323	485

Total		2696	5881	1559	2645	1284	1937
Proposed V/C Ratio		0.16		0.17		0.12	
Level of Service (LOS)		"A"		"A"		"A"	

Results

In the context of river sand mining project of based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.06 to 0.13 with LOS being "B" and "A" respectively which is categorized as 'Very Good' and 'Excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 16,000 TPD

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 7 blocks having starch of around 12-14 Km. There will be maximum trolley assumed per block is 65-70 and trucks per block will be about 50-55. Separate route for each block will be maintained so that congestion on any route does not take place.

3.0 CUMULATIVE IMPACTS

Cumulative impacts due to the proposed river sand projects will be negligible because mineral will be transported to different destinations by different mines. All mines are also divided in several blocks so mineral will be transported by easy approachable roads to each block. Beside this only four major roads will be commonly use, that are SH-24, NH- 14, SH- 38 and Reodar-Jaswantpur MDR. Each road will be use in two common projects. Cumulative impacts on these roads will be as follows:

Cumulative Plan Enclosed as Plate- 7.

A. SH-27

SH- 27 will be use commonly by the projectSirohi&Reoadar. Incremental traffic on SH- 27 by both project is as follows:

Table- 9 Proposed Impacts on SH- 27

Design service volume PCU/Day (C)	Type of Vehicle	Existing Traffic density	Increment by Sirohi	Increment by Reodar	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
		No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)			

15000	Car/ jeep/ van	148	-	-	148	0.22	"B"
	Two wheelers	78	-	-	78		
	Truck	516	600	1200	2316		
	Tractor	117	225	491	833		
	Total	859	825	1691	3375		

B. MDR (Reodar- Jaswantpur)

Reodar- Jaswantpur MDR will be use commonly by the project Sirohi&Reoadar. Incremental traffic on MDR by both project is as follows:

Table- 9 Proposed Impacts on MDR

Design service volume PCU/Day (C)	Type of Vehicle	Existing Traffic density	Increment by Sirohi	Increment by Reodar	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
		No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)			
5800	Car/ jeep/ van	54	-	-	54	0.18	"A"
	Two wheelers	34	-	-	34		
	Truck	234	150	210	594		
	Tractor	65	37	314	416		
	Total	387	187	524	1098		

C. NH- 14

NH- 14 will be use commonly by the project Sheoganj&Pindwara. Incremental traffic on NH- 14 by both projects is as follows:

Table- 9 Proposed Impacts on NH- 14

Design service volume PCU/Day (C)	Type of Vehicle	Existing Traffic density	Increment by Sheoganj	Increment by Pindwara	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
		No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)			
35000	Car/	289	-	-	289	0.21	"B"

	jeep/ van						
	Two wheelers	90	-	-	90		
	Truck	1320	1200	3000	5520		
	Tractor	282	397	900	1579		
	Total	1981	1597	3900	7478		

D. SH- 38

SH- 38 will be use commonly by the project Sirohi&Sheoganj. Incremental traffic on SH- 38 by both projects is as follows:

Table- 9 Proposed Impacts on SH- 38

Design service volume PCU/Day (C)	Type of Vehicle	Existing Traffic density No. of PCU/ Day (Volume)	Increment by Sirohi No. of PCU/ Day (Volume)	Increment by Sheoganj No. of PCU/ Day (Volume)	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	217	-	-	217	0.24	"B"
	Two wheelers	85	-	-	85		
	Truck	720	900	900	2520		
	Tractor	211	300	301	812		
	Total	1233	1200	1201	3634		

RESULTS OF CUMULATIVE IMPACT

In the context of river sand mining project of based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.18 to 0.24 with LOS being "B" and "A" respectively which is categorized as 'Very Good' and 'Excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

1.1 OCCUPATIONAL HEALTH & SAFETY

The working conditions in the mines are governed by the enactments of the Directorate General of Mines Safety (DGMS). As per the guidelines of the Mines Act, the management will take all necessary precautions. Normal sanitary facilities will be provided within the lease area. The major health concerning areas in riverbed mining includes dust & noise and hygiene. The management will carry out periodic health check up of workers.

1.1.1 Anticipated Occupational & Safety Hazards:

- Health Impact due to
  - ✓ Physical activity
  - ✓ Extremes of age, poor physical condition, fatigue
  - ✓ Cardiovascular diseases
  - ✓ Skin disorders
- Dust exposure
- Noise

1.1.2 Mitigation measures to ensure OH&S

Following points will be taken care of during mine operation for assuring safety of workers:

1. Regular Health Awareness Programmes and camps will be organized.
2. Regular maintenance and testing of the machines and equipments. Best available techniques to be employed in mining.
3. The mine workers will be provided all necessary Personal Protective Equipment (Dust Masks & Boots) for their physical safe guard from dust & hygiene.
4. Speed of vehicles will be restricted to below 25km/hr to mitigate dust generation while transporting of sand(bajri).
5. The fresh employees when taken will be thoroughly medically examined under initial medical examination including chest X-ray, Blood pressure etc, and thereafter during continuation of employment; the periodic medical examination will be conducted.
6. Under initial vocational training, the workers will be given training related to all safety and health aspects pertaining to sand mining and thereafter every quarter, special training courses/ Awareness programme for Malaria eradication, HIV and health effects on exposure to mineral dust will be organized for employed person as well as for nearby villagers.

7. The Occupational Health Surveillance Programme: A team of qualified doctors and nurses will visit periodically for health check up of all the workers, team and its records is maintained properly.

NOISE:-

1. Since mining operations do not include any major source of generation of noise in the working area thus, noise levels are not of significant levels. However, ear plugs will be provided to all workers in the area.
2. Audiometery test of the workers shall be done regularly & medical health provided wherever required.

1.1.3 EMP for the Occupational Safety & Health hazards

The health of workers can be protected by adopting the following measures:

- Good Housekeeping practices
- Enclosure of core zone to prevent unauthorized access.
- Enforcement of usage of Personal Protective Equipments.
- Regular Work Environment Monitoring
- Air emission control systems such as water sprinklers

Frequency of Periodical Examination:

- ❖ For employees - <30 years once in a year
- ❖ Between 31-40 years once in a year
- ❖ Between 41-50 years twice in a year
- ❖ Above >50 years twice in a year

1.1.3.1 Plan for pre-placement and periodical health status of workers:

Pre-employment checkup will be made mandatory and following tests will be conducted for all employees:

1. Plan of evaluation of health of workers
2. Chest x-rays
3. Audiometry
4. ECG
5. Haemogram (examination of the blood)
6. Urine (Routine and Microscopic)
7. Complete physical examination

- Musculo-skeletal disorders (MSD)
- Backache
- Pain in minor and major joints
- Fatigue, etc.

1.1.3.2 Budget allocation for OH&S in EMP:

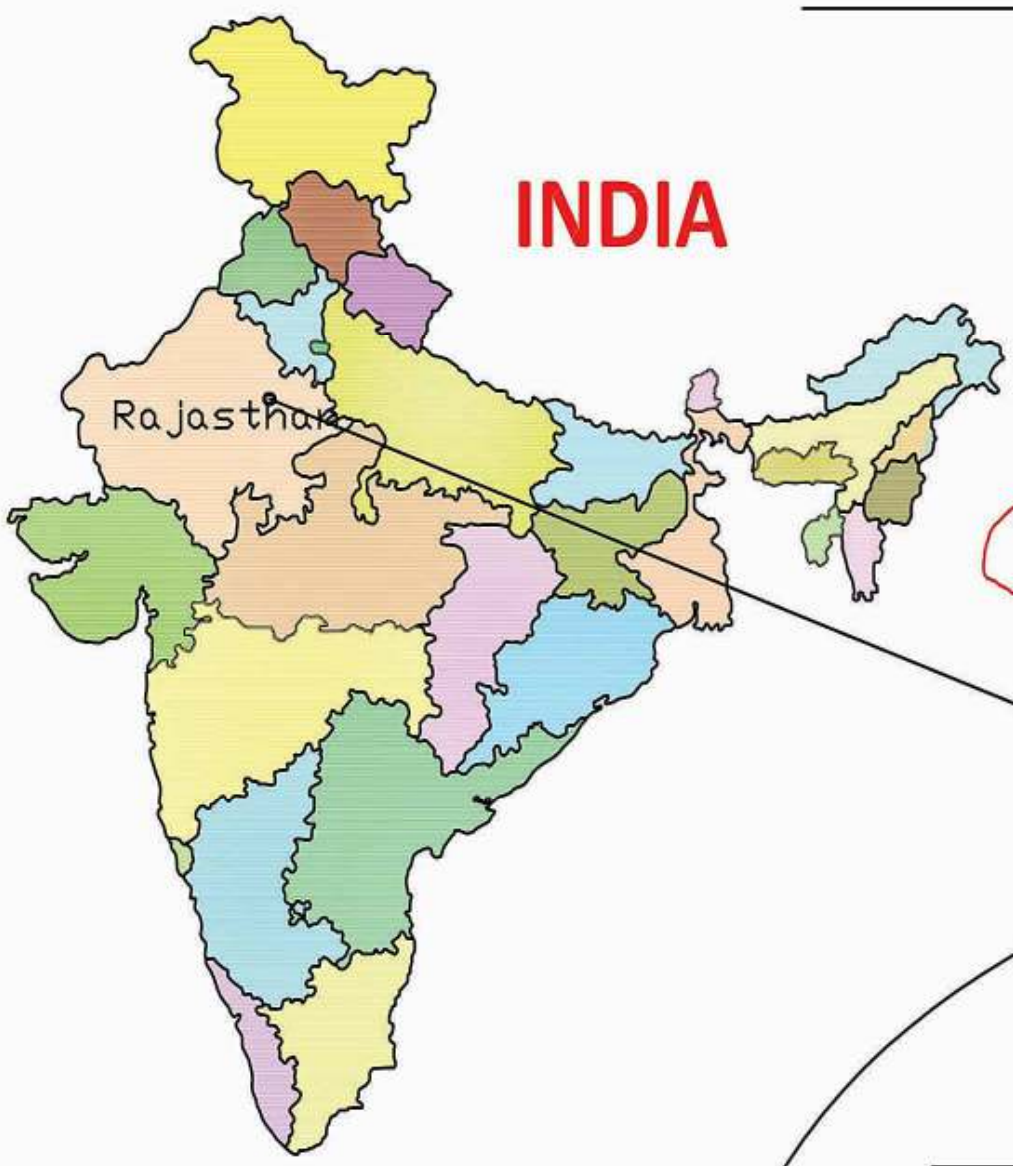
- Insurance cover to all workers engaged in mines shall be provided
- A recurring budget of Rs 10.0 lac per annum for OH&S is proposed in EMP.

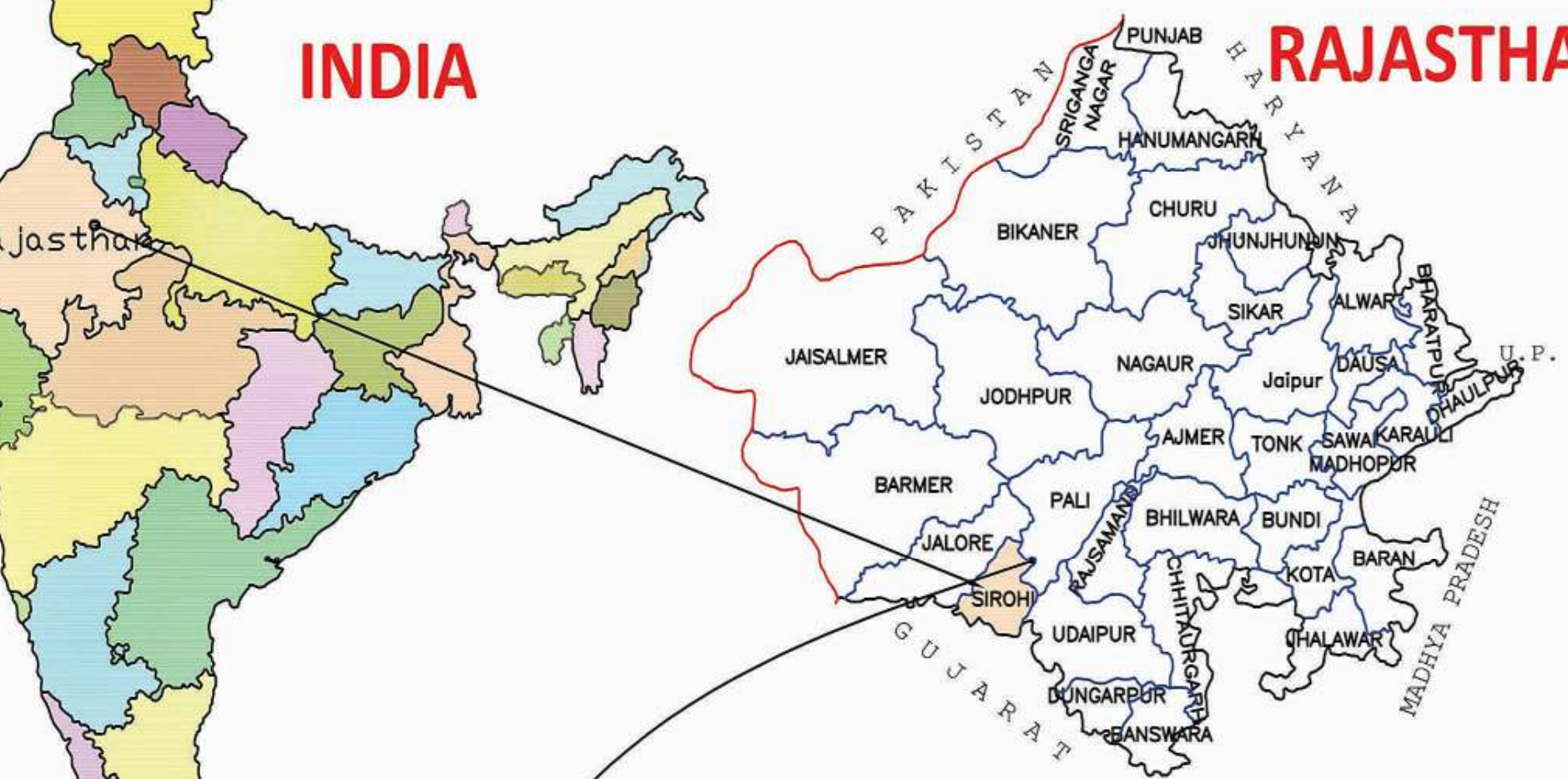
Table 1-1 Budgetary provisions for OHS

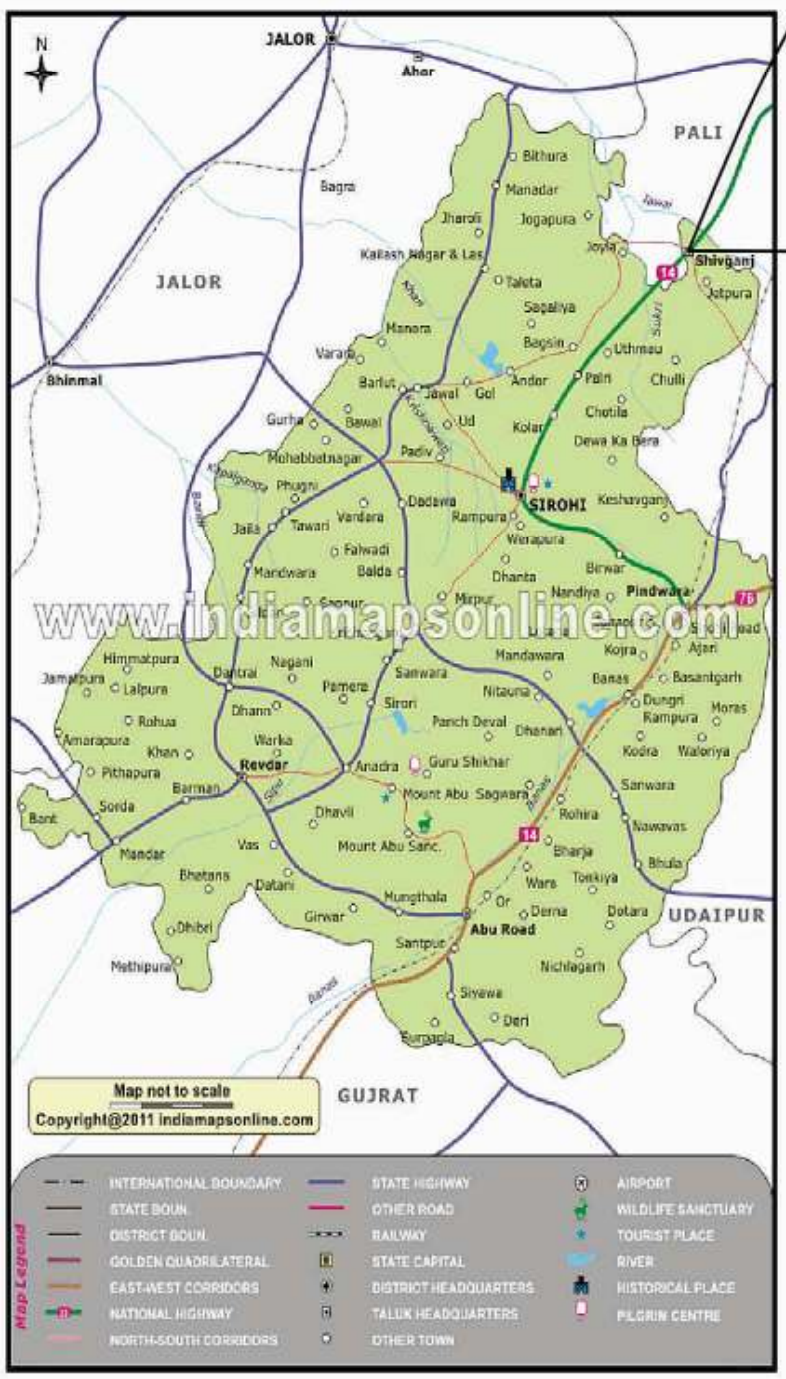
S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	Regular health checkup camps for the workers engaged in mines shall be organized;	1.0
2.	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed;	1.0
3.	Insurance cover to all workers engaged in mines shall be provided;	2.5
4.	Common vocational training center shall be setup at district level;	1.50
5.	Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.	4.0
	Total	**10.00**

PLATES

LOCATION MAP







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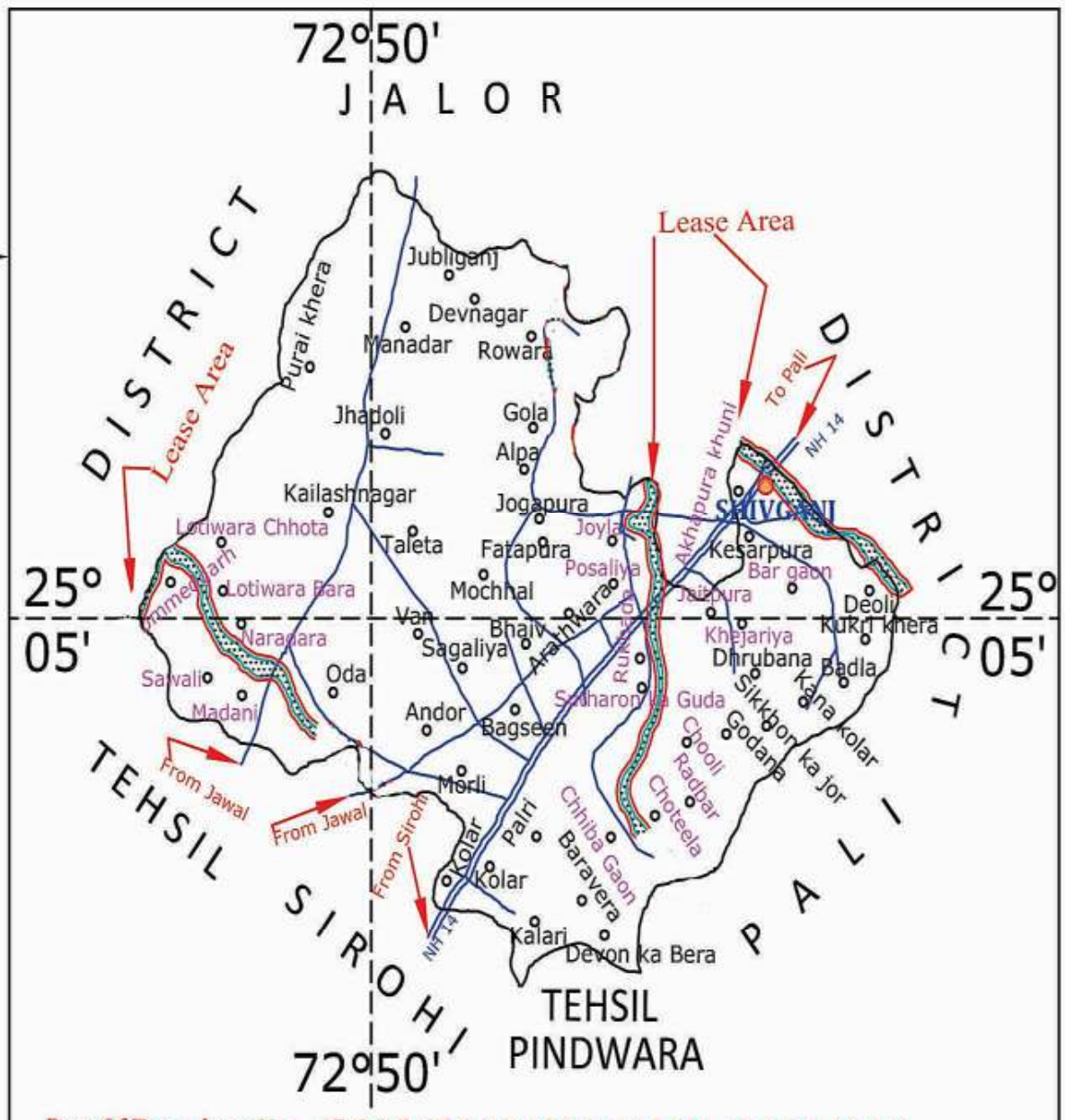


PLATE NO.1

LEGEND

Lease Area	
Tehsil Boundary	
N.H. Road	NH 14
Road	

LOCATION PLAN

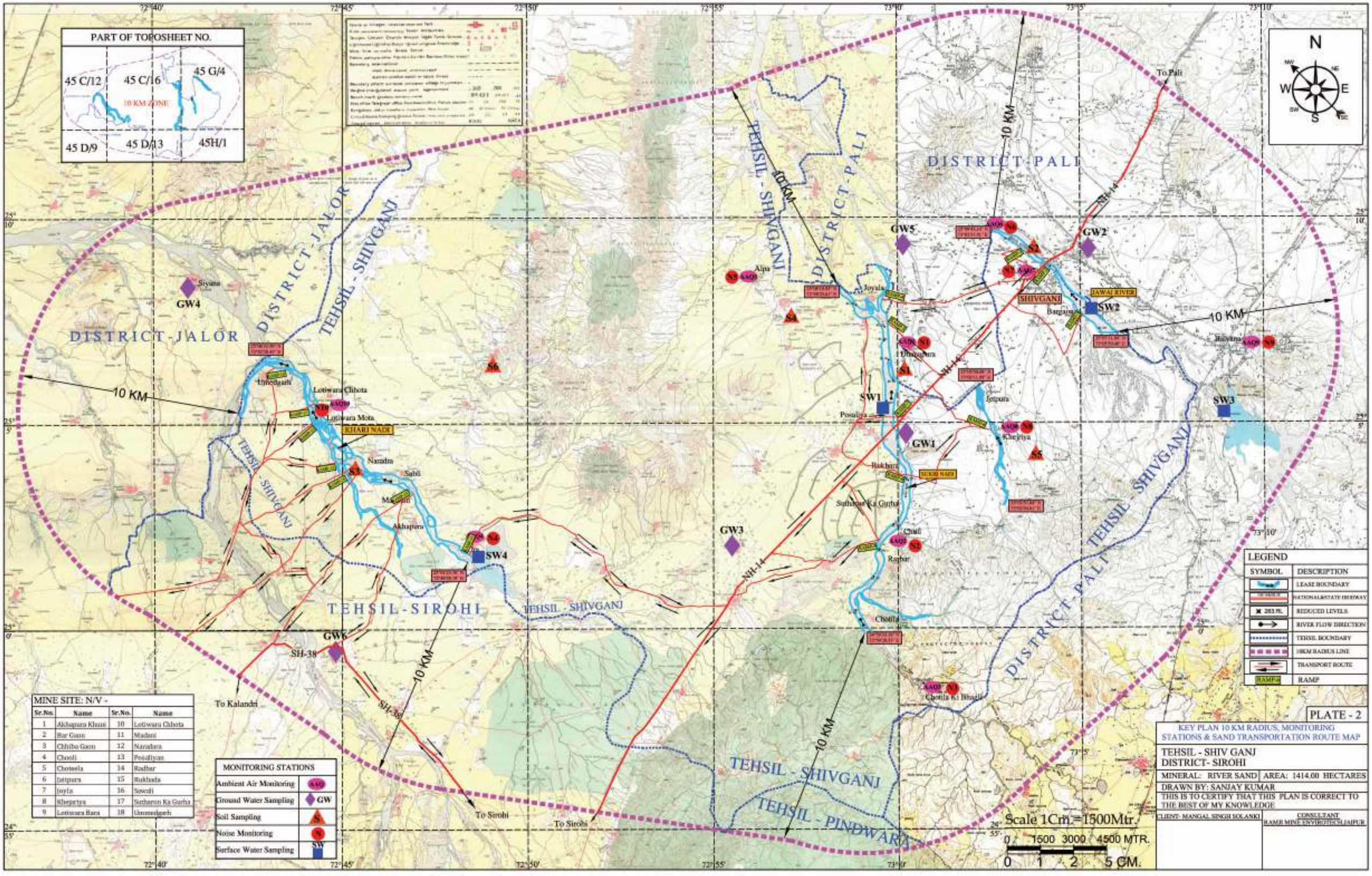
MINE SITE: TEHSIL - SHIVGANJ, DISTRICT - SIROHI
RAJASTHAN
Minerl - River Sand

PLANNED BY: M.K. GUPTA (RQP/AJM/269/2005-A)

DRAWN BY: HARIOM KUMAR

LEASE HOLDER : SHRI MANGAL SINGH SOLANKI S/o LAXMAN SINGH SOLANKI

RAMJI MINE ENVIROTECH, JAIPUR (RAJ.)
0141-4036199, 97997-44347


PART OF TOPOSHEET NO.
45 C/12
45 C/16
45 G/4
10 KM ZONE
45 D/9
45 D/13
45H/1
N
NW
NE
W
E
SW
SE
S
DISTRICT-JALOR
DISTRICT-PALI
TEHSIL - SHIVGANJ
TEHSIL-SIROHI
TEHSIL - PINDWARA
10 KM
To Pali
To Kalandri
To Sirohi
To Sirohi
NH-14
SH-38
SHIVGANJ
JAWAI RIVER
KHARI NADI
SUKRI NADI
GW1
GW2
GW3
GW4
GW5
GW6
SW1
SW2
SW3
SW4
Siyana
Umedgarh
Lotiwara Chhota
Lotiwara Mota
Naradra
Sabli
Madani
Akhapura
Alpa
Joyala
Dhanapura
Jetpura
Possaliya
Khejriya
Rukhara
Sutharon Ka Gurha
Chuli
Rajbar
Chotila
Chotila Ki Bhagti
Bargana
Bavana
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
N1
N2
N3
AAQ6
AAQ7
AAQ8
AAQ9
AAQ10
MINE SITE: N/V -
Sr.No. | Name | Sr.No. | Name
1 | Akhapura Khuni | 10 | Lotiwara Chhota
2 | Bar Gaon | 11 | Madani
3 | Chhiba Gaon | 12 | Naradara
4 | Chooli | 13 | Possliyan
5 | Chotesla | 14 | Radhar
6 | Jatpura | 15 | Rukhada
7 | Joyla | 16 | Sawali
8 | Khejariya | 17 | Sutharon Ka Gurha
9 | Lotiwara Bara | 18 | Umedgarh
MONITORING STATIONS
Ambient Air Monitoring
Ground Water Sampling
Soil Sampling
Noise Monitoring
Surface Water Sampling
LEGEND
SYMBOL | DESCRIPTION
LEASE BOUNDARY
NATIONAL&STATE HIGHWAY
283 Mt. | REDUCED LEVELS
RIVER FLOW DIRECTION
TEHSIL BOUNDARY
10KM RADIUS LINE
TRANSPORT ROUTE
RAMP
PLATE - 2
KEY PLAN 10 KM RADIUS, MONITORING STATIONS & SAND TRANSPORTATION ROUTE MAP
TEHSIL - SHIV GANJ
DISTRICT- SIROHI
MINERAL: RIVER SAND
AREA: 1414.00 HECTARES
DRAWN BY: SANJAY KUMAR
THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE
CLIENT- MANGAL SINGH SOLANKI
CONSULTANT
RAMEE MINE ENVIRO TECH JAIPUR
Scale 1Cm.=1500Mtr.
0 1500 3000 4500 MTR.
0 1 2 5 CM.



PART OF TOPOSHEET NO.- 45 C/16, 45 C/12,45 D/9, 45 D/13, 45 G/4, 45 H/1

PLATE - 3

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	ROAD VILLAGE	.261	SPOT HEIGHT
	NATIONAL&STATE HIGHWAY		TEHSIL BOUNDARY
	RIVER FLOW DIRECTION	▪ 267,MRL	REDUCED LEVELS
	DRAINAGE		AGRICULTURE LAND
	CONTOURS		OPEN SCRUB
	POND		
	SETTLEMENT		
	FOREST LAND		

LEASE AREA



SCALE - 1CM. = 1200 MTR.

0 1200 2400 3600 4800 6000 MTR.

0 1 2 3 4 5 CM.

MINE SITE: N/V -

Sr.No.	Name	Sr.No.	Name
1	Akhapura Khursi	10	Lotiwara Chhota
2	Bar Gaon	11	Madani
3	Chhiba Gaon	12	Naradara
4	Chooli	13	Posaliyan
5	Choteela	14	Radhar
6	Jaitpura	15	Rukhada
7	Joyla	16	Sawali
8	Khejariya	17	Sutharon Ka Gurha
9	Lotiwara Bara	18	Ummedgarh

SURFACE PLAN

TEHSIL - SHIV GANJ
DISTRICT- SIROHI

MINERAL: RIVER SAND | AREA: 1414.00 HECTARES

DRAWN BY: SANJAY KUMAR

THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE

CLIENT- MANGAL SINGH SOLANKI

CONSULTANT
RAMJI MINE ENVIROTECH,JAIPUR



PART OF TOPOSHEET NO.- 45 C/16, 45 C/12,45 D/9, 45 D/13, 45 G/4, 45 H/1

PLATE - 4

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	LEASE BOUNDARY	.261	SPOT HEIGHT
	ROAD VILLAGE		TEHSIL BOUNDARY
	NATIONAL&STATE HIGHWAY	▪ 267,MRL	REDUCED LEVELS
	RIVER FLOW DIRECTION		AGRICULTURE LAND
	DRAINAGE		OPEN SCRUB
	CONTOURS		FOREST LAND
	POND		MINERAL BAJRI (RIVER SAND)
	SETTLEMENT		7.5 MTR. BUFFER ZONE

SCALE - 1CM. = 1200 MTR.

0 1200 2400 3600 4800 6000 MTR.

0 1 2 3 4 5 CM.

MINE SITE: N/V -

Sr.No.	Name	Sr.No.	Name
1	Akhapura Khuni	10	Lotiwara Chhota
2	Bar Gaon	11	Madani
3	Chhiba Gaon	12	Naradara
4	Chooli	13	Posaliyan
5	Choteela	14	Radbar
6	Jaitpura	15	Rukhada
7	Joyla	16	Sawali
8	Khejariya	17	Sutharon Ka Gurha
9	Lotiwara Bara	18	Ummedgarh

CONCEPTUAL PLAN

TEHSIL - SHIV GANJ
DISTRICT- SIROHI

MINERAL: RIVER SAND | AREA: 1414.00 HECTARES

DRAWN BY: SANJAY KUMAR

THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE

CLIENT- MANGAL SINGH SOLANKI

CONSULTANT
RAMJI MINE ENVIROTECH,JAIPUR

PART OF TOPOSHEET NO.

45 C/12 | 45 C/16 | 45 G/4

10 KM ZONE

45 D/9 | 45 D/13 | 45H/1

N

DISTRICT-JALOR

TEHSIL - SHIVGANJ

DISTRICT-PALI

TEHSIL-SIROHI

10 KM

Mandor, Jharoli, Siyana, Chandana, Dewara, Kandur, Raipuriya, Siwana, Manora, Varara, Delaar, Mandwarja, Jamotra, Sujapura, Jawal, Marwara, Taleta, las, Mochal, wan, Naradra, Sahli, Ora, Gol, Bagsin, Barewra, Morli, Palri, Uthman, CHHIBA GAON, CHOTELA, Bara Wilpur, Bara Bera, Dewa ka Bara, Sibagaan ki Bhagi, Chatila ki Bhagli, Chudi ki Bhagli, velar ki bagh, Pavti, Godana, CHOOLI, RUKHADA, POSALIYAN, Gura, Arathwara, Bhev, Khandra, Surajpura, JAITPURA, Jetpura, KHEJARIYA, Vesa Rampera, Dhanapura, Warka, Naya Jogapura, Jogapura, JOYLA, Naya Joyana, Alpa, Poina, Fatepura, kanpura Chandana, Undri, SUMERPUR, JAWAI RIVER, SHIVRANJANI, BAR GAON, Kesarpura, Angor, Ramnaga, Shaqpura, Devli, Balvana, Bisalpur, Dhani, Koliwara, Jakhara, Pomava, Bhartanda, Bankli, Khivandi, Ruphagar, Jana, Kerol, Chhota Lakhanawa, Bura laKhmawa ka goliya, Baderi, Joyala ka goliya, Korta, Ramnera, Gola, Badla, Dudni, Rupanari, KHARI NADI, SUKHI NADI

LEGEND

SYMBOL	DESCRIPTION
	LEASE BOUNDARY
× 283.9L	REDUCED LEVELS
	RIVER FLOW DIRECTION
	TEHSIL BOUNDARY
	10KM RADIUS LINE

Scale 1Cm.=1500Mtr.

0 1500 3000 4500 MTR.

0 1 2 5 CM.

PLATE - 5

10 KM. RADIUS MAP
SHOWING DRAINAGE MAP

TEHSIL - SHIV GANJ
DISTRICT- SIROHI

MINERAL: RIVER SAND | AREA: 1414.00 HECTARES

DRAWN BY: SANJAY KUMAR

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CLIENT- MANGAL SINGH SOLANKI

CONSULTANT
RAMJI MINE ENVIRONTECH JAIPUR



PLATE - 6

DEVELOPMENT PLAN WITH TRANSPORT ROUTE

TEHSIL - SHIV GANJ
DISTRICT- SIROHI

MINERAL: RIVER SAND | AREA: 1414.00 HECTARES

DRAWN BY: SANJAY KUMAR

THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE

CLIENT- MANGAL SINGH SOLANKI

CONSULTANT
RAMJI MINE ENVIROTECH JAIPUR

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	LEASE BOUNDARY	.261	SPOT HEIGHT
	ROAD VILLAGE		TEHSIL BOUNDARY
	NATIONAL&STATE HIGHWAY		MINERAL BAJRI (RIVER SAND)
	RIVER FLOW DIRECTION		AGRICULTURE LAND
	DRAINAGE		OPEN SCRUB
	CONTOURS		FOREST LAND
	POND	RAMP	RAMP
	SETTLEMENT		TRANSPORT ROUTE

BLOCK	
	BLOCK-1
	BLOCK-2
	BLOCK-3
	BLOCK-4
	BLOCK-5
	BLOCK-6

FIVE YEARDEVELOPMENT PLAN	
	I st Year
	II nd Year
	III rd Year
	IV th Year
	V th Year

SCALE - 1CM. = 1200 MTR.

0 1200 2400 3600 4800 6000 MTR.
0 1 2 3 4 5 CM.

PART OF TOPOSHEET NO.- 45 C/16, 45 C/12,45 D/9, 45 D/13, 45 G/4, 45 H/1

MINE SITE: N/V -

Sr.No.	Name	Sr.No.	Name
1	Akhapura Khani	10	Lotiwara Chhota
2	Bar Gaon	11	Madani
3	Chhiba Gaon	12	Naradara
4	Chooli	13	Posaliyan
5	Choteela	14	Radbar
6	Jaitpura	15	Rukhada
7	Joyla	16	Sawali
8	Khejariya	17	Sutharon Ka Gurha
9	Lotiwara Bara	18	Ummedgarh



LEGEND	
Lease Area	
River Flow Direction	
Road Village	
National Highway	NH-14
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

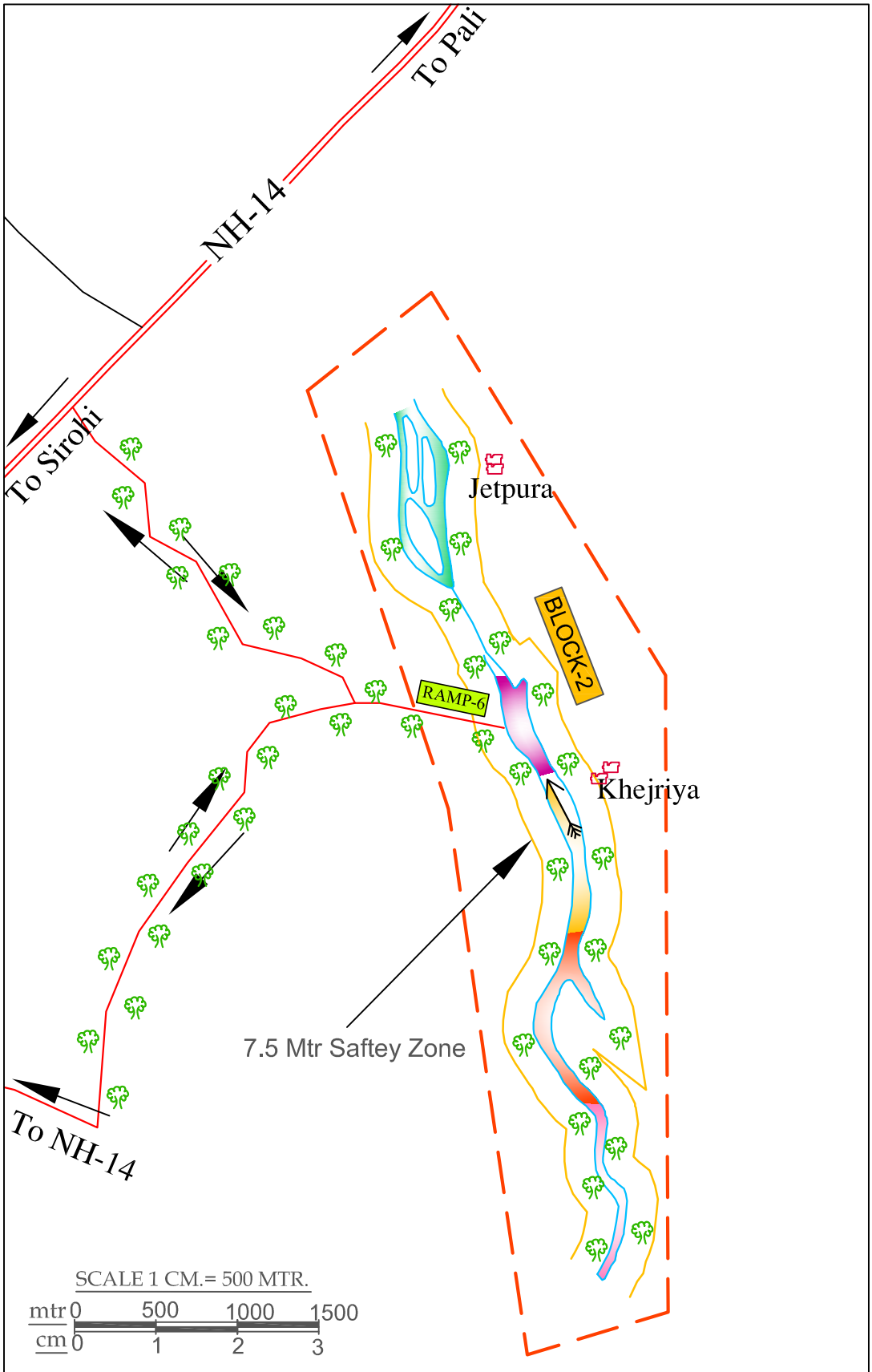
DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-1

TEHSIL - SHIV GANJ ,DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT - MANGAL SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.



LEGEND	
Lease Area	
River Flow Direction	
Road VIllage	
National Highway	NH-14
Settlement	
Ramp	RAMP
Transport Route	
Plantatlons	
7.5 Mtr Saftey Zone	

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

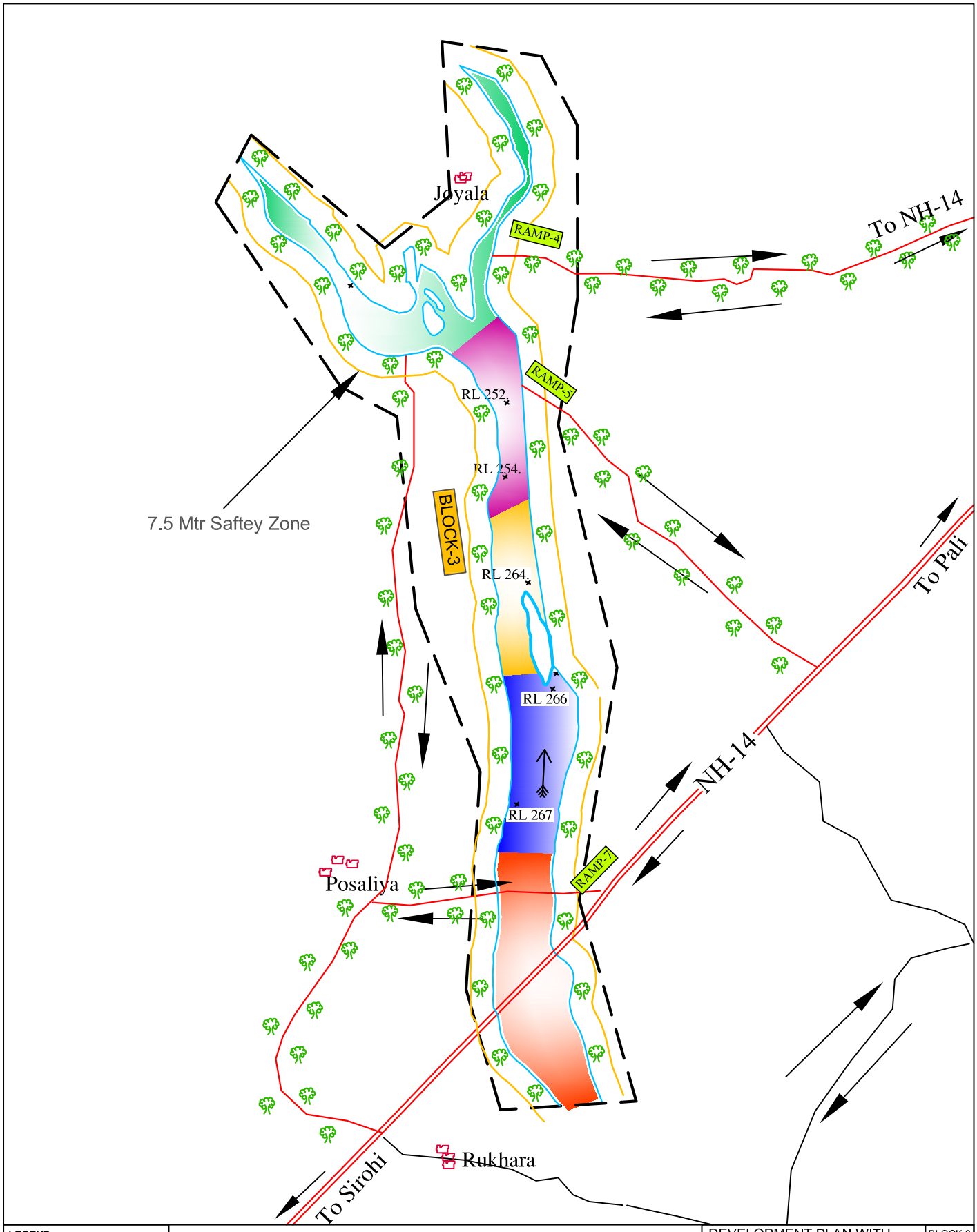
DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-2

TEHSIL - SHIV GANJ ,DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT - MANGAL SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.



LEGEND	
Lease Area	
River Flow Direction	
Road Village	
National Highway	NH-14
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	

SCALE 1 CM.= 500 MTR.

mtr	0	500	1000	1500
cm	0	1	2	3

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

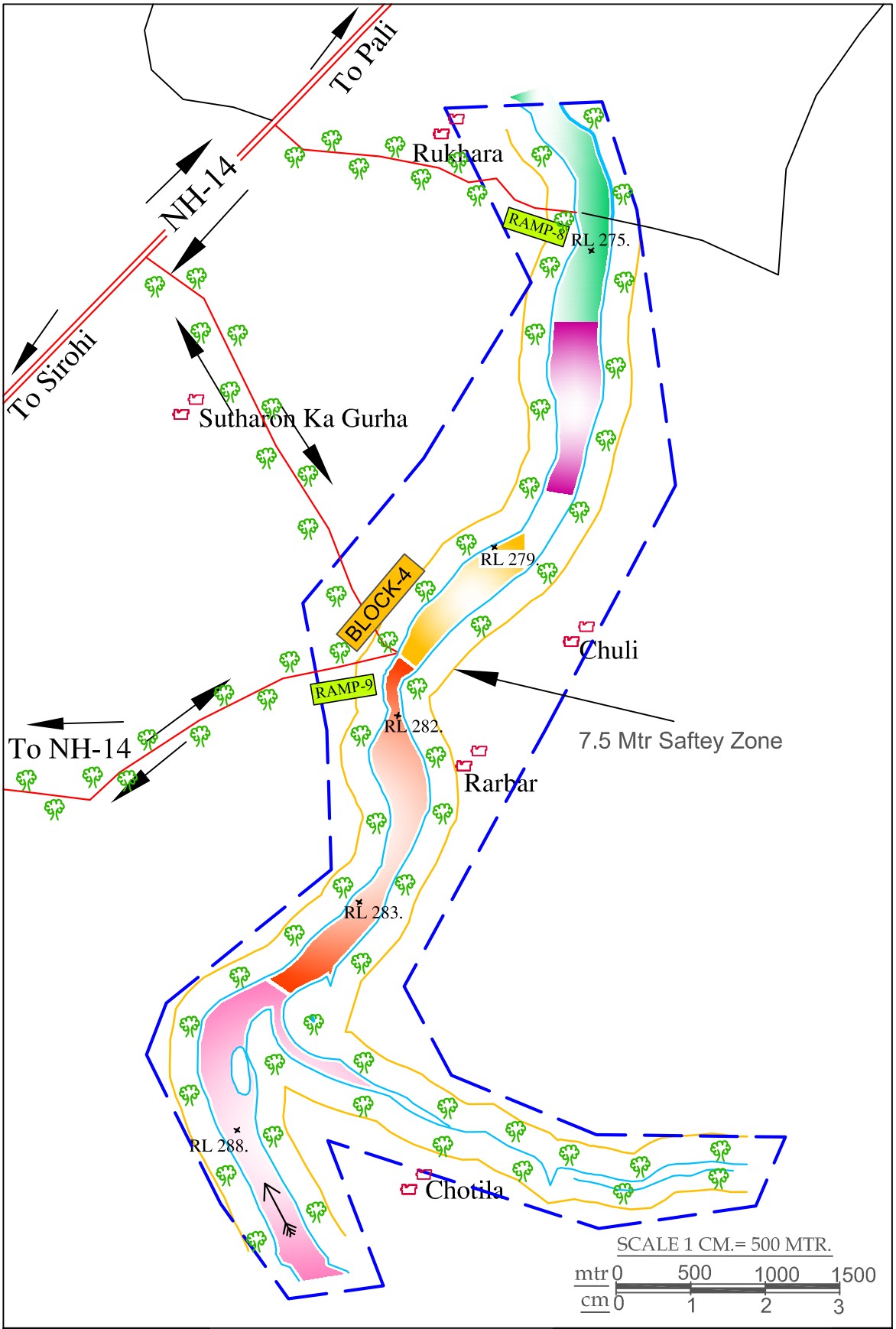
DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-3

TEHSIL - SHIV GANJ ,DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT - MANGAL SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.



LEGEND	
Lease Area	
RIver Flow DIrection	
Road VIllage	
National Highway	NH-14
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

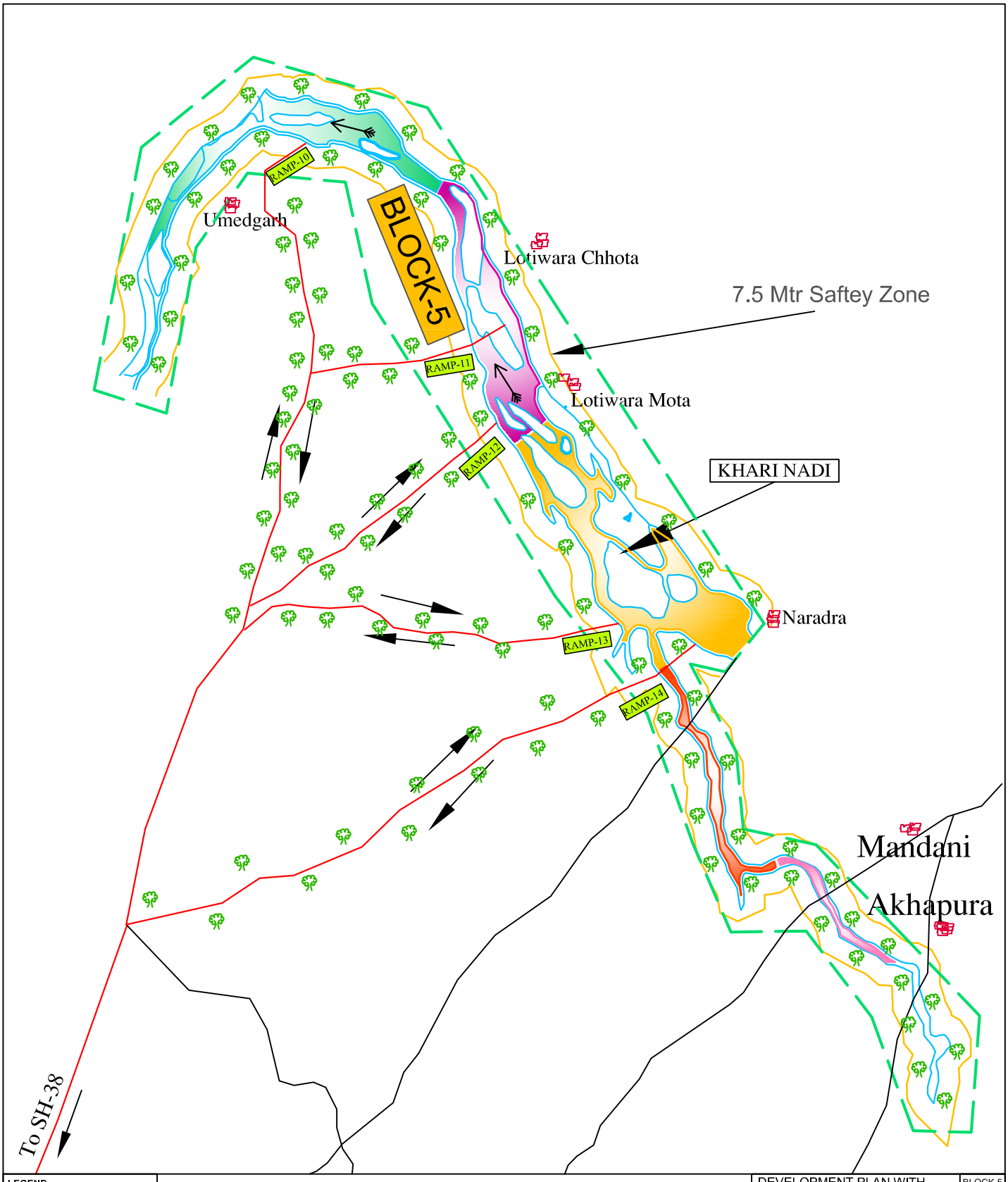
DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-4

TEHSIL - SHIV GANJ ,DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT - MANGAL SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.



LEGEND	
Lease Area	
River Flow Direction	
Road Village	
National Highway	NH-14
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	

SCALE 1 CM.= 500 MTR.

mtr	0	500	1000	1500
cm	0	1	2	3

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

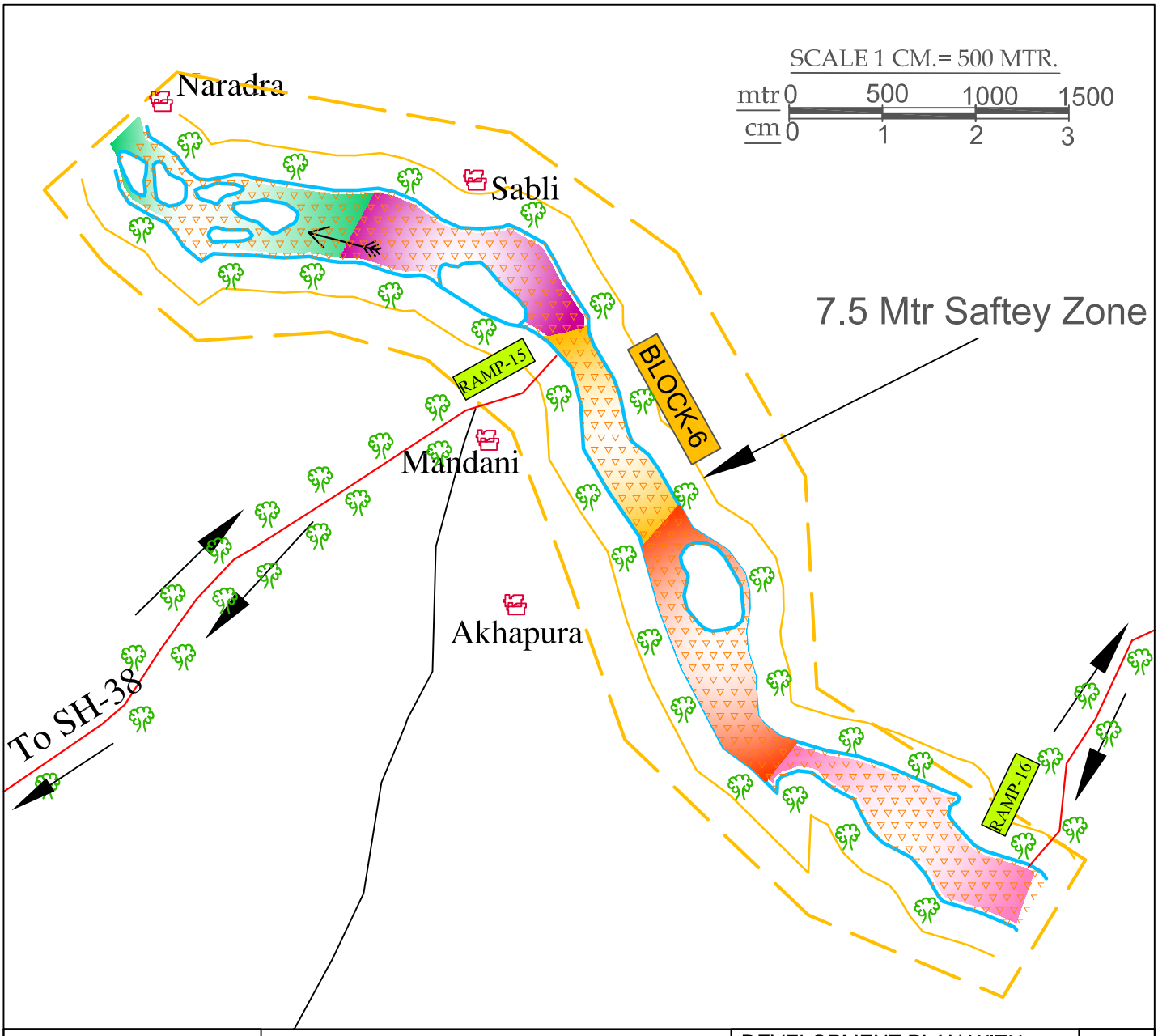
DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-5

TEHSIL - SHIV GANJ ,DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT - MANGAL SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.



LEGEND	
Lease Area	
River Flow Direction	
Road Village	
National Highway	NH-14
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-6

TEHSIL - SHIV GANJ ,DISTRICT- SIROHI ,(RAJ)

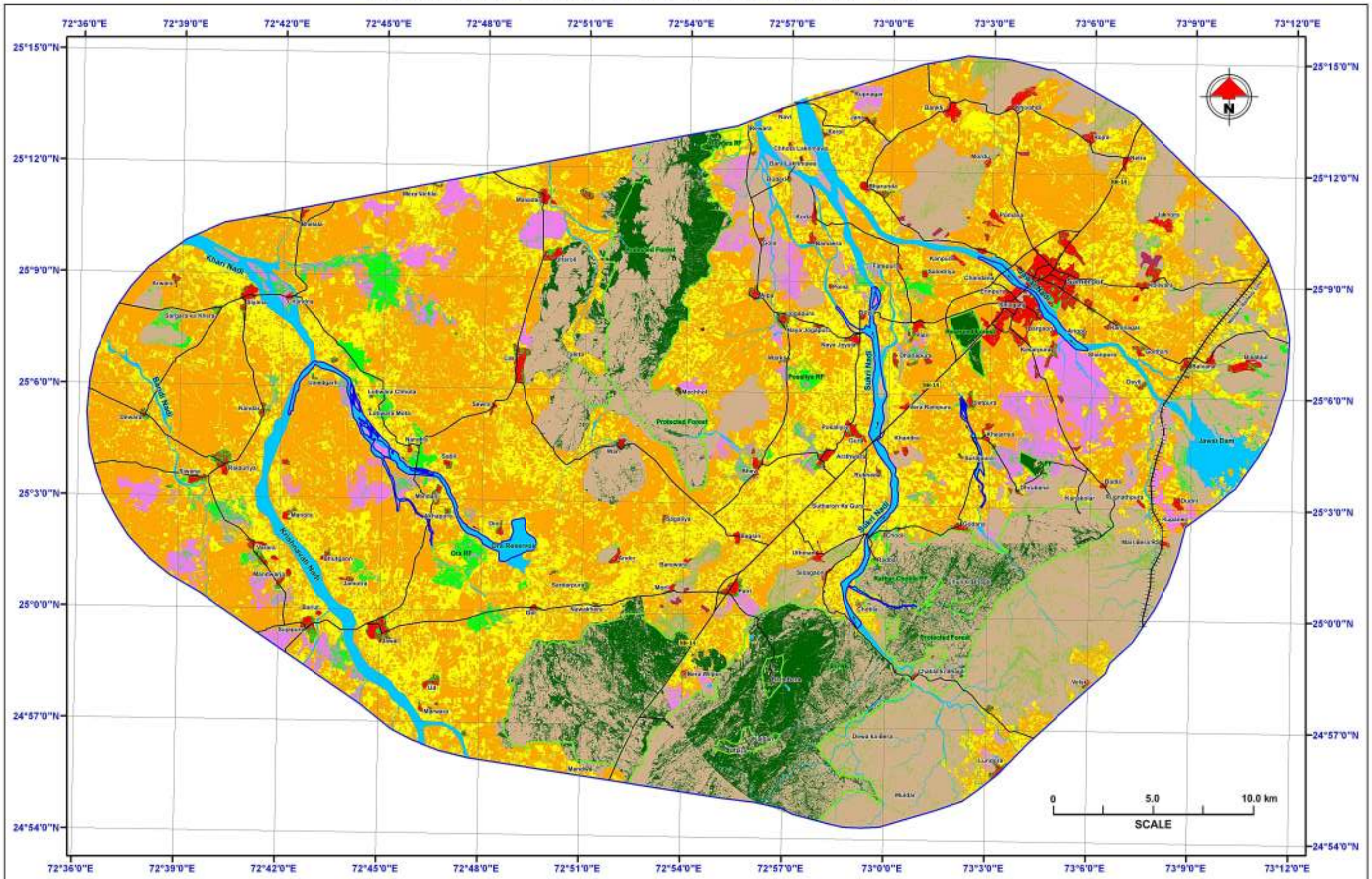
MINERAL: RIVER SAND

CLIENT - MANGAL SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.


LEGEND
SYMBOL
DESCRIPTION
LEASE BOUNDARY
NATIONAL & STATE HIGHWAY
RIVER FLOW DIRECTION
VILLAGE SETTLEMENT
DISTRICT & THESIL BOUNDARY
ECO -SENSITIVE ZONE
SANCTUARY BOUNDARY
10 KM BOUNDARY
SIROHI
PINDWARA
REODAR
SHIVGANJ
TEHSIL -SHIV GANJ
TEHSIL -SIROHI
TEHSIL -REODAR
TEHSIL -PINDWARA
DISTRICT -JALOR
DISTRICT - SIROHI
DISTRICT -PALI
TEHSIL - SHIVGANJ
TEHSIL - PINDWARA
TEHSIL - REODAR
To Jalor
To Pali
To Abu Road
To Palanpur
72° 20'
72° 25'
72° 30'
72° 35'
72° 40'
72° 45'
72° 50'
72° 55'
73° 0'
73° 5'
73° 10'
25° 10'
25° 5'
25° 0'
24° 55'
24° 50'
24° 45'
24° 40'
24° 35'
24° 30'
PLATE NO. 7
CUMULATIVE PLAN
TEHSIL :- PINDWARA,SHIVGANJ,SIROHI & REODAR
DISTRICT :- SIROHI (RAJASTHAN)
MINERAL :- RIVER SAND (Sand)
THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE.
Scale 1Cm.=1500Mt.
0 1 2 3 4 5 CM.

10 KM RADIUS LAND USE PATTERN BASED ON SATELLITE IMAGERY



SOURCE :

SATELLITE IMAGE
RESOURCESAT - 2 (L4FMX)

Mine Site Boundary
(Area - 1414.00 Ha.)

Legend

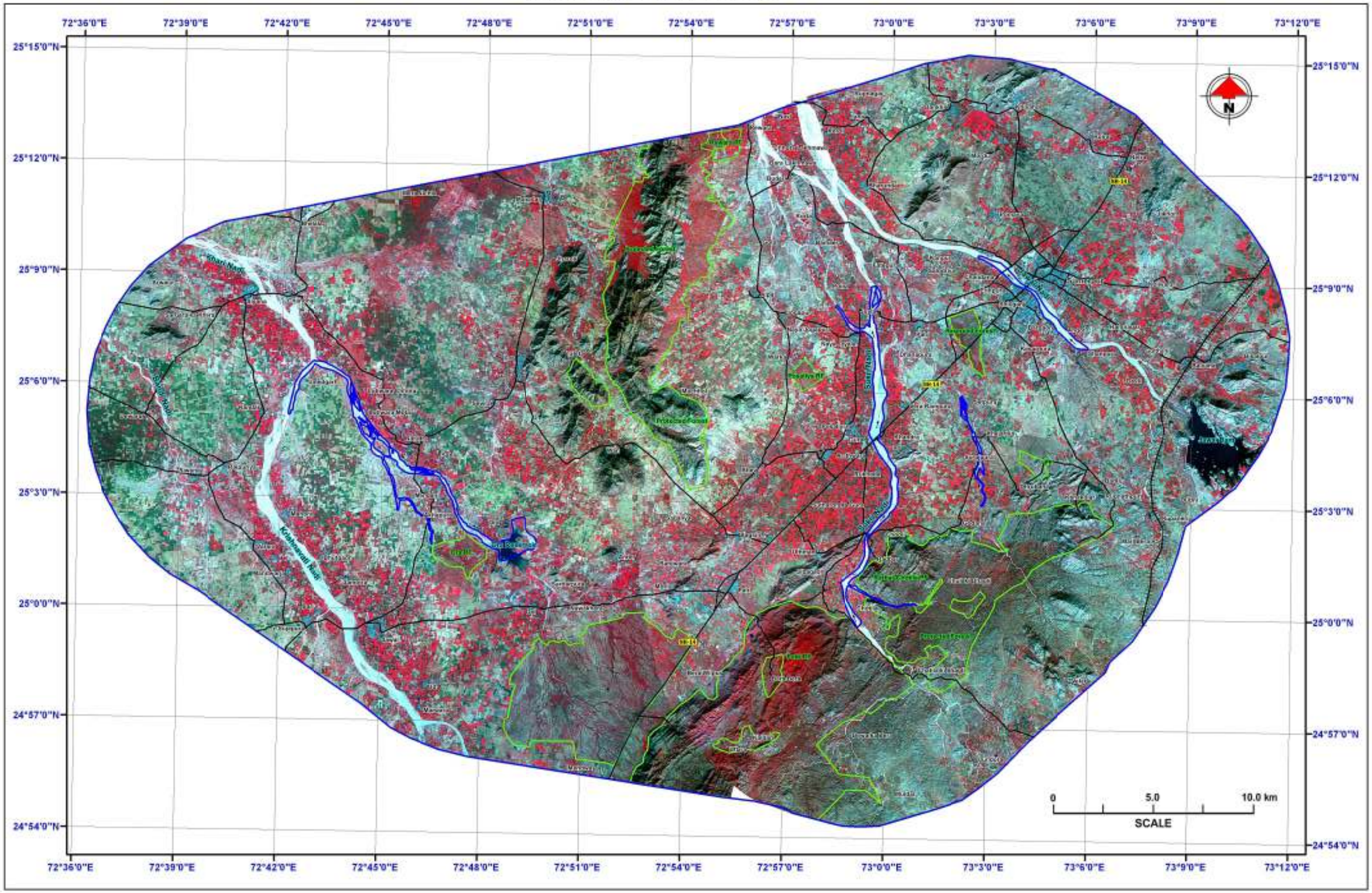
- Road
- Railway Line
- Forest Boundary

Color	Class Names	Area(Ha)	%(Area)
	Water Bodies	6693.08	4.14
	Open Mixed Jungle	2575.89	1.59
	Stony Area	37157.97	23.00
	Open Scrub Land	6813.30	4.22
	Forest Land	11114.47	6.88
	Plantation	3578.79	2.22
	Fallow Land	57428.56	35.56
	Crop Land	33058.93	20.47
	Human Settlement	2969.84	1.84
	Mine Quarry	134.08	0.08
	Total	161524.91	100.00

River Sand Mining Project
(Lease Area - 1414.00 ha)

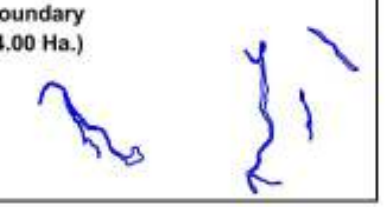
Tehsil-Shiv Ganj,
District - Sirohi (Rajasthan)

10 KM AREA SATELLITE IMAGE



SATELLITE IMAGE
RESOURCESAT - 2 (L4FMX)

Mine Site Boundary
(Area - 1414.00 Ha.)



Legend

- Road
- Railway Line
- Forest Boundary

River Sand Mining Project
(Lease Area - 1414.00 ha)

Tehsil-Shiv Ganj,
District - Sirohi (Rajasthan)