

# DISTRICT SURVEY REPORT FOR MINOR MINERALS OF JALANDHAR DISTRICT, PUNJAB

(As per Notification No. S.O.3611 (E) dated 25th July 2018,  
Sustainable Sand Mining Management Guidelines, 2016 and  
Enforcement & Monitoring Guidelines for Sand Mining (EMGSM)  
January 2020, issued by Ministry of Environment, Forest and Climate  
Change)



Prepared by  
**Sub- Divisional Level Committee Jalandhar**

E-Mail: [xenminingjal@gmail.com](mailto:xenminingjal@gmail.com)  
[xenjaldrg@yahoo.in](mailto:xenjaldrg@yahoo.in)

Assisted By  
M/S RIAN ENVIRO PRIVATE LIMITED  
202 & 402, Mangal Market, Raja Bazar, Sheikhpura,  
Patna, Bihar, Pin code-800014  
Reg. address: 133, Ansal Chamber-II, 6 Bhikaji Cama Place,  
New Delhi- 110 066  
(QCI NABET Accreditation No. - NABET/EIA/2124/IA 0079 ,  
Valid till 10.03.2024



## Content

Chapter No	Subject	Page No.	
	Preface	1	1
1	Introduction	2	17
2	Overview of Mining activities in the District	18	19
3	Process of Deposition of Sediments in the rivers of the District	20	22
4	General Profile of the district	23	31
5	Physiography of the District	32	39
6	Geology and Mineral Wealth	40	41
7	Estimation of deposits and Replenishment Studies	42	58
8	Transport	59	59
9	Remedial measure to mitigate the impact of mining	60	65
10	Conclusion	66	66
<b>Plate</b>			
Plate I	Map showing potential sandbar (Pre- Monsoon) on Sutlej River, Jalandhar District	67	76
Plate II	Map showing potential sandbar(Post- Monsoon) on Sutlej River, Jalandhar District	77	92
Plate III	Jalandhar Elevation & Longitudinal cross-section (L-Section)	93	95
Plate IV	Cross-section line plotted along a potential sandbar on Sutlej River, Jalandhar District (As per Sub Divisional Committee, cross section of 30 Recommended sites)	96	134
Plate V	Route Map(Riverbed Sites & Agriculture Sites)	135	158
<b>Annexure</b>			
Annexure A	Annexure as prescribed in the EMGSM, 2020	159	183
Annexure B	Coordinates of Potential Sand Blocks on Sutlej River of Jalandhar District	184	216
Annexure C	The structure of the Sub-divisional Committee Constituted for the preparation of the District Survey Report for Sand minerals of District Jalandhar	217	219
Annexure D	Photographs of the site survey	220	223
Annexure E	Sub- Divisional Committee visit report	224	238
Annexure F	Sp. Gravity & Bulk Density data of sand from MABL lab	239	251
Annexure G	Final Block Sand Ghats Coordinates	252	271C
Annexure H	Detailed Lithological Section of Agriculture Sites up to 15	272	274

*District Survey Report  
Jalandhar, Punjab*

---

---

	feet		
Annexure I	Wildlife/DFO Certificate	275	280
Annexure J	Public Consultation	281	283
Annexure K	Demand & Supply	284	293
Annexure L	Executive Summary	294	301



## **Preface**

This District Survey Report for mining of minor minerals has been prepared in compliance with the decision taken on the subject in a review meeting held on 29.04.2022 under the Chairmanship of worthy Chief Secretary Punjab in which it was decided that a DSR should be prepared for the guidance of all District Level Committees and their appointed consultants for the preparation of their respective DSRs. The Model DSR has been prepared in conformity with Notification No. S.O.3611 (E) dated 25th of July 2018, issued by the Ministry of Environment, Forest and Climate Change (MoEF & CC), Sustainable Sand Mining Management Guidelines, 2016, and Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, issued by the MoEF & CC.

Ministry of Environment, Forest and Climate Change published Notification No. 3611 (E), dt.25th July 2018 regarding the inclusion of Minerals other than Sand and the format for preparation of the DSR has been specified therein. Further, Sustainable Sand Mining Guidelines (SSMG), 2016 and Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) January 2020, were issued by the Ministry of Environment, Forest and Climate Change in compliance of various orders/directions issued by the Hon'ble Supreme Court and Hon'ble NGT and also based on the reports submitted by various expert committees and investigation teams. This DSR has been prepared in conformity with the SO 3611 (E), and other sand mining guidelines published by MOEF & CC from time to time.

The purpose of DSR is to identify the mineral potential areas where mining can be allowed and also those areas where mining cannot be permitted due to proximity to infrastructure such as roads, bridges, railway lines, canals, etc., areas of erosion, areas of environmental sensitivities, etc. The DSR would also help to estimate the permissible annual extractable quantities of minor minerals based on the extent of available deposits, the annual rate of replenishment/depletion wherever applicable, and allow time for replenishment

The DSR of Jalandhar District also describes the general geographical profile of the district, distribution of natural resources, livelihood, climatic condition and sources of revenue generation.



## **1 Introduction**

### **1.1 Background and General information**

#### **1.1.1 Background**

Whilst sand is a vitally important and essential requirement for all construction work and several other industries, its injudicious mining can lead to severe environmental problems. The deleterious effects of indiscriminate sand and gravel mining include the following:

- a) Extraction of bed material in excess of replenishment by transport from upstream causes the bed to lower (degrade) upstream and downstream of the site of removal.
- b) In-stream habitat is impacted by the increase in river gradient, suspended load, sediment transport, and sediment deposition. Excessive sediment deposition for replenishment increases turbidity which prevents penetration of light required for photosynthesis and reduces food availability of aquatic fauna.
- c) Riparian habitat including a vegetative cover on and adjacent to the river banks controls erosion, provides nutrient inputs into the stream, and prevents intrusion of pollutants in the stream through runoff. Bank erosion and change of morphology of the river can destroy the riparian vegetative cover.
- d) Bed degradation is responsible for channel shifting, causing loss of properties and degradation of the landscape; it can also undermine bridge supports, pipelines or other structures.
- e) Degradation may change the morphology of the riverbed.
- f) Degradation can deplete the entire depth of gravelly bed material, exposing other substrates that may underlie the gravel, which could in turn affect the quality of aquatic habitat. Lowering of the ground water table in the flood plain because of lowering of riverbed level as well as river water level takes place because of extraction and draining out of excessive ground water from the adjacent areas. So, if a floodplain aquifer drains into the stream, groundwater levels can be lowered as a result of bed degradation.
- g) Lowering of the water table can destroy riparian vegetation.
- h) Excessive pumping of ground water in the process of mining in abandoned channels depletes ground water causing scarcity of irrigation and drinking water.



- i) Un-scientific and unregulated sand and gravel mining tends to increase channel bank scouring and erosion. This causes a large degree of meandering of rivers.
- j) Rapid bed degradation may induce bank collapse and erosion by increasing the heights of banks.
- k) Polluting ground water by reducing the thickness of the filter material especially if mining is taking place at top of recharge fissures.
- l) Choking of the sand layer which acts as a filter for ingress of ground water from the river by dumping of finer material, compaction of filter zone due to movement of heavy vehicles. It also reduces the permeability and porosity of the filter material.
- m) Removal of sand and gravel from bars may cause downstream bars to erode if they subsequently receive less bed material than is carried downstream from them by fluvial transport.
- n) Ecological effects on bird nesting, fish migration, angling, etc.
- o) Indiscrete mining activities lead to increased concentration of suspended sediments in the river which in turn causes siltation of water resources projects.
- p) Un-scientific and unregulated sand and gravel mining lead to severe health hazards like air quality degradation and dust fog.
- q) Direct destruction from heavy equipment operation; discharges from equipment and refueling.
- r) Biosecurity and pest risks.

### **1.1.2 General Information**

The District Survey Report of Jalandhar District has been prepared as per the guideline of Ministry of Environment, Forests & Climate Change (MoEF & CC), Government of India vide Notification S.O.-1533(E) dated 14th Sept, 2006 and subsequent MoEF & CC Notification S.O. 141(E) dated 15th Jan, 2016. This report shall guide systematic and scientific utilization of natural resources, so that present and future generation may be benefitted at large. Further, MoEF & CC published a notification S.O. 3611(E) Dated 25th July, 2018 and recommended the format for District Survey Report.

The main objective of DSR is to identify the areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and estimation of annual rate of replenishment and allowing time for replenishment after



mining in that area. The DSR would also help to calculate the annual rate of replenishment wherever applicable and allow time for replenishment. Besides the sand mining, the DSR also include the potential development scope of in-situ minor minerals.

The objectives of the District Survey Report are as following:

1. Identification and Quantification of Mineral Resource and its optimal utilization.
2. To regulate the Sand Mining in the district Jalandhar, identification of site-specific end-use consumers and reduction in demand & supply gaps.
3. Use of information technology (IT) & latest scientific method of mining for surveillance of the sand mining at each step.
4. District Survey report shall enable appraisal and grant Environmental Clearance for cluster of Sand and Gravel Mines. It shall assist concern Department during post Environmental Clearance Monitoring.
5. To check and control the instance of illegal mining.
6. To control the flood in the area.
7. To maintain the livelihood of aquatic habitat.
8. To protect the incursion of ground water in the area. Limiting extraction of material in floodplains to an elevation above the water table generally disturbs more surface area than allowing extraction of material below the water table.
9. To keep accumulated data records viz. details of Mineral Resource, potential area, lease, approved mining plan, co-ordinates of a district at one place.
10. To maintain the records of revenue generation.

The following principles are to be kept in view whilst identifying the areas and extent of mining leases:

- i. In-stream extraction of RBM from below the water level of a stream generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the water level.
- ii. In-stream extraction of RBM below the deepest part of the channel generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the thalweg.
- iii. Excavating sand from a small straight channel with a narrow floodplain generally will have a greater impact on the natural hydrologic processes than excavations on a braided channel with a wide floodplain.



- iv. Extracting sand and gravel from a large river or stream will generally create less impact than extracting the same amount of material from a smaller river or stream.

The District Survey report (DSR) is comprised of secondary data published and endorsed by various departments and websites about geology of the area, mineral resources, climate, topography, land form, forest, rivers, soil, agriculture, road, transportation, irrigation etc. Data on lease and mining activities in the district, revenue etc. are collected and collated from concern district Head Quarter.

The Deputy Commissioner through its vide letter no. 5105-5109/MA, dated 08.05.2022 had constituted the sub-divisional committee to prepare the District Survey Report. List of the members of the sub-divisional Committee is shown below:

**Structure of the Sub Divisional Committee Constituted for preparation of the District Survey Report for Sand minerals of District Jalandhar.**

**1. For Jalandhar -1 Sub- Division**

- a) Sub- Division Magistrate Jalandhar -1- Chairperson
- b) Environment Engineer PPCB, Jalandhar- Member
- c) Executive Engineer, Irrigation (Bist. doab Canal), Jalandhar- Member
- d) Executive Engineer, Building and Roads, Jalandhar- Member
- e) Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member
- f) Divisional Forest Officer, Jalandhar- Member
- g) Chief Agriculture Officer, Jalandhar- Member
- h) All Block Development and Panchayat Officer, Jalandhar- Member
- i) District Mining Officer, Jalandhar- Member Secretary

**2. For Jalandhar -2 Sub- Division**

- a) Sub- Division Magistrate Jalandhar -2- Chairperson
- b) Environment Engineer PPCB, Jalandhar- Member
- c) Executive Engineer, Irrigation (Bist doab Canal), Jalandhar- Member
- d) Executive Engineer, Building and Roads, Jalandhar- Member
- e) Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member
- f) Divisional Forest Officer, Jalandhar- Member
- g) Chief Agriculture Officer, Jalandhar- Member
- h) All Block Development and Panchayat Officer, Jalandhar- Member
- i) District Mining Officer, Jalandhar- Member Secretary

**3. For Nakodar Sub- Division**

- a) Sub- Division Magistrate Nakodar- Chairperson





- b)** Environment Engineer PPCB, Jalandhar- Member
- c)** Executive Engineer, Irrigation (Bist doab Canal), Jalandhar- Member
- d)** Executive Engineer, Building and Roads, Jalandhar- Member
- e)** Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member
- f)** Divisional Forest Officer, Jalandhar- Member
- g)** Chief Agriculture Officer, Jalandhar- Member
- h)** All Block Development and Panchayat Officer, Jalandhar- Member
- i)** District Mining Officer, Jalandhar- Member Secretary

**4. For Shahkot Sub- Division**

- a)** Sub- Division Magistrate Shahkot - Chairperson
- b)** Environment Engineer PPCB, Jalandhar- Member
- c)** Executive Engineer, Irrigation (Bist doab Canal), Jalandhar- Member
- d)** Executive Engineer, Building and Roads, Jalandhar- Member
- e)** Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member
- f)** Divisional Forest Officer, Jalandhar- Member
- g)** Chief Agriculture Officer, Jalandhar- Member
- h)** All Block Development and Panchayat Officer, Jalandhar- Member
- i)** District Mining Officer, Jalandhar- Member Secretary

**5. For Phillaur Sub- Division**

- a)** Sub- Division Magistrate Phillaur- Chairperson
- b)** Environment Engineer PPCB, Jalandhar- Member
- c)** Executive Engineer, Irrigation (Bist doab Canal), Jalandhar- Member
- d)** Executive Engineer, Building and Roads, Jalandhar- Member
- e)** Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member
- f)** Divisional Forest Officer, Jalandhar- Member
- g)** Chief Agriculture Officer, Jalandhar- Member
- h)** All Block Development and Panchayat Officer, Jalandhar- Member
- i)** District Mining Officer, Jalandhar- Member Secretary



## 1.2 Statutory Framework

### a. Evolution of the Environmental Regulatory Framework:

Ministry of Environment, Forest and Climate Change (MoEF & CC) has published several notifications time to time to formulate and implement the District Survey Report (DSR) for every district. Statutory Framework and its legal aspect with respect to DSR are tabulated in Table 2.1.

**Table 1.1: Requirement of District Survey Report & its year wise modification of Guidelines**

Year	Particulars
1994	The Ministry of Environment, Forest & Climate Change (MoEF & CC) published Environmental Impact Assessment Notification 1994 which is only applicable for the Major Minerals more than 5 ha.
2006	In order to cover the minor minerals also into the preview of EIA, the MoEF & CC issued EIA Notification SO 1533 (E), dated 14th September 2006, made mandatory to obtain environmental clearance for both Major & Minor Mineral more than 5 Ha.
2012	Further, Hon'ble Supreme Court wide order dated the 27th February, 2012 in I.A. No.12- 13 of 2011 in Special Leave Petition (C) No.19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others etc., ordered that "leases of minor minerals including their renewal for an area of less than five hectares be granted by the States/Union Territories only after getting environmental clearance from MoEF"; and Hon'ble National Green Tribunal, order dated the 13th January, 2015 in the matter regarding sand mining has directed for making a policy on environmental clearance for mining leases in cluster for minor Minerals.
2016	The MoEF & CC in compliance of above Hon'ble Supreme Court's and NGT'S order has prepared "Sustainable Sand Mining Guidelines (SSMG), 2016" in consultation with State governments, detailing the provisions on environmental clearance (EC) for cluster, creation of District Environment Impact Assessment Authority, preparation of District survey report and proper monitoring of minor mineral. There by issued Notification dated 15.01.2016 for making certain amendments in the EIA Notification, 2006, and made mandatory to obtain EC for all minor minerals. Provisions have been made for the preparation of District survey report (DSR) of River bed mining and other minor minerals.

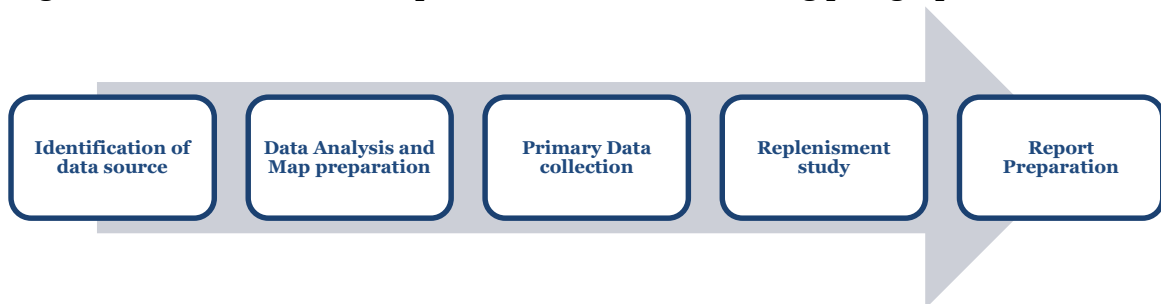
<b>Year</b>	<b>Particulars</b>
<b>2018</b>	MoEF & CC published a notification S.O. 3611(E) Dated 25th July, 2018 and recommended the format for District Survey Report. The notification stated about the objective of DSR i.e. "Identification of areas of aggradations or deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining in that area".
<b>2019</b>	The main objective of Sand Mining Policy, 2019 to ensure that sand mining is done in an environmentally sustainable manner, to ensure availability of adequate quantity of sand, to increase the number of settles to ensure generation of employment.
<b>2020</b>	Enforcement & Monitoring Guidelines for Sand Mining (EMGSM) 2020 has been published modifying Sustainable Sand Mining Guidelines, 2016 by MoEF & CC for effective enforcement of regulatory provisions and their monitoring. The EMGSM 2020 directed the states to carry out river audits, put detailed survey reports of all mining areas online and in the public domain, conduct replenishment studies of river beds, constantly monitor mining with drones, aerial surveys, ground surveys and set up dedicated task forces at district levels. The guidelines also push for online sales and purchase of sand and other riverbed materials to make the process transparent. They propose night surveillance of mining activity through night-vision drones.
<b>Feb, 2021</b>	Hon'ble NGT vide its orders dated 26.02.2021 in OA No 360 of 2015 has stressed the importance of preparation of scientific DSRs through NABET / QCCI approved consultants and getting the same appraised/approved from SEAC and SEIAA respectively. The orders direct that regular monitoring of all mining leases is to be conducted through a 5-member team headed and coordinated by SEIAAs in each state. The modalities to be followed and penalties to be imposed in cases of illegal mining as also the procedure for periodic review at all levels are also laid down in these important orders of the Hon'ble NGT.
<b>Nov, 2021</b>	Hon'ble Supreme Court of India vide its orders dated 10.11.2021 in Civil Appeal No(s) 3661-62 has partially amended the above orders dated 26.02.2021 of the Hon'ble NGT and



<b>Year</b>	<b>Particulars</b>
	directed that fresh DSRs are to be prepared for mining of minor minerals in all Districts by a team of sub-Divisional officers in accordance with the EMGSM 2020 Guidelines of the MOEF&CC and the said DSRs are to be got appraised/approved from SEAC / SEIAA in a time-bound manner of 6 weeks each.
<b>June, 2022</b>	Hon'ble Supreme Court of India vide its orders dated 03.06.2022 in IA No 1000 of 2003 that Each protected forest, that is national park or wildlife sanctuary must have an ESZ of minimum one kilometer measured from the demarcated boundary of such protected forest in which the activities prescribed in the Guidelines of 9th February 2011 shall be strictly adhered to. For Jamua Ramgarh wildlife sanctuary, it shall be 500 meters so far as subsisting activities are concerned.

### **1.3 Methodology adopted of DSR Preparation**

The steps followed during the preparation of District Survey Report are given in Figure 1.1. The individual steps are discussed in following paragraphs.



**Figure 1.1: Steps followed in preparation of DSR**

#### **1.3.1 Data source Identification**

District Survey Report has been prepared based on the Primary data base and secondary data base collated from different sources. This is very critical to identify authentic data sources before collating the data set. The secondary data sources which are used in DSR are mostly Government published data based or the published report in reputed journal. District profile has been prepared based on the District Statistical handbook published by Punjab Government as well as District Census 2011. Potential mineral resources have been described based on GSI or any other govt. agencies work done. Mining lease details and the revenue generated from minor minerals has been prepared based on available data from DL&LRO offices of the district. Satellite image has been used for map preparation related to physiography and land utilization pattern of the district.



### **1.3.2 Data Analysis and Map preparation**

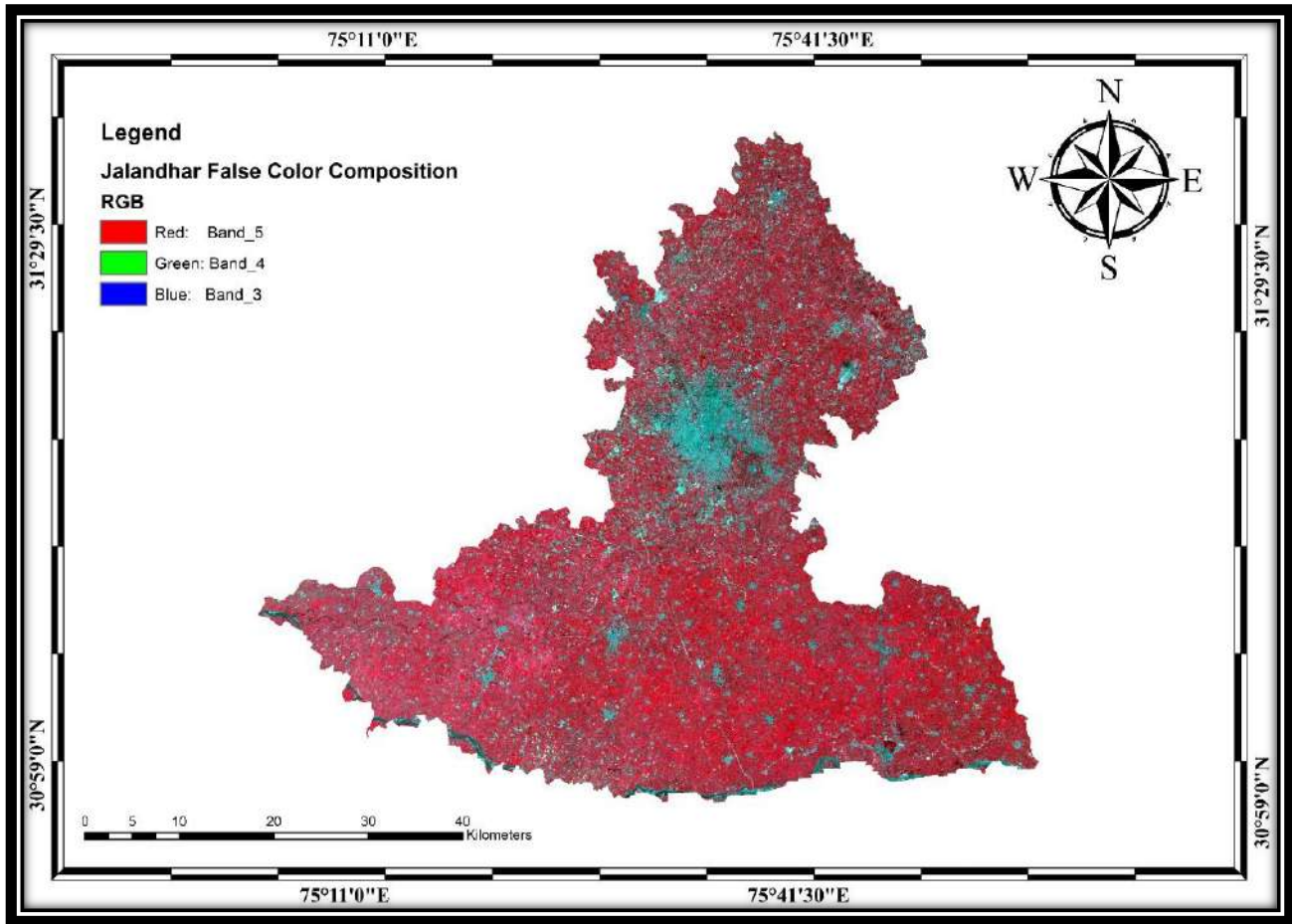
Dataset which are captured during the report preparation, are gone through detail analysis work. District Survey Report involves the analytical implication of captured dataset to prepare relevant maps. Methodology adopted for preparation of relevant maps is explained below.

Land Use and Land Cover Map: Land Use and Land Cover classification is a complex process and requires consideration of many factors. The major steps of image classification may include determination of a suitable classification system via Visual Image Interpretation, selection of training samples, Satellite image (FCC-False Colour Composite) pre-processing, selection of suitable classification approaches, post-classification processing, and accuracy assessment.

Here LANDSAT 8 satellite Imagery has been taken for Supervised Classification as supervised classification can be much more accurate than unsupervised classification, but depends heavily on the number of training sites, the processing the image, and the spectral distinctness of the classes in broader scale.

The LANDSAT data was applied in band 5,4 and 3 combination for FCC which distinctively shows sand deposits and bare soils in white color and vegetation pattern in reddish tone. The Urban settlements and composite man-made structures are in tones of bluish grey to grey. Based on these observations the training set data are utilized for supervised classification. The classes of land use thus obtained provides the LULC map. The LULC class provides the location and area of the region of interest. The FCC map of Jalandhar district is presented on Figure 1.2


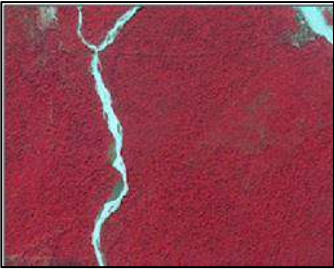




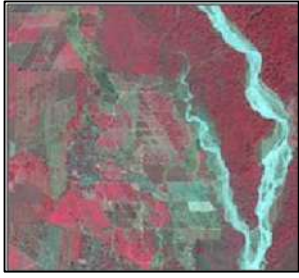
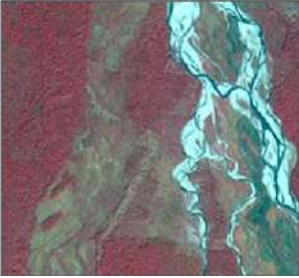

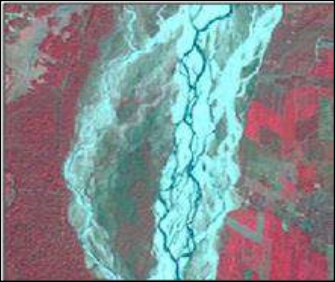
**Figure No: 1-2: Landsat 8 data False Color Composite (5 4 3)**

(Source: Landsat 8 Earth Explorer ([usgs.gov](https://earthexplorer.usgs.gov))<https://earthexplorer.usgs.gov>)

According to the Visual Image Interpretation (Tone, Texture, Colour etc.) training set of the pixel has been taken. Pictorial descriptions of Land Use classification are explained in Figure 1.3

	
<p><b>Agricultural Land</b> - Based on their Geometrical shape, Red and Pink colour tone, Agricultural Land has been identified.</p>	<p><b>Vegetation Covered Area</b> - Based on their continuous Red colour tone, Vegetation Covered Area has been identified.</p>

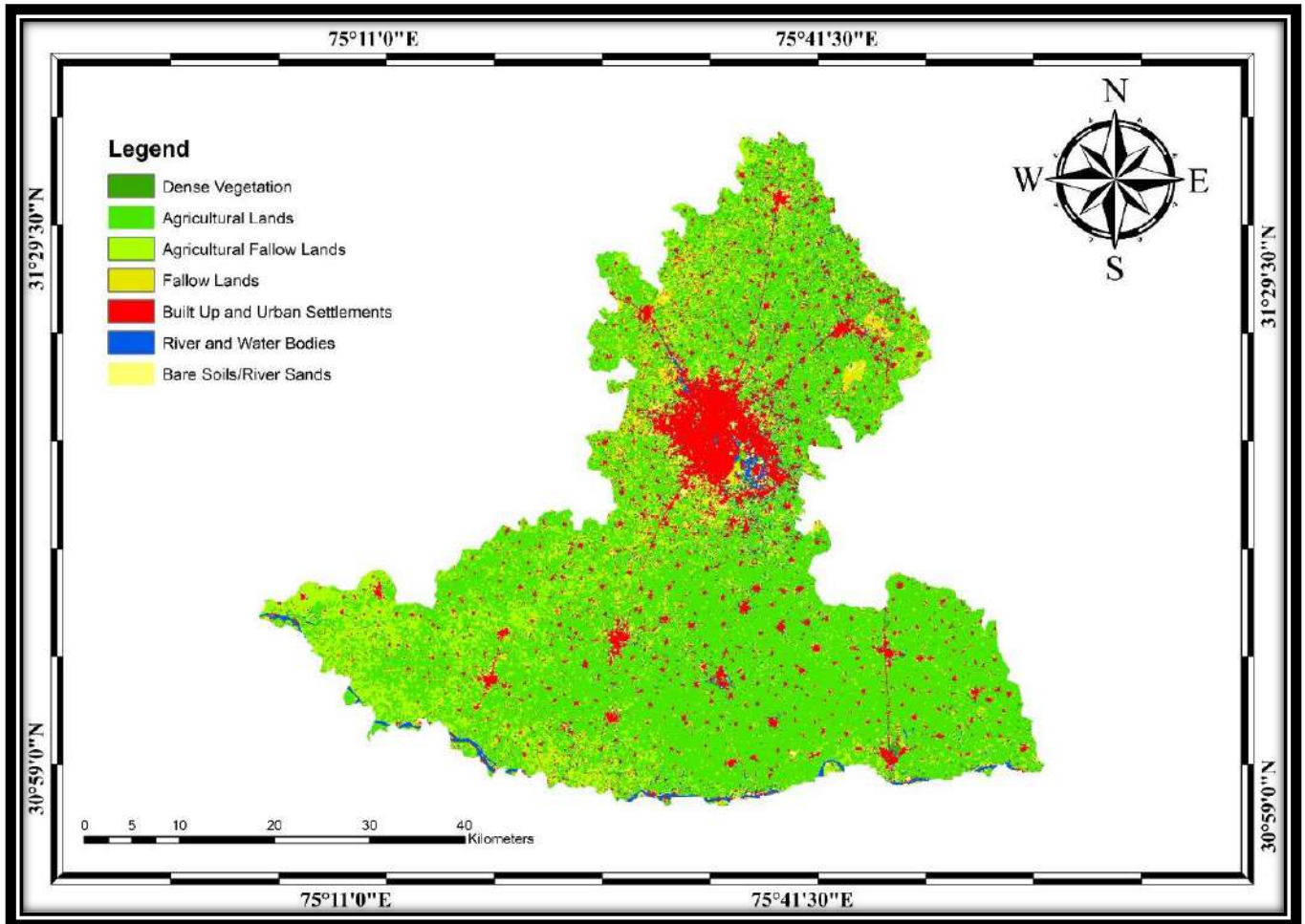


	
<p><b>Agricultural Fallow Land</b> - Based on their Geometrical shape, Light and dark cyan with light pink colour tone, Agricultural Land has been identified.</p>	<p><b>Badland Topography</b>- Light Yellowish mixed with cyan colour has been identified as Bad Land Topography.</p>
	
<p><b>Settlement</b> – Area with Cyan Colour including geometrical shape has been recognised as Settlement Area.</p>	<p><b>Water Bodies</b> – Dark blue colour has been classified as Water Bodies.</p>

**Figure 1.3: Pictorial description of Land Use Classification methods**

The classified LULC map of Jalandhar region is provided in **Figure 1.4**





**Figure: 1.4: Land Use Land Class map (LULC) of Jalandhar district based on Landsat 8**

<https://earthexplorer.usgs.gov>

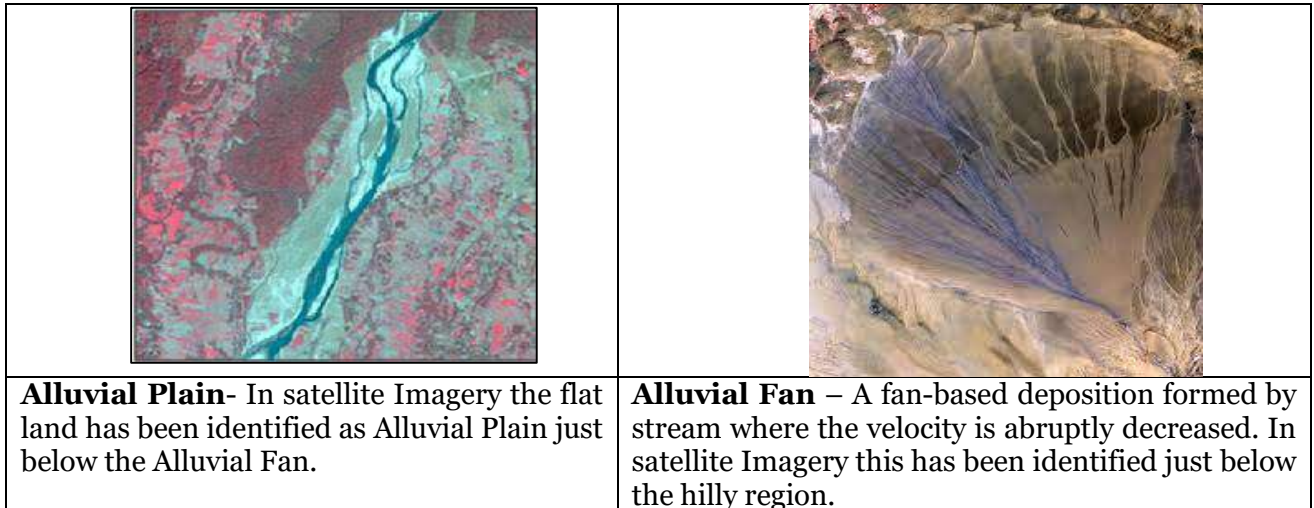
Pictorial descriptions of Geomorphological unit's classification are explained in **Figure 1.5.**

#### Geomorphological Map:

The major steps of preparing Geomorphological Map is identifying features like – Alluvial Fan, Alluvial Plain, Hilly Region etc. from Satellite Imagery (FCC-False Colour Composite) via Visual Image Interpretation and then digitization has been taken into the consideration to prepare map including all the Geomorphological features according to their location.





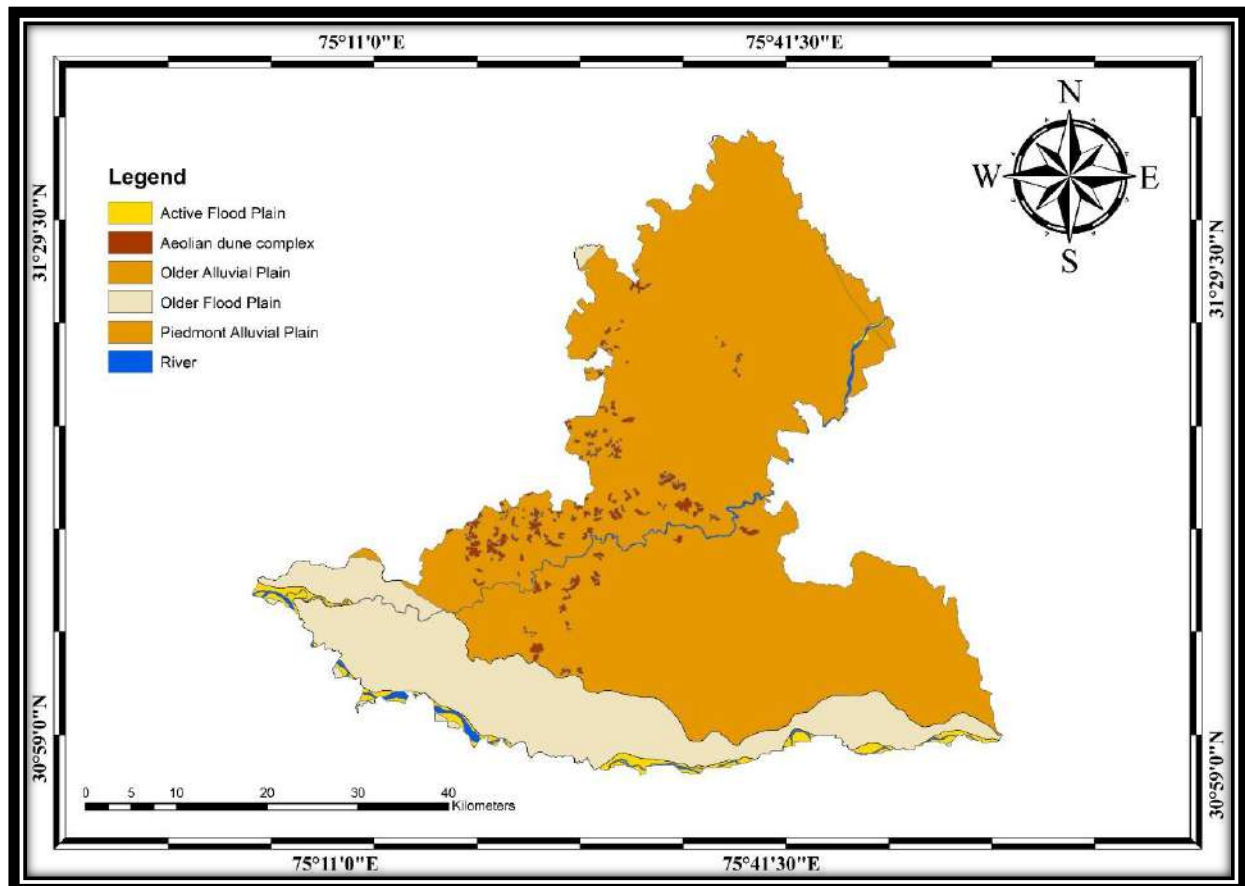


**Figure 1.5: Pictorial description of Geomorphological Units Classification methods**

Physiographical Map:

The major step of preparing Physiographical Map is generating contour at a specific interval to show the elevation of the area using Cartosat DEM.

The Geomorphological map of the Jalandhar district is presented in the **Figure 1.6**



**Figure No: 1.6: Geomorphological map of the Jalandhar district**

Source: Bhukosh, GSI, Bhukosh - Geological Survey of India (<https://bhukosh.gsi.gov.in/>)



Block Map:

- Raw Data collected from **National Informatics Centre (NIC Website)**.
- Data has been geo-referenced using GIS software.
- Digitization of block boundary, district boundary, state boundary and district headquarter, sub –district headquarter, places, road, railway, river, nala etc.
- Road name, River name, Railway name has been filled in attribute table of the Layers
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Transportation Map:

- Raw Data collected from **National Informatics Centre (NIC Website)**.
- Data has been geo-referenced using GIS software.
- Digitization of block boundary, district boundary, state boundary and district headquarter, sub –district headquarter, places, road, railway, river, nala etc.
- Road name, River name, Railway name has been filled in attribute table of the Layers
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Drainage Map:

- Raw Data collected from **National Informatics Centre (NIC Website)**.
- Data has been geo-referenced using GIS software.
- Digitization of block boundary, district boundary, state boundary and district headquarter, sub –district headquarter, places, road, railway, river, nala etc.
- Road name, River name, Railway name has been filled in attribute table of the Layers
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Seismic Map:

- Raw data collected from **Ministry of Earth Science**.
- Data has been geo-referenced using GIS software.
- Digitization of Earthquake zone and superimposed it over Block Boundary.
- Zone name has been filled in attribute table of the Layers
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Soil Map:

- Raw data collected from **National bureau of soil survey and land use planning**.
- Data has been geo-referenced using GIS software.
- Digitization of Soil classification zone and superimposed it over District Boundary.
- Soil classification has been filled in attribute table of the Layers.
- Final layout has been prepared by giving scale, legend, north arrow, etc.

Wildlife Sanctuary and National Park Location Map:

- Raw data collected from **ENVIS Centre on Wildlife & Protected Areas**.
- Data has been geo-referenced using GIS software.
- Digitization of Wildlife Sanctuary & National Park and superimposed it over Block Boundary.



- Wildlife Sanctuary & National Park name has been filled in attribute table of the Layers

Final layout has been prepared by giving scale, legend, north arrow, etc.

### **1.3.3 Primary Data Collection**

To prepare DSR, capturing primary data or field data has also been carried out in the district. Field study involves assessment of the mineral resources of the district by means of pitting / trenching in specific interval. This provides clear picture of mineral matters characterization and their distribution over the area.

### **1.3.4 Replenishment study**

One of the principal causes of environmental impacts from in-stream mining is the removal of more sediment than the system can replenish. It is therefore need for replenishment study for river bed sand in order to nullify the adverse impacts arising due to excess sand extraction. The annual rate of replenishment carried out on every river of the district to have proper assessment of the sand reserve for mining purposes.

Physical survey has been carried out by GPS/DGPS/Total Station to define the topography, contours and offsets of the riverbed. The surveys clearly depict the important attributes of the stretch of the river and its nearby important civil and other feature of importance. This information will provide the eligible spatial area for mining.

### **1.3.5 Report Preparation**

The district survey report portrays general profile, geomorphology, land use pattern and geology of the district. The report then describes the availability and distribution of riverbed sands and other minor minerals in the district. Apart from delineation the potential mining blocks, the report also includes inventorization of the minerals, recent trends of production of minor minerals and revenue generation there from. Annual replenishment of the riverbed sand has been estimated using field observation, satellite imagery and empirical formula. The road network connecting arterial road to potential mining blocks has been identified. Potential environmental impacts of mining of these minerals, their mitigation measures along with risk assessment and disaster management plan have also been discussed. Finally, the reclamation strategy for already mined out areas is also chalked out.

### **1.3.6 Demand and Supply of Sand**

Sand is a multi-purpose topographical material. It is known as one of the three fundamental ingredients in concrete. The composition of sand is diverse.

Sand extraction from river beds are the main mining activities in the district. With a spurt in construction of real estate sectors and various govt. sponsored projects, the demand for sand has increased manifold.

In the real world, there are a lot of situations where we can find uses/demand of sand. Followings are the common sand uses.



1. While bunting metal, we can mix sand with clay binder for frameworks used in the foundries.
2. Sand can be used for cleaning up oil leak or any spill by dredging sand on that spill. The material will form clumps by soaking up, and we can quickly clean the mess.
3. Sand can be used as a road base which is a protective layer underneath all roads
4. Industrial sand is used to make glass, as foundry sand and as abrasive sand.
5. One creative usage of sand is serving as a candle holder. We can try putting some sand before pouring tea light or any candle in a glass. It holds the candle still and refrain the candle from rolling by giving it an excellent decoration.
6. Adds texture and aesthetic appeal to space.
7. Sand is mostly pure to handle, promptly available and economically wise.
8. We use sand in aquariums, fabricating artificial fringing reefs, and in human-made beaches
9. Sandy soils are ideal for growing crops, fruits and vegetables like watermelon, peaches, peanuts, etc.
10. Sand can light a path by filling mason jars with sand and tea light which is another inexpensive way to make a walkway glow.
11. Sand helps to improve resistance (and thus traffic safety) in icy or snowy conditions.
12. We need sand in the beaches where tides, storms or any form of preconceived changes to the shoreline crumble the first sand.
13. Sand containing silica is used for making glass in the automobile and food industry- even household products for the kitchen.
14. Sand is a strong strand which is used for plaster, mortar, concrete, and asphalt.

Sand extracted from Jalandhar district is used extensively in construction works ranging from individuals to organized corporate and government sectors. Details of production of last years are provided below:

Name of Minerals	2019-2020(MT)	2020-2021(MT)	2021-2022(MT)
Sand	229585.54	663915.02	781326.96

**(Source: Executive Engineer cum district Mining Officer, Jalandhar)**

The demand is increasing gradually year by year which is also justified by the production/dispatch details of last years.



## 2 Overview of Mining activities in the District

### 2.1 Overview

Jalandhar district holds a distinct place in the state on account of its strategic geographical location and the availability of minor mineral resources from the bed of Rivers Sutlej etc.

Mining of sand/gravel is being done for a long time and no specific method of exploration is therefore required as the sand/Gravel, deposited all along the bed is very well exposed on the surface. The replenishment of the excavated minerals takes place each year during the rainy season with the extent of replenishment depending on the intensity of rains in the catchment area as also the extent and characteristics of the catchment area. Adequate quantities of sand/gravel are available in reserves of Jalandhar District to meet the consumer demand.

Sand and Gravel are the main Minor Minerals required for any type of construction (apart from cement and steel). With the increasing population and construction of more pucca houses instead of the earlier practice of mud dwellings, the demand for sand and gravel has been rising inexorably over the last few decades and this trend will continue in the foreseeable future too.

### 2.2 Mining leases with Location, area and period of validity in Jalandhar District

The list of Mining leases with Location, area, and period of validity in the Jalandhar District is given in Table-2.1

Table 2.1: Existing Mining Leases in Jalandhar District

Sr. No.	Name of Quarry	Location		Area (in ha)	Production (Tonnes)	Validity of EC
		Latitudes	Longitudes			
1	Kaimwala	30°58'34.536"N	75°33'19.217"E	2.42	60000	26.10.2022
		30°58'36.472"N	75°33'16.785"E			
		30°58'40.251"N	75°33'16.723"E			
		30°58'40.277"N	75°33'19.250"E			
		30°58'38.441"N	75°33'19.281"E			
		30°58'38.473"N	75°33'24.357"E			
		30°58'34.550"N	75°33'24.376"E			
2	Pipli	31°2'16.01"N	75°13'6.71"E	4.45	194643	15.10.2022
		31°2'12.70"N	75°13'12.91"E			
		31°2'16.88"N	75°13'20.24"E			

Sr. No.	Name of Quarry	Location		Area (in ha)	Production (Tonnes)	Validity of EC
		Latitudes	Longitudes			
		31°2'10.61"N	75°13'04.21"E			
3	Vehran	30°58'38.60"N	75°31'21.78"E	14.15	426410	16.09.2024
		30°58'25.40"N	75°31'49.20"E			
4.	Mau Saab	30.99565 N	75.70346 E	12.62	551999	03.05.2024

[\(Source: Executive Engineer cum district Mining Officer, Jalandhar\)](#)

### 2.2.1 Details of Royalty or Revenue Received in Last Three Years (In Cr.)

Revenue generated for last 3 years in the district is furnished in Table 2.2.

**Table 2.2: District revenue generation from mineral sector**

Name of Minerals	2019-2020(in Cr.)	2020-2021(in Cr.)	2021-2022(in Cr.)
Sand	2.85	0.85	1.28

[\(Source: Executive Engineer cum district Mining Officer Jalandhar\)](#)

### 2.2.2 Details of Production of Sand or Bajri in Last Three Years (In Tonnes)

Last 3 -years production of minor mineral of the district is furnished in Table 2.3.

**Table 2.3: Details of production of sand as per mine plan in the district**

Name of Minerals	2019-2020(MT)	2020-2021(MT)	2021-2022(MT)
Sand	229585.54	663915.02	781326.96

[\(Source: Executive Engineer cum district Mining Officer, Jalandhar\)](#)



### **3 Process of Deposition of Sediments in the rivers of the District**

#### **3.1 Introduction**

Water action is the major agency responsible for erosion, transportation, and deposition of sand/gravel and aggregates. Sutlej River is the source of most of the sand/gravel and associated aggregates in the district. The passage of these rivers in the district is initially through sandy and clay stone gravel-rich terrain, where erosion of country rocks and transportation may be high but may not result in high deposition of sand/gravel.

Energy, environment, and time are the three factors which determine the process of sediment transportation and deposition by streams. Thus, when insufficient energy is available to transport the existing sediment load (due to reduction in velocity or volume of water), a part of the material can no longer be transported and is hence deposited. Similarly, geomorphological factors such as the configuration or shape of the channel also affect the process of sediment transportation. Uneven surface of the channel checks the velocity and hence causes deposition. The time factor actually operates through a combination of the above two factors. The deposits that are laid down by running water are called alluvial, fluvial or fluvatile deposits. They vary greatly in size, shape and mode of origin.

#### **3.2 Annual deposition factor**

Annual deposition of riverbed materials depends on various factors, such as process of deposition, mode of sediment transport, sediment transport rate, sedimentation yield of the river.

##### **1. Process of deposition**

Deposition is the processes where material being transported by a river is deposited. Deposition occurs when the forces responsible for sediment transportation are no longer sufficient to overcome the forces of gravity and friction, creating a resistance to motion; this is known as the null-point hypothesis. This can be when a river enters a shallow area or towards its mouth where it meets another body of water.

The principle underlying the null point theory is due to the gravitational force; finer sediments remain in the water column for longer durations allowing transportation outside the surf zone to deposit under calmer conditions. The gravitational effect or settling velocity determines the location of deposition for finer sediments, whereas a grain's internal angle of friction determines the deposition of larger grains on a shore profile.



**Deposition of non-cohesive sediments:** Large-grain sediments transported by either bedload or suspended load will come to rest when there is insufficient bed shear stress and fluid turbulence to keep the sediment moving; with the suspended load this can be some distance as the particles need to fall through the water column.

**Deposition of cohesive sediments:** The cohesion of sediment occurs with the small grain sizes associated with silts and clays, or particles smaller than  $4\Phi$  on the phi scale. If these fine particles remain dispersed in the water column, Stokes law applies to the settling velocity of the individual grains. The face of a clay platelet has a slight negative charge where the edge has a slight positive charge when two platelets come into close proximity with each other the face of one particle and the edge of the other are electro-statically attracted, and then have a higher combined mass which leads to quicker deposition through a higher fall velocity.

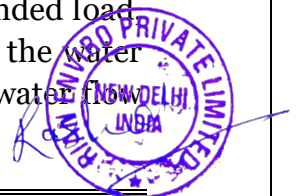
## **2. Mode of sediment transport in rivers**

Sediment transport in rivers provides a dynamic linkage between flow and channel form. Mainly there are three processes by which sediment load is transported and these are rolling or traction, in which the particle moves along a sedimentary bed but is too heavy to be lifted from it; saltation; and suspension, in which particles remain permanently above the bed, sustained there by the turbulent flow of the water.

Another name for sediment transport is sediment load. The total load includes all particles moving as bedload, suspended load, and wash load.

**Bed load:** Bedload is the portion of sediment transport that rolls, slides or bounces along the bottom of a waterway. This sediment is not truly suspended, as it sustains intermittent contact with the streambed, and the movement is neither uniform nor continuous. Bedload occurs when the force of the water flow is strong enough to overcome the weight and cohesion of the sediment. While the particles are pushed along, they typically do not move as fast as the water around them, as the flow rate is not great enough to fully suspend them. Bedload transport can occur during low flows (smaller particles) or at high flows (for larger particles). Approximately 5-20% of total sediment transport is bedload. In situations where the flow rate is strong enough, some of the smaller bedload particles can be pushed up into the water column and become suspended.

**Suspended load:** While there is often overlap, the suspended load and suspended sediment are not the same thing. Suspended sediment are any particles found in the water column, whether the water is flowing or not. The suspended load on the other hand, is the amount of sediment carried downstream within the water column by the water flow. Suspended loads require moving water, as the water flow





creates small upward currents (turbulence) that keep the particles above the bed. The size of the particles that can be carried as suspended load is dependent on the flow rate. Larger particles are more likely to fall through the upward currents to the bottom, unless the flow rate increases, increasing the turbulence at the streambed. In addition, suspended sediment will not necessarily remain suspended if the flow rate slows.

**Wash load:** The wash load is a subset of the suspended load. This load is comprised of the finest suspended sediment (typically less than 0.00195 mm in diameter). The wash load is differentiated from the suspended load because it will not settle to the bottom of a waterway during a low or no flow period. Instead, these particles remain in permanent suspension as they are small enough to bounce off water molecules and stay afloat. However, during flow periods, the wash load and suspended load are indistinguishable.



## **4 General Profile of the district**

### **4.1 Profile of the District**

Jalandhar is located on the intensively irrigated plain between Beas and Sutlej rivers. The city, with has major road and rail connections, is a market for agricultural products. Manufacturing units include textiles, leather goods, wood products, and sporting goods. Jalandhar was the capital of Punjab from India's independence (1947) until Chandigarh was built in 1953. Jalandhar is situated at 71° 31' East and 30° 33' North at a distance of 146 kms from state capital Chandigarh. It is at a distance of 350 Kms from Delhi on Delhi-Amritsar Highway. It is surrounded by Ludhiana district in East, Kapurthala in West, Hoshiarpur in North and Ferozpur in South. It is well connected by road and train.

**Source:**([http://cgwb.gov.in/District\\_Profile/Punjab/Jalandhar.pdf](http://cgwb.gov.in/District_Profile/Punjab/Jalandhar.pdf) )

A location map of Jalandhar District is furnished as Figure 4.1.



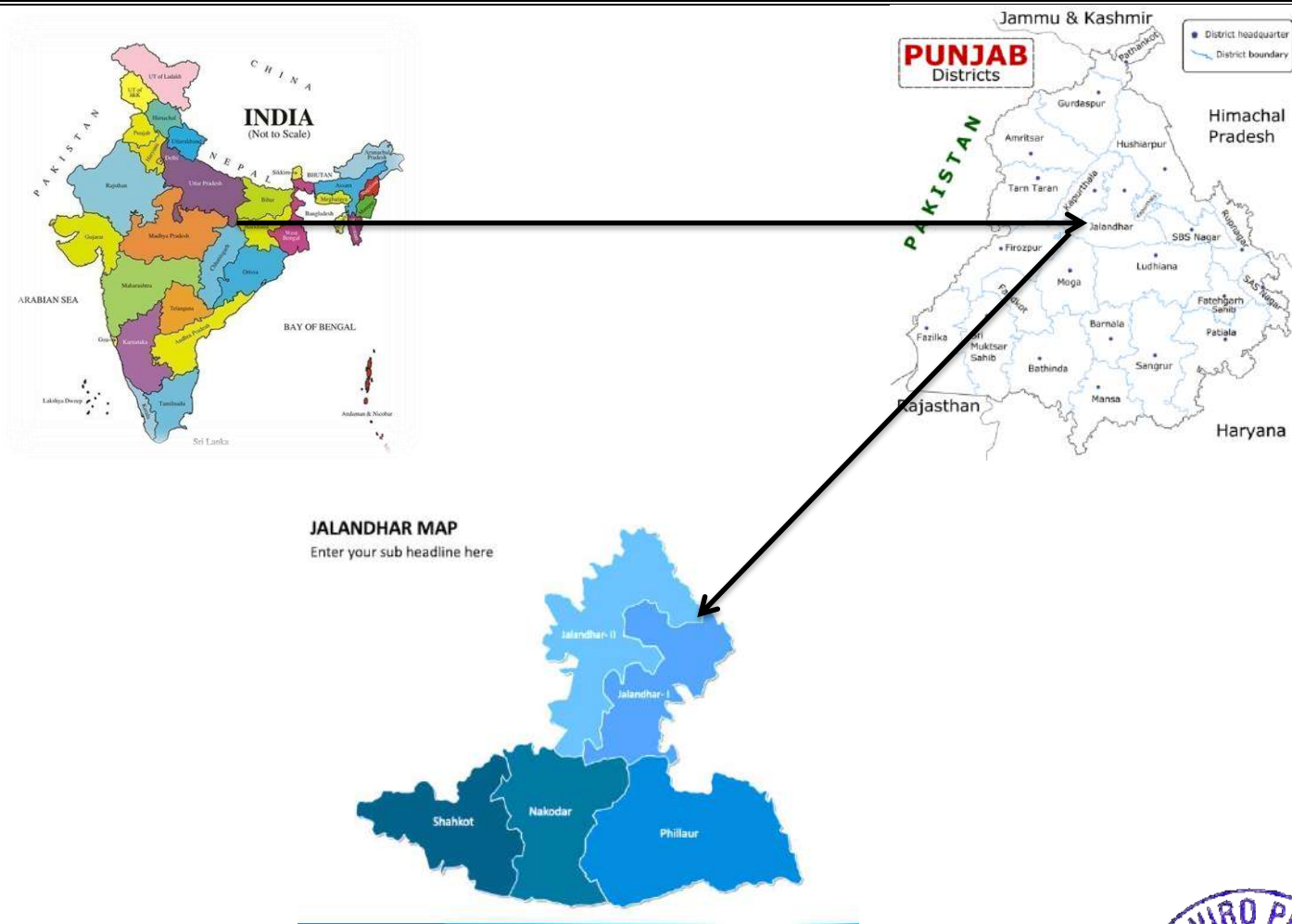


Figure 4.1: Location map of Jalandhar district, Punjab



#### **4.2 Administrative Setup of District**

The Jalandhar District consists of 5 Sub- Division. Jalandhar-I, 2. Jalandhar II, 3. Nakodar 4. Phillaur and 5. Shahkot , further sub-divided into 10 development blocks, as Jalandhar East, Jalandhar West, Bhogpur, Adampur, Nakodar, Shahkot, Phillaur, Nurmahal, Lohian and RurkaKalan. According to District Statistical Office, the district has 956 inhabited villages.

Source:([http://cgwb.gov.in/District\\_Profile/Punjab/Jalandhar.pdf](http://cgwb.gov.in/District_Profile/Punjab/Jalandhar.pdf))

A Block map of Jalandhar District is furnished as Figure 4.2.



**Figure 4.2: Block map of Jalandhar District, Punjab**

(Source: <https://jalandhar.nic.in/tehsil/>)



Detail of Blocks of Jalandhar District is furnished in Table 4.1.

**Table 4.1: Details of Block of Jalandhar District**

Block Name	Area_Sq.Km
Jalandhar East	256.20
Jalandhar West	338.90
Bhogpur	372.40
Adampur	204.20
Nakodar	353.30
Shahkot	240.7
Phyllaur	270.3
Nurmahal	319.80
Lohian	280.30
RurkaKalan	191.80
Mehatpur	7.42

[\(Source: Central Ground Water Board  
Ministry of Water Resources, River Development and Ganga  
Rejuvenation, Government of India\)](#)

#### 4.3 Land utilization Pattern of the District

The main classes are Built Up land, Agricultural land, forestland, Land under non agriculture use, and water body. The land use pattern of Jalandhar District, Punjab is given in Table 4.3.

**Table 4.2: Land Use details of Jalandhar Districts**

Land Use	Area(hectares)
Total Geographical area	263350
Forest Area	5600
Land put to non-agricultural use	29350(11%)
Net area sown	234000(89%)
Gross cropped area	414000
Cropping intensity	177%

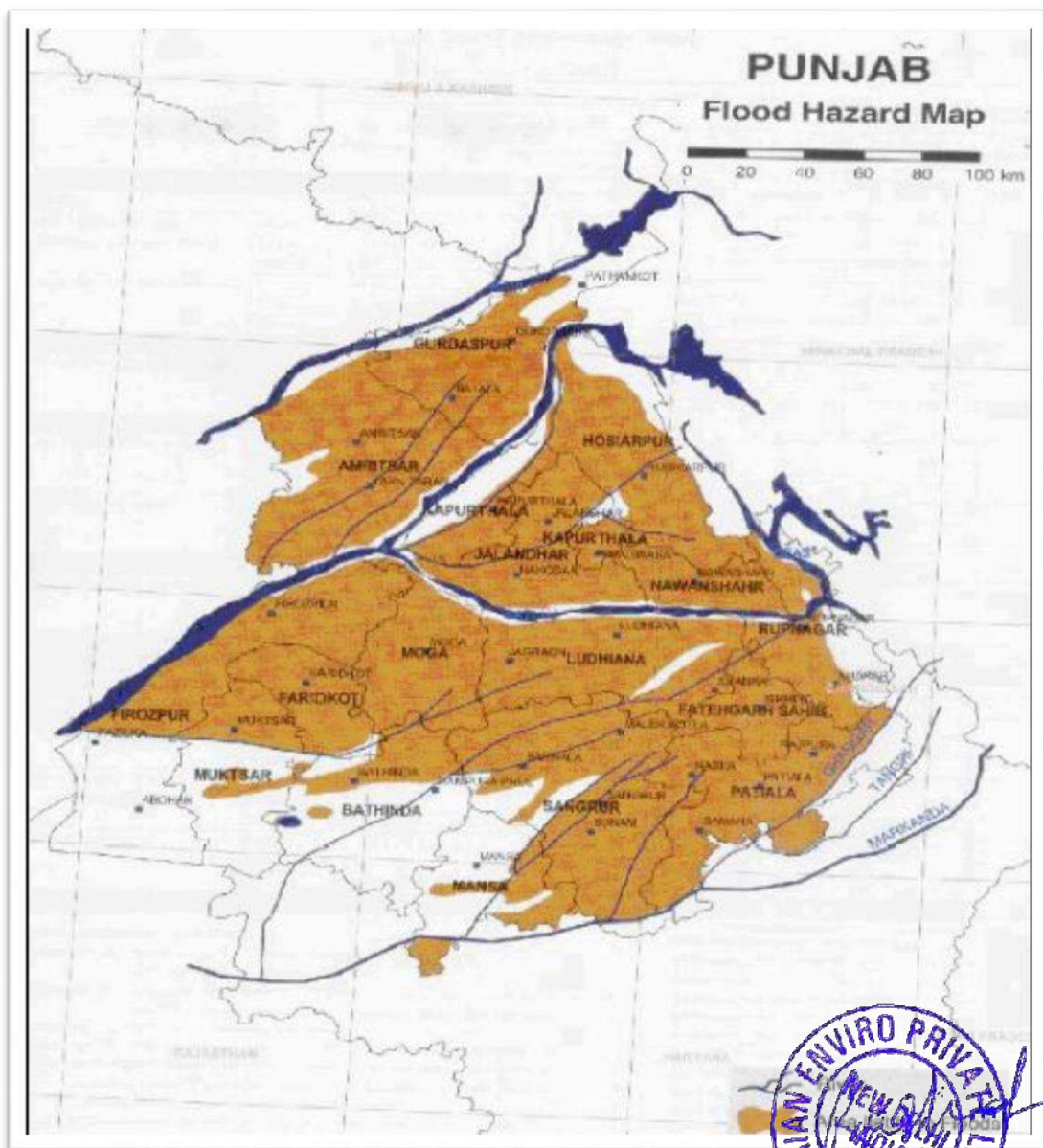
[\(Source: Statistical Abstract, Punjab, 2015\)](#)



#### 4.4 Floods in Punjab

Floods are one of the major natural disasters in the state of Punjab (Figure 4.3). Punjab is the land of 5 rivers and the rivers play an important role in the development of agriculture and the economy of the state. But at the same time, the rivers cause floods and floods cause loss of human life and widespread property damage.

More than five hundred persons have died due to floods in Punjab from 1990 to 2010. The floods affect the northern part of the state more than its southern part. The areas in close proximity of the rivers Ravi, Beas, Sutlej, and Ghagghar are the most vulnerable areas from a flood point of view. Floods occur mostly in the monsoon season (July- September) on account of heavy rainfall in the catchment area as well as in the plain area of the State.



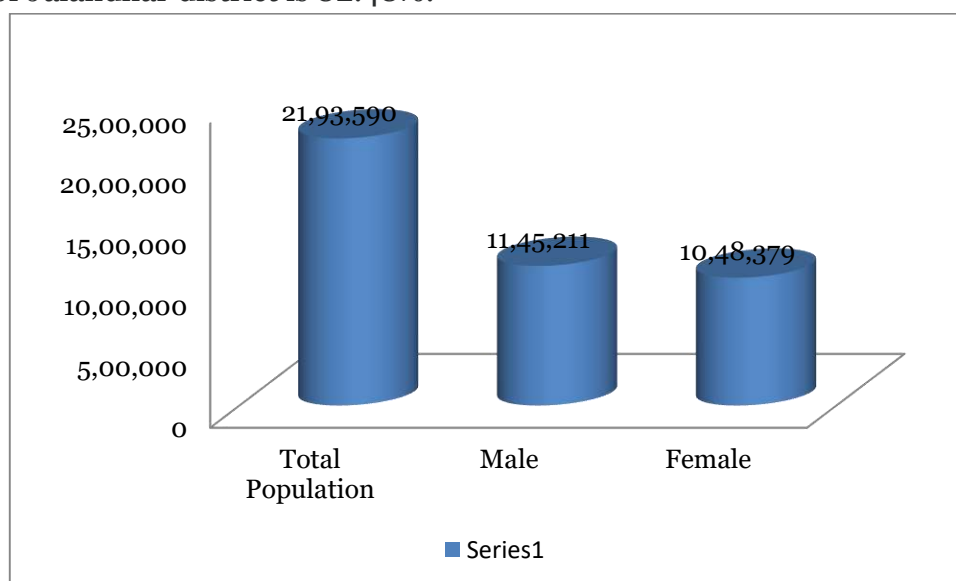
**Figure 4.3: Flood Prone districts of Punjab**

(Source: [http://ijrar.com/upload\\_issue/ijrar\\_issue\\_20543127.pdf](http://ijrar.com/upload_issue/ijrar_issue_20543127.pdf))

#### 4.5 Demography

According to the Census (2011), Jalandhar district has a population of **2,193,590**, (1,145,211 males and 1,048,379 females) (Figure 4.4). The total area of Jalandhar district is 2,632 km<sup>2</sup>. Thus the density of Jalandhar district is 836 people per square kilometer.

As per the Census 2011, Jalandhar district had 461,635 households. The population of children between age 0-6 is 226302, which is 10% of the total population. The average sex-ratio of Jalandhar district is around 915. The literacy rate of Jalandhar district is 82.48%.

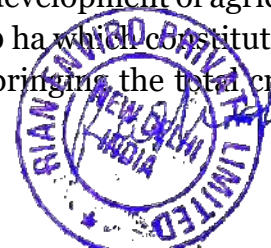


**Figure 4.4: Graphical distribution of population distribution of Jalandhar District**

##### a) Cropping pattern

Punjab is a fertile land of five rivers which are Sutlej, Beas, Ravi, Jhelum and Chenab (all 5 being tributaries of the Indus River). This makes the agriculture of Punjab rich and diverse. Wheat, paddy, and maize are the major cereal crops.

The Jalandhar is part of Bist. Doab Tract, which is inter alluvial plain between Beas and Sutlej River. Jalandhar district is quite suitable cultivation of Paddy, Maize, Sugarcane (Gur), Wheat and Oilseed. The productivity enhancements of the field and horticultural crops with the concept of integrated farming system module are the major arena of thrust for development of agriculture in the district. The net area sown in the district is 241000 ha which constitutes 91% of the total area. Area sown more than once is 177000 bringing the total cropped area (Gross sown area) to 418000 ha.



#### 4.6 Land Form and Seismicity

As per the Earthquake Zonation map, Punjab lies in a downwarp of the Himalayan foreland, of variable depth, converted into flat plains by long-vigorous sedimentation. This is known as a geosyncline. This has shown considerable amounts of flexure and dislocation at the northern end and is bounded on the north by the Himalayan Frontal Thrust. The floor of the trough (if seen without all the sediments) is not plain and shows corrugated inequalities and buried ridges (shelf faults). Much of Punjab lies in the Punjab Shelf, bounded on the east by the Delhi-Haridwar Ridge and on the south by the Delhi-Lahore Ridge. Most earthquakes in this region are shallow though a few earthquakes of intermediate-depth have been recorded in Punjab. However, it must be stated that proximity to faults does not necessarily translate into a higher hazard as compared to areas located further away since the damage from earthquakes depends on numerous factors such as subsurface geology as well as adherence to the building codes.

The districts of Firozpur, Faridkot, Patiala, Mansa, Sangrur, and Bhatinda are in Earthquake Zone III. The districts of Amritsar, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, and Rupnagar are in Earthquake Zone IV. Jalandhar comes under India's seismic zone-IV (Figure 4.5).

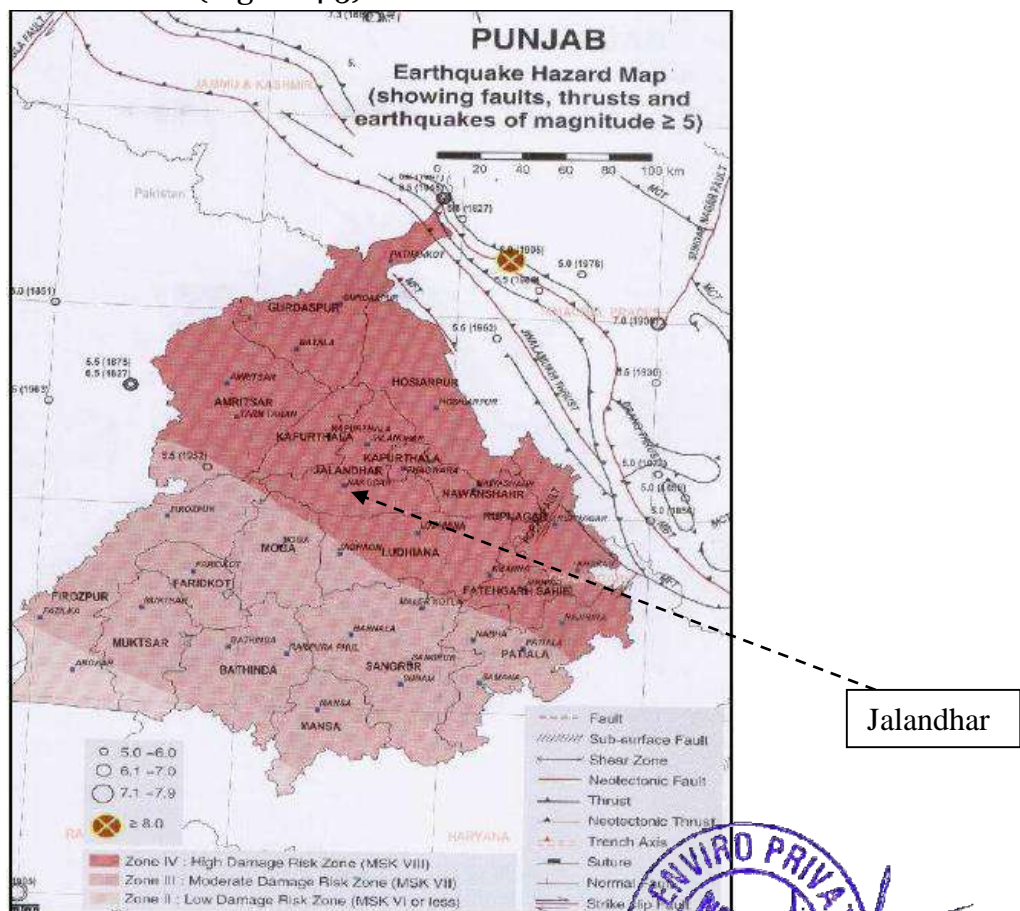


Figure 4.5: Earthquake zonation map of Punjab highlighting the Jalandhar district

Source: Earthquake Hazard Map of Punjab (<http://punenvis.nic.in>)



#### **4.7 Flora and Fauna**

The plains in the state of Punjab have very few block forests, with most of the tree cover being in the form of “strip forests” alongside the vast network of roads, rails, canals, drains, bunds etc. The “Block” forest cover in Punjab is mainly located in the sub-mountainous “Kandi” tract along the Northern boundary of the state adjoining Himachal Pradesh. Though this sub-mountainous Kandi tract is only 2 % of the geographical area of Punjab, it has a significant role to play in regulating the hydrology of the state. During the 1950s extensive deforestation in this ecologically sensitive tract resulted in severe soil erosion and numerous flash floods in the plains below. Since the last few decades, several important Afforestation and Soil Conservation Projects have been undertaken in this region. Resultantly, the green cover has improved considerably and soil erosion/floods have also reduced significantly. A number of earthen dams for flood prevention and for providing irrigation to crops have performed well and these have also contributed to the reclamation of considerable land which was earlier non-arable on account of frequent floods.

Fabaceae is the most dominant family in Punjab with 60 species followed by Asteraceae (33), Poaceae (29), Euphorbiaceae (20), Amaranthaceae (18), Cucurbitaceae and Solanaceae (17 each). Amongst all the recorded species, 255 are herbs, 65 shrubs, 85 trees and 59 climbers. Six species have been added to the flora of Punjab.

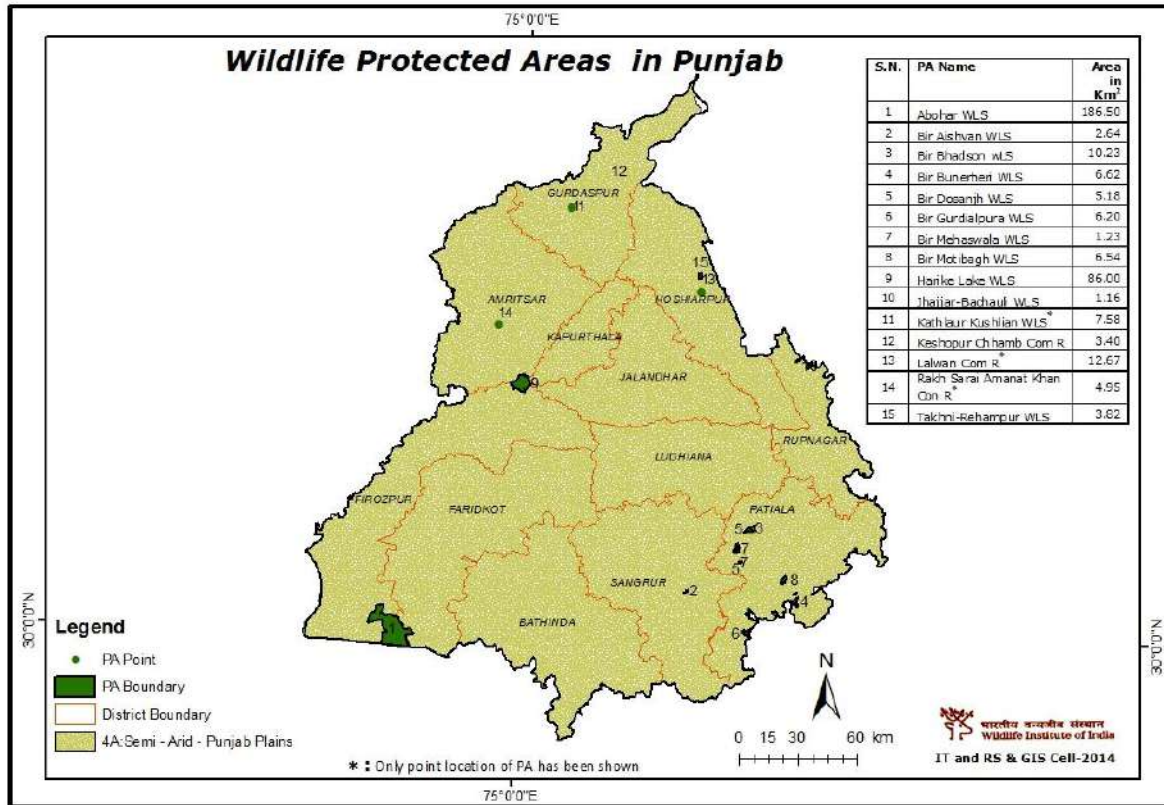
##### **4.7.1 Major Flora of district Jalandhar**

The average annual rainfall in the Jalandhar district is 703.0 mm. Common trees include Mango, Guava, Kinnow, Pear, Peach, Neem, Shahtoot, Poplar and Shisham etc.

##### **4.7.2 Fauna**

A map (Figure 4.6) showing Wildlife Protect areas in Jalandhar District are furnished which depicts there is no Wildlife Protect area in Jalandhar District.





**Figure 4.6: Wildlife Protected areas in Punjab State**

(Source: Wildlife institute of India)



## **5 Physiography of the District**

### **5.1 Introduction**

Physiography refers to the study of physical features of the area and their relationship with one another including the factors and processes responsible for the evolution of landforms. The state of Punjab forms a part of the Indo Gangetic alluvial plain and is composed of sediments of Shiwalik hills and Himalayas brought down and laid by the rivers of the Indus system.

The state can be divided into the following major physiographic units:

- a) Siwalik hills
- b) Piedmont transitional area
- c) The Alluvial Plains

The Siwalik Hills in the northeast are steeply sloping. Number of “choes” (seasonal rivulets) originate in the Shiwalik zone and drain the excess storm water. The Shiwalik hills occupy nearly 2.6 percent area of the state and cover a sizeable area of Gurdaspur, Hoshiarpur, S.B.S. Nagar, Ropar, and S.A.S Nagar districts of the state. The hills have open to dense dry deciduous scrub forests. The ownership of most of these “Forest” areas vests with individuals or the local communities but their management is entrusted to the Forest Department in accordance with the provisions of the Punjab Land Preservation Act, 1900, and other relevant Forest Acts and Rules.

The piedmont area forms a transitional zone between the Shiwalik hills and alluvial terraces. It is about 10 to 15 km wide and comprises of Gurdaspur, Hoshiarpur, S.B.S. Nagar, Rupnagar, and S.A.S Nagar districts. The elevation of this zone varies from 300 to 375 m above MSL. The piedmont area is gently sloping to undulating and is dissected by number of seasonal rivulets (choes) which transport stormwater with sediments from their catchment. The coarsest of these sediments are deposited in the form of alluvial fans at the foot hills and finer fractions are deposited along the choes within the piedmont area.

The flood plains of Ravi, Beas, Sutlej, and Ghaggar rivers and many seasonal rivulets cover nearly 10% area of the state. The flood plain soils are young and stratified without appreciable alteration of sediments. The continuous erosion cum deposition keeps the soils young as time becomes a limiting factor for the consolidation of sediments into pedogenic horizons. The characteristics of the human landscape of this region. On the basis of relief, slope, drainage and overlain material, the district may be divided into following five physiographic units; palaeo-channels are believed to be the remnants of the old active channels. The origin of these channels may be due to the frequent changes in the courses of Ravi, Beas, Sutlej and Ghaggar rivers and their tributaries, which became defunct and silted up. These areas occupy a low lying topographic position on the landscape.



## **5.2 Climate Condition**

The climate of this district is on the whole dry except during the brief south-west monsoon season. The year may be divided into four seasons. The cold season is from the middle of November to early part of March. The succeeding period up to the end of June is the summer season, July, August and first half of September constitute the South-West monsoon season. The period from middle September to the middle of November is the post monsoon or transition period.

January is generally the coldest month with the mean daily maximum temperature at about 19°C and the mean daily minimum at about 6°C during the winter season. After February, temperature begins to rise rapidly. June is generally the hottest month with the mean daily temperature at about 41°C and the mean daily minimum at about 27°C. Scorching dust laden winds blow on many days in the summer season and the day temperatures on individual days may reach above 45°C.

The average annual rainfall in the Jalandhar district is 703.0 mm. Details of rainfall data of five years (from 2017 to 2021) is furnished in Table 5.1.



**Table 5.1: Details of rainfall data of five years (from 2017 to 2021)**

**mm**

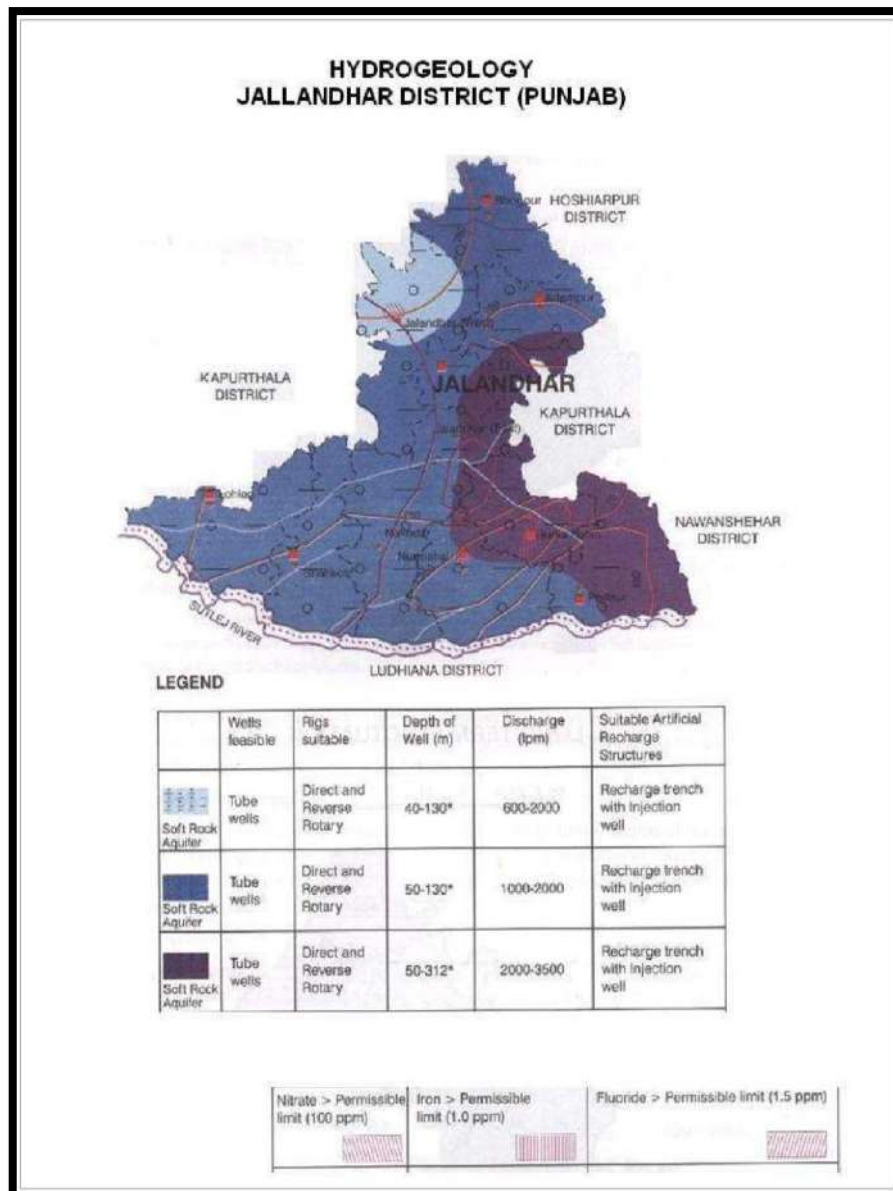
Year	District	January	Feb	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Total
2017	Jalandhar	27.0	5.4	22.3	7.6	19.3	74.3	45.7	145.0	0.0	0.0	1.7	1.0	349.3
2018		11.3	8.0	3.0	10.7	0.0	57.7	154.3	57.2	180.8	0	0	0.0	483.0
2019		67.0	60.7	0.7	16.7	11.0	6.3	139.0	198.5	49.8	0.0	15.5	44.2	609.4
2020		31.0	6.1	40.2	7.0	208.0	13.1	129.7	63.9	20.0	0.0	21.5	8.4	549.0
2021		8.1	3.8	3.0	11.0	9.1	22.7	161.7	69.4	127.0	6.4	0.0	0.0	422.2

(Source: Executive Engineer cum District Mining Officer, Jalandhar)



### 5.3 Hydrogeology of Jalandhar

The area is underlain by Sub- recent to Quaternary alluvium comprising sand, gravel, pebbles, Kankar and clay. Older alluvium occupies the uplands all over the district except along the river Sutlej. It is also found underlying the younger alluvium in the flood plains of Sutlej. The older alluvium belongs to lower to middle Pleistocene age, while younger alluvium belongs to upper Pleistocene to recent age. Blown sands of recent age also occur as isolated patches in Western part of the district. Groundwater is fresh at all levels in the district (Figure 5.1).



**Figure 5.1: Hydrogeological map of Jalandhar District**

(Source: Central Ground Water Board, North Western Region, Chandigarh Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India 2018)



## 5.4 Ground Water Development

Central Ground Water Board (CGWB) has drilled 11 exploratory boreholes along with equal no of observation wells besides 20 piezometers to delineate and determine potential aquifer zones, evaluation of aquifer characteristics etc. Ground water exploration undertaken by CGWB has revealed the presence of 3 aquifer groups down to a depth of 350m. These aquifer groups comprise of fine to medium grained sand. The first granular zone forms the water table aquifer and occurs upto 115 m below ground level. The second aquifer occurs between 130 and 195 m depth, the third exist between 215 and 333 m depth down wards. Total thickness of the alluvium is more because bedrock has not been encountered up to 350 m depth in the district.

During the pre-monsoon period depth to water in the district varies from 6.22m bgl at Allawalpur (Adampur block) to 31.59m bgl at Jalandhar (Jalandhar East block).The depth to water level less than 10m occurs the Northern parts of district covering parts of Adampur and Bhogpur blocks. Whereas in parts of phillore and RurkaKalan, Jalandhar west Adampur blocks it ranges between 10 to 20m.In southern parts of district (Lohian, Shahkot, Nakodar, NurMahal) and central parts Rurkakalan and Jalandhar-East blocks water level still becomes deeper (>20m).

During the post-monsoon period depth to water in the district varies from 7.28m bgl at Udhopur (Adampur block) to 31.86m bgl at Jalandhar (Jalandhar East block). The depth to water level less than 10m occurs the Northern parts of district covering parts of Adampur and Bhogpur blocks. Whereas in parts of Adampur, Bhogpur and phillore blocks it ranges between 10 to 20m. In southern parts of district (Lohian, Shahkot, Nakodar, Nur Mahal) and central parts Rurkakalan and Jalandhar-East blocks water level still becomes deeper (>20m).

**Table 5.2: Ground water resources of Jalandhar district**

Assessment Unit	Net Annual Ground Water Availability	Existing Gross Ground Water Draft for irrigation	Existing Gross Ground Water Draft for domestic and industrial water supply	Existing Gross Ground Water Draft for all uses	Provision for domestic, and industrial requirement supply to 2025 years	Net Ground Water Availability for future irrigation development	Stage of Ground Water Development	Category of assessment unit
ADAMPUR	12513	20056	303	20359	434	7976	163	OE
BHOGPUR	10845	26187	263	26450	377	45718	244	OE
RURKA KALAN	10273	21083	18	21101	18	10827	205	OE
JALANDHAREAST	9436	20480	2265	22745	3310	14356	241	OE

*District Survey Report  
Jalandhar District  
Punjab*

Assessment Unit	Net Annual Ground Water Availability	Existing Gross Ground Water Draft for irrigation	Existing Gross Ground Water Draft for domestic and industrial water supply	Existing Gross Ground Water Draft for all uses	Provision for domestic, and industrial requirement supply to 2025 years	Net Ground Water Availability for future irrigation development	Stage of Ground Water Development	Category of assessment unit
JALANDHARWEST	17515	31581	25	31606	25	-14091	180	OE
LOHIAN	8693	21590	258	21848	372	-13270	251	OE
NAKODAR	13185	45326	433	45759	619	-32760	347	OE
NUR MAHAL	14313	28990	266	29257	386	-15063	204	OE
PHILLAUR	15501	30747	494	31240	684	-15930	202	OE
SHAHKOT	5862	19554	261	19816	378	-14071	338	OE
<b>TOTAL</b>	<b>118137</b>	<b>265594</b>	<b>4587</b>	<b>270181</b>	<b>6603</b>	<b>-154060</b>	<b>229</b>	<b>OE</b>

(Source: Central Ground Water Board, Ground Water Information Booklet Jalandhar District, Punjab)

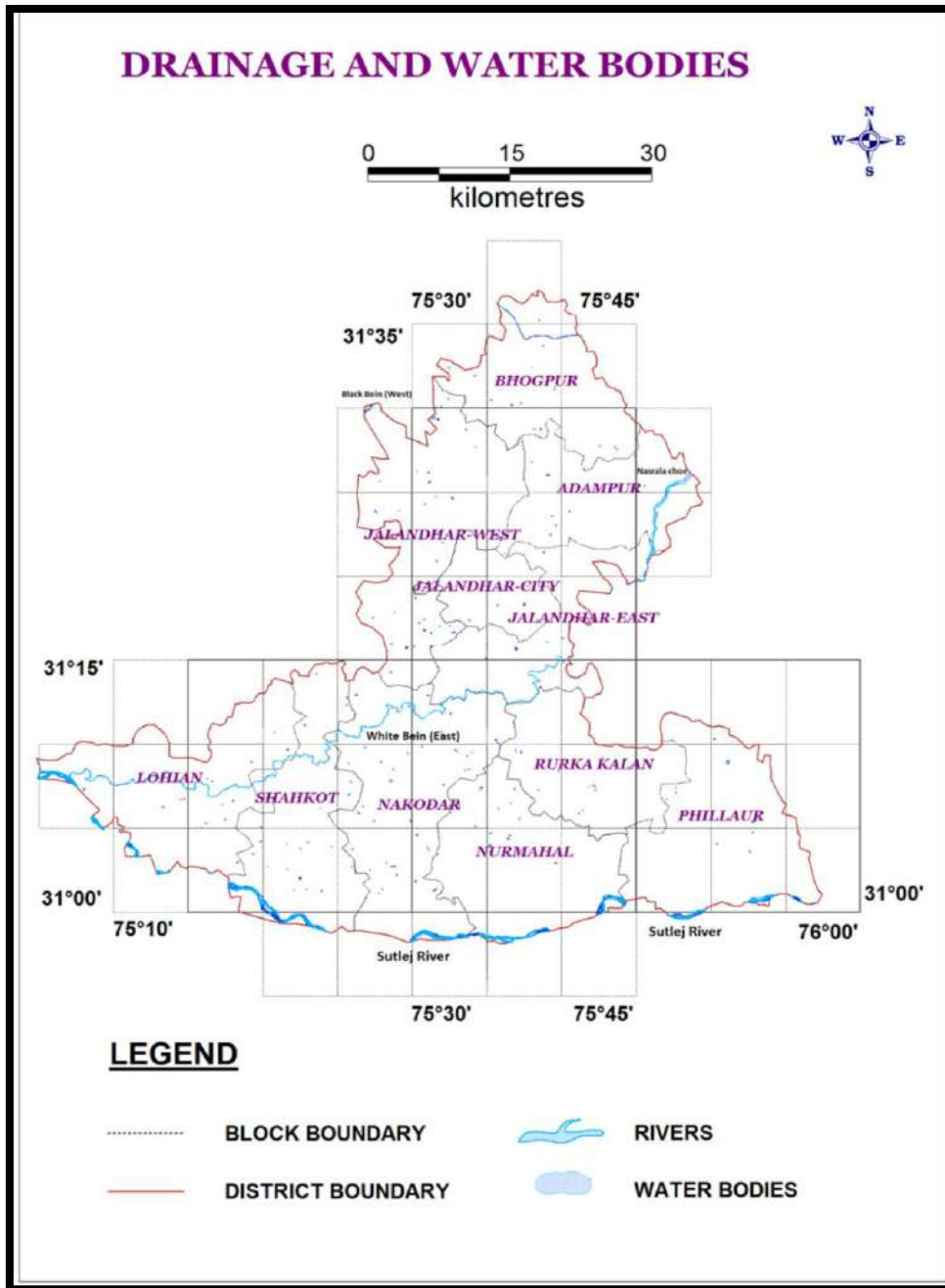
Data of chemical quality of water from shallow (Phreatic) and deep aquifers indicates that all the chemical parameters i.e., major cations (Ca, Mg, Na & K) and major anions (CO<sub>3</sub>, HCO<sub>3</sub>, Cl & SO<sub>4</sub>) are well within the permissible limits set by the BIS, 1991 except fluoride and nitrate concentrations which has been found in shallow ground water at some places to be higher than permissible limits. The fluoride point values of some of the places are Kittan Sadan (2.98), Alhawalpur (2.24), Mawai (2.84), Rurki (2.90), Phillaur (2.40) etc. By and large, the quality of ground water is suitable for domestic /irrigation purposes.

### 5.5 Drainage System

A Drainage system of Jalandhar District is mainly controlled by River Sutlej. River details are given in Table 5.3 and a drainage map is furnished in Figure 5.2.







**Figure 5.2: Drainage map of Jalandhar district**

(Source: Central Ground Water Board, North Western Region, Chandigarh  
 Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India 2018)

**Table 5.3: Details of major rivers of Jalandhar District**

Name of the River	Length with in district (km)	Width (Km)	Colour of Sand	Type
Sutlej River	90.66	1.0	White	Perennial



**Table 5.4: Drainage system with Description River**

S.No.	Name of the River	Area drained (Sq.km)	% Area drained in the district
1	Sutlej River	10.85	0.004

**Table 5.5: Salient Features of important rivers and streams**

S.No.	Name of the River or Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin (m)
1	Sutlej River	90.66	Lake Rakhastal in Tibet	4575



## **6 Geology and Mineral Wealth**

### **6.1 Geology**

The Study area forms part of the Punjab basin of the Indus super-basin of the vast Indo-Gangetic Plain and is occupied by Quaternary to present day sediments of fluvial as well as Aeolian origin. These Quaternary sediments uncomfortably overlie the Siwalik Group of rocks, which in turn overlie the crystalline basement. Deep drilling by Oil and Natural Gas Commission at Adampur in the adjoining Jalandhar District has revealed the total thickness of sediments including Lower Siwaliks overlying the Crystalline basement as about 2515m (Datta et.al. 1964) The Quaternary deposit can be broadly classified under two distinct categories viz., Fluvial deposits and Aeolian deposits. The former can be further classified into (i) Older Alluvium and (ii) Younger Alluvium. The Aeolian deposits occur as sand dunes and sheets. The generalized stratigraphic sequence of the area is given in Table 6.1

**Table 6.1: Geological Unit of Jalandhar District**

<b>Lithological Unit</b>	<b>Lithological Characteristics</b>	<b>Age</b>
Aeolian Sediments(A2 & A3)	Brownish yellow, micaceous sand with silt, clay and calc. Siliceous concretions Kankar	Present to Recent
Newer Alluvium (F3)	Pebbly, fine to coarse, grey, micaceous sand, silt with subordinate amounts of clay & kankar	Present to Recent
Newer Alluvium (F2) R	Reddish brown silty sand bed with occasional pebbles	Recent to Sub-Recent
Older Alluvium (F1) Aeolian (A1)	Pebbly, fine to coarse, grey, micaceous sand, Alternating bands of golden brown, silty clay, sand and silt with Kankar upper horizon is rusty red due to oxidation	Sub-Recent to Pleistocene

*(Source: Central Ground Water Board, North Western Region, Chandigarh Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India 2018)*

### **6.2 Mineral wealth**

The district is endowed with minor minerals gravel, sand, silt, clay, and other aggregates.



District Survey Report  
Jalandhar District  
Punjab

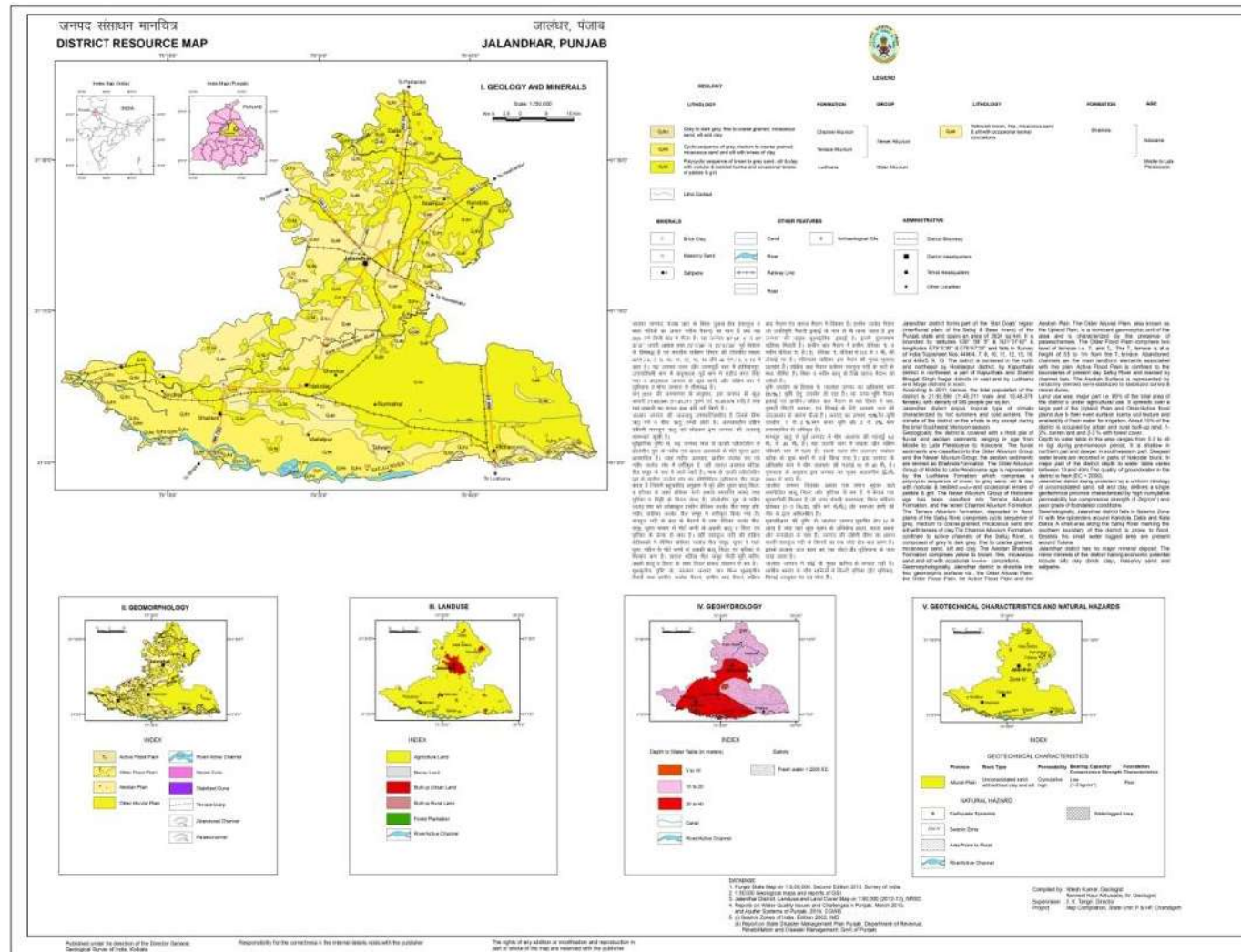


Figure No. 6.1: District Resource Map of Jalandhar District (Source: District Resource Map, Geological Survey of India, New Delhi, 2013)



## **7 Estimation of deposits and Replenishment Studies**

### **7.0. General:**

Replenishment study for a river solely depends on estimation of sediment load for any river system and the estimation is a time consuming and should be done over a period. The process in general is very slow and hardly measurable on season-to-season basis except otherwise the effect of flood is induced which is again a cyclic phenomenon.

Usually, replenishment or sediment deposition quantities can be estimated in the following ways as given below:

- A. The replenishment estimation based on a theoretical empirical formula with the estimation of bed-load transport comprising of analytical models to calculate the replenishment estimation.
- B. Replenishment study based on satellite imagery involves demarcation of sand bars potential for riverbed mining. Both pre and post monsoon images need to be analysed to established potential sand bars.

In this report, for volume estimation of sand, “Depth x Area” has been followed. The sand bars are interpreted with the help of satellite imageries. Ground truthing has been done for 100% of the total identified sand bars. During ground truthing, width and length of each segment were physically measured. It has also been observed that in few cases, sand bars have attained more than 3- meters height from the average top level of the river beds. Considerations of sand resources have been restricted within 3 meters from the average top surface of the river bed.

- C. Direct field measurement of the existing leases involving estimation of the volume difference of sand during pre and post-monsoon period. With systematic data acquisition, a model has developed for calculation of sediment yield and annual replenishment with variable components.



### **7.1. Common empirical formulae used for estimating runoffs and sediment yields**

The river reaches with sand provide the resource and thus it is necessary to ascertain the rate of replenishment of the mineral. Regular replenishment study needs to be carried out to keep a balance between deposition and extraction. The replenishment estimation based on a theoretical empirical formula comprising of analytical models to calculate.

Sediment load deposition in a river is depend on catchment area, weathering index of the various rock types of the catchment area, land-use pattern of the area, rainfall data and grain size distribution of the sediments. Again, the sediment load estimation is not a dependent variable of the imaginary district boundary, but it largely depends upon the aerial extents of the catchment areas, which crossed the district and state boundaries.

#### **Methodology of the study:**

The replenishment estimation is based on a theoretical empirical formula with the estimation of bedload transport comprising of analytical models to calculate the replenishment estimation. Sedimentation in riverbed depends on catchment yield, peak flood discharge due to rainfall, bed load transport rates and sediment yield characteristic of the river. Some of the common methods used for Replenishment study are explained below.

#### **7.1.1 Catchment yield calculation:**

The total quantity of surface water that can be expected in a given period from a stream at the outlet of its catchment is known as yield of the catchment in that period. The annual yield from a catchment is the end product of various processes such as precipitation, infiltration and evapotranspiration operating on the catchment.

Catchment yield can be estimated using following formula:

$$\text{Catchment yield (m}^3\text{)} = \text{Catchment area (m}^2\text{)} * \text{Runoff coefficient (\%)} * \text{Rainfall (m)}$$

The runoff generated from the watershed is analyzed using Strange's Tables Method to get the reliable yield results. Runoff from a catchment is dependent upon annual rainfall as well as catchment characteristics such as soil types and the type of groundcover / land usage. Remote sensing was used for demarcation of catchment area relevant to the drainage system. Runoff coefficient of the catchment has been established based on Strange's table.



Strange in 1892, studied the available rainfall and runoff and obtained yield ratios as functions of indicators representing catchment characteristics (Subramanya, 2008). Catchments are classified as good, average and bad according to the relative magnitudes of yield they give. For example, catchment with good forest cover and having soils of high permeability would be classified as bad, while catchment having soils of low permeability and having little or no vegetal cover is termed good. Based on the study Stange established runoff coefficient table as given in Table 7.1:

**Table 7.1: Runoff coefficient of the catchment based on Strange's table**

Total monsoon rainfall (mm)	Runoff coefficient (%)			Total monsoon rainfall (mm)	Runoff coefficient (%)		
	Good catchment	Average catchment	Bad catchment		Good catchment	Average catchment	Bad catchment
25.4	0.1	0.1	0.1	787.4	27.4	20.5	13.7
50.8	0.2	0.2	0.1	812.8	28.5	21.3	14.2
76.2	0.4	0.3	0.2	838.2	29.6	22.2	14.8
101.6	0.7	0.5	0.3	863.6	30.8	23.1	15.4
127	1	0.7	0.5	889	31.9	23.9	15.9
152.4	1.5	1.1	0.7	914.4	33	24.7	16.5
177.8	2.1	1.5	1	939.8	34.1	25.5	17
203.2	2.8	2.1	1.4	965.2	35.3	26.4	17.6
228.6	3.5	2.6	1.7	990.6	36.4	27.3	18.2
254	4.3	3.2	2.1	1016	37.5	28.1	18.7
279.4	5.2	3.9	2.6	1041.4	38.6	28.9	19.3
304.8	6.2	4.6	3.1	1066.8	39.8	29.8	19.9
330.2	7.2	5.4	3.6	1092.2	40.9	30.6	20.4
355.6	8.3	6.2	4.1	1117.6	42	31.5	21
381	9.4	7	4.7	1143	43.1	32.3	21.5
406.4	10.5	7.8	5.2	1168.4	44.3	33.2	22.1
431.8	11.6	8.7	5.8	1193.8	45.4	34	22.7
457.2	12.8	9.6	6.4	1219.2	46.5	34.8	23.2
482.6	13.9	10.4	6.9	1244.6	47.6	35.7	23.8
508	15	11.3	7.5	1270	48.8	36.6	24.4
533.4	16.1	12	8	1295.4	49.9	37.4	24.9
558.8	17.3	12.9	8.6	1320.8	51	38.2	25.5
584.2	18.4	13.8	9.2	1346.2	52.1	39	26
609.6	19.5	14.6	9.7	1371.6	53.3	39.9	26.6
635	20.6	15.4	10.3	1397	54.4	40.8	27.2
660.4	21.8	16.3	10.9	1422.4	55.5	41.6	27.7
685.8	22.9	17.1	11.4	1447.8	56.6	42.4	28.3
711.2	24	18	12	1473.2	57.8	43.3	28.9
736.6	25.1	18.8	12.5	1498.6	58.9	44.4	29.4
762	26.3	19.7	13.1	1524	60	45	30

(Source: Subramanya, 2008)

Rainfall returns period for 25, 50 and 100 years calculated as below:

**As per Weibull's Formula** (Subramanya, 2008),

**Return period/Recurrence interval =  $(n+1)/m$**

Where: n number of years on record;

m is the rank of observed occurrences when arranged in descending order.

### 7.1.2 Peak Flood Discharge Calculation:

The term “peak discharge” stands for the highest concentration of runoff from the basin area. The accurate estimation of flood discharge remains one of the major challenges as it depends upon physical characteristic of the catchment area and the flood intensity, duration and distribution pattern. There have been many different approaches for determining the peak runoff from an area. As a result, many different models (equations) for peak discharge estimation have been developed. Formulas used for Peak Discharge calculation areas below:

**As per Dicken's formula** (Subramanya, 2008),

$$Q = CA^{3/4}$$

Where: Q is Maximum flood discharge ( $m^3/sec$ ) in a river

A is Area of catchment in Sq. Km

C is Constant whose value varies widely between 2.8 to 5.6 for catchments in plains and 14 to 28 for catchments in hills

**As per Jarvis formula** (Subramanya, 2008),

$$Q = CA^{1/2}$$

Where: Q is Maximum flood discharge ( $m^3/sec$ ) in a river

A is Area of catchment in Sq. Km

C is Constant whose value varies between 1.77 as minimum and 177 as maximum. Limiting or 100 percent chance floods are given by the value of C of 177

**As per Rational formula** (Subramanya, 2008),

$$Q = CIA$$

Where: Q is Maximum flood discharge ( $m^3/sec$ ) in a river

A is Area of catchment in Sq. Km





C is Runoff coefficient which depends on the characteristics of the catchment area. It is a ratio of runoff: rainfall

I is Intensity of rainfall (in m/sec)

### 7.1.3 Bed Load Transport Calculation:

The most important problems in river engineering are to predict bed load transport rates in torrential floods flowing from mountainous streams. Three modes of transport namely; rolling, sliding and saltation may occur simultaneously in bed load transport. The different modes of transportation are closely related and it is difficult, if not impossible, to separate them completely. There are number of equations to compute the total sediment load. Most of these equations have some theoretical and empirical bases.

#### Ackers and White Equation:

Ackers and White (1973) used dimensional analysis based on flow power concept and their proposed formula is as follows.

$$C_t = C_s G_s (d_{50}/h) (v/u_*)^{n'} [(F_{gr}/A_1) - 1]^m$$

The dimensionless particle  $d_{gr}$  is calculated by:

$$d_{gr} = d_{50} (g(G_s - 1)/v^2)^{1/3}$$

The particle mobility factor  $F_{gr}$  is calculated by:

$$F_{gr} = (U_*^{n'} / (G_s - 1)g d_{50})^{1/2} * (V / (5.66 \log(10h/d_{50})))^{1-n'}$$

Where,

- $A_1$  = Critical particle mobility factor
- $C_s$  = Concentration coefficient in the sediment transport function
- $C_t$  = Total sediment concentration
- $d_{50}$  = Median grain size
- $d_{gr}$  = Dimensionless particle diameter
- $F_{gr}$  = Particle mobility parameter
- $g$  = Acceleration of gravity
- $D_s, S_g$  = Specific gravity
- $h$  = Water depth
- $m$  = Exponent in the sediment transport function
- $n'$  = Manning roughness coefficient
- $U_*$  = Shear velocity
- $V$  = Mean flow velocity
- $\nu$  = Kinematic viscosity

#### Meyer – Peter's equation:

Meyer-Peter's equation (Ponce, 1989) is based on experimental work carried out at Federal Institute of Technology, Zurich. Mayer-Peter gave a dimensionless equation based, for the first time, on rational laws. Mayer- Peter equations giving an empirical correlation of bed load transport rates in flumes and natural rivers. The simplified Meyer-Peter's equation is given below:



$$g_b = 0.417[\tau_0 (\eta' / \eta)^{1.5} - \tau_c]^{1.5}$$

Where,

$g_b$  = Rate of bed load transport (by weight) in N per m width of channel per second.

$\eta'$  = Manning's coefficient pertaining to grain size on an unrippled bed and Strickler formula i.e.  $\eta' = (1/24) \times d^{1/6}$  where  $d$  is the median size ( $d_{50}$ ) of the bed sediment in m.

$\eta$  = The actual observed value of the rugosity coefficient on rippled channels. Its value is generally taken as 0.020 for discharges of more than 11 cumecs, and 0.0225 for lower discharges.

$\tau_c$  = Critical shear stress required to move the grain in N/m<sup>2</sup> and given by equation  $\tau_c = 0.687d_a$ , where  $d_a$  is mean or average size of the sediment in mm. This arithmetic average size is usually found to vary between  $d_{50}$  and  $d_{60}$ .

$\tau_0$  = Unit tractive force produced by flowing water i.e.  $\gamma_w R S$ . Truly speaking, its value should be taken as the unit tractive force produced by the flowing water on bed =  $0.97\gamma_w R S$ .  $R$  is the hydraulic mean depth of the channel (depth of flow for wider channel) and  $S$  is the bed slope.

#### 7.1.4 Sediment Yield Estimation:

Sedimentation occurred as the velocity decreases along with its ability to carry sediment. Coarse sediments deposit first, then interferes with the channel conveyance, and may cause additional river meanders and distributaries. The area of the flowing water expands, the depth decreases, the velocity is reduced, and eventually even fine sediments begin to deposit. As a result, deltas may be formed in the upper portion of reservoirs. The deposited material may later be moved to deeper portions of the reservoir by hydraulic processes within the water body.

There are many sediment transport equations which are suitable for use in the prediction of the rate of replenishment of river. Some of the famous sediment equations are:

1. Dendy – Bolton Equation
2. Modified Universal Soil Loss Equation (MUSLE) developed by Williams and Berndt (1977)

#### Dendy–Bolton Equation:

Dendy–Bolton formula (Dendy and Bolton 1976) is often used to calculate the sedimentation yield because: -

- The formula uses catchment area and mean annual runoff as key determinants.
- It does not differentiate in basin wide smaller streams and their characteristics.



- Dendy and Bolton equation calculates all types of sediment yield i.e. Sheet and rill Erosion Gully Erosion, Channel Bed and bank erosion and mass movement etc.

Dendy-Bolton determined the combined influence of runoff and drainage area on sediment yield to compute the sediment yield. They developed two equations i.e. for run off less than 2 inch and for run off more than 2 inch, which are given below:

**For run off less than 2 inch:**

$$(Q < 2 \text{ in}) S = 1289 * (Q)^{0.46} * [1.43 - 0.26 \text{ Log } (A)]$$

**For run off more than 2 inches:**

$$(Q > 2 \text{ in}): S = 1958 * (e^{-0.055 * Q}) * [1.43 - 0.26 \text{ Log } (A)]$$

Where: S = Sediment yield (tons/sq miles/yr)

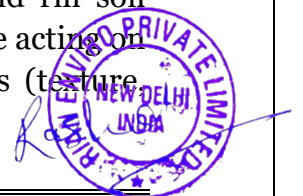
Q = Mean Annual runoff (inch)

A = Net drainage area in sq mile

Dendy Bolton formula is often used to calculate the sedimentation yield. But use of these equations to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equations development. However, they may provide a quick, rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. Computed sediment yields normally would be low for highly erosive areas and high for well stabilized drainage basins with high plant density because the equations are derived from average values. The equations express the general relationships between sediment yield, runoff, and drainage area. Many variables influence sediment yield from a drainage basin. They include climate, drainage area, soils, geology, topography, vegetation and land use. The effect of any of these variables may vary greatly from one geographic location to another, and the relative importance of controlling factors often varies within a given land resource area. Studies revealed that sediment yield per unit area generally decreases as drainage area increases. As drainage area increases, average land slopes usually decrease; and there is less probability of an intense rainstorm over the entire basin. Both phenomena tend to decrease sediment yield per unit area.

**Modified Universal Soil Loss Equation (MUSLE):**

Modified universal soil loss equation (MUSLE) for estimation of sediment yield is also used widely (Wischmeier and Smith, 1978). MUSLE is a modification of the Universal Soil Loss Equation (USLE). USLE is an estimate of sheet and rill soil movement down a uniform slope using rain- fall energy as the erosive force acting on the soil (Wischmeier and Smith 1978). Depending on soil characteristics (texture,



structure, organic matter, and permeability), some soils erode easily while others are inherently more resistant to the erosive action of rain- fall.

MUSLE is similar to USLE except for the energy component. USLE depends strictly upon rainfall as the source of erosive energy. MUSLE uses storm-based runoff volumes and runoff peak flows to simulate erosion and sediment yield (Williams 1995). The use of runoff variables rather than rainfall erosivity as the driving force enables MUSLE to estimate sediment yields for individual storm events. The generalized formula of MUSLE is as below:

$$Y=11.8 X (Q X qP).56 X K X Ls X C X P$$

Where,

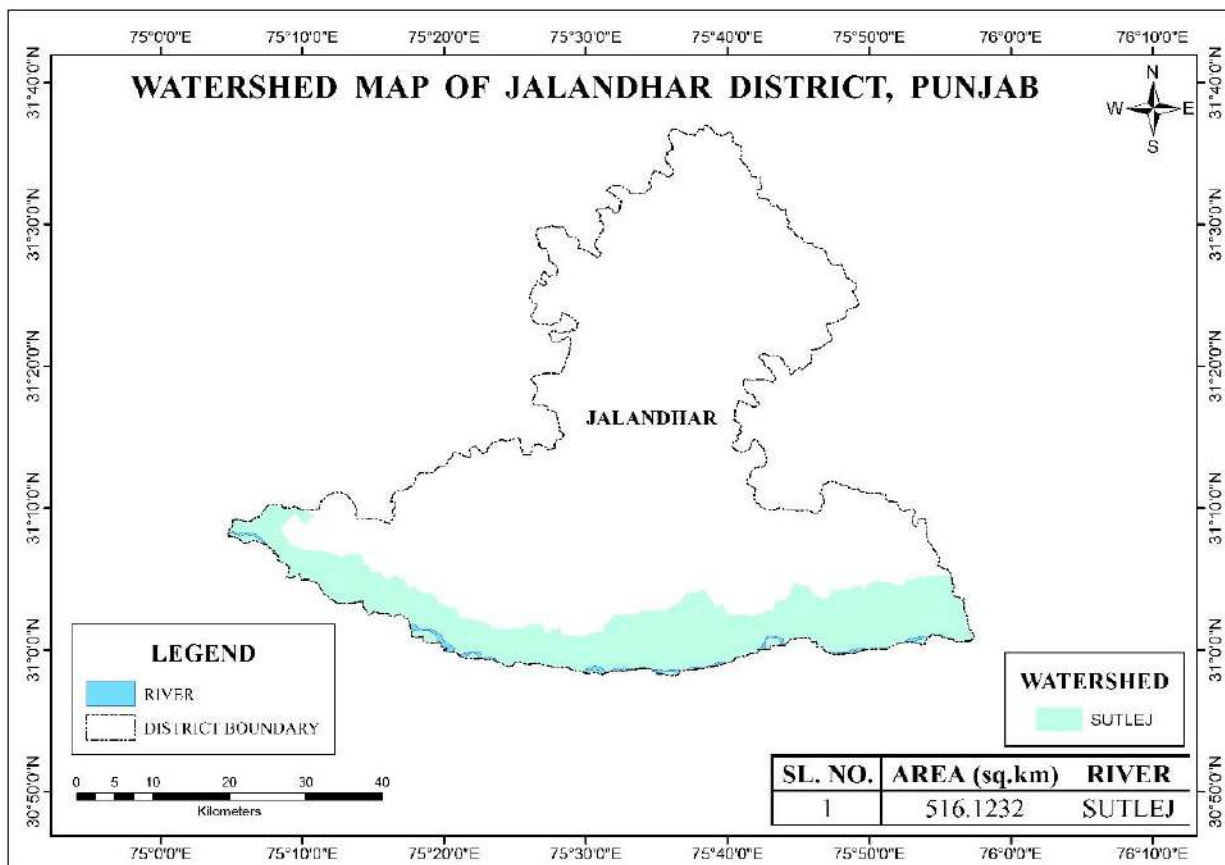
- Y = sediment yield of stream (t/yr/km<sup>2</sup>),
- Q = average annual runoff (m<sup>3</sup>),
- K = soil erodibility factor,
- qP = Highest discharge recorded (m<sup>3</sup>/s),
- Ls = gradient/slope length,
- C = cover management factor,
- P = erosion control practice

#### **7.1.5 Sediment Yield Calculation:**

For Sediment yield calculation, following assumption/calculation taken in to consideration:

- Catchment area (Watershed area) against Sutlej River has been calculated based on remote sensing data and the watershed map is furnished below:





**Figure 7.1: Watershed Map of Jalandhar District, Punjab**

- Rainfall runoff coefficient as per Strange's table for the catchment area is consider 10.4%, as the average rainfall (2010-2021) in the district is 482.5 mm and the characteristic of the catchment of the district is average in nature.
- Sedimentation yield calculated as per Dendy Bolton formula as the equations express the general relationships between sediment yield, runoff, and drainage area.

The data estimated for Sutlej River in the district are tabulated below:

Estimation parameter	Sutlej
Catchment Area (m <sup>2</sup> )	516120000
Annual Rainfall (m)	0.483
Strange Runoff coefficient (%)	10.4%
Annual Run-off (m)	0.10626
Catchment Yield (m <sup>3</sup> )	25925739.84
Sediment Yield (Tons/year)	104023.84



## **7.2. Replenishment study based on satellite imagery:**

To delineate replenishment percentage in the river bed of the district, below mentioned steps have been followed.

### **1. Satellite imagery studies**

Satellite imagery study involves demarcation of sand bars on riverbed of the district. Both pre and post monsoon images need to be analysed to established potential sand bars.

### **2. Field data collation**

Field data collation was carried out during May- June for all the river ghats on continuous basis for pre monsoon period and October- November for all the river ghats on continuous basis for post monsoon period. In both the cases, relative elevation levels were captured through GPS/DGPS/ Electronic Total Station. Thickness of the sand bars was measured through sectional profiles.



**Figure 7.2: Site view of Sutlej River**

### **3. Selection of study profiles:**

Study profiles are selected based on the occurrence of the sand bars in the channel profiles. Aerial extents of each of the profiles are mapped from satellite imageries. Frequency distribution did while selection of the ground truthing of the blocks.



#### **4. Data compilation:**

Following data were compiled for generation of this annual replenishment report:

- Elevation levels of the different sand Ghats and Sand Bar's as measured at site.
- Extents of the sand bars are measured from the pre monsoon satellite imageries.
- Sand production data of the district.

All these data were compiled while estimation of the replenished sand in the district.

#### **5. Assessment of sediment load in the river:**

Assessment of sediment load in a river is subjective to study of the whole catchment area, weathering index of the various rock types which acts as a source of sediments in the specific river bed, rainfall data over a period not less than 20 years, and finally the detail monitoring of the river bed upliftment with time axis. Again the sediment load estimation is not a dependent variable of the imaginary district boundary, but it largely depends upon the aerial extents of the catchment areas, which crossed the district and state boundaries.

The major sand producing river of the district is Sutlej. Planning has been done for systematic sand mining in the rivers.

From the ground survey and satellite imageries study in the pre monsoon period, altogether 59 sand bars are identified in the district on Sutlej River, whereas during post-monsoon period 54 sand bars identified.

For calculating the area of sand bars, following categorization of land within the channel area have been adopted:

- a. The untapped sand bars.
- b. The sand bars worked in the pre-monsoon period.
- c. Main channel course within the channel.

Details of each sand bars along with their sand resources in pre monsoon and post monsoon period are provided in Table 7.2.



*District Survey Report  
Jalandhar District  
Punjab*

**Table 7.2: Estimation of Sand Resources during Pre and Post Monsoon period of Jalandhar District**

S L N o	Pre monsoon					Post monsoon					
	Sand Bar_Code	RL (m)	Area in sq.m.	Sand Thickness in m.	Sand Volume in M. Cum	S L No	Sand Bar_Code	RL (m)	Area in sq.m.	Sand Thickness in m.	Sand Volume in M. Cum
<b>Estimation of Sand Resources in Pre monsoon period &amp; Post monsoon period of Sutlej River</b>											
1	PR_JL_PL_ST_01	235.32	13562	1.94	0.03	1	PO_JL_PL_ST_01	235.53	51317	1.99	0.1
						2	PO_JL_PL_ST_1A	235.12	63382	1.45	0.09
						3	PO_JL_PL_ST_1B	235	47982	1.74	0.08
						4	PO_JL_PL_ST_1C	235	57353	2.82	0.16
						5	PO_JL_PL_ST_1D	234	47402	2.62	0.12
2	PR_JL_PL_ST_02	233.73	61324	3	0.18	6	PO_JL_PL_ST_02	233.89	23772	3	0.07
3	PR_JL_PL_ST_03	233.61	204899	3	0.61	7	PO_JL_PL_ST_03	233.78	225338	3	0.68
4	PR_JL_PL_ST_04	233.49	143916	3	0.43	8	PO_JL_PL_ST_04	233.68	124100	3	0.37
5	PR_JL_PL_ST_05	233.38	9390	2.04	0.02						
6	PR_JL_PL_ST_06	233.42	50918	3	0.15	9	PO_JL_PL_ST_06	233.59	44028	3	0.13
7	PR_JL_PL_ST_07	233.41	36859	1.98	0.07	10	PO_JL_PL_ST_07	233.53	38831	2.07	0.08
8	PR_JL_PL_ST_08	233.5	239711	2.96	0.71	11	PO_JL_PL_ST_08	233.55	266067	3	0.8
9	PR_JL_NR_ST_11	231.82	35439	3	0.11	12	PO_JL_NR_ST_11	231.96	37894	3	0.11
10	PR_JL_NR_ST_12	231.69	83876	2.43	0.2	13	PO_JL_NR_ST_12	231.76	85815	2.88	0.25
11	PR_JL_NR_ST_13	231.39	42443	2.69	0.11	14	PO_JL_NR_ST_13	231.52	50134	3	0.15
						15	PO_JL_NR_ST_13A	231.12	28162	3	0.08
						16	PO_JL_NR_ST_13B	231.21	47221	2.63	0.12
12	PR_JL_NR_ST_14	231.71	35031	3	0.11						
13	PR_JL_NR_ST_15	231	31701	2.66	0.08	17	PO_JL_NR_ST_15	231	39587	2.8	0.11
14	PR_JL_NR_ST_16	230	84067	3	0.25	18	PO_JL_NR_ST_16	230.23	79026	3	0.24
15	PR_JL_NR_ST_17	230.23	25057	3	0.08						
16	PR_JL_NR_ST_18	230.12	24728	2.96	0.07						
17	PR_JL_NR_ST_19	230.09	9056	3	0.03						
18	PR_JL_NR_ST_20	229.26	17166	1.78	0.03	19	PO_JL_NR_ST_20	229.36	36073	3	0.11
19	PR_JL_NR_ST_21	228	52465	2.13	0.11	20	PO_JL_NR_ST_21	228	76328	2.34	0.18





*District Survey Report  
Jalandhar District  
Punjab*

20	PR_JL_NR _ST_22	228.25	160744	0.68	0.11	21	PO_JL_NR_ ST_22_25	228.53	175927	0.52	0.09
21	PR_JL_NR _ST_23	228.02	23612	3	0.07	22	PO_JL_NR_ ST_23	228.36	19333	2.8	0.05
22	PR_JL_NR _ST_24	228	41163	0.39	0.02	23	PO_JL_NR_ ST_24	228.12	36330	3	0.11
23	PR_JL_NR _ST_25	228	56155	3	0.17	24	PO_JL_NR_ ST_25	228.16	50154	3	0.15
24	PR_JL_NR _ST_26	227.89	182307	1.74	0.32	25	PO_JL_NR_ ST_26A	227.95	177245	3	0.53
						26	PO_JL_NR_ ST_26B	227.89	11472	1.74	0.02
25	PR_JL_NR _ST_27	227.62	9899	3	0.03	27	PO_JL_NR_ ST_27	227.77	9664	3	0.03
						28	PO_JL_NR_ ST_27B	227.83	1534	3	0.004
26	PR_JL_NR _ST_28	227.59	16147	3	0.05	29	PO_JL_NR_ ST_28	227.76	15967	3	0.05
27	PR_JL_NR _ST_29	227	55373	1.47	0.08						
28	PR_JL_NR _ST_30	227	246209	3	0.74	30	PO_JL_NR_ ST_30A	227.52	30969	3	0.09
						31	PO_JL_NR_ ST_30B	227.23	191935	2.07	0.4
29	PR_JL_NR _ST_31	226.83	42654	2.34	0.1						
30	PR_JL_MH _ST_32	226	107647	3	0.32	32	PO_JL_MH _ST_32	226	158279	3	0.47
31	PR_JL_MH _ST_33	226	26068	2.81	0.07	33	PO_JL_MH _ST_33	226.84	108961	3	0.33
						34	PO_JL_MH _ST_33A	226.93	10785	3	0.03
						35	PO_JL_MH _ST_33B	226.78	31688	0.75	0.02
32	PR_JL_MH _ST_34	226	310050	3	0.93	36	PO_JL_MH _ST_34	226.23	331274	3	0.99
33	PR_JL_MH _ST_35	225.63	242802	3	0.73	37	PO_JL_MH _ST_35	225.87	248210	3	0.74
34	PR_JL_MH _ST_36	224.09	59158	2.72	0.16	38	PO_JL_MH _ST_36	224.64	61322	2.98	0.18
35	PR_JL_MH _ST_37	221.82	159662	1.46	0.23						
36	PR_JL_MH _ST_38	221.89	124068	1.96	0.24						
37	PR_JL_MH _ST_39	221.57	78760	2.26	0.18						
38	PR_JL_SH _ST_40	221.69	77080	0.95	0.07						
39	PR_JL_SH _ST_41	221.49	10523	1.74	0.02						
40	PR_JL_SH _ST_42	221.39	38055	2.25	0.09						
41	PR_JL_SH _ST_43	221.81	22322	1.63	0.04						
42	PR_JL_SH _ST_44	221.79	55620	1.03	0.06						
43	PR_JL_SH _ST_45	221.96	63967	1.36	0.09						
44	PR_JL_SH _ST_46	222.59	30294	0.94	0.03	39	PO_JL_SH_ ST_46	222.96	47905		



*District Survey Report  
Jalandhar District  
Punjab*

45	PR_JL_SH_ ST_47	219.62	38405	1.32	0.05						
46	PR_JL_SH_ ST_48	220.23	23229	2.56	0.06						
47	PR_JL_SH_ ST_49	220.41	21888	1.33	0.03						
48	PR_JL_SH_ ST_50A	222.43	672087	0.72	0.48	40	PO_JL_SH_ ST_50A	222.89	462300	1.27	0.59
						41	PO_JL_SH_ ST_50B	222.63	150968	0.89	0.13
						42	PO_JL_SH_ ST_50C	222.89	4751	1.86	0.01
49	PR_JL_SH_ ST_51	222	50871	0.75	0.04	43	PO_JL_SH_ ST_51	222.16	44976	1.08	0.05
						44	PO_JL_SH_ ST_51A	222.03	23180	1.35	0.03
50	PR_JL_SH_ ST_52	222.53	61430	0.75	0.05	45	PO_JL_SH_ ST_52	222.74	27774	1.01	0.03
						46	PO_JL_SH_ ST_53A	222.52	4868	2.11	0.01
						47	PO_JL_SH_ ST_53B	222.89	12419	1.72	0.02
51	PR_JL_SH_ ST_54	222.71	37818	1.23	0.05	48	PO_JL_SH_ ST_54	222.95	28734	1.43	0.04
52	PR_JL_SH_ ST_55	221.35	23342	1.26	0.03	49	PO_JL_SH_ ST_55	222.49	25132	1.37	0.03
53	PR_JL_SH_ ST_56	222.95	39800	2.22	0.09	50	PO_JL_SH_ ST_56	222.82	50711	2.34	0.12
54	PR_JL_SH_ ST_58	221.33	25751	0.59	0.02						
55	PR_JL_SH_ ST_59	221	52808	0.62	0.03	51	PO_JL_SH_ ST_59	221.22	44782	0.73	0.03
56	PR_JL_SH_ ST_61	222.27	287719	3	0.86						
57	PR_JL_LH_ ST_62	213.37	19358	3	0.06	52	PO_JL_LH_ ST_62	213.53	37018	3	0.11
58	PR_JL_LH_ ST_63	213.01	24690	3	0.07	53	PO_JL_LH_ ST_63	213.26	22609	3	0.07
59	PR_JL_LH_ ST_69	212.09	90163	3	0.27	54	PO_JL_LH_ ST_69	212.23	92412	3	0.28
			<b>4911305</b>		<b>10.52</b>				<b>4221401</b>	<b>Average Thicknes s : 2.37</b>	<b>9.93</b>

**Note:** Among the sandbars in cross section where the thickness exceeds 3 meter, in those cases maximum of 3-meter depth is considered as per EMSMG guidelines 2020. The volume to weight conversion of Post Sandbars is given in Plate III as per different bulk density of each sandbars.

The above calculated area is gross area (Table no 7.2, Page No. 53-55) and Potential area considered for mining activity which is mentioned in Plate II (Page No. 78-92). The potential area has been given after deducting 1/8 line from the bank or 1 Km distance from Major Bridges from gross area.

A summary of sediment load comparison between Pre and Post Monsoon period for different rivers of Jalandhar district is given in Table 7.3.



**Table 7.3: Sediment load comparison between Pre and Post Monsoon period for rivers of Jalandhar district**

River Name	Pre-Monsoon no of ghats	Post-Monsoon no of ghats	Pre-Monsoon Sediment Load (Mcum)	Post Monsoon Sediment Load (Mcum)	Variance (Mcum)
Sutlej	59	54	10.52	9.93	- 0.59

Thus, in the district, about (-)0.59 million cum of sand has been found as a differential volume the river of the district when compared between pre and post monsoon sand reserve data.

### 7.3. Replenishment estimation based on empirical formula

The estimation of sedimentation rate based on empirical formula need critical analysis of different factors related to the LULC property of the catchment area, slope geometry, sediment erosion factor of catchment litho-type. This will help to assess replenishment rate more precisely.

Replenishment studies based on empirical formula for existing mining leases have also been conducted and are given in Table 7.4.

**Table 7.4: Replenishment rate estimation**

Location	River Name	Lease Area	Surface RL Before mining	Mine out Thickness	Mine out Volume	Annual Rainfall-2020	Estimated Replenished Volume as per Dandy- Bolton
		m <sup>2</sup>	m	m	cum	m	cum
Kaimwala	Sutlej	24200	228.00	2.00	48400.00	3.80	36300.00

(Note: The details of Kaimwala site is mentioned in page no. 17)

### 7.4. Total potential of mining of minor minerals in the river bed due to Annual Deposition

For the purpose of estimating mineable mineral potential, the thickness of the sand bar considered extractable based on base flow level is given in Table 7.5.



**Table 7.5: River wise Thickness of sand bar considered mineable**

River Name	Considered Mining Thickness (m)
Sutlej	0.52 to 3 (based on Cross-Section Study)

Based on geomorphology, geology, climate and mineable thickness of sand bar the annual deposition of riverbed minerals (sand and gravel) has been estimated.

Sand bar area recommended for mineral concession in the table is calculated as per the Enforcement and Monitoring Guidelines for Sand Mining (EMGSM) 2020. As per guidelines, mining depth restricted to 3- meters depth and distance from the bank is ¼th of river width and not less than 7.5 meters. Also mining is prohibited up to a distance of 1 kilometer (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side. The total minable mineral potential is given in Table 7.6.

**Table 7.6: Total mineable mineral potential**

Sl. No.	River or Stream	Potential area (sq.m)	Potential area(Ha.)	Average Mining Thickness	Volume in MCum	60% of Volume in MCum	Bulk Density g/cc	Mineable Mineral Potential (Million MT)
1	Sutlej	3059312	305.93	2.37	7.25	4.35	1.56	6.79

**Note: The potential area has been mentioned for every potential site in Ha in plate II (pages 78-92). The average mining thickness is mean of data of thickness as mentioned in table 7.2.**

#### 7.4.1 No Mining Zone

##### Criteria for identification of no mining zones

- i. Benchmark (BM) with respect to mean Sea Level (MSL) should be established in mining channel reaches (MCR) below which no mining shall be allowed.
- ii. Mining is to be permitted only in the central 3/4th of the channel where deposition/aggradation of the material has been identified whereas the remaining ¼ th width needs to be kept as no mining zone for the protection of banks.
- iii. Identifying the mining and no mining zones shall be done after determining the area of sensitivity by ascertaining the distance of the mining area from the protected areas, forest areas, bridges, important structures, habitation etc. and



based on the sensitivity the area needs to be defined in sensitive and non-sensitive categories.

- iv. As far as possible mining operations should be avoided in the sensitive areas unless local conditions require otherwise. Such deviations may only be of temporary nature and are to be permitted by the DLTF after recording the reasons for the same.

**Table 7.7: Sand resources in no mining zone**

<b>River Name</b>	<b>Total Sand Resources of Post Monsoon Mcum</b>	<b>Total Sand Resources of Post Monsoon Million Tonnes (Million MT)</b>	<b>Total Potential Sand Resources of Post Monsoon Mcum</b>	<b>Total Potential Sand Resources of Post Monsoon Million Tonnes (Million MT)</b>	<b>Total No Mining Resource of Post Monsoon Mcum</b>	<b>Total No Mining Resource of Post Monsoon Million Tonnes (Million MT)</b>
Sutlej	9.93	15.49	7.25	11.31	2.68	4.18

**Note: Total Sand resource of Post Monsoon is mentioned in table no. 7.2 (page no. 53-55) & Total Potential sand resources of Post Monsoon is mention in table no. 7.6(page no 57). Bulk density: 1.56**

**7.5. Detail of potential source/sites of River Bed Material**

The potential sand block demarcated on Sutlej River is given in **Annexure-A.**

Potential sensitive sites for mining which are near to forests, protected areas, habitation, bridges etc., are avoided. The suitability of such sites have been confirmed based on Sub-divisional committee's observation. The list of mining leases as per the recommendation of the Committee is given as **Annexure E.**

The report of Sub-Divisional Committee's recommendations based on their field inspection regarding the suitability of all potential mining sites and also the approval for specific mining leases has been provided. The details regarding cluster and contiguous cluster formation has been provided as in Annexure A.



## 8 Transport

The important roads in the district are as follows: besides the National Highway (Sher Shah Suri Marg, connecting Mughal Sarai with Jalandhar) are: (1) Jalandhar - Kapurthala – Amritsar road, (2) Jalandhar – Hoshiarpur, Phagwara, and Nawanshahr to Chandigarh. (3) Jalandhar - Ludhiana road, (4) Jalandhar - Hoshiarpur-Dharamshala road, (5) Jalandhar-Nakodar-Moga road. There is one ferry bridge on Sutlejriver on Shahkot – Dharmkot - Moga road and two ferry crossing on Mehatpur-Sidhwan Bet- Jagraon road and Rahon – Machhiwara - Samrala road. Besides there are numbers of ferry crossing on the Sutlej between Jalandhar and Ludhiana districts. The district is well served by the Public Road Transport System. Jalandhar district falls under the Firozpur Division of the Northern Railway. It is well connected by rail within the district and outside.

There are following broad gauge rail lines: -) Amritsar – Jalandhar – Saharanpur – Luknow – Mugal Sarai rail line) Jalandhar City – Jaijon Doaba rail line, ) Jalandhar City – Hoshiarpur rail line, Jalandhar City- Mukerian- Pathankot – Jammu Tawi rail line, Jalandhar City- Firozpur Cantt rail line, Jalandhar City- Nakodar rail line and LohianKhas- Nakodar – Phillaur - Ludhiana rail Line.

The major transportation routes for sand evacuation from the major sand producing rivers are shown in Figure no. 10.1.

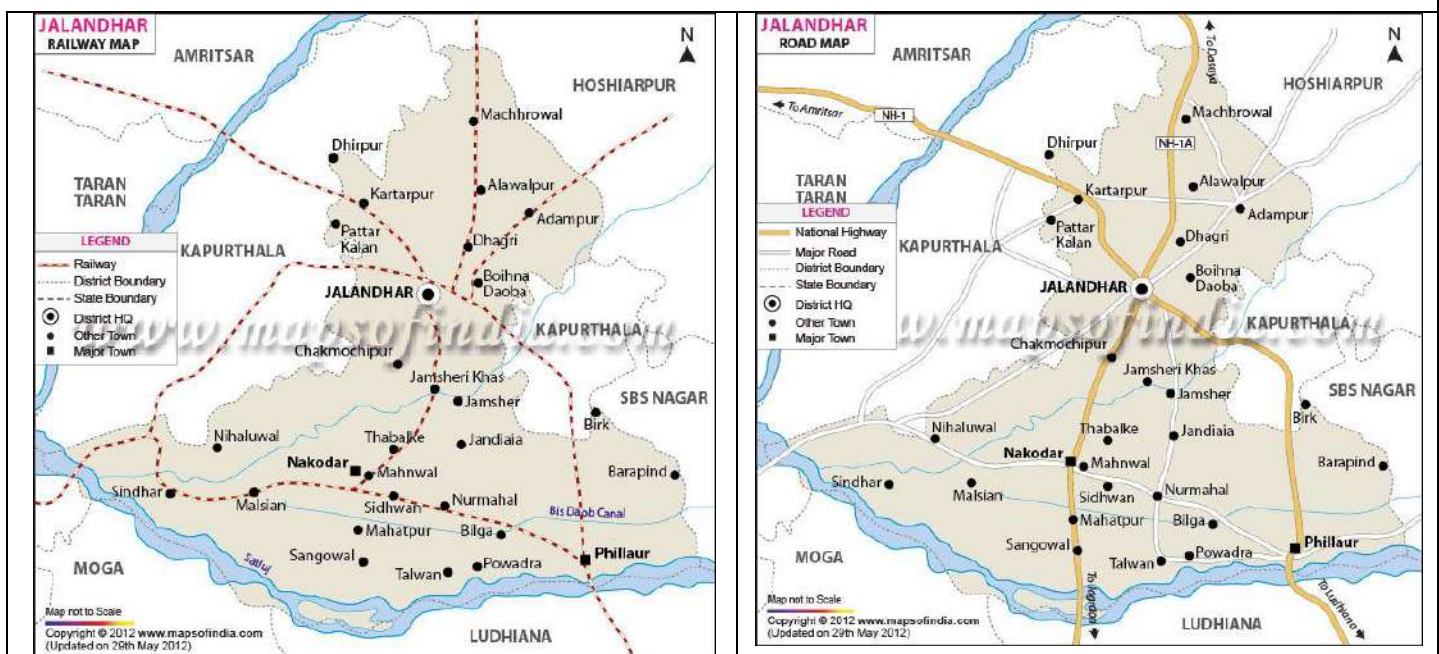


Figure No. 8.1: Transport map of Jalandhar District



## **9 Remedial measure to mitigate the impact of mining**

### **9.1. Environmental Sensitivity**

Jalandhar District being an environmentally sensitive area on account of its fragile ecosystem as also its proximity to Chandigarh and Mohali, presents special challenges in achieving the goal of environmentally sustainable development. The Jalandhar area represents a unique geo- environmental perception. As human population expands, forests are being depleted for the extension of agricultural lands, introduction of new settlements, roadways etc. The growing urbanization and industrialization are deeply impacting the ecosystem of Jalandhar District.

On account of the increased vulnerability to soil and water erosion, special measures are required to be taken to ensure that sand mining in the District does not result in environmentally damaging consequences like landslides, depletion of valuable topsoil, river bank erosion, damage to proximate roads, bridges, canals, and other structures, and floods, etc.

### **9.2. Sand mining Impact**

Another serious environmental problem around the globe in recent years is of illegal Sand mining. Sand mining is a process of extraction of sand from an open pit, river bed, sea beaches, ocean floor, river banks, deltas and island dunes. The extracted sand could be utilized for various types of manufacturing, such as concrete used in the construction of building and other structures. The sand can also be used as an abrasive. The demand for sand increase as population grows also urbanization with time. The high level of demands has offer led to the use of unsustainable sand mining process for speedy urbanization resulted in illegal mining.

All though most jurisdictions have legal limit on the location and volume of sand that can be mined, illegal sand extraction is following in many parts of the country due to rapid urbanization and industries.

Removal or extraction of too much sand from rivers leads to erosion shrinking of river banks. Deltas can recede due to sand mining. These destructive effects of sand mining ultimately result in loss of fertile land and property. It also destabilized the ground and causes the failure of engineering structures for civilization.

In-stream mining directly alters the channel geometry and bed elevation. By removing sediment from the channel, in-stream material extraction disrupts the preexisting balance between sediment supply and transporting capacity, typically inducing incision upstream and downstream of the extraction site. The resultant incision alters the frequency of floodplain inundation along the river courses, lowers valley floor water tables and frequently leads to destruction of bridges and channelization structures.



Sand Mining in beaches disturbs the ecosystem of different fauna of the beaches. The sand mining from natural barriers, made up of sand, causes flooding of the natural habitat. The sand mining activity destroys the aesthetic beauty of beaches and river bank and makes the ecosystem unstable. If there are popular tourist destination, tourism potential of such areas will lose.

It could be concluding that there has been little in depth research in to the environmental and social also political effect of land use practice and calls for urgent redressed by the competent authority.

### **9.3. Remedial measure**

#### **9.3.1. Sustainable Mining Practices:**

- The depth of mining in Riverbed shall not exceed 3 meter or water level whichever is less, even if the Joint Inspection Committee certifies about excessive deposit or over accumulation of mineral.
- Mining shall be done in layers of 1-meter depth to avoid ponding effect and after first layer is excavated, the process will be repeated for the next layers.
- No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
- No blasting shall be resorted to in River mining and without permission at any other place.

#### **9.3.2. Monitoring the Mining of Mineral and its Transportation:**

- For each mining lease site, the access should be controlled in a way that vehicles carrying mineral from that area are tracked and accounted for.
- There should be regular monitoring of the mining activities in the State to ensure effective compliance of stipulated EC conditions and of the provisions under the Minor Mineral Concessions Rules framed by the State Government.

#### **9.3.3. Noise Management:**

- Noise arising out of mining and processing shall be abated and controlled at source to keep within permissible limit.
- Restricted sand mining operation has to be carried out between 6 am to 7 pm.





**9.3.4. Air Pollution and Dust Management:**

- The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly.
- Air Pollution due to dust, exhaust emission or fumes during mining and processing phase should be controlled and kept in permissible limits specified under environmental laws.
- The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Wheel washing facility should be installed and used.

**9.3.5. Bio-Diversity Protection:**

- Restoration of flora affected by mining should be done immediately. Twice the number of trees destroyed by mining to be planted preferably of indigenous species. Each EC holder should plant and maintain for lease period at least 5 trees per hectare in area near lease.
- No mining lease shall be granted in the forest area without forest clearance in accordance with the provisions of the Forest Conservation Act, 1980 and the rules made there under.
- Protection of turtle and bird habitats shall be ensured.
- No felling of tree near quarry is allowed. For mining lease within 10km of the National Park / Sanctuary or in Eco-Sensitive Zone of the Protected Area, recommendation of Standing Committee of National Board of Wild Life (NBWL) have to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004.
- Spring sources should not be affected due to mining activities. Necessary Protection measures are to be incorporated.

**9.3.6. Management of Instability and Erosion:**

- Removal, stacking and utilization of top soil in mining are should be ensured. Where top soil cannot be used concurrently, it shall be stored separately for future use keeping in view that the bacterial organism should not die and should be spread nearby area.
- The EC should stipulate conditions for adequate steps to check soil erosion and control debris flow etc. by constructing engineering structures
- Use of oversize material to control erosion and movement of sediments
- No overhangs shall be allowed to be formed due to mining and mining shall not be allowed in area where subsidence of rocks is likely to occur due to steep angle of slope.
- No extraction of boulder / sand in landslide prone areas.



- Controlled clearance of riparian vegetation to be undertaken.

**9.3.7. Waste Management:**

- Site clearance and tidiness is very much needed to have less visual impact of mining.
- Dumping of waste shall be done in earmarked places as approved in Mining Plan.
- Rubbish burial shall not be done in the rivers.

**9.3.8. Pollution Prevention:**

- Take all possible precautions for the protection of environment and control of pollution.
- Effluent discharge should be kept to the minimum and it should meet the standards prescribed.

**9.3.9. Protection of Infrastructure:**

- Mining activities shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical, and archeological importance.
- For carrying out mining in proximity to any bridge or embankment, appropriate safety zone should be worked out on case-to-case basis, taking into account the structural parameters, location aspects and flow rate, and no mining should be carried out in the safety zone so worked out.

**9.3.10. Baseline surveys and reclamation plan on completion of mining operations**

- As per statute all mines/quarries are to be properly reclaimed before the final closure of the mine.
- A baseline survey of conditions before commencement of mining operations is to be prepared. This should include relevant cross-section data between two permanent benchmarks set back from the top of bank. The elevations should be referenced on the basis of the established benchmarks.
- The proposed mining cross-section data should be plotted over the baseline data to depict the vertical extent of the proposed excavation.
- The cross-section of the fully replenished bar should be the same as that of the baseline data.
- A planimetric map showing the aerial extent of the excavation and extent of the riparian buffers must be prepared.



- A plantation plan should be prepared by the concerned DFO as prescribed above.
- Proper monitoring plan is to be prepared and implemented.

#### **9.4. Risk assessment and disaster management plan**

Risk analysis is the systematic study of risks encountered during various stages of mining operation. Risk analysis seek to identify the risks involved in mining operations, to understand how and when they arise, and estimate the impact (financial or otherwise) of adverse outcomes. The sand mining operation in the district is mainly done manually.

##### **9.4.1. Identification of risk due to river sand mining**

There is no land degradation due to mining activities as mining is done only on river bed dry surface. There will be no OB or waste generation as the sand is exposed in the river bed and is completely saleable. There will be neither any stacking of soil nor creation of OB dumps. The mining activity will be carried out up to a maximum depth of 3m below the surface level. So, there is no chance of slope failure, bench failure in the mines. However, there are some identified risk in the mining activity which are as below:

1. Accident during sand loading and transportation
2. Inundation/ Flooding
3. Quick Sand Condition

##### **9.4.2. Measures to prevent accidents during loading and transportation:**

- During the loading truck would be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The workers will be provided with gloves and safety shoes during loading.
- Opening of the side covers of the truck should be done carefully and with warning to prevent injury to the loaders.
- Mining Operations will be takes place during daylight only.
- The truck will be covered with tarpaulin and maintained to prevent any spillage.
- To avoid danger while reversing the trackless vehicles especially at the embankment and tipping points, all areas for reversing of Lorries should be made man free as far as possible.
- All transportation within the main working will be carried out directly under the supervision and control of the management.



- Overloading should not be permitted and the maximum permissible speed limit should be ensured.
- There will be regular maintenance of the trucks and the drivers will have valid driving license.

#### **9.4.3. Measures to prevent incidents during Inundation/ Flooding:**

To minimize the risk of flooding/ inundation following measures will be under taken:

- Mining will be completely closed during the monsoon months.
- Proper weather information particularly on rain should be kept during the operational period of mines so that precautionary measures will be undertaken.

#### **9.4.4. Measures for mitigation to quick sand condition:**

- Quick sand zone and deep water zone will be clearly demarcated and all the mines workers will make aware of the location.
- Mining will be done strictly as per the approved mining plan.

#### **9.4.5. Disaster management plan**

As the depth of mining will be maximum of 3m below the surface level considering local condition, the risk related to mining activity is much less. The mining operation will be carried out under the supervision experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS. All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955 and other laws applicable to mine will strictly be complied. During heavy rainfall and during the monsoon season the mining activities will be closed. Proper coordination with Irrigation Department should be maintained so that at the time of releasing water, if any, from the dam suitable warning/information is given in advance. Special attention and requisite precautions shall be taken while working in areas of geological weakness like existence of slip, fault etc. The mining site will be supplied with first aid facilities and the entire mines worker will have access to that.



## 10 Conclusion:

1. It has been observed during the preparation of district survey report that the district does not have any in-situ minor mineral occurrences as per the till date studies being carried out by various authorities and agencies. Riverbed sand is the only minor minerals of Jalandhar District.
2. The replenishment study has been carried out during the preparation of this DSR after analyzing datasets of pre monsoon period & post monsoon period of year 2022.
3. Both field-based surveys coupled with satellite imagery study and empirical studies were carried out to determine the rate of replenishment in each river of the district.
4. The study reveals potential sand resources of 7.25 Million cum on Sutlej River. Total resource blocked due to no mining criteria is about 2.68 Million cum. Therefore, a mineable resource which 60% of the potential resource is of 4.35 Million cum which comes to about 6.79 Million MT after considering bulk density of sand of 1.56 g/cc. **(The total potential sand resources and 60% minable resources is mentioned in table no. 7.6 & No mining area is mentioned in table no. 7.7).**

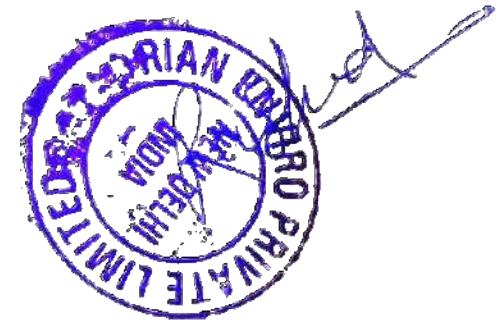
Sr. No	Source (1)	Total mining potential (Million Cum) (2)	Quantity of Minerals in No Mining (Million Cum) (3)	Mineable quantity (Million Cum) (4)=(2)-(3)	Bulk Density (g/cc) (5)	Net Mineable qty. as per EMGGSM (6) = 0.6[(4) * (5)] Million MT
1	River Sutlej	9.93	2.68	7.25	1.56	6.79
	<b>Total</b>	<b>9.93</b>	<b>2.68</b>	<b>7.25</b>	<b>1.56</b>	<b>6.79</b>

**Note: The Sutlej river Sand resource is given in Table no. 7.6 & 7.7 of page no. 57 & 58.**

5. It is suggested to have a periodical review along with field data acquisition during pre and post monsoon periods to record the seasonal variance of the sedimentation rate on annual basis and update this DSR in case of any abnormal findings.



**Plate I**  
**Map showing potential sandbar Pre Monsoon on**  
**Sutlej River, Jalandhar District**

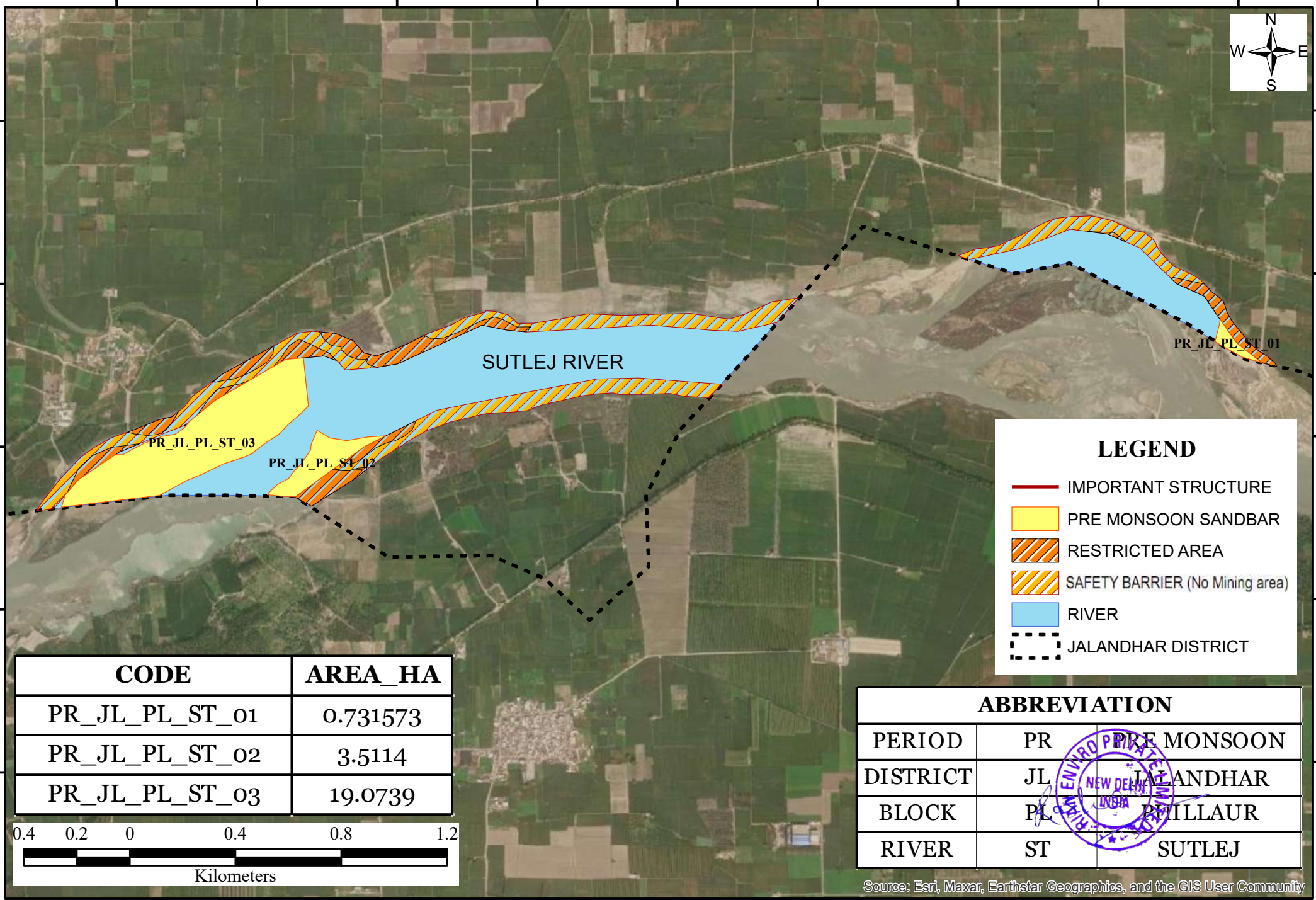


75°52'40"E 75°53'0"E 75°53'20"E 75°53'40"E 75°54'0"E 75°54'20"E 75°54'40"E 75°55'0"E 75°55'20"E



31°12'0"N  
31°10'0"N  
31°0'40"N  
31°0'20"N  
31°0'0"N

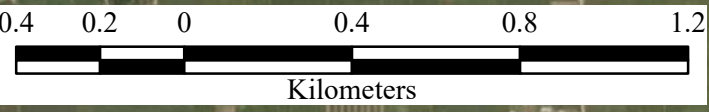
31°12'0"N  
31°10'0"N  
31°0'40"N  
31°0'20"N  
31°0'0"N



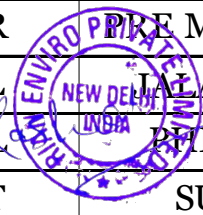
**LEGEND**

- IMPORTANT STRUCTURE
- PRE MONSOON SANDBAR
- RESTRICTED AREA
- SAFETY BARRIER (No Mining area)
- RIVER
- JALANDHAR DISTRICT

CODE	AREA_HA
PR_JL_PL_ST_01	0.731573
PR_JL_PL_ST_02	3.5114
PR_JL_PL_ST_03	19.0739



ABBREVIATION	
PERIOD	PR PRE MONSOON
DISTRICT	JL JALANDHAR
BLOCK	PL PHILLAUR
RIVER	ST SUTLEJ



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

75°52'40"E 75°53'0"E 75°53'20"E 75°53'40"E 75°54'0"E 75°54'20"E 75°54'40"E 75°55'0"E 75°55'20"E

75°48'0"E 75°48'20"E 75°48'40"E 75°49'0"E 75°49'20"E 75°49'40"E 75°50'0"E

31°0'20"N

31°0'0"N

30°59'40"N

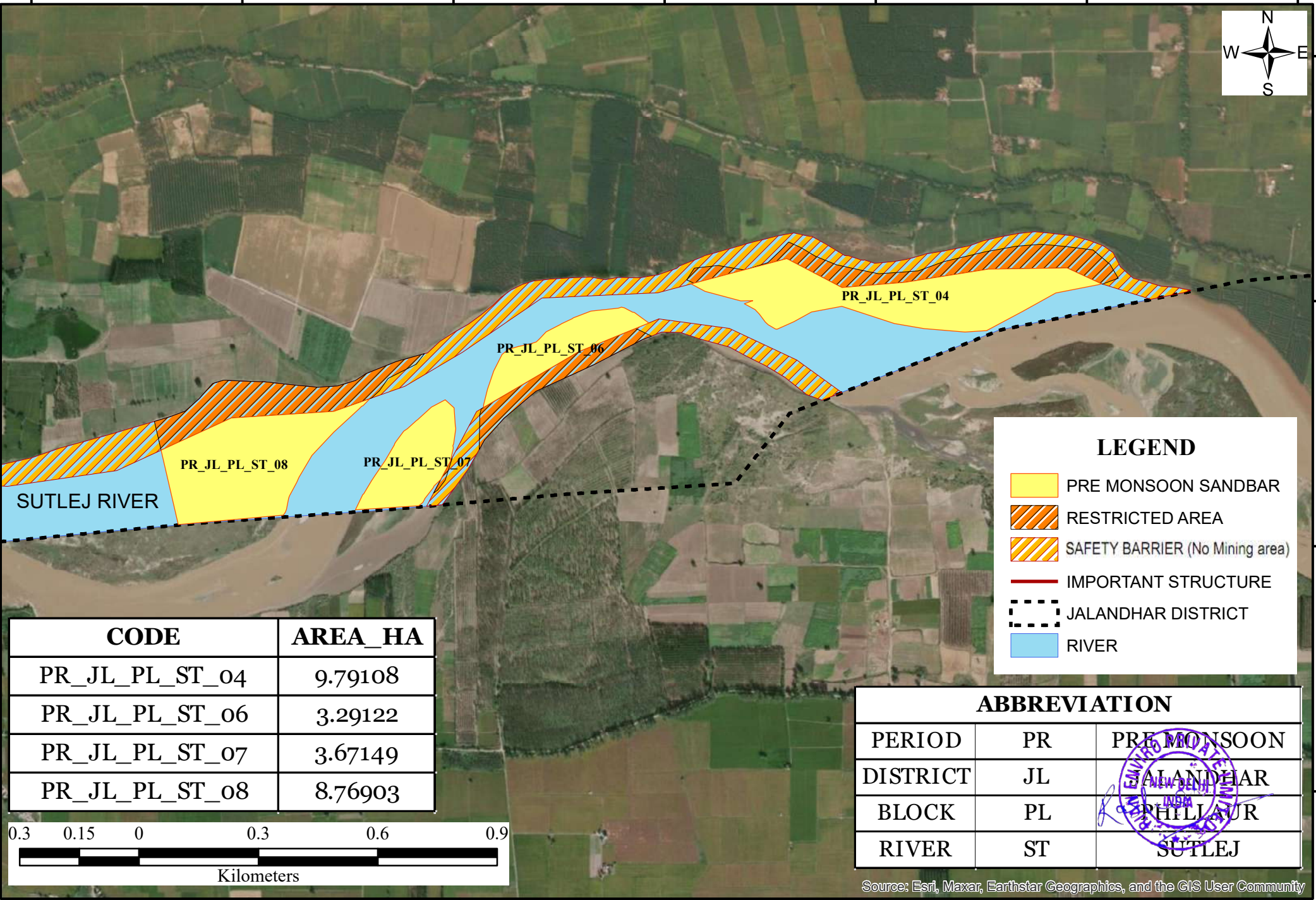
30°59'20"N

31°0'20"N

31°0'0"N

30°59'40"N

30°59'20"N

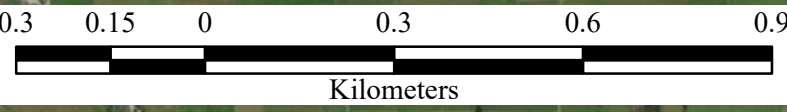


**LEGEND**

- PRE MONSOON SANDBAR
- RESTRICTED AREA
- SAFETY BARRIER (No Mining area)
- IMPORTANT STRUCTURE
- JALANDHAR DISTRICT
- RIVER

CODE	AREA_HA
PR_JL_PL_ST_04	9.79108
PR_JL_PL_ST_06	3.29122
PR_JL_PL_ST_07	3.67149
PR_JL_PL_ST_08	8.76903

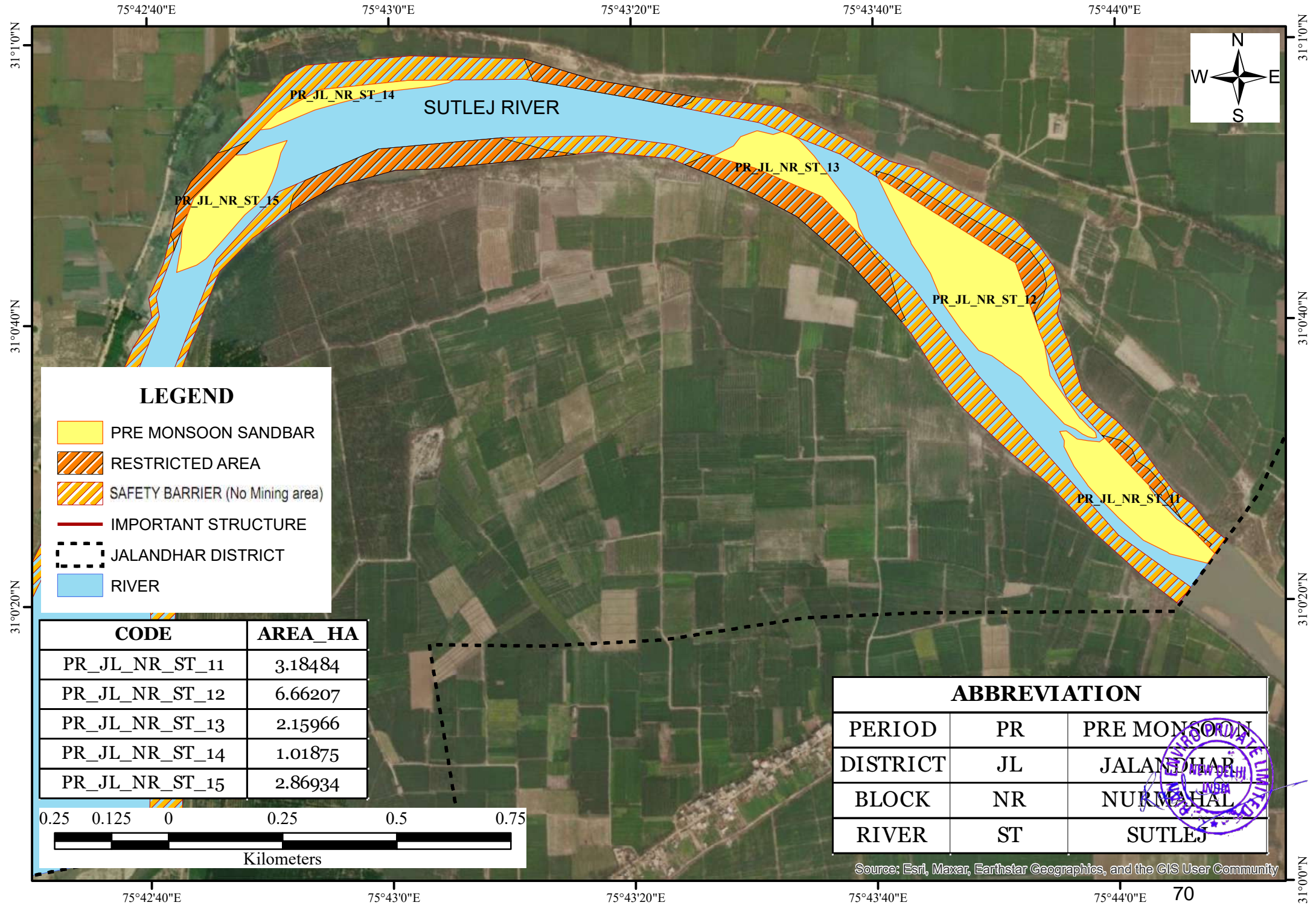
ABBREVIATION		
PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	PL	PHILLAUR
RIVER	ST	SUTLEJ



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

75°48'0"E 75°48'20"E 75°48'40"E 75°49'0"E 75°49'20"E 75°49'40"E 75°50'0"E 69



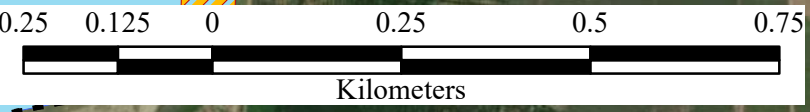


**LEGEND**

- PRE MONSOON SANDBAR
- RESTRICTED AREA
- SAFETY BARRIER (No Mining area)
- IMPORTANT STRUCTURE
- JALANDHAR DISTRICT
- RIVER

CODE	AREA_HA
PR_JL_NR_ST_11	3.18484
PR_JL_NR_ST_12	6.66207
PR_JL_NR_ST_13	2.15966
PR_JL_NR_ST_14	1.01875
PR_JL_NR_ST_15	2.86934

ABBREVIATION		
PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	NR	NURMAHAL
RIVER	ST	SUTLEJ



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



75°38'40"E

75°39'0"E

75°39'20"E

75°39'40"E

75°40'0"E

30°59'20"N

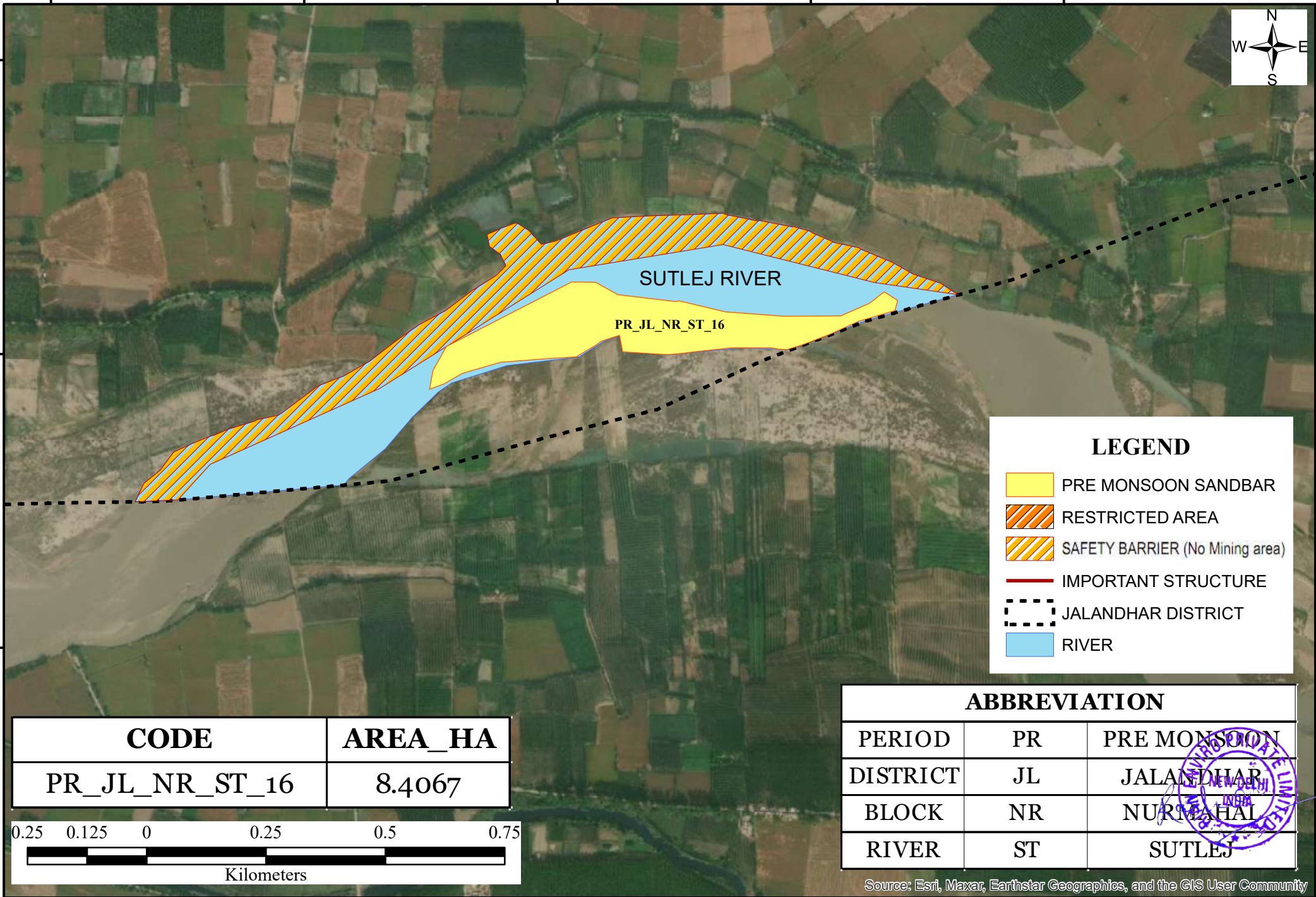
30°59'0"N

30°58'40"N

30°59'20"N

30°59'0"N

30°58'40"N



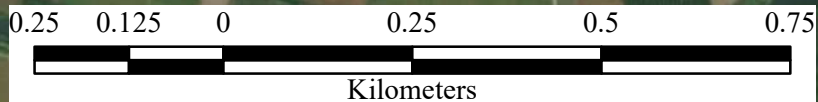
### LEGEND

-  PRE MONSOON SANDBAR
-  RESTRICTED AREA
-  SAFETY BARRIER (No Mining area)
-  IMPORTANT STRUCTURE
-  JALANDHAR DISTRICT
-  RIVER

### ABBREVIATION

PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	NR	NURMAHAL
RIVER	ST	SUTLEJ

CODE	AREA_HA
PR_JL_NR_ST_16	8.4067



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

75°38'40"E

75°39'0"E

75°39'20"E

75°39'40"E

75°40'0"E

75°37'0"E      75°37'20"E      75°37'40"E      75°38'0"E      75°38'20"E      75°38'40"E

30°59'0"N

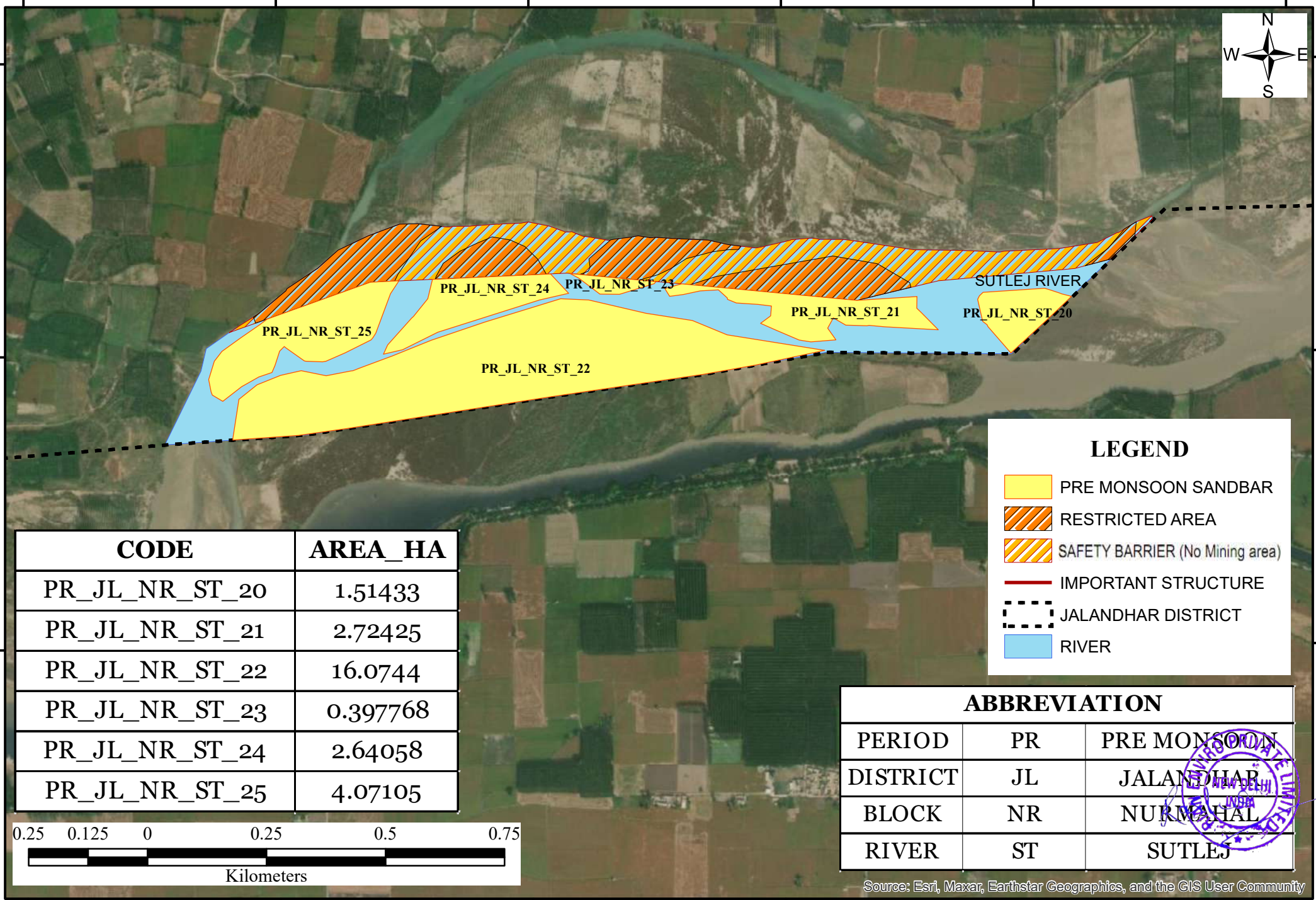
30°59'0"N

30°58'40"N

30°58'40"N

30°58'20"N

30°58'20"N

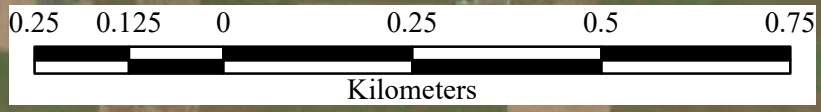


**LEGEND**

- PRE MONSOON SANDBAR
- RESTRICTED AREA
- SAFETY BARRIER (No Mining area)
- IMPORTANT STRUCTURE
- JALANDHAR DISTRICT
- RIVER

CODE	AREA_HA
PR_JL_NR_ST_20	1.51433
PR_JL_NR_ST_21	2.72425
PR_JL_NR_ST_22	16.0744
PR_JL_NR_ST_23	0.397768
PR_JL_NR_ST_24	2.64058
PR_JL_NR_ST_25	4.07105

ABBREVIATION		
PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	NR	NURMAHAL
RIVER	ST	SUTLEJ



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

75°37'0"E      75°37'20"E      75°37'40"E      75°38'0"E      75°38'20"E      75°38'40"E

75°35'0"E

75°35'20"E

75°35'40"E

75°36'0"E

75°36'20"E

75°36'40"E

30°58'40"N

30°58'20"N

30°58'0"N

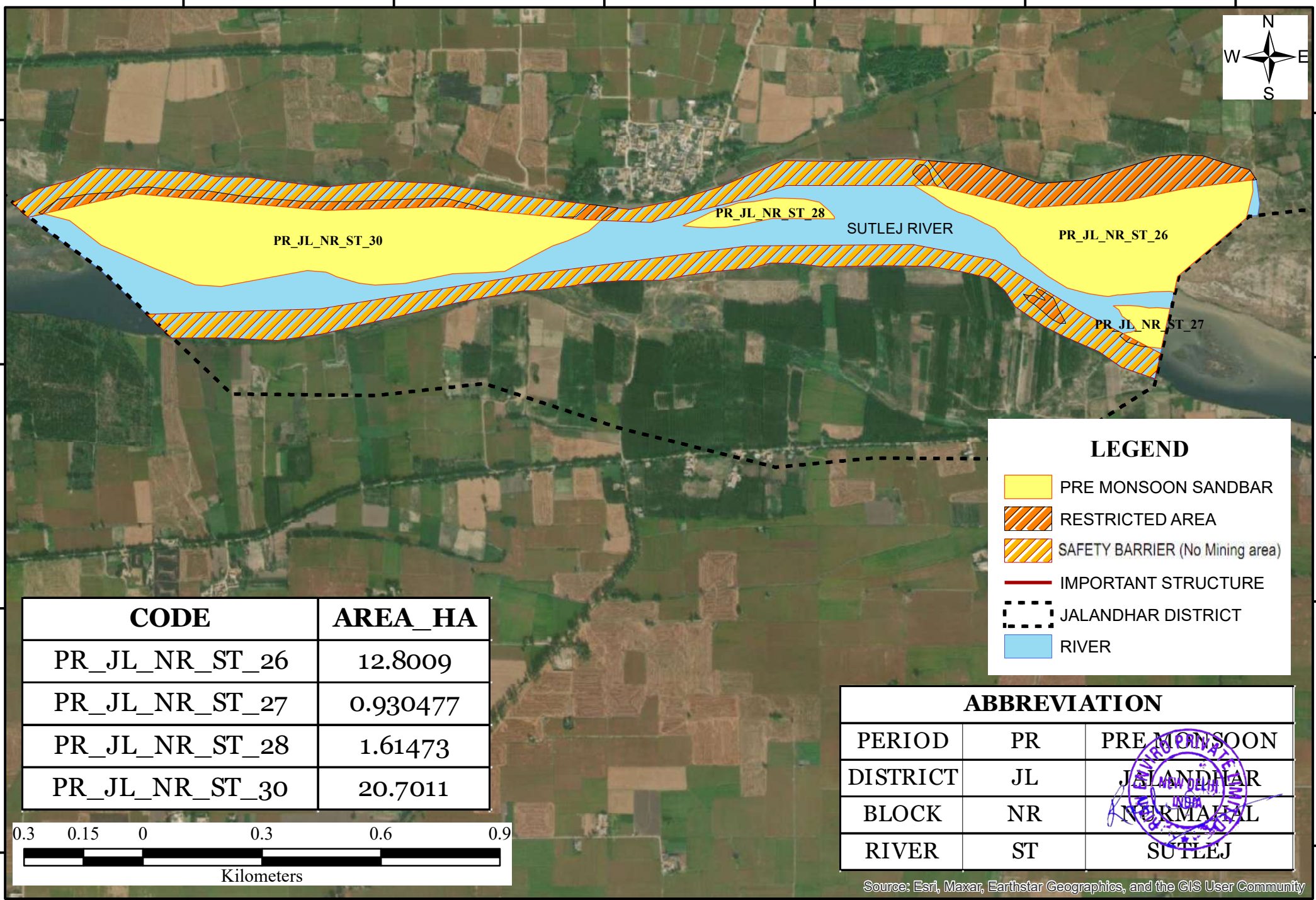
30°57'40"N

30°58'40"N







30°58'20"N

30°58'0"N

30°57'40"N

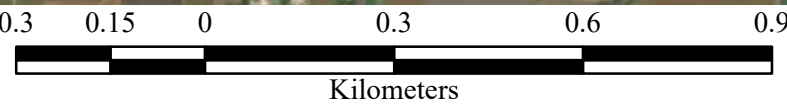


**LEGEND**

-  PRE MONSOON SANDBAR
-  RESTRICTED AREA
-  SAFETY BARRIER (No Mining area)
-  IMPORTANT STRUCTURE
-  JALANDHAR DISTRICT
-  RIVER

CODE	AREA_HA
PR_JL_NR_ST_26	12.8009
PR_JL_NR_ST_27	0.930477
PR_JL_NR_ST_28	1.61473
PR_JL_NR_ST_30	20.7011

ABBREVIATION		
PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	NR	NORMALAL
RIVER	ST	SUTLEJ



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

75°35'0"E

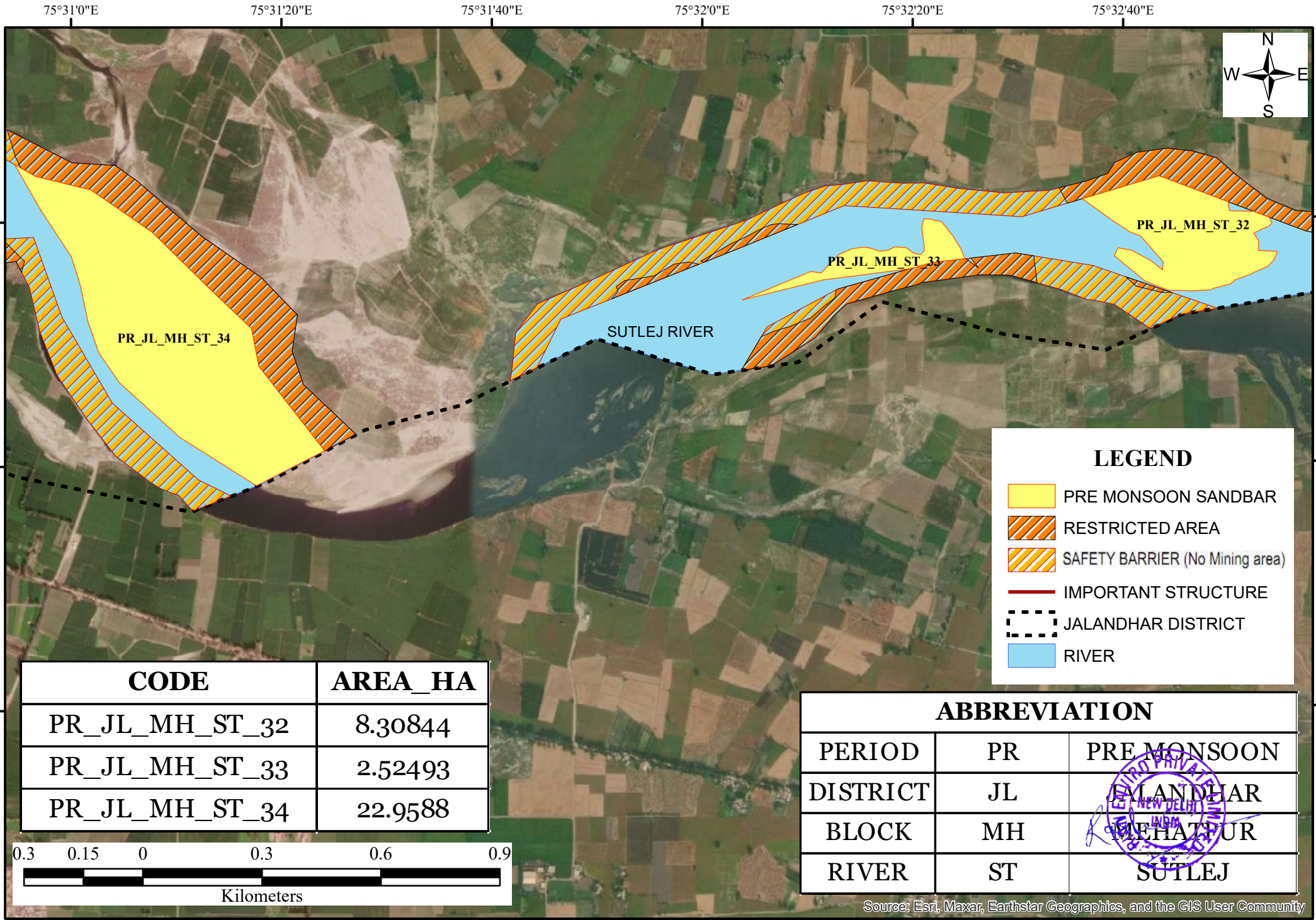
75°35'20"E

75°35'40"E

75°36'0"E

75°36'20"E

75°36'40"E

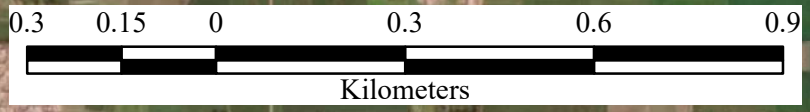


**LEGEND**

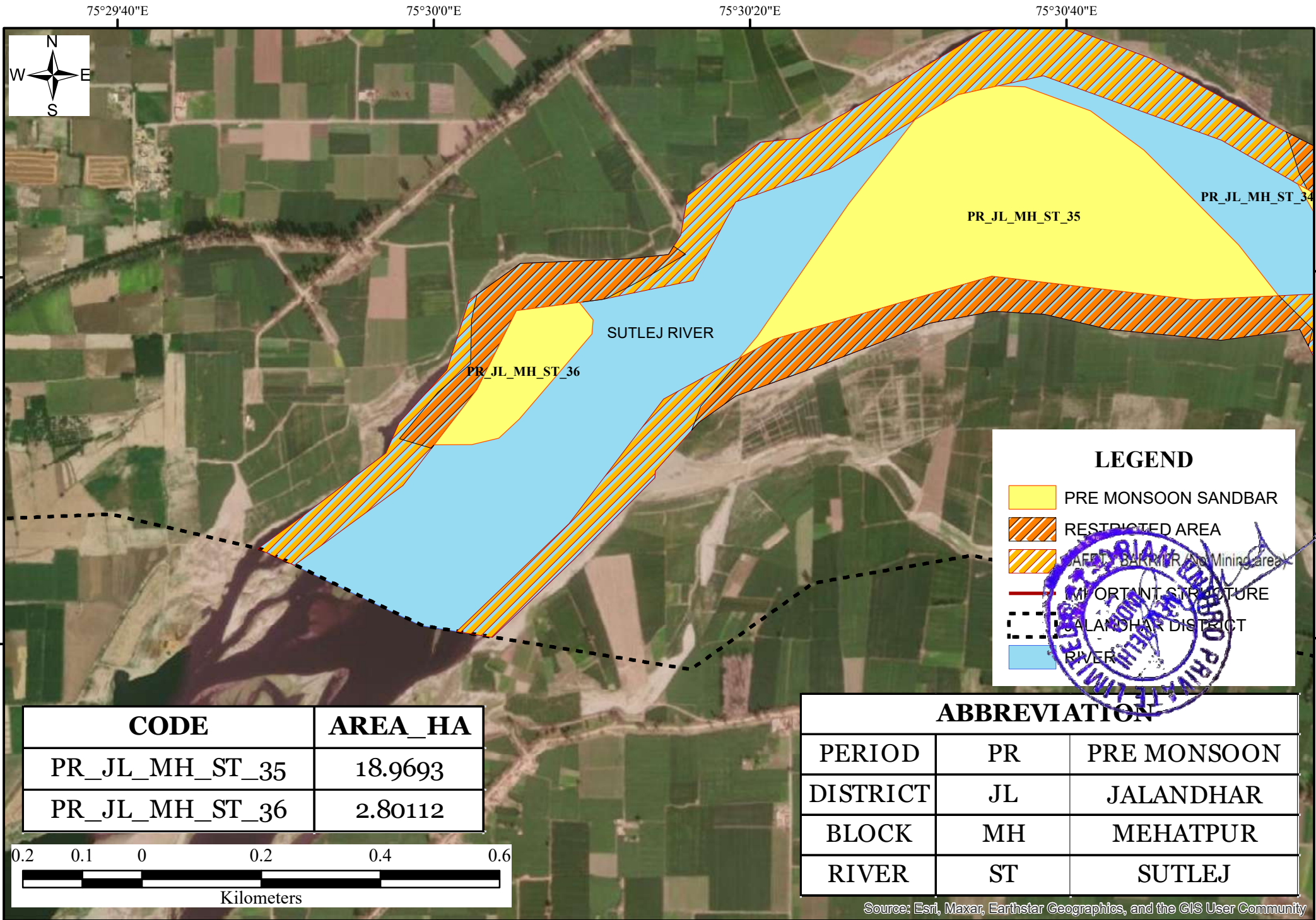
- PRE MONSOON SANDBAR
- RESTRICTED AREA
- SAFETY BARRIER (No Mining area)
- IMPORTANT STRUCTURE
- JALANDHAR DISTRICT
- RIVER

CODE	AREA_HA
PR_JL_MH_ST_32	8.30844
PR_JL_MH_ST_33	2.52493
PR_JL_MH_ST_34	22.9588

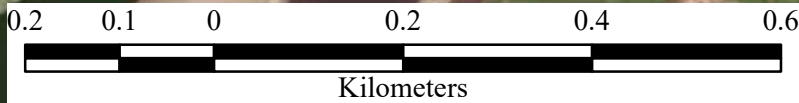
ABBREVIATION		
PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	MH	MEHATPUR
RIVER	ST	SUTLEJ



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



CODE	AREA_HA
PR_JL_MH_ST_35	18.9693
PR_JL_MH_ST_36	2.80112

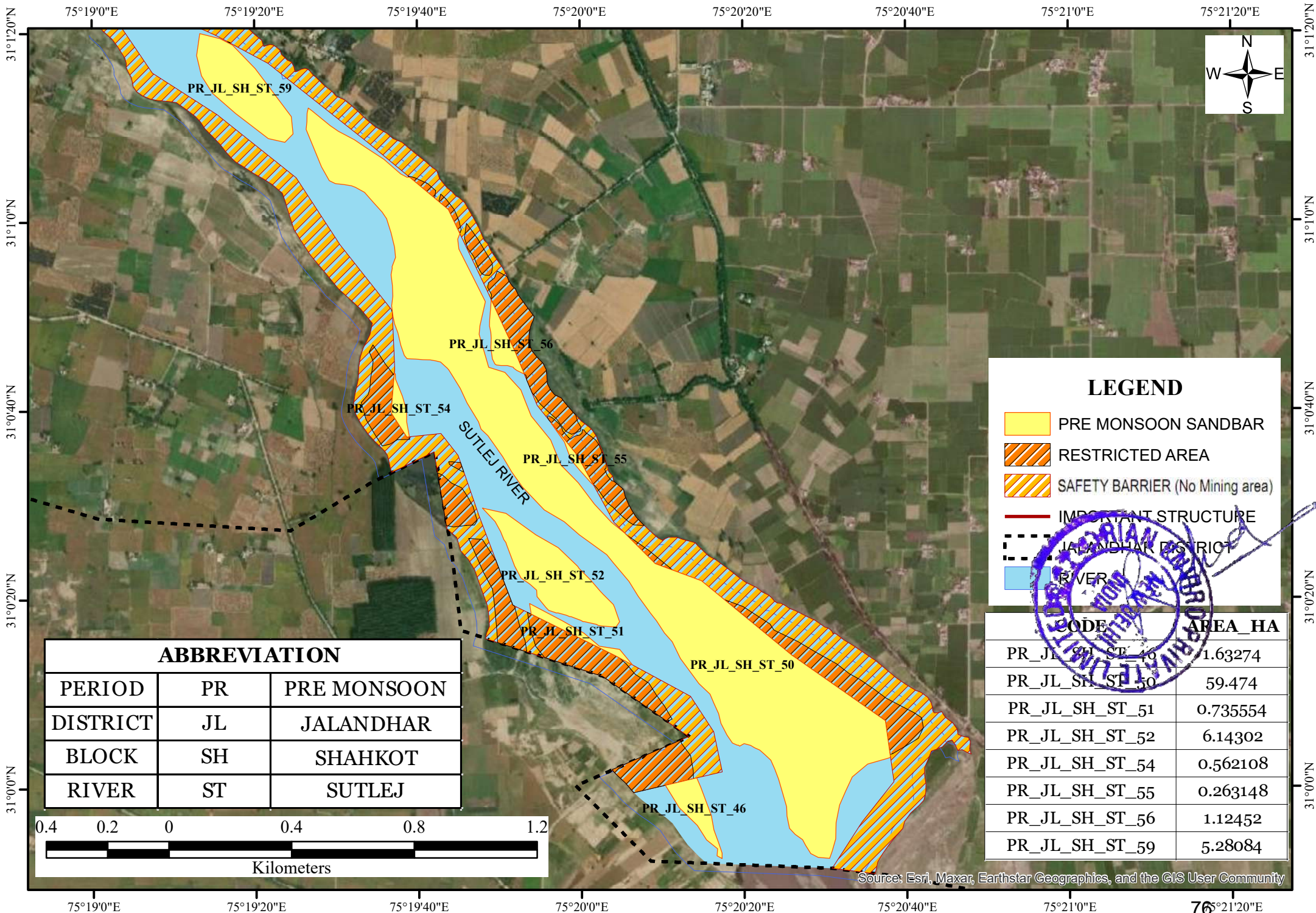


**LEGEND**

- PRE MONSOON SANDBAR
- RESTRICTED AREA
- AFFECTED BAR/ R/ Mine area
- IMPORTANT STRUCTURE
- JALANDHAR DISTRICT
- RIVER

ABBREVIATION		
PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	MH	MEHATPUR
RIVER	ST	SUTLEJ

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



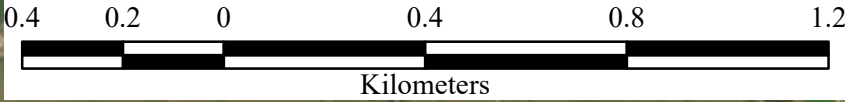
### LEGEND

- PRE MONSOON SANDBAR
- RESTRICTED AREA
- SAFETY BARRIER (No Mining area)
- IMPORTANT STRUCTURE
- JALANDHAR DISTRICT
- RIVER

CODE	AREA_HA
PR_JL_SH_ST_46	1.63274
PR_JL_SH_ST_50	59.474
PR_JL_SH_ST_51	0.735554
PR_JL_SH_ST_52	6.14302
PR_JL_SH_ST_54	0.562108
PR_JL_SH_ST_55	0.263148
PR_JL_SH_ST_56	1.12452
PR_JL_SH_ST_59	5.28084

### ABBREVIATION

PERIOD	PR	PRE MONSOON
DISTRICT	JL	JALANDHAR
BLOCK	SH	SHAHKOT
RIVER	ST	SUTLEJ



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**Plate II**

**Map showing post monsoon potential sandbar on Sutlej River**

**Jalandhar District**



75°55'0"E

75°55'30"E



31°10'N

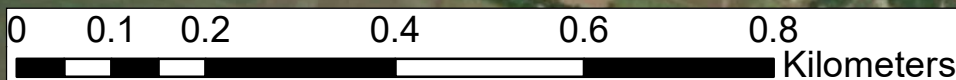
31°10'N

Sutlej River PHILLAUR PO\_JL\_PL\_ST\_1A

PO\_JL\_PL\_ST\_01

ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

CODE	POTENTIAL AREA(HA.)
PO_JL_PL_ST_01	3.42
PO_JL_PL_ST_1A	6.25



**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining area)
- RIVER
- IMPORTANT STRUCTURE

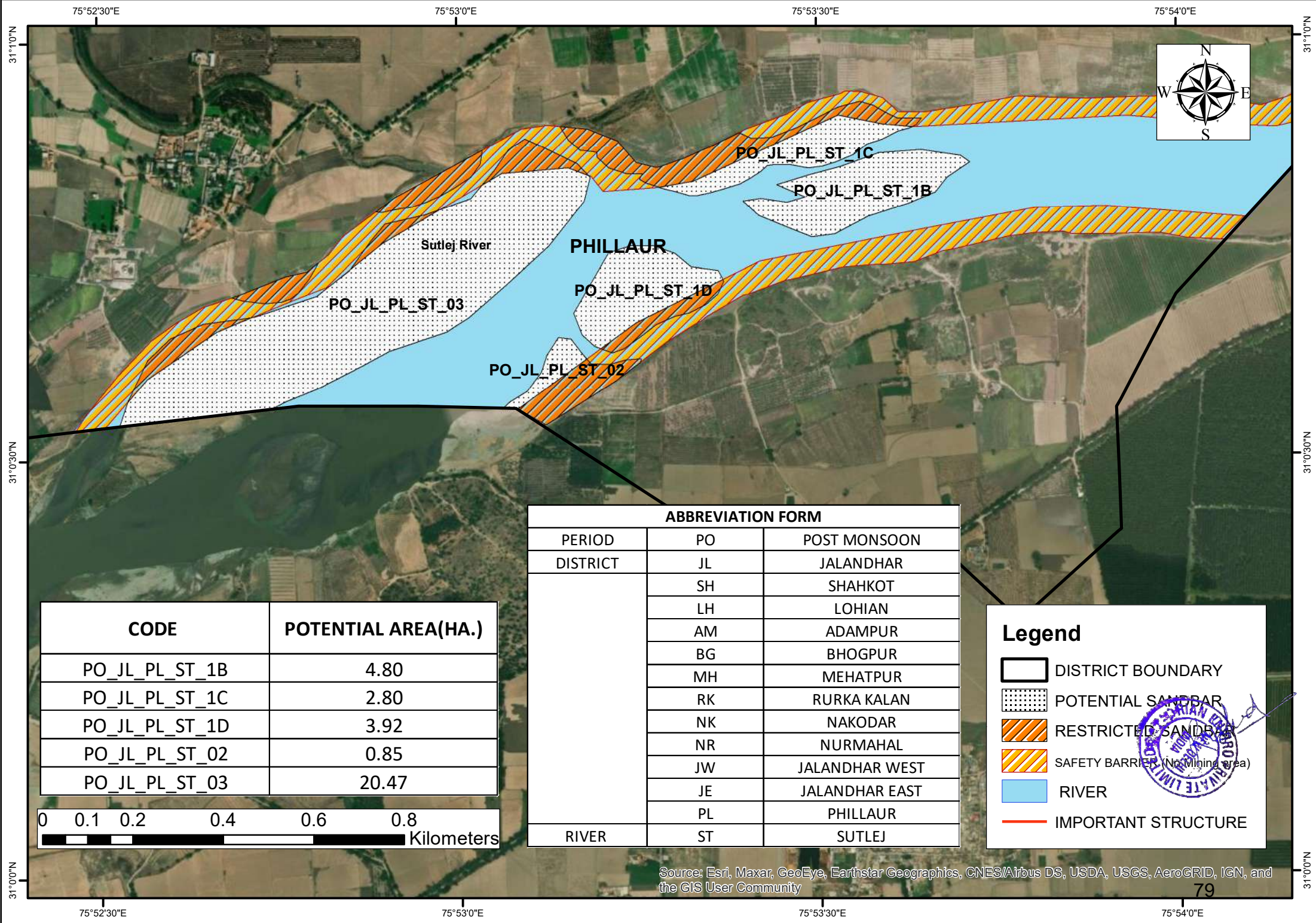
31°10'30"N

31°10'30"N

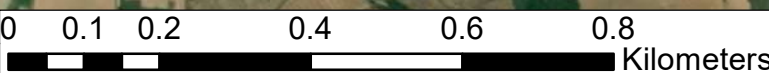
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°55'0"E

75°55'30"E



CODE	POTENTIAL AREA(HA.)
PO_JL_PL_ST_1B	4.80
PO_JL_PL_ST_1C	2.80
PO_JL_PL_ST_1D	3.92
PO_JL_PL_ST_02	0.85
PO_JL_PL_ST_03	20.47



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining area)
- RIVER
- IMPORTANT STRUCTURE

75°48'30"E

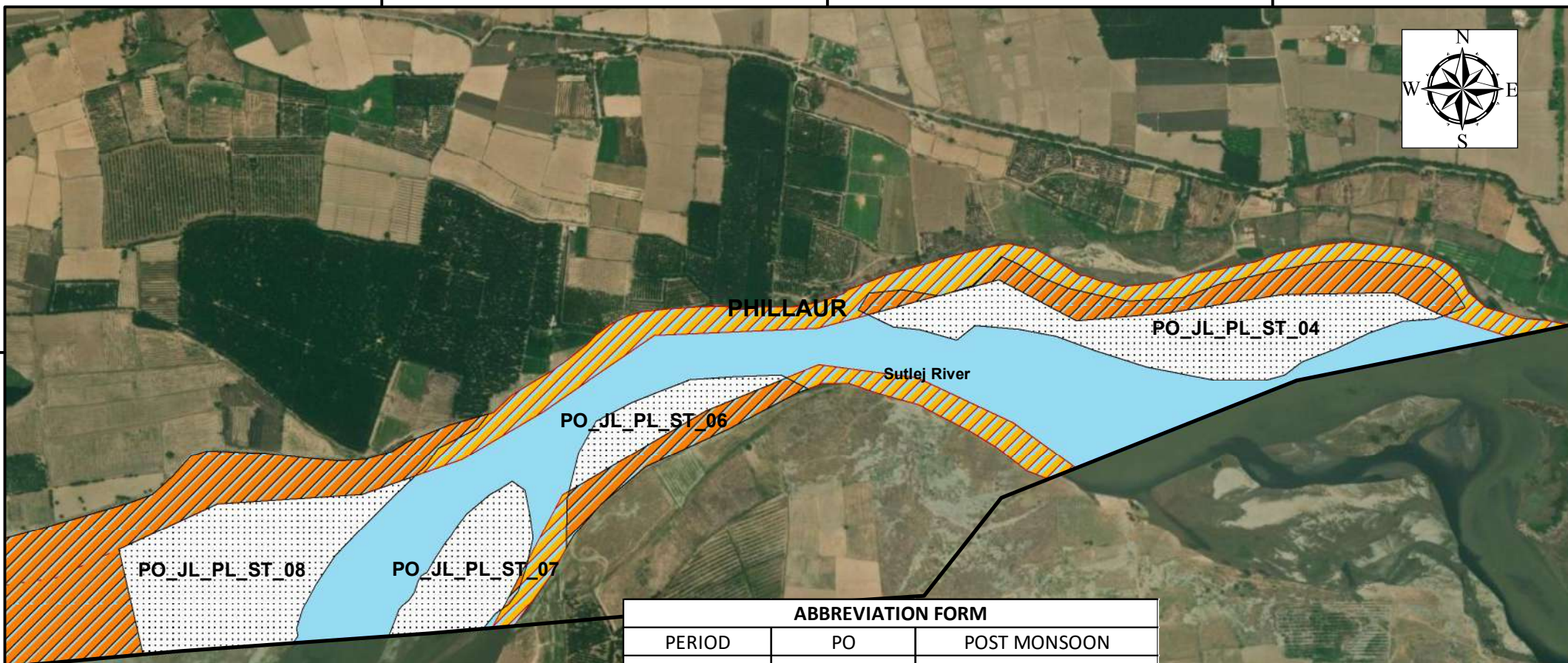
75°49'0"E

75°49'30"E



31°0'0"N

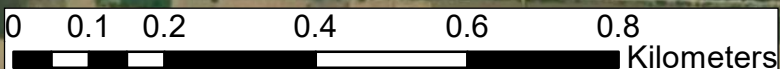
31°0'0"N



30°59'30"N

30°59'30"N

CODE	POTENTIAL AREA(HA.)
PO_JL_PL_ST_04	8.24
PO_JL_PL_ST_06	2.40
PO_JL_PL_ST_07	3.82
PO_JL_PL_ST_08	8.97



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

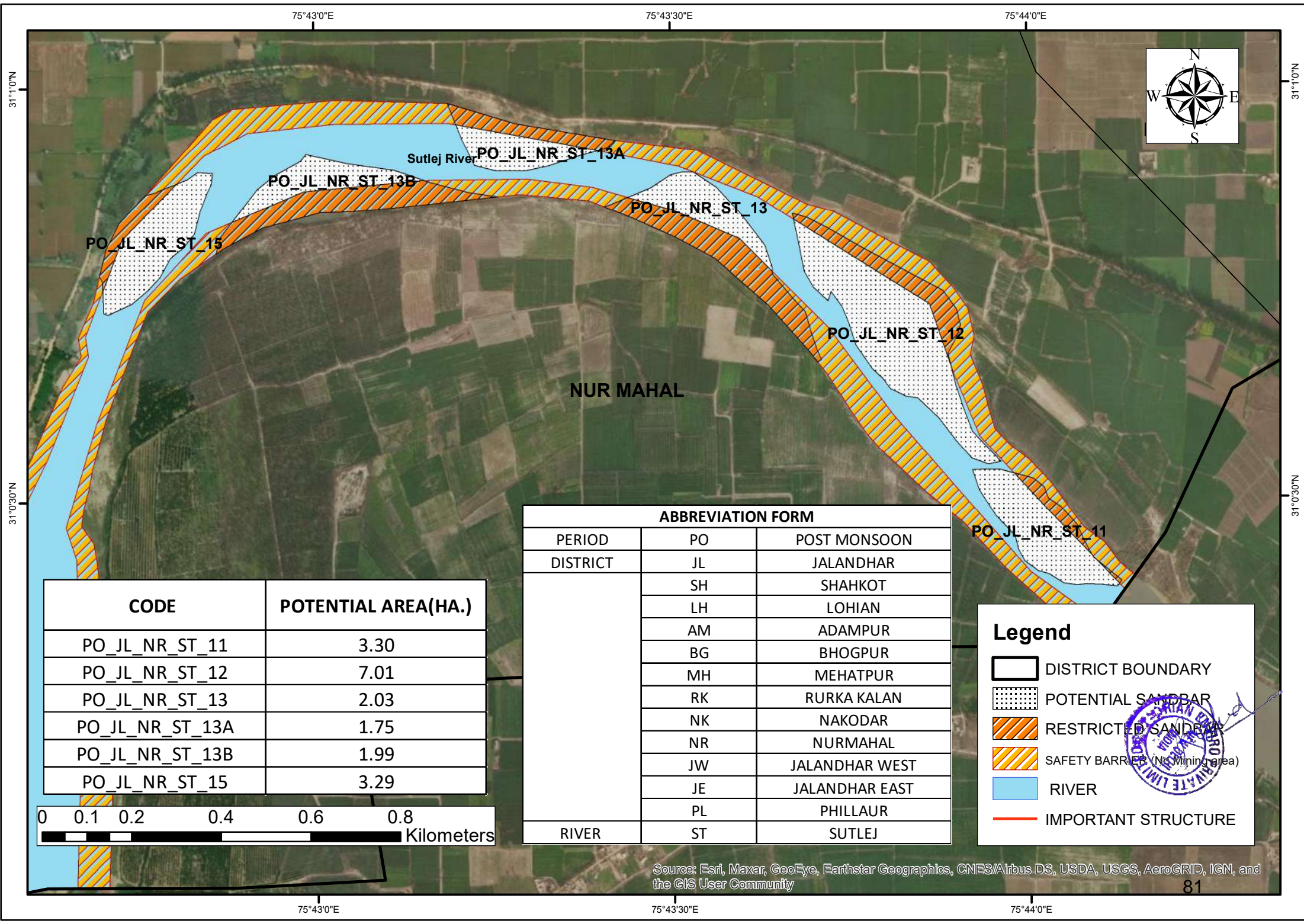
- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining area)
- RIVER
- IMPORTANT STRUCTURE

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°48'30"E

75°49'0"E

75°49'30"E



CODE	POTENTIAL AREA(HA.)
PO_JL_NR_ST_11	3.30
PO_JL_NR_ST_12	7.01
PO_JL_NR_ST_13	2.03
PO_JL_NR_ST_13A	1.75
PO_JL_NR_ST_13B	1.99
PO_JL_NR_ST_15	3.29

ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining area)
- RIVER
- IMPORTANT STRUCTURE

75°39'0"E

75°39'30"E

75°40'0"E



NUR MAHAL

Sutlej River

PO\_JL\_NR\_ST\_16

30°59'0"N

30°59'0"N

**ABBREVIATION FORM**

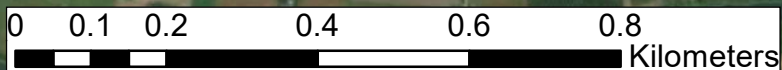
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining area)
- RIVER
- IMPORTANT STRUCTURE



CODE	POTENTIAL AREA(HA.)
PO_JL_NR_ST_16	7.90



30°58'30"N

30°58'30"N

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°39'0"E

75°39'30"E

75°40'0"E

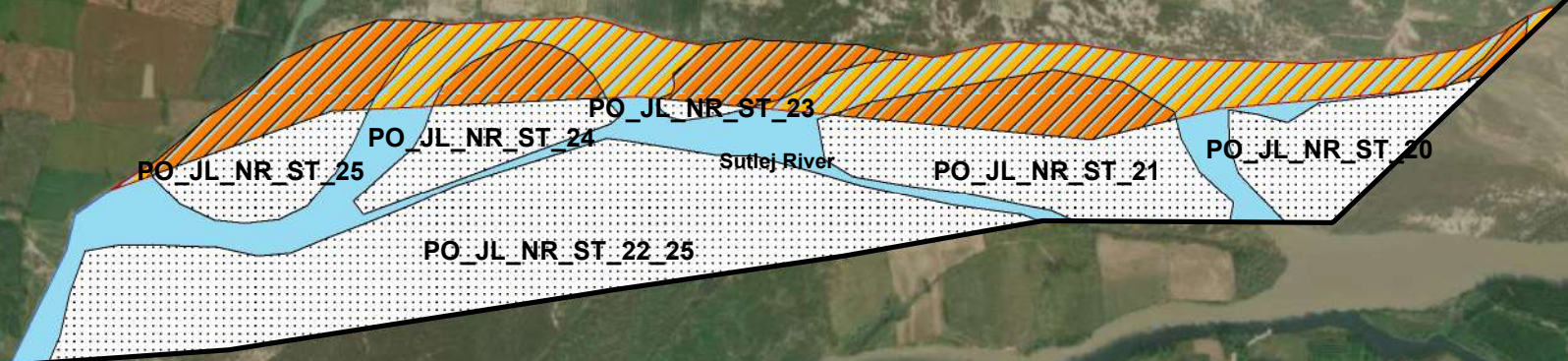
75°37'0"E 75°37'30"E 75°38'0"E 75°38'30"E

30°59'0"N

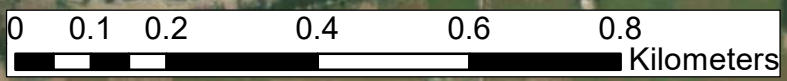
30°59'0"N



**NUR MAHAL**



CODE	POTENTIAL AREA(HA.)
PO_JL_NR_ST_20	3.36
PO_JL_NR_ST_21	5.19
PO_JL_NR_ST_22_25	17.59
PO_JL_NR_ST_23	0.21
PO_JL_NR_ST_24	2.31
PO_JL_NR_ST_25	2.40



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mixing area)
- RIVER
- IMPORTANT STRUCTURE

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°37'0"E 75°37'30"E 75°38'0"E 75°38'30"E

30°58'30"N

30°58'30"N

75°36'0"E

75°36'30"E

75°37'0"E



30°58'30"N

30°58'30"N

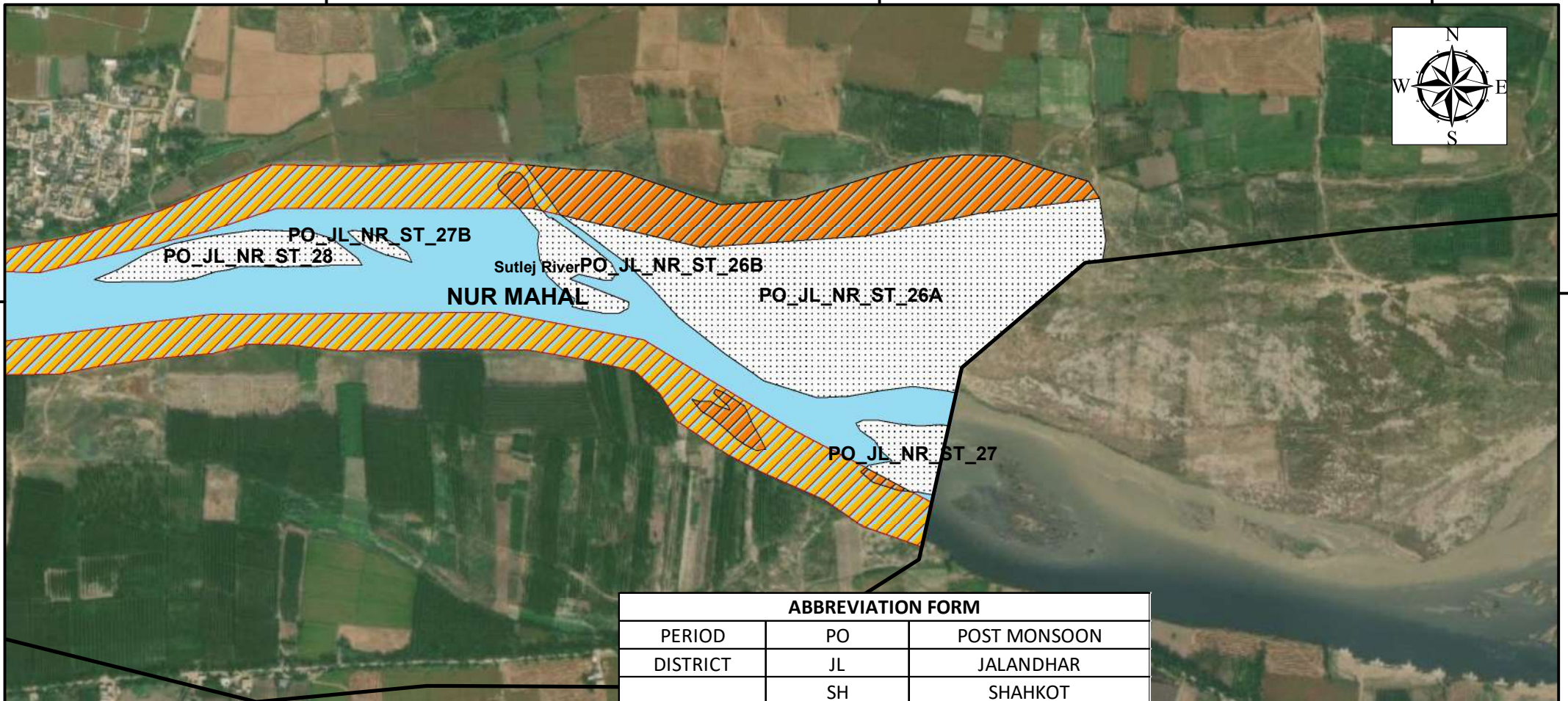
30°58'0"N

30°58'0"N

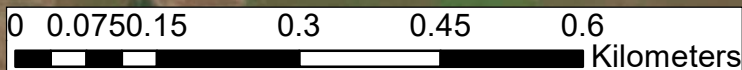
75°36'0"E

75°36'30"E

75°37'0"E



CODE	POTENTIAL AREA(HA.)
PO_JL_NR_ST_26A	12.08
PO_JL_NR_ST_26B	0.96
PO_JL_NR_ST_27	0.90
PO_JL_NR_ST_27B	0.15
PO_JL_NR_ST_28	1.60



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Widening area)
- RIVER
- IMPORTANT STRUCTURE

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°34'30"E

75°35'0"E

75°35'30"E



Sutlej River

NUR MAHAL

PO\_JL\_NR\_ST\_30B

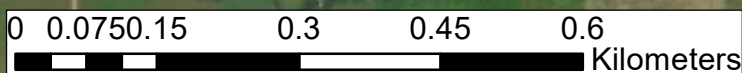
Sutlej River

PO\_JL\_NR\_ST\_30A

30°58'30"N

30°58'30"N

CODE	POTENTIAL AREA(HA.)
PO_JL_NR_ST_30A	2.82
PO_JL_NR_ST_30B	17.02



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mixing area)
- RIVER
- IMPORTANT STRUCTURE

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

30°58'0"N

30°58'0"N

75°34'30"E

75°35'0"E

75°35'30"E



75°32'0"E

75°32'30"E

75°33'0"E



MEHATPUR

Sutlej River

PO\_JL\_MH\_ST\_33A

PO\_JL\_MH\_ST\_33(II)

PO\_JL\_MH\_ST\_33(I)

PO\_JL\_MH\_ST\_32

PO\_JL\_MH\_ST\_33B

PO\_JL\_MH\_ST\_33(III)

30°58'30"N

30°58'30"N

CODE	POTENTIAL AREA(HA.)
PO_JL_MH_ST_32	11.22
PO_JL_MH_ST_33(I)	1.05
PO_JL_MH_ST_33(II)	3.32
PO_JL_MH_ST_33(III)	2.71
PO_JL_MH_ST_33A	0.65
PO_JL_MH_ST_33B	2.72



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mixing area)
- RIVER
- IMPORTANT STRUCTURE

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°32'0"E

75°32'30"E

75°33'0"E

75°30'0"E

75°30'30"E

75°31'0"E

75°31'30"E



30°58'30"N

30°58'30"N

30°58'0"N

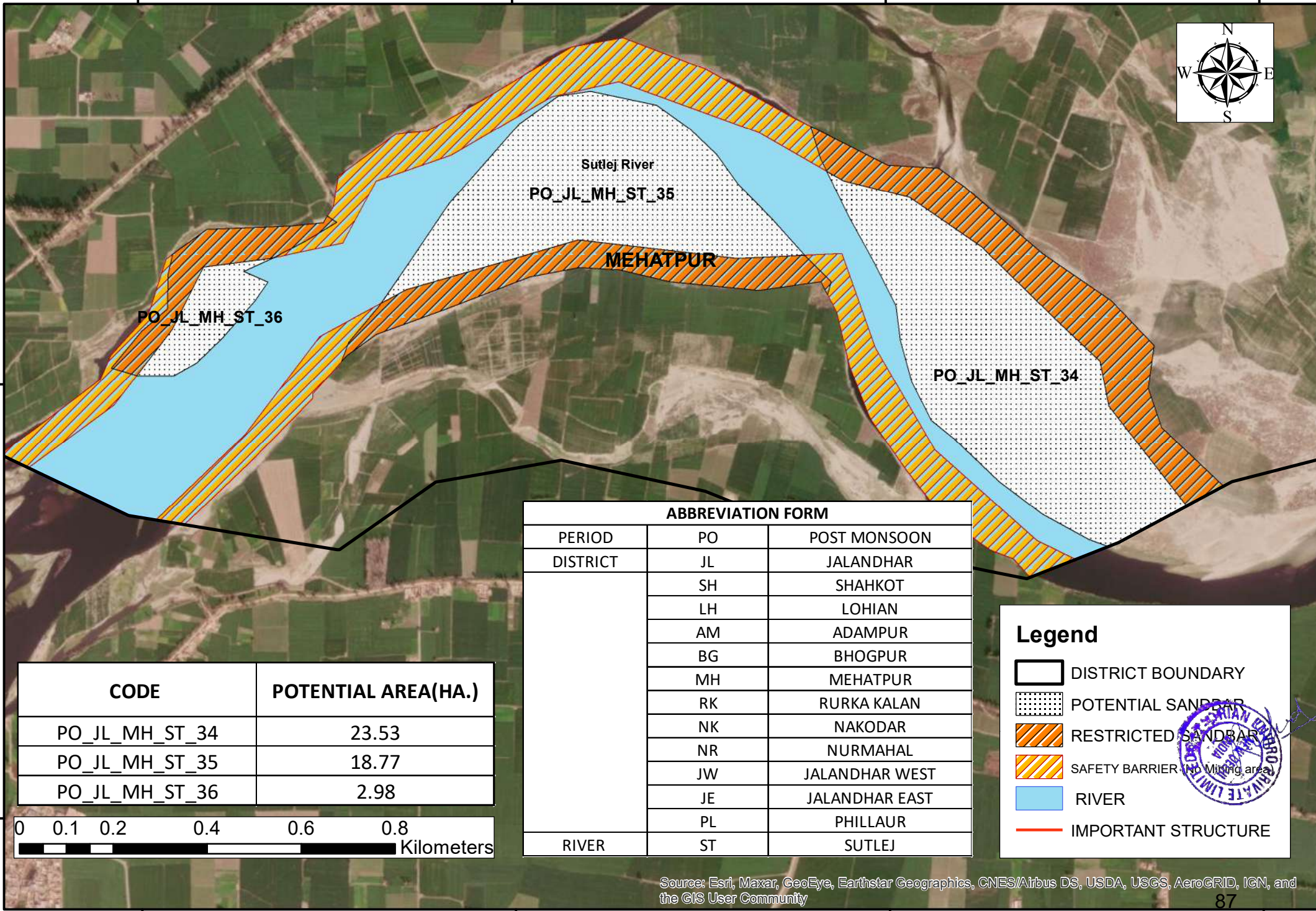
30°58'0"N

75°30'0"E

75°30'30"E

75°31'0"E

75°31'30"E



CODE	POTENTIAL AREA(HA.)
PO_JL_MH_ST_34	23.53
PO_JL_MH_ST_35	18.77
PO_JL_MH_ST_36	2.98



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUER
RIVER	ST	SUTLEJ

**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining area)
- RIVER
- IMPORTANT STRUCTURE

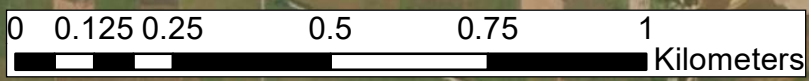
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°19'30"E      75°20'30"E      75°20'30"E      75°21'0"E



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

CODE	POTENTIAL AREA(HA.)
PO_JL_SH_ST_46	2.20
PO_JL_SH_ST_50A	41.76
PO_JL_SH_ST_51	0.34
PO_JL_SH_ST_51A	0.13
PO_JL_SH_ST_52	2.78
PO_JL_SH_ST_53A	0.41
PO_JL_SH_ST_53B	1.24
PO_JL_SH_ST_54	0.55
PO_JL_SH_ST_55	0.29
PO_JL_SH_ST_56	1.15



**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (no mixing area)
- RIVER
- IMPORTANT STRUCTURE

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

75°19'30"E      75°20'30"E      75°20'30"E      75°21'0"E

31°0'30"N

31°0'0"N

31°0'30"N

31°0'0"N

75°19'30"E

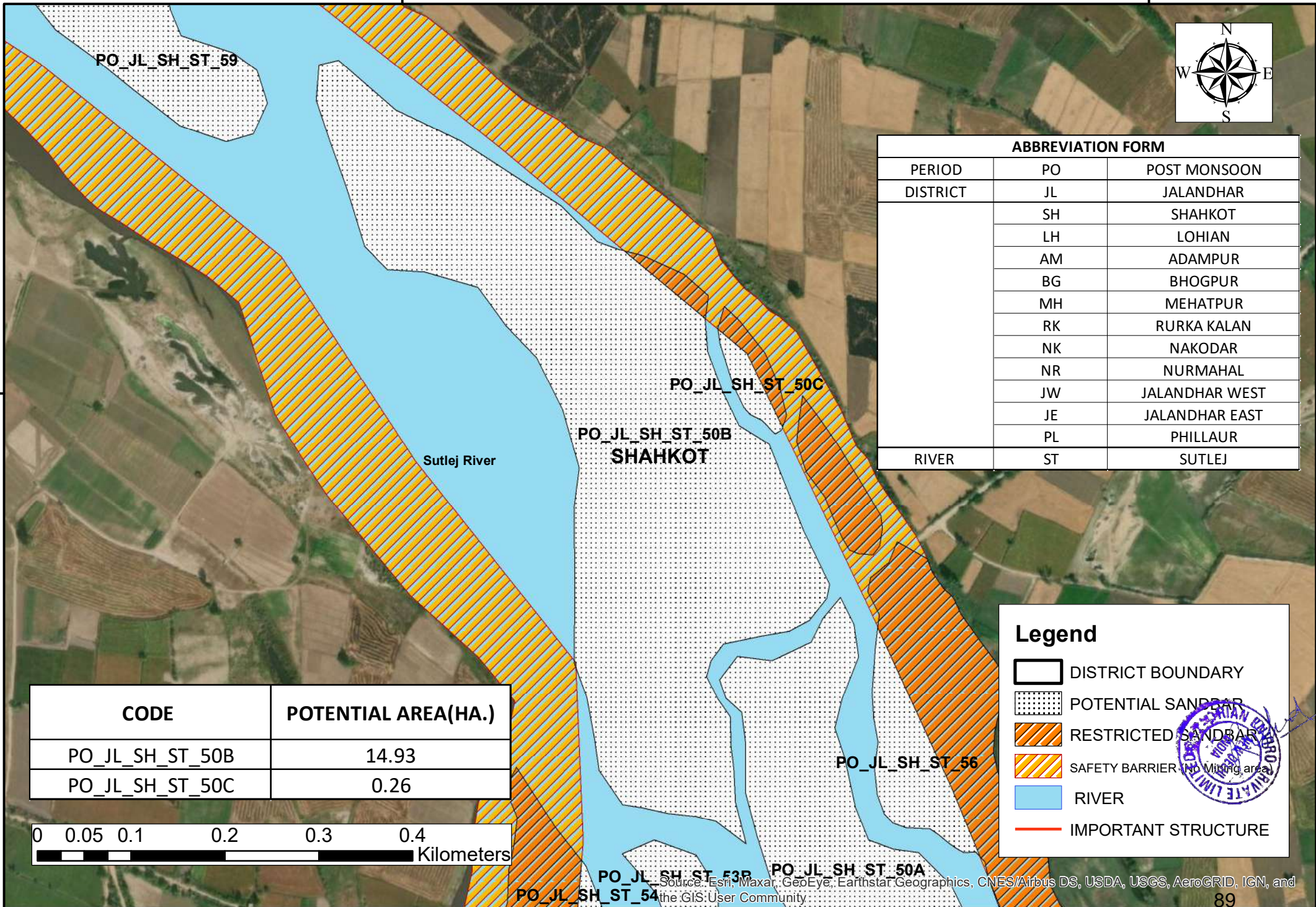
75°20'0"E



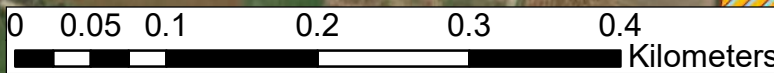
ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ

31°10'N

31°10'N



CODE	POTENTIAL AREA(HA.)
PO_JL_SH_ST_50B	14.93
PO_JL_SH_ST_50C	0.26



**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (no Mining area)
- RIVER
- IMPORTANT STRUCTURE

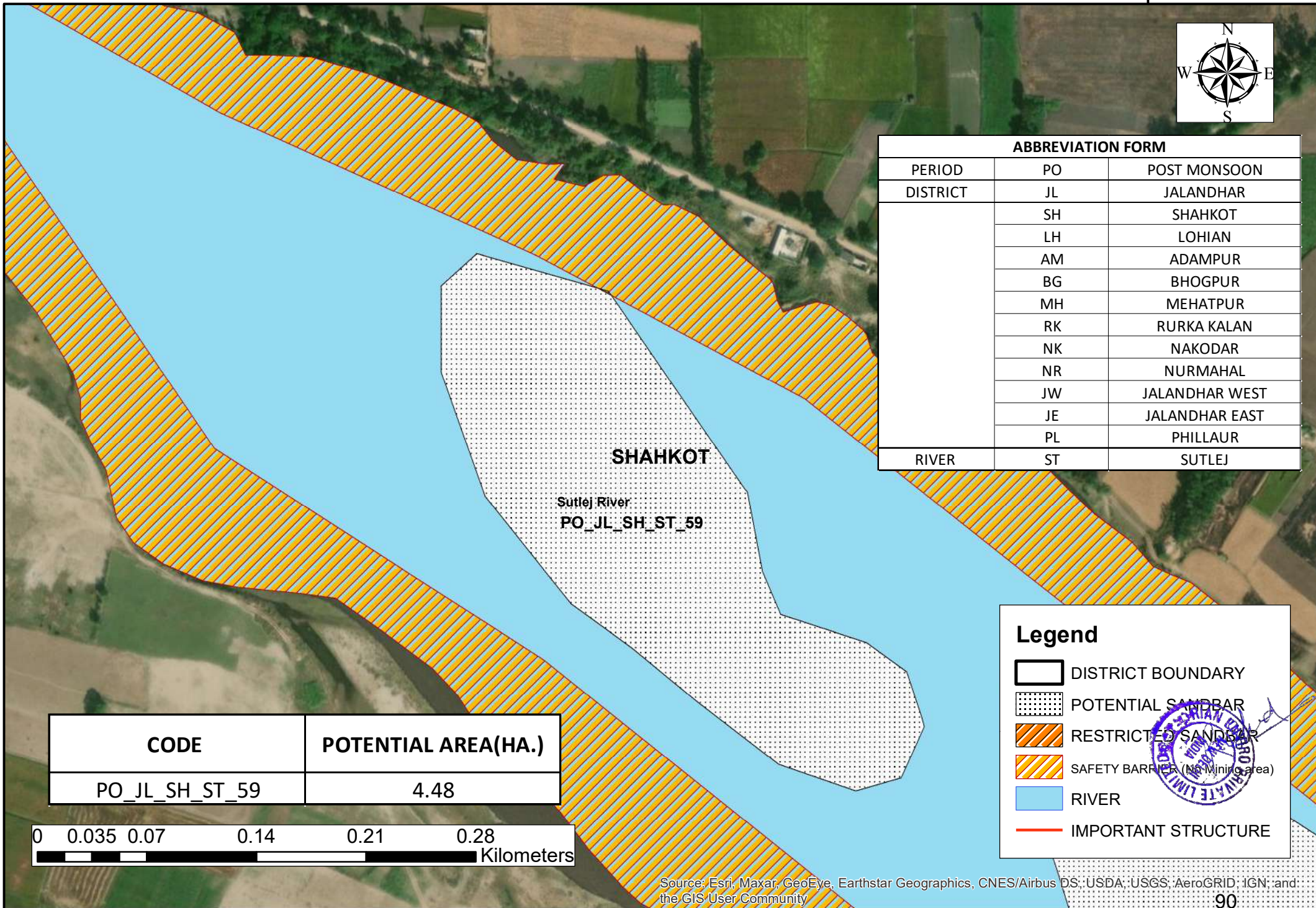


75°19'30"E

75°20'0"E



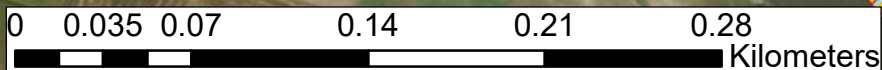
ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ



**SHAHKOT**

Suttlej River  
PO\_JL\_SH\_ST\_59

CODE	POTENTIAL AREA(HA.)
PO_JL_SH_ST_59	4.48



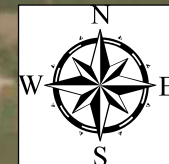
**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining Area)
- RIVER
- IMPORTANT STRUCTURE

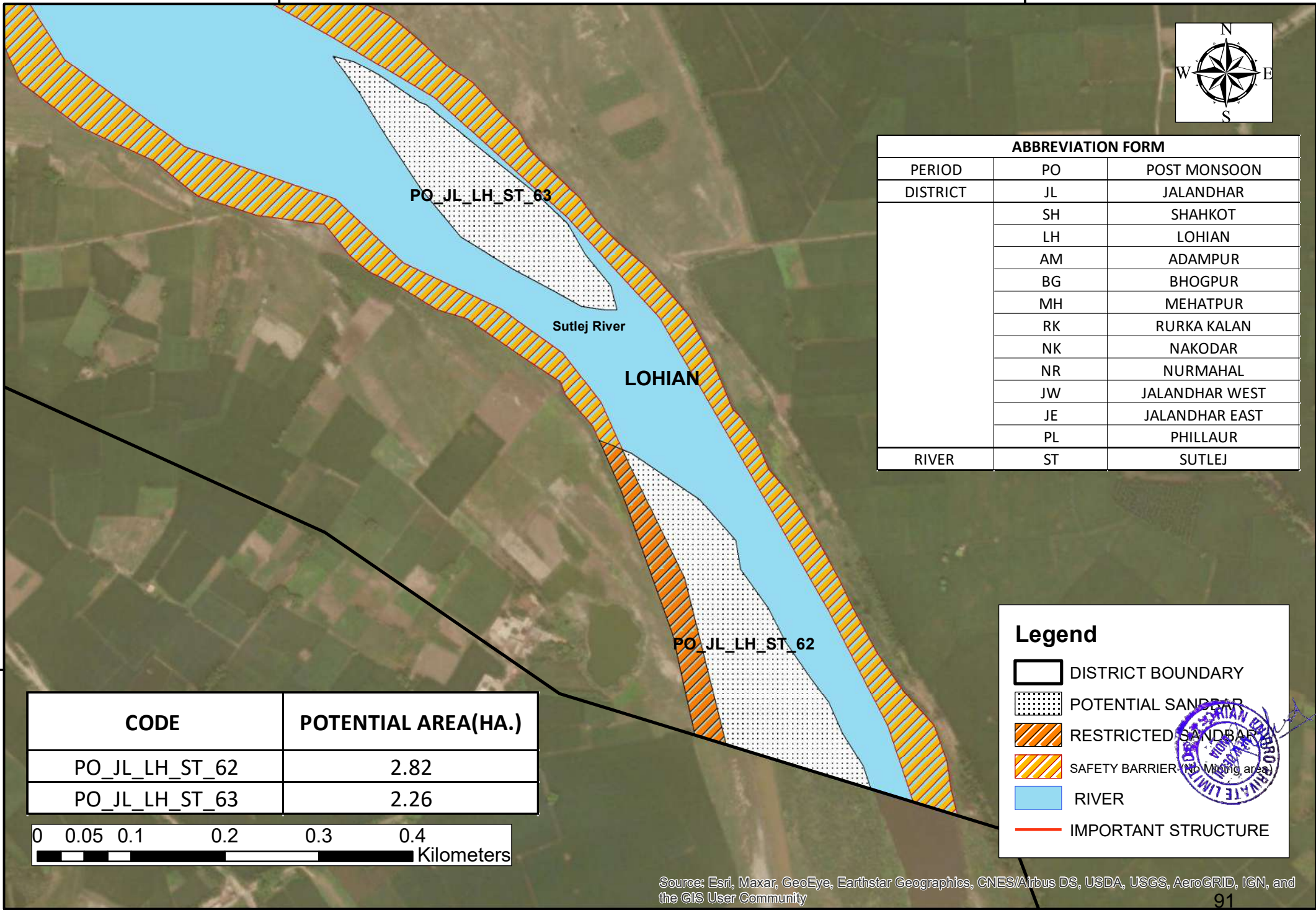


75°7'0"E

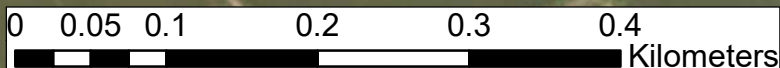
75°7'30"E



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ



CODE	POTENTIAL AREA(HA.)
PO_JL_LH_ST_62	2.82
PO_JL_LH_ST_63	2.26



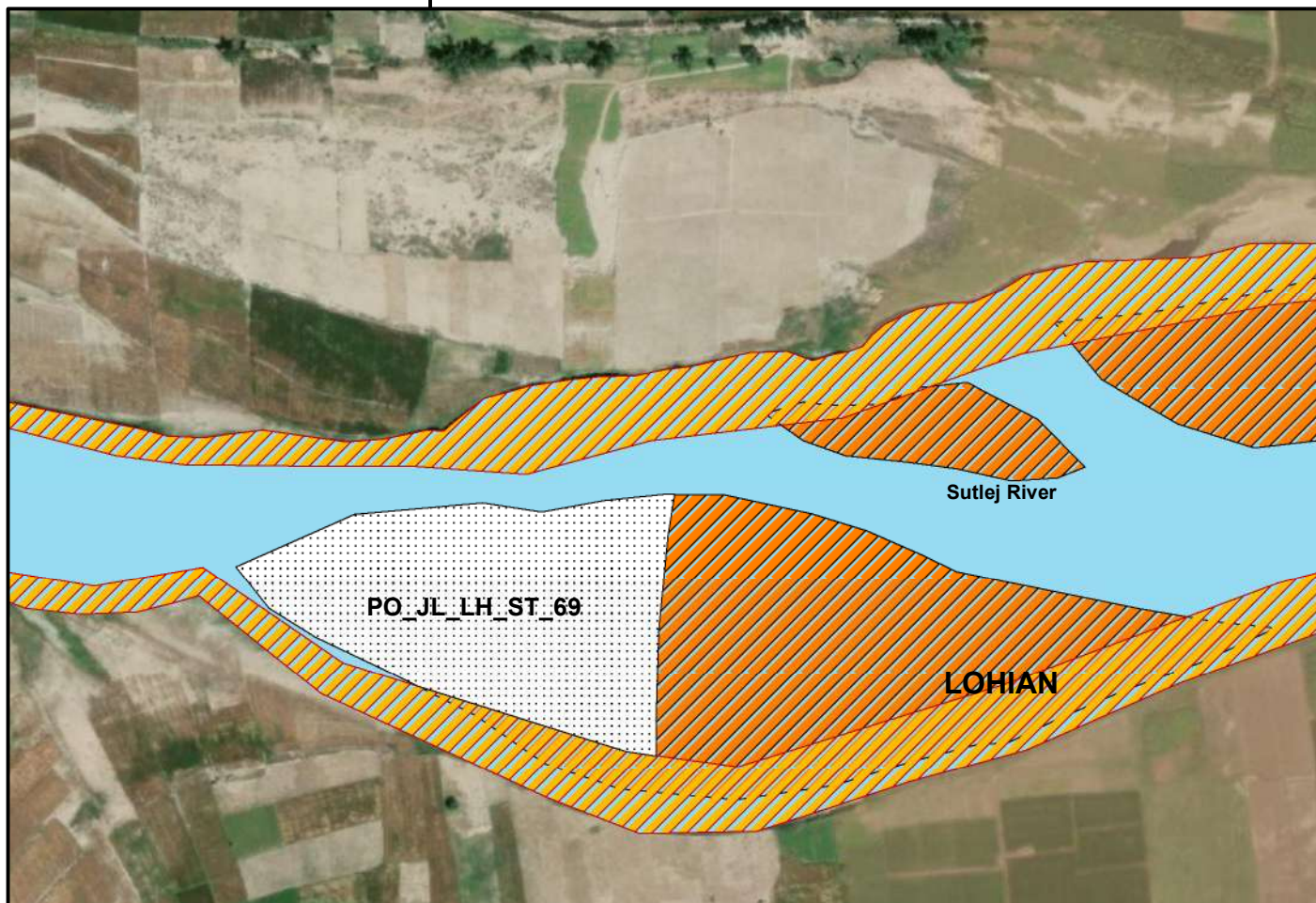
**Legend**

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Working area)
- RIVER
- IMPORTANT STRUCTURE

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



ABBREVIATION FORM		
PERIOD	PO	POST MONSOON
DISTRICT	JL	JALANDHAR
	SH	SHAHKOT
	LH	LOHIAN
	AM	ADAMPUR
	BG	BHOGPUR
	MH	MEHATPUR
	RK	RURKA KALAN
	NK	NAKODAR
	NR	NURMAHAL
	JW	JALANDHAR WEST
	JE	JALANDHAR EAST
	PL	PHILLAUR
RIVER	ST	SUTLEJ



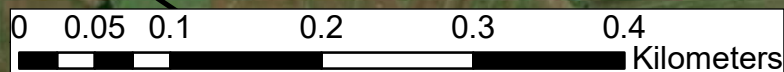
PO\_JL\_LH\_ST\_69

LOHIAN

Sutlej River

**Note:** The gross area of PO\_JL\_LH\_ST\_69 is 9.24 Ha. (Table no. 7.2 of page no. 55) but the potential area (3.62 Ha.) has been given after deducting 1/8th line from bank or 1 Km distance from bridge from gross area.  
 Safety Barrier (No mining Area): 1/8th line from the bank.  
 Restricted Sandbars: Those areas which fall in 1/8th line from the bank and fall in 1 Km distance from Bridges.

CODE	POTENTIAL AREA(HA.)
PO_JL_LH_ST_69	3.62



### Legend

- DISTRICT BOUNDARY
- POTENTIAL SANDBAR
- RESTRICTED SANDBAR
- SAFETY BARRIER (No Mining area)
- RIVER
- IMPORTANT STRUCTURE







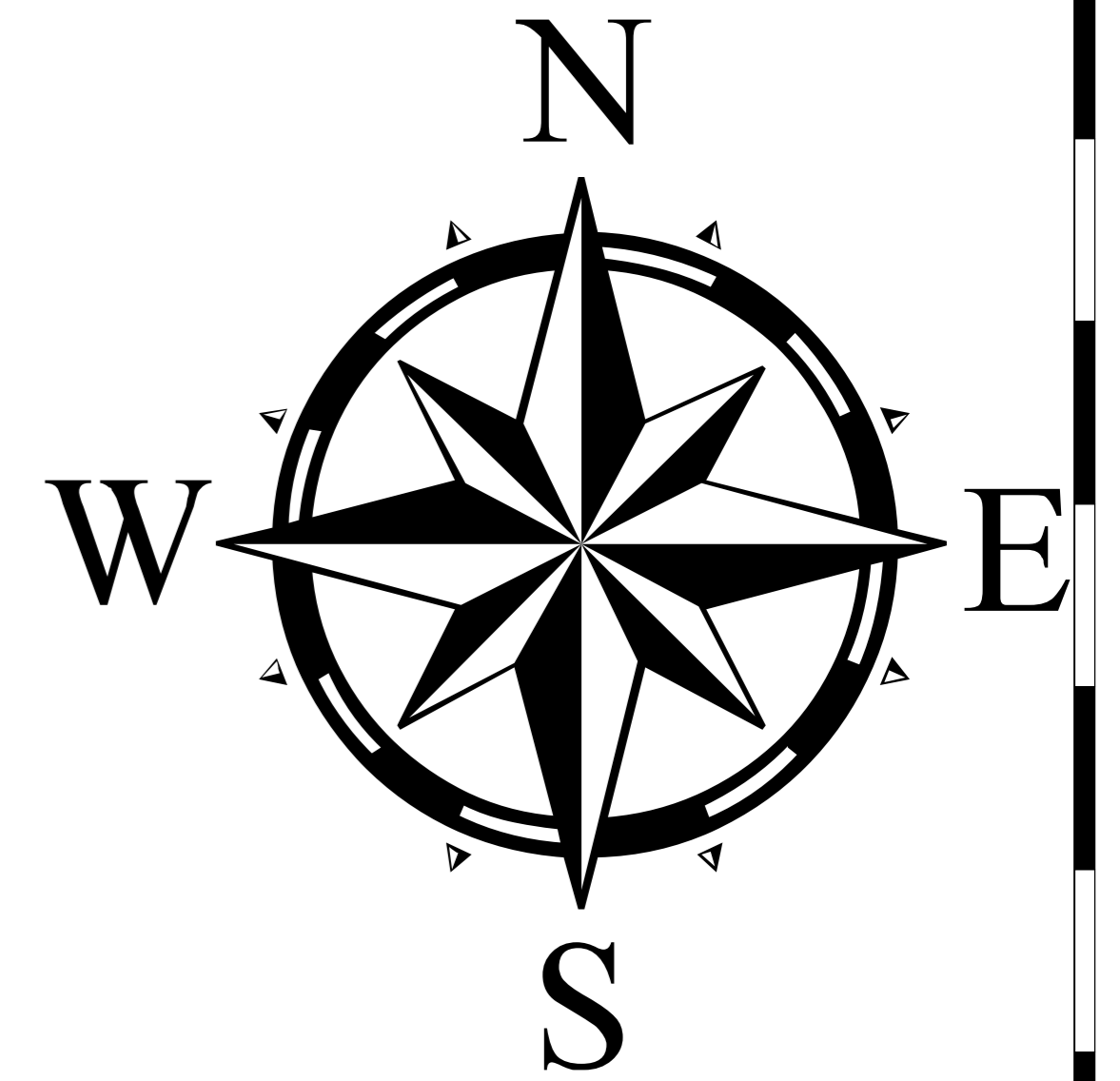
75°30'0"E

76°0'0"E

# JALANDHAR ELEVATION MAP (CARTOSAT NRSC)

31°30'0"N

31°30'0"N



**RIVER EXIT POINT**  
Elevation - 209m

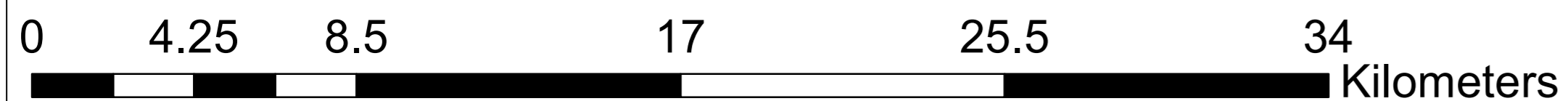
*PO\_JL\_LH\_ST\_69*  
*PO\_JL\_LH\_ST\_62*  
*PO\_JL\_LH\_ST\_63*

**RIVER ENTRY POINT**  
Elevation - 240 m

*PO\_JL\_SH\_ST\_59*  
*PO\_JL\_SH\_ST\_51*  
*PO\_JL\_SH\_ST\_51A*  
*PO\_JL\_SH\_ST\_46*

*PO\_JL\_MH\_ST\_36*  
*PO\_JL\_MH\_ST\_34*  
*PO\_JL\_NR\_ST\_25*  
*PO\_JL\_NR\_ST\_24*

*PO\_JL\_NR\_ST\_15*  
*PO\_JL\_PL\_ST\_02*  
*PO\_JL\_PL\_ST\_02*  
*PO\_JL\_PL\_ST\_1D*  
*PO\_JL\_PL\_ST\_04*



DEM SOURCE: <https://bhuvan-app3.nrsc.gov.in/data/download/index.php>  
data: CARTOSAT DEM (1.2 m Spatial Resolution)



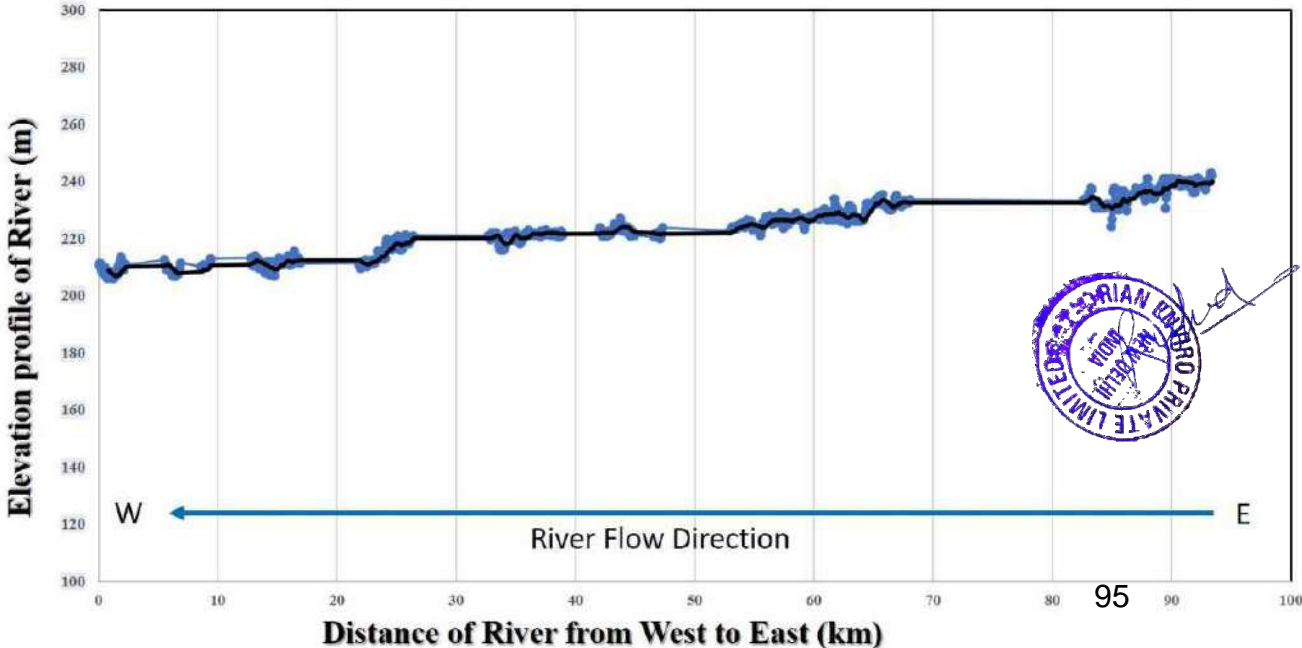
31°0'0"N

31°0'0"N

75°30'0"E

76°0'0"E

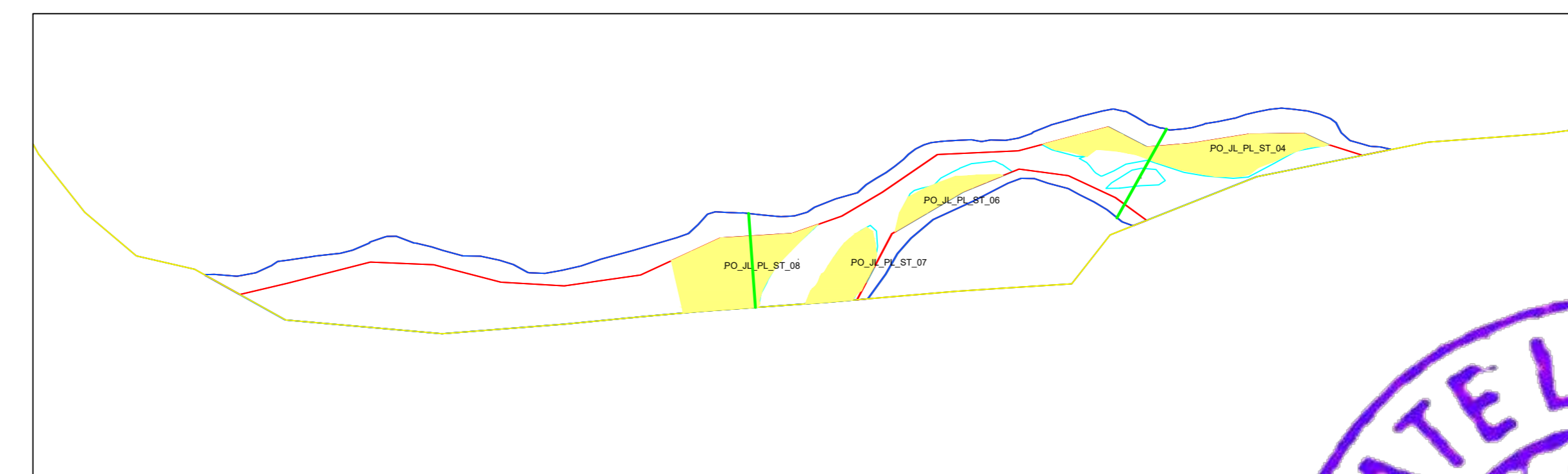
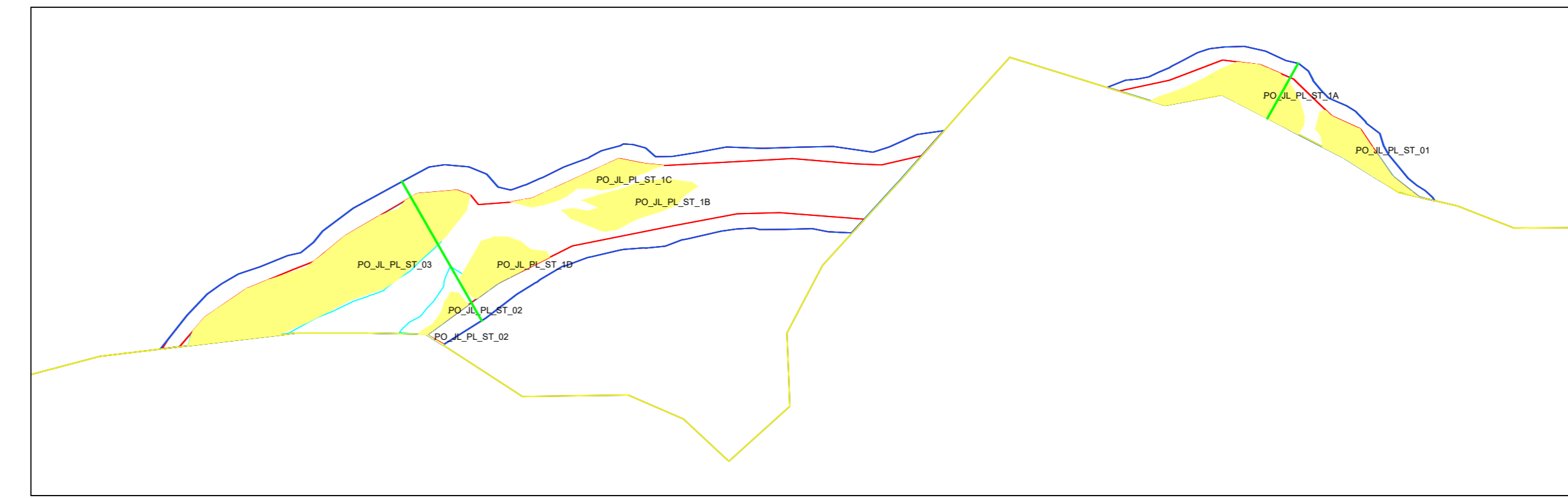
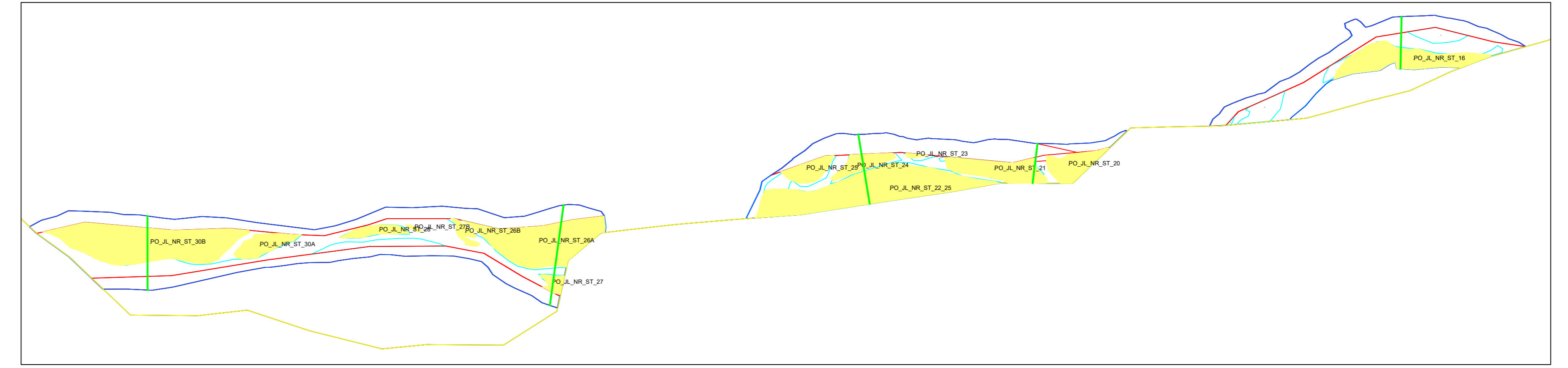
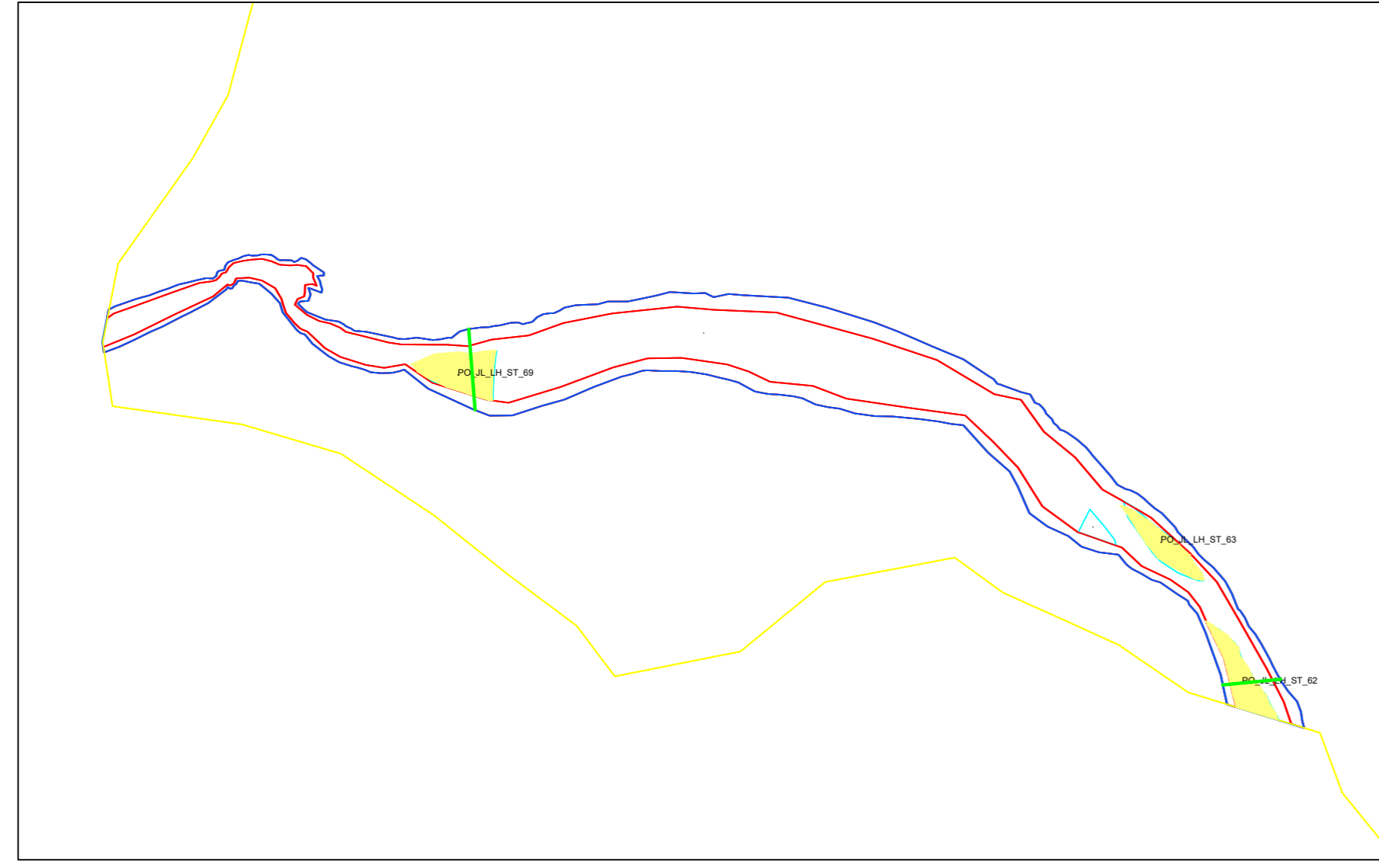
# River L Section (SUTLEJ) Jalandhar

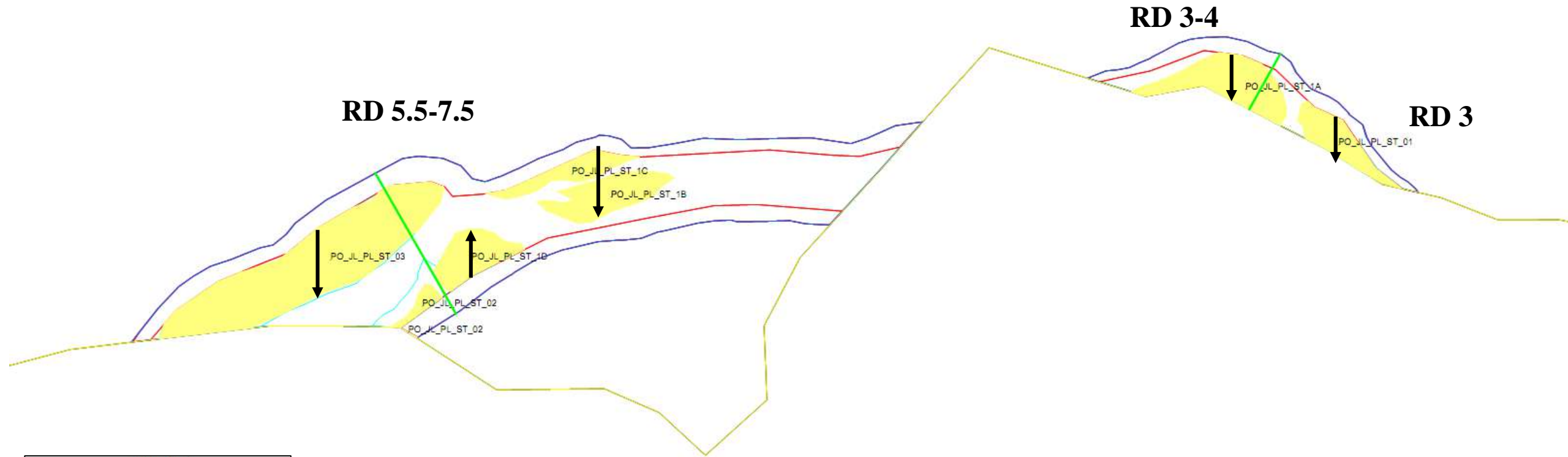






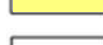

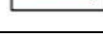
**Plate IV**

**Cross section line plotted along potential sandbar on Sutlej River, Jalandhar District**



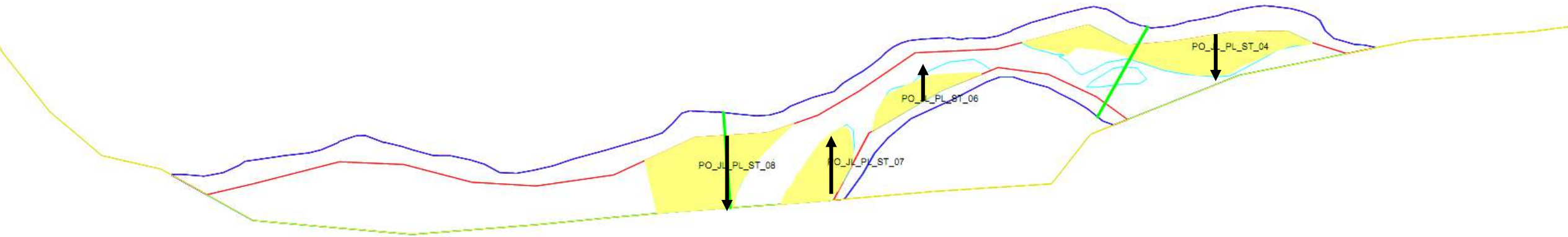











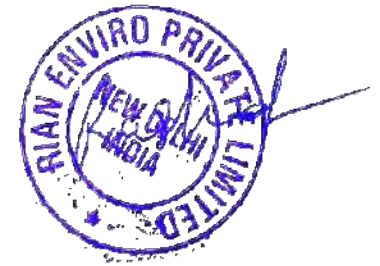
INDEX	
	District Boundary
	River line
	Safety barrier
	Pre Monsoon Sand bar
	Post Monsoon Sand bar
	Cross Section Lines
	Direction of the cross section



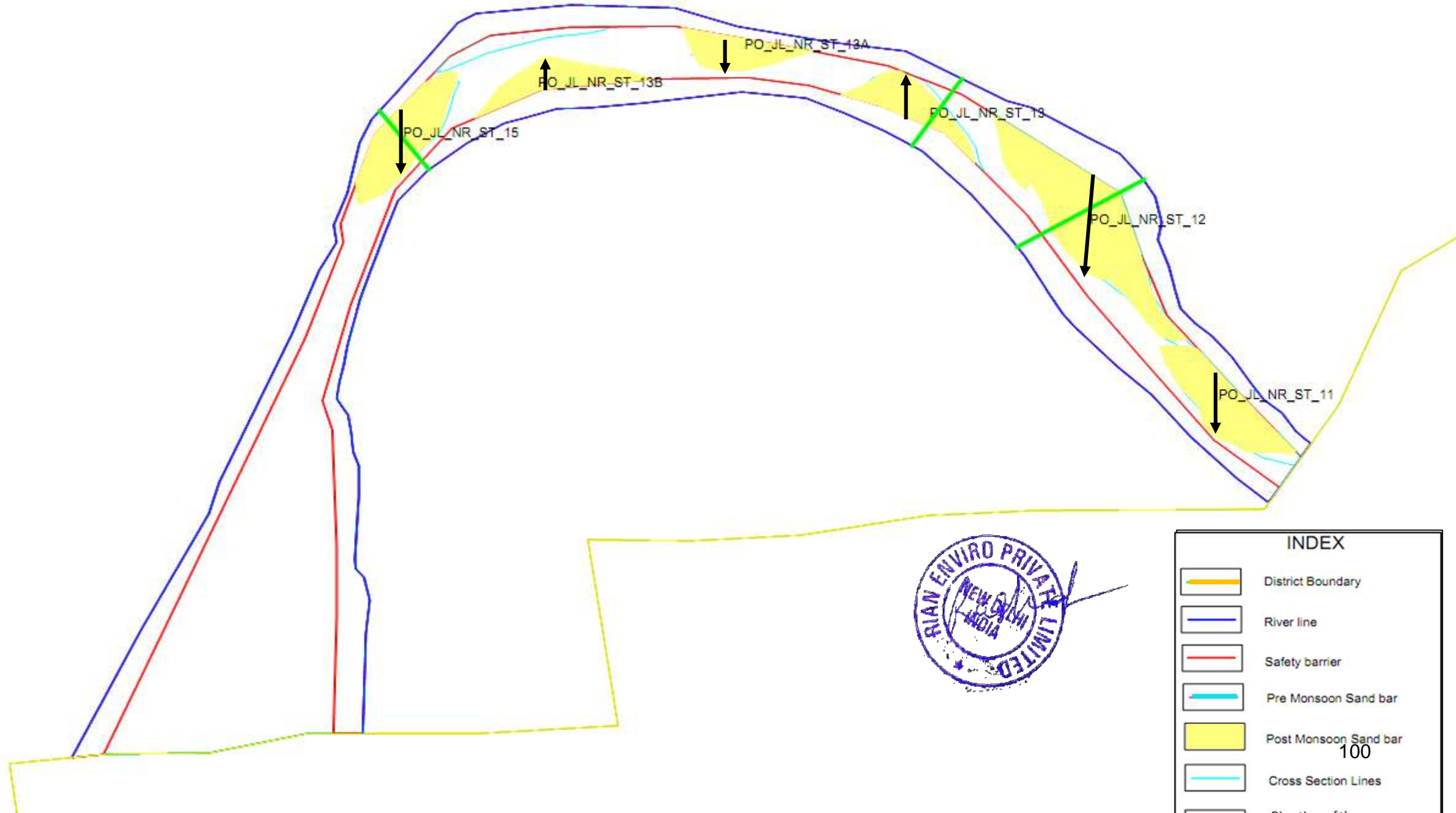
# RD 12- 14










INDEX	
	District Boundary
	River line
	Safety barrier
	Pre Monsoon Sand bar
	Post Monsoon Sand bar
	Cross Section Lines
	Direction of the cross section



# RD 21-23

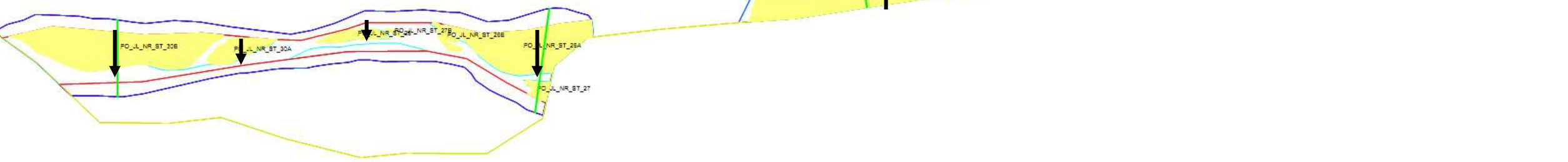









INDEX	
	District Boundary
	River line
	Safety barrier
	Pre Monsoon Sand bar
	Post Monsoon Sand bar
	Cross Section Lines
	Direction of flow

**RD 33-36**

**RD 30-32**

**RD 28**



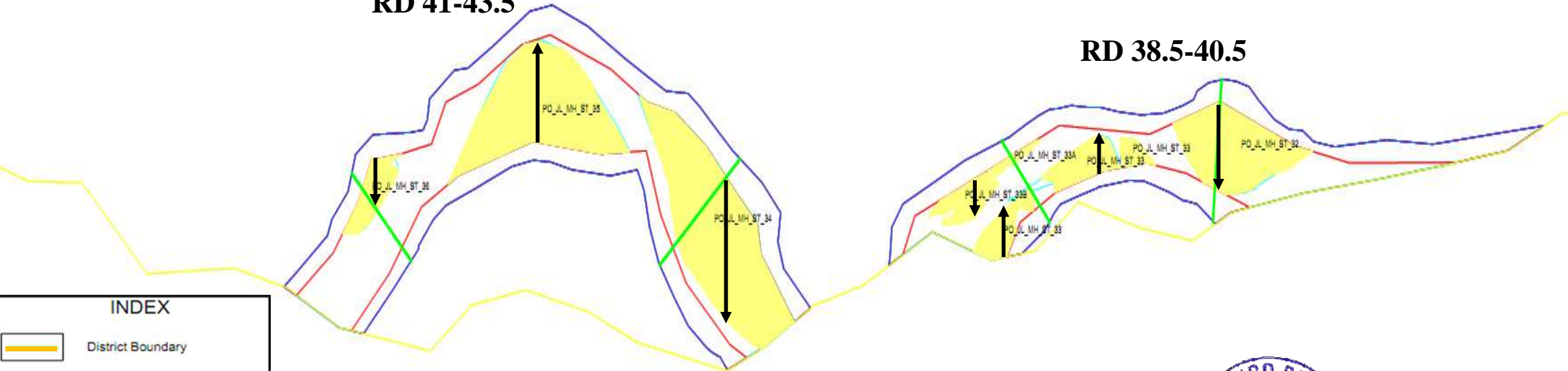
INDEX	
	District Boundary
	River line
	Safety barrier
	Pre Monsoon Sand bar
	Post Monsoon Sand bar
	Cross Section Lines
	Direction of the cross section












**RD 41-43.5**

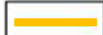



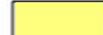


**RD 38.5-40.5**

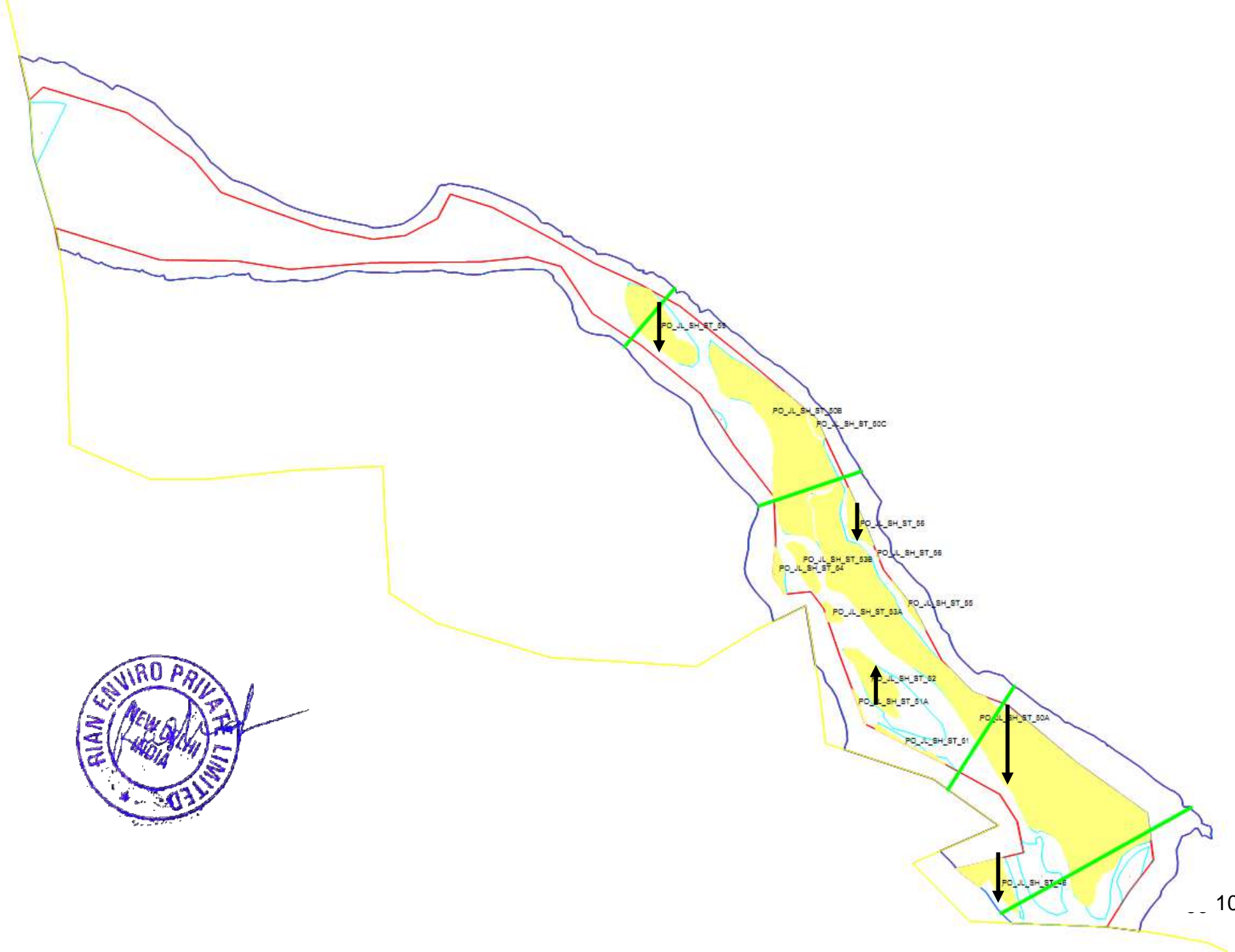


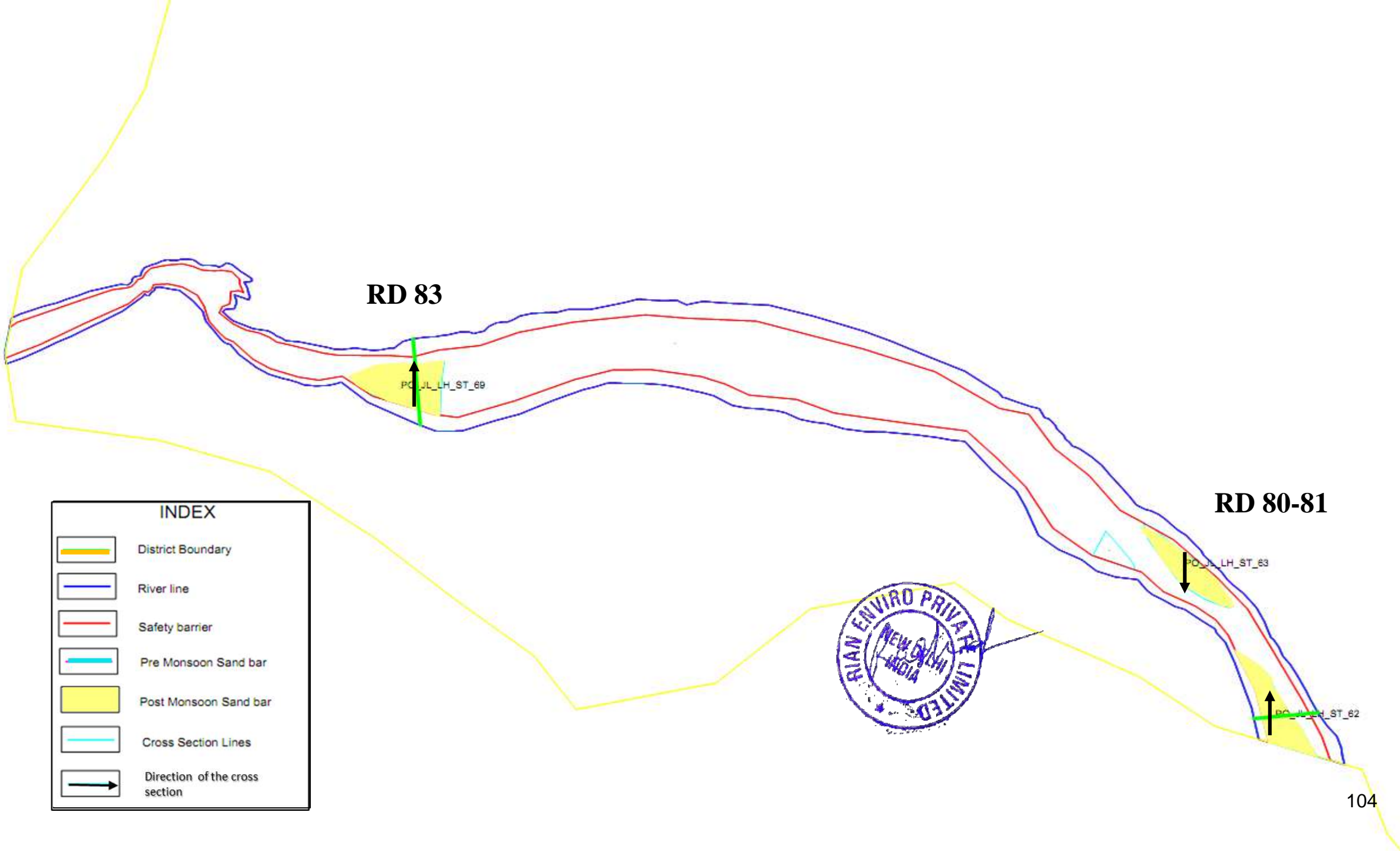
**INDEX**

-  District Boundary
-  River line
-  Safety barrier
-  Pre Monsoon Sand bar
-  Post Monsoon Sand bar
-  Cross Section Lines
-  Direction of the cross section



INDEX	
	District Boundary
	River line
	Safety barrier
	Pre Monsoon Sand bar
	Post Monsoon Sand bar
	Cross Section Lines
	Direction of the cross section





**RD 83**








PC/JL/LH/ST\_69

**RD 80-81**

PC/JL/LH/ST\_63

PC/JL/LH/ST\_62



INDEX	
	District Boundary
	River line
	Safety barrier
	Pre Monsoon Sand bar
	Post Monsoon Sand bar
	Cross Section Lines
	Direction of the cross section

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

## Cross Section Sand Bar

**PO\_JL\_PL\_ST\_1B**

### Calculation

➤ **Total Area: 4.80 Ha.**(Source: Table 7.2 )

➤ **No mining area: 0Ha.** (Source: Page No 79)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 4.80-0=4.80 Ha.

➤ Potential Area(Ha.):4.80

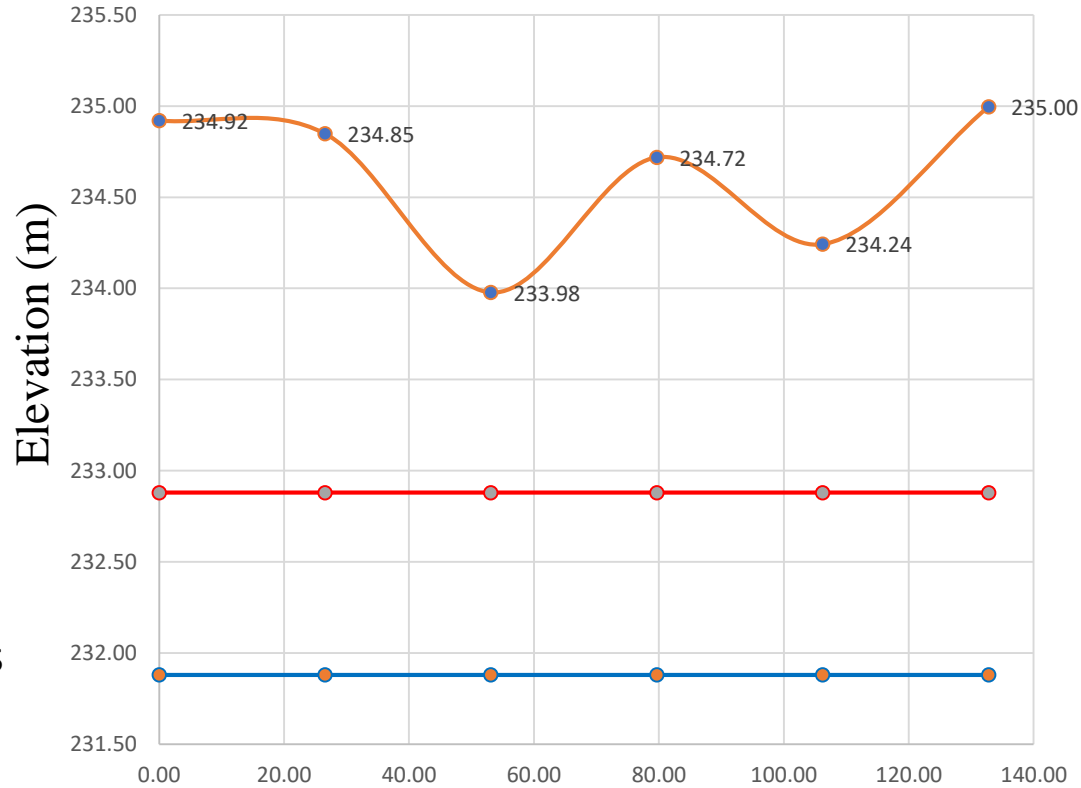
➤ Average Thickness:1.74

➤ Bulk Density:1.54

$4.80 * 10000 * 1.74 * 1.54 = 128620.80$  Tonnes

➤ Total excavation in Tonnes

(Considering 60% as per EMGSM, 2020)=77172.48



Post- Thickness
2.04
1.97
1.10
1.84
1.36
2.12
<b>1.74</b>

Post-Monsoon  
 Average Thickness: 1.74



Distance of the sand bar from river bank towards river (m)

- Red Line
- Post monsoon Elevation
- Thalweg line

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 22.53 Ha.**(Source: Table 7.2)

➤ **No mining area: 2.06 Ha.**(Source: Page No 79)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $22.53 - 2.06 = 20.47$  Ha.

➤ Potential Area(Ha.):20.47

➤ Average Thickness:3.0

➤ Bulk Density:1.54

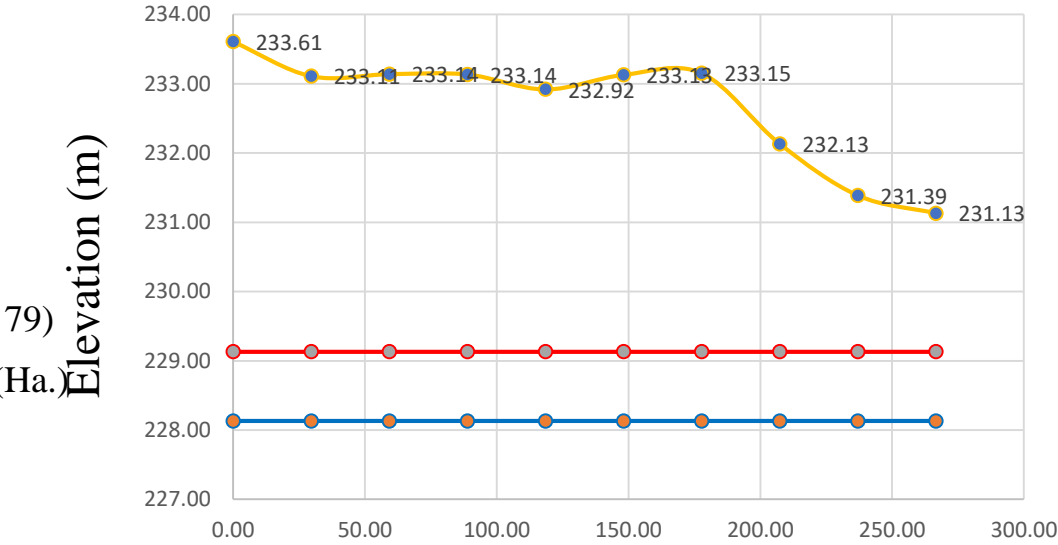
$20.47 * 10000 * 3.0 * 1.54 = 945714$

Tonnes

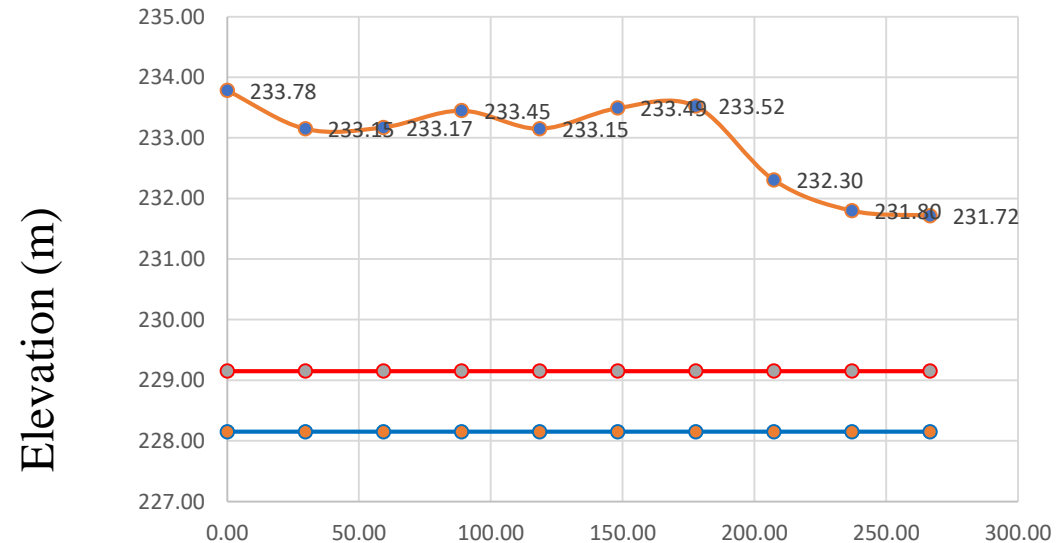
➤ Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=567428.4

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_PL\_ST\_3**



**PO\_JL\_PL\_ST\_3**



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

Pre Monsoon  
 Average Thickness:  
 3.56

Pre- Thickness
4.48
3.98
4.01
4.01
3.79
4.00
4.02
3.00
2.26
2.00
<b>3.56</b>

Post Monsoon  
 Average Thickness:3.80

Post- Thickness
4.63
4.00
4.02
4.30
4.00
4.34
4.37
3.15
2.65
2.57
<b>3.80</b>



**Source-** Primary Data generated by DGPS

Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 12.41**(Source: Table No. 7.2)

➤ **No mining area: 4.17 Ha.**(Source: Page No 80)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
12.41-4.17=8.24 Ha.

➤ Potential Area(Ha.):8.24

➤ Average Thickness:3.0

➤ Bulk Density:1.54

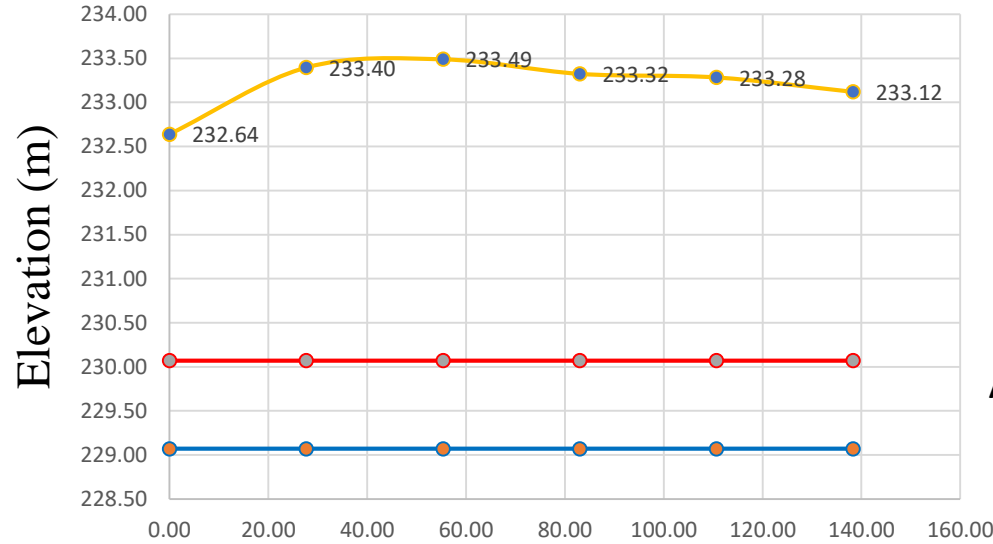
$8.24 * 10000 * 3.0 * 1.54 = 380688.00$

Tonnes

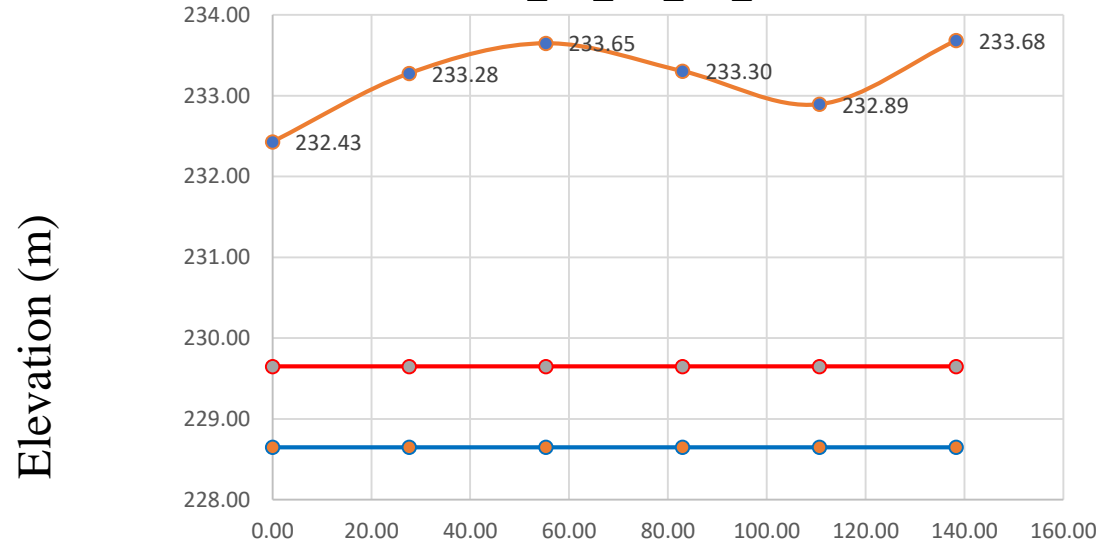
➤ Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=228412.8

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar PR\_JL\_PL\_ST\_04**



**Cross Section Sand Bar PO\_JL\_PL\_ST\_04**



**Distance of the sand bar from river bank towards river (m)**

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

Pre-
2.57
3.33
3.42
3.25
3.21
3.05
<b>3.14</b>

Pre- Monsoon  
Average Thickness:3.14

Post
2.78
3.63
4.00
3.65
3.24
4.03
<b>3.56</b>

Post-Monsoon  
Average Thickness:3.56



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 4.40 Ha. (Source: Table No. 7.2)**

➤ **No mining area: 2.0 Ha. (Source: Page No 80)**

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 4.40-2.0= 2.40 Ha.

➤ Potential Area(Ha.):2.40

➤ Average Thickness:3.0

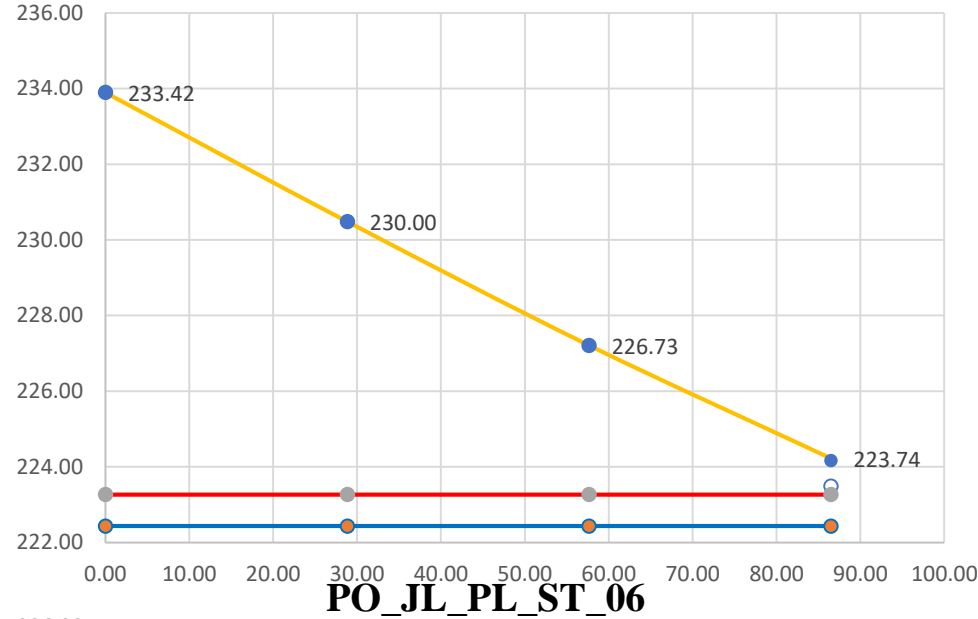
➤ Bulk Density:1.54

2.40\*10000\*3\*1.54=110880 Tonnes

➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=66528

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

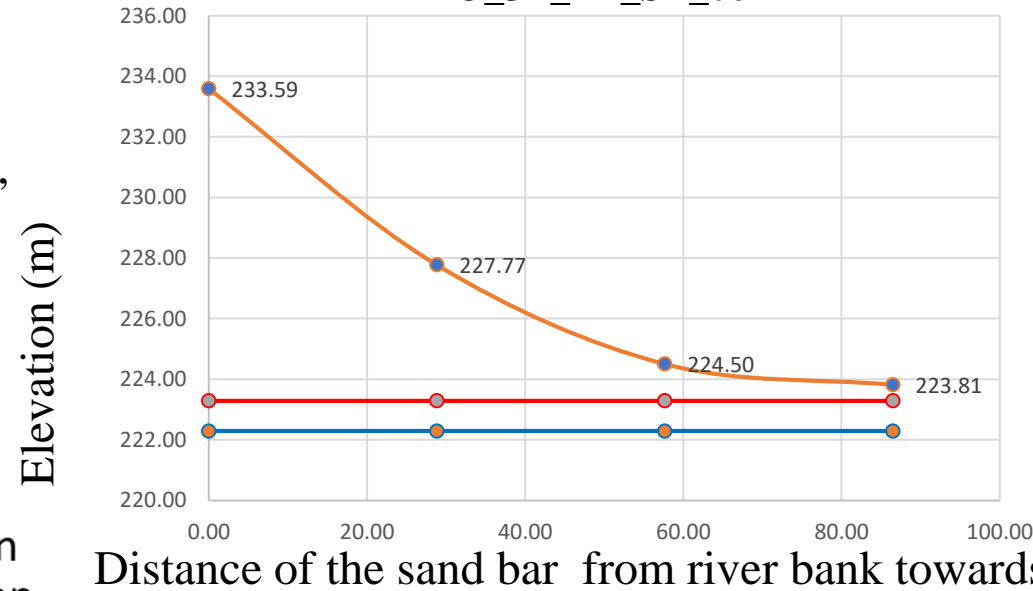
**Cross Section Sand Bar  
 PR\_JL\_PL\_ST\_06**



Pre
9.90
6.48
3.21
0.22
<b>4.95</b>

Pre Monsoon  
 Average Thickness:4.95

**PO\_JL\_PL\_ST\_06**



Post
10.30
4.48
1.21
0.52
<b>4.13</b>

Post Monsoon  
 Average Thickness:4.13



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 3.88Ha. (Source: Table No. 7.2)**

➤ **No mining area: 0.06 Ha.** (Source: Page No 80)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $3.88-0.06=3.82$  Ha.

➤ Potential Area(Ha.):3.82

➤ Average Thickness:2.07

➤ Bulk Density:1.54

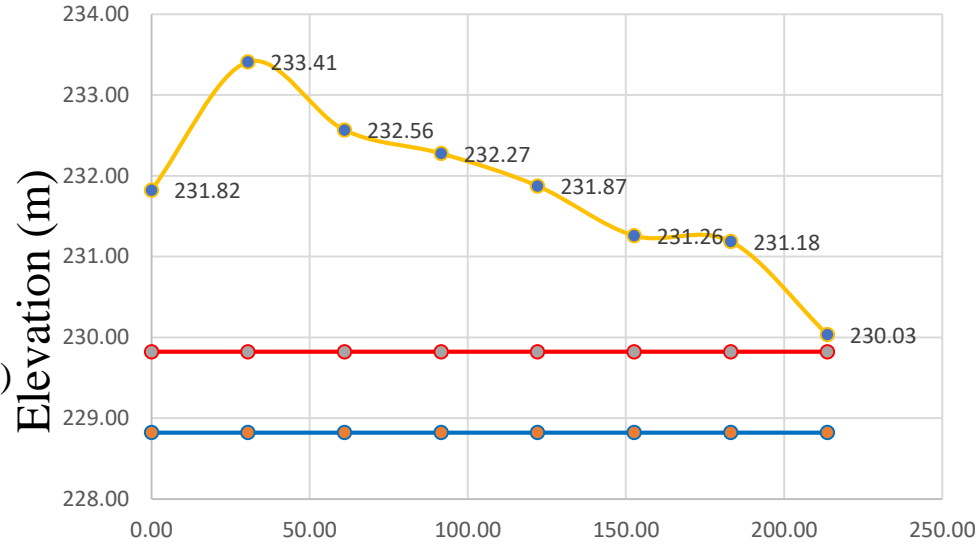
$3.82*10000*2.07*1.54=121773.96$

Tonnes

➤ Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=73064.376

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

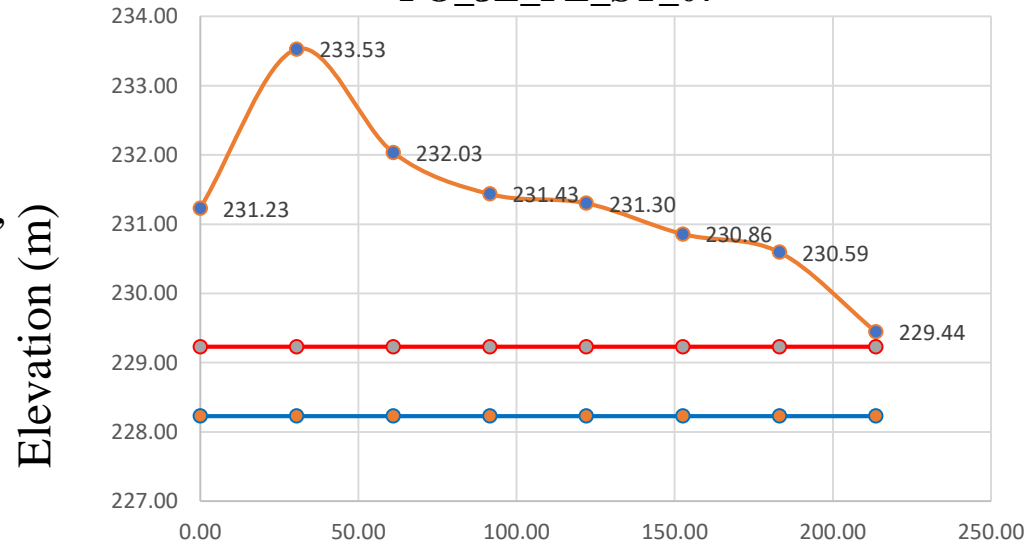
**Cross Section Sand Bar  
 PR\_JL\_PL\_ST\_07**



Pre Monsoon  
 Average Thickness  
 1.98

Pre
2.00
3.59
2.74
2.45
2.05
1.44
1.36
0.21
<b>1.98</b>

**Distance of the sand bar from river bank towards river (m)  
 PO\_JL\_PL\_ST\_07**



Post Monsoon  
 Average Thickness:  
 2.07



Post
2.00
4.30
2.80
2.20
2.07
1.63
1.36
0.21
<b>2.07</b>

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 26.61Ha (source:Table no 7.2)**

➤ **No mining area: 17.64Ha.(Source: Page No 80)**

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 26.61-17.64= 8.97 Ha.

➤ Potential Area(Ha.):8.97

➤ Average Thickness:3.0

➤ Bulk Density:1.54

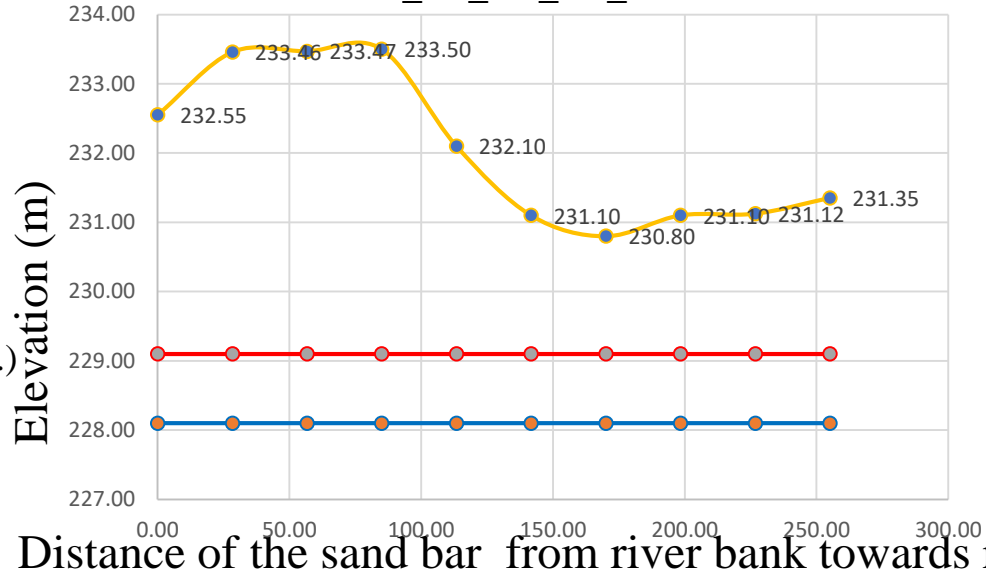
$8.97 * 10000 * 3.0 * 1.54 = 414414$

Tonnes

➤ Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=248648.4

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

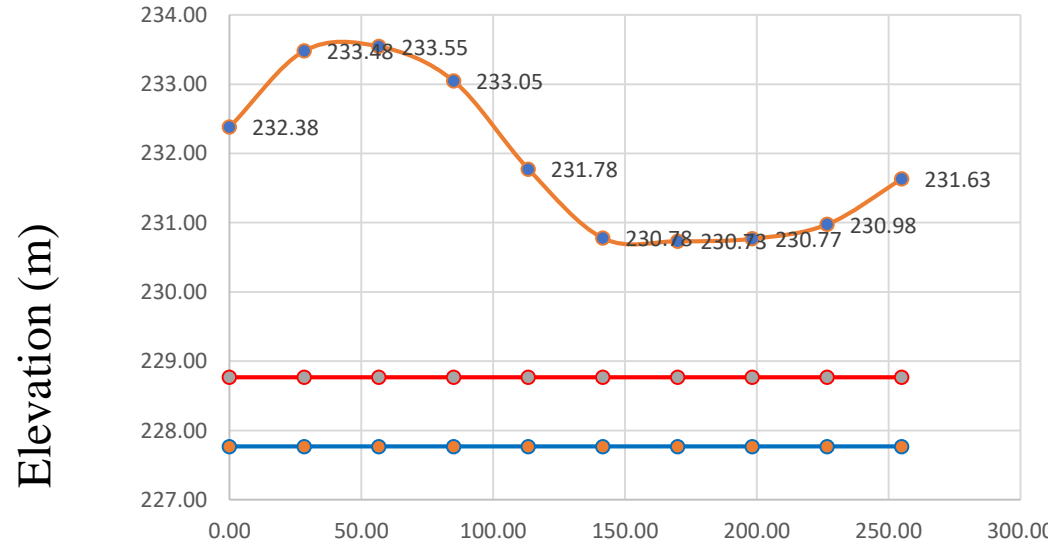
**Cross Section Sand Bar PR\_JL\_PL\_ST\_08**



Pre Monsoon  
 Average Thickness  
 2.96

Pre
3.45
4.36
4.37
4.40
3.00
2.00
1.70
2.00
2.02
2.25
<b>2.96</b>

**PO\_JL\_PL\_ST\_08**



Post Monsoon  
 Average Thickness:  
 3.14



Post
3.61
4.71
4.78
4.28
3.01
2.01
1.96
2.00
2.21
2.86
<b>3.14</b>

Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 3.79Ha** (source:Table no 7.2)

➤ **No mining area: 0.49Ha.** (Source: Page No 81)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $3.79-0.49=3.30$  Ha.

➤ Potential Area(Ha.):3.30

➤ Average Thickness:3.0

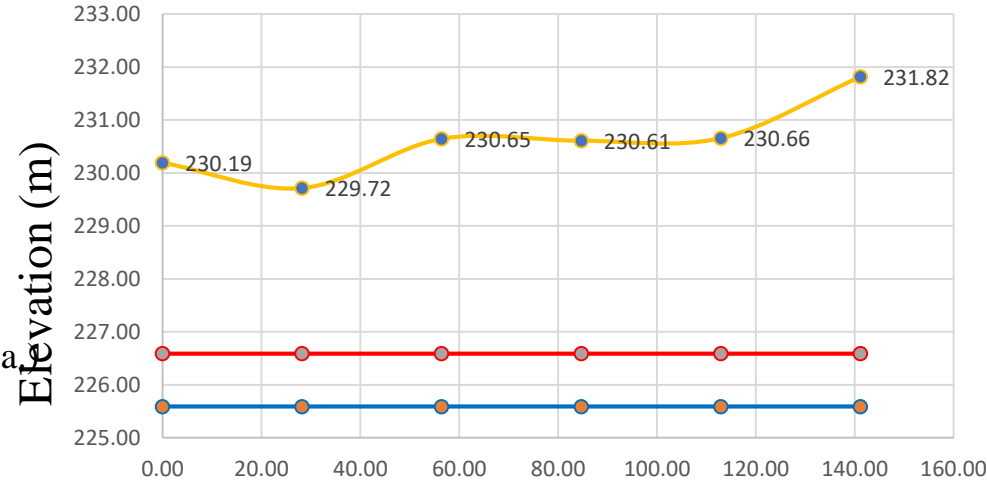
➤ Bulk Density:1.53

$3.30*10000*3*1.53=151470$ Tonnes

➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=90882

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

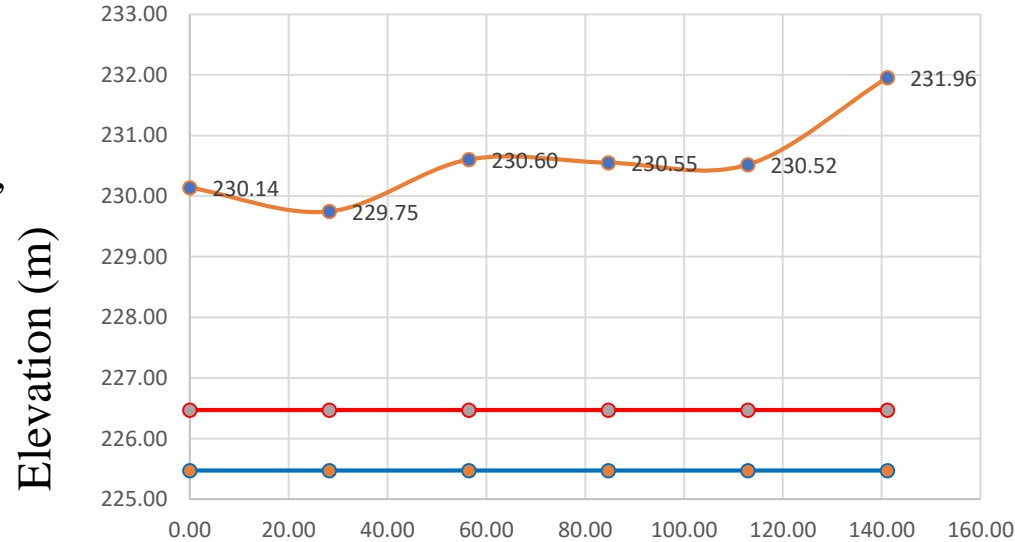
**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_11**



Pre
3.60
3.13
4.06
4.02
4.07
5.23
<b>4.02</b>

Pre Monsoon  
 Average Thickness  
 4.02

**Distance of the sand bar from river bank towards river (m)  
 PO\_JL\_NR\_ST\_11**



Post
3.67
3.28
4.13
4.08
4.05
5.49
<b>4.12</b>

Post Monsoon  
 Average Thickness:  
 4.12



**Distance of the sand bar from river bank towards river (m)**

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 5.01Ha** (source:Table no 7.2)

➤ **No mining area: 2.98Ha.** (Source: Page No 81)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 5.01-2.98=2.03 Ha.

➤ Potential Area(Ha.):2.03

➤ Average Thickness:3.0

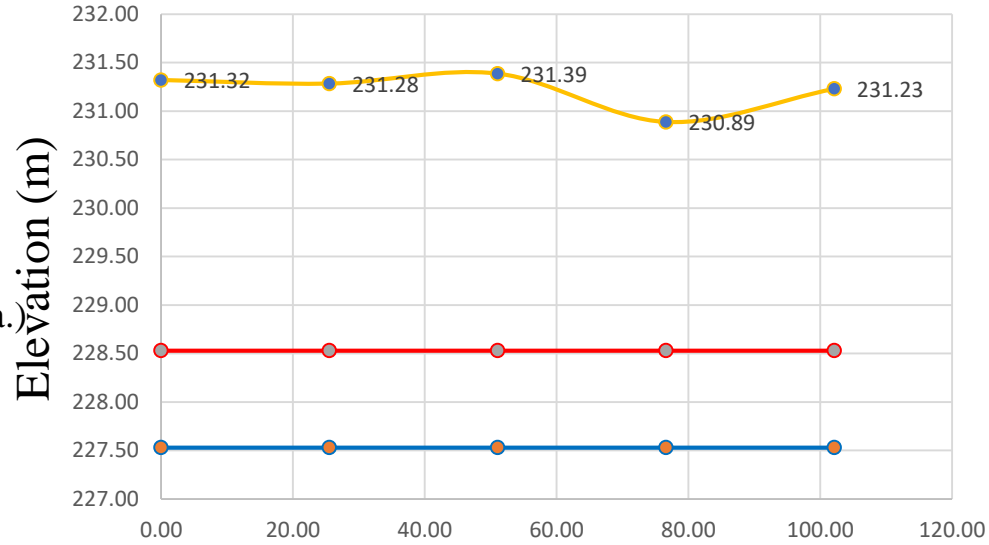
➤ Bulk Density:1.53

$2.03 * 10000 * 3 * 1.53 = 93177.00$  Tonnes

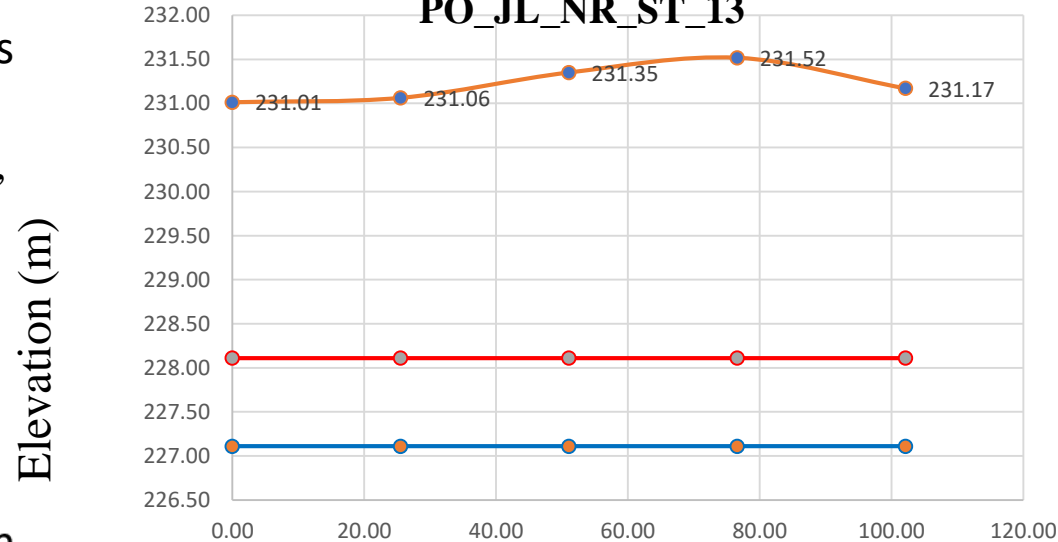
➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=55906.2

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_13**



**Distance of the sand bar from river bank towards river (m)  
 PO\_JL\_NR\_ST\_13**



**Distance of the sand bar from river bank towards river (m)**

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

<b>Pre</b>
2.79
2.75
2.86
2.36
2.70
<b>2.69</b>

Pre Monsoon

Average Thickness: 2.69

<b>Post</b>
2.90
2.95
3.24
3.41
3.06
<b>3.11</b>

Post Monsoon  
 Average Thickness: 3.11



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

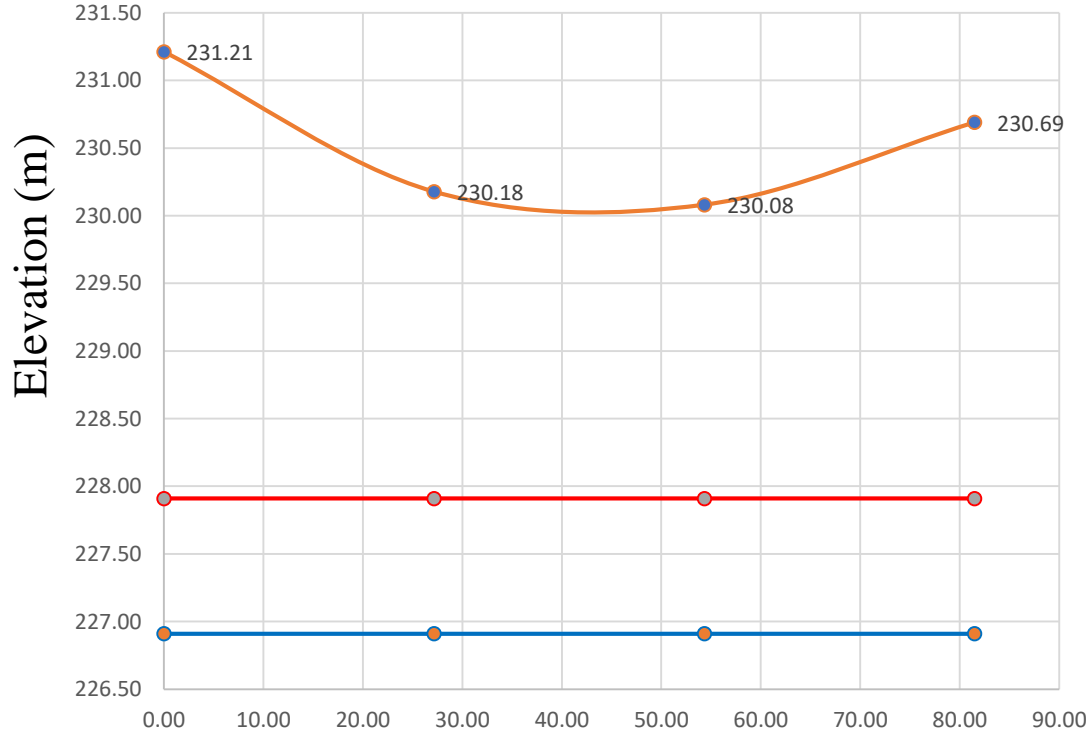
**Calculation**

- **Total Area: 4.72Ha (source:Table no 7.2)**
- **No mining area: 2.73Ha.** (Source: Page No 81)  
 Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $4.72-2.73=1.99$  Ha.
- **Potential Area(Ha.):1.99**
- **Average Thickness:2.63**
- **Bulk Density:1.53**  
 $1.99*10000*2.63*1.53=80075.61$  Tonnes
- **Total excavation in Tonnes**  
 (Considering 60% as per EMGSM, 2020)=48045.366

- Red Line
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar**

**PO\_JL\_NR\_ST\_13B**



Post
3.30
2.27
2.17
2.78
<b>2.63</b>

Post Monsoon  
 Average Thickness:2.63



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 7.90Ha** (source:Table no 7.2)

➤ **No mining area: 0Ha.** (Source: Page No 82)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $7.90-0=7.90$  Ha.

➤ Potential Area(Ha.):7.90

➤ Average Thickness:3.0

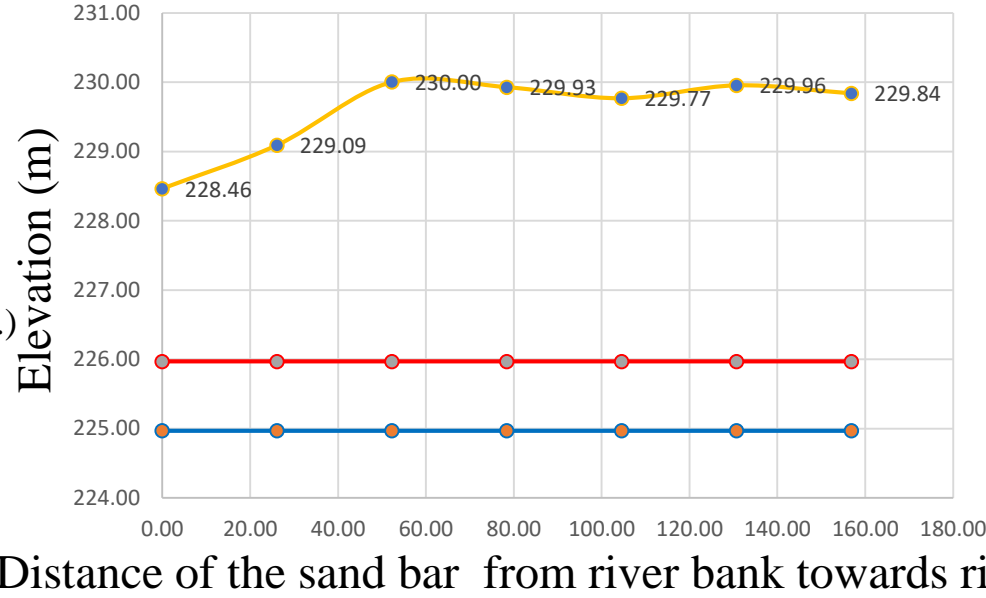
➤ Bulk Density:1.54

$7.90 * 10000 * 3 * 1.54 = 364980.00$  Tonnes

➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=218988

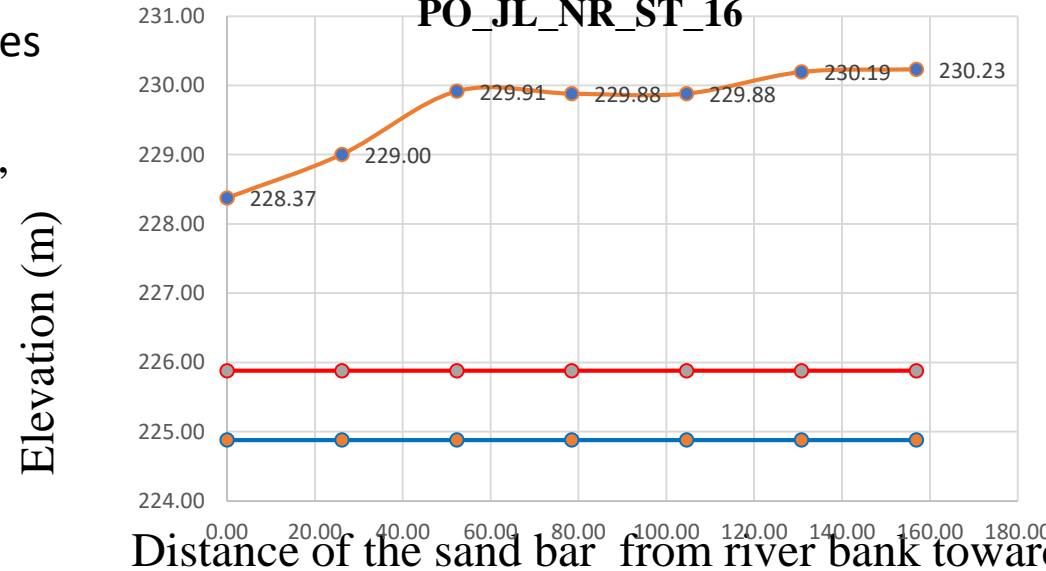
- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_16**



Distance of the sand bar from river bank towards river (m)

**PO\_JL\_NR\_ST\_16**



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

Pre Monsoon  
 Average Thickness:

Pre thickness
2.49
3.12
4.03
3.96
3.80
3.99
<b>3.57</b>

Post Thickness
2.49
3.12
4.03
4.00
4.00
4.31
4.35
<b>3.76</b>

Post Monsoon  
 Average Thickness:



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 17.59 Ha.(Source:Table no. 7.2)**

➤ **No mining area: 0Ha.** (Source: Page No 83)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 17.59-0=17.59Ha.

➤ Potential Area(Ha.):17.59

➤ Average Thickness:0.52

➤ Bulk Density:1.52

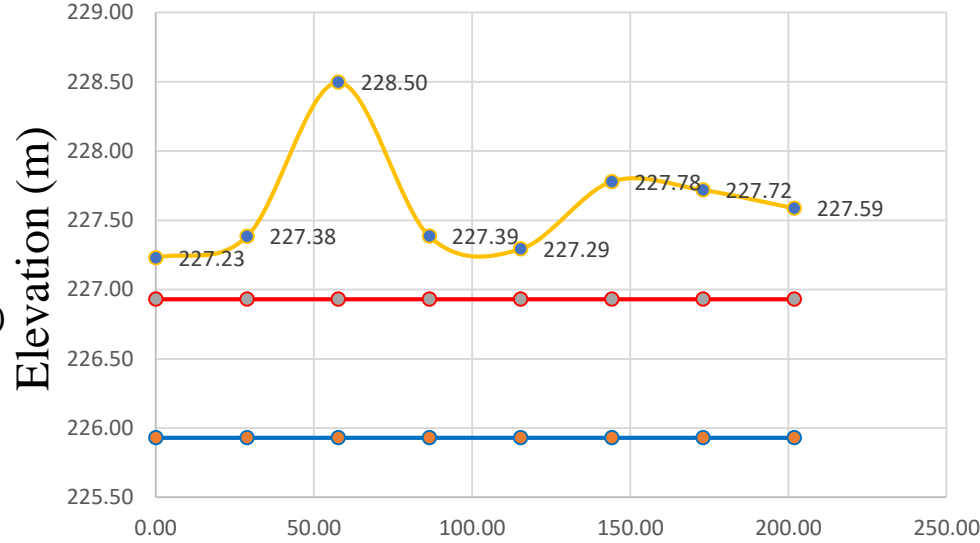
17.59\*10000\*0.52\*1.52=139031.36 Tonnes

➤ Total excavation in Tonnes

(Considering 60% as per EMGSM, 2020)=83418.816

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

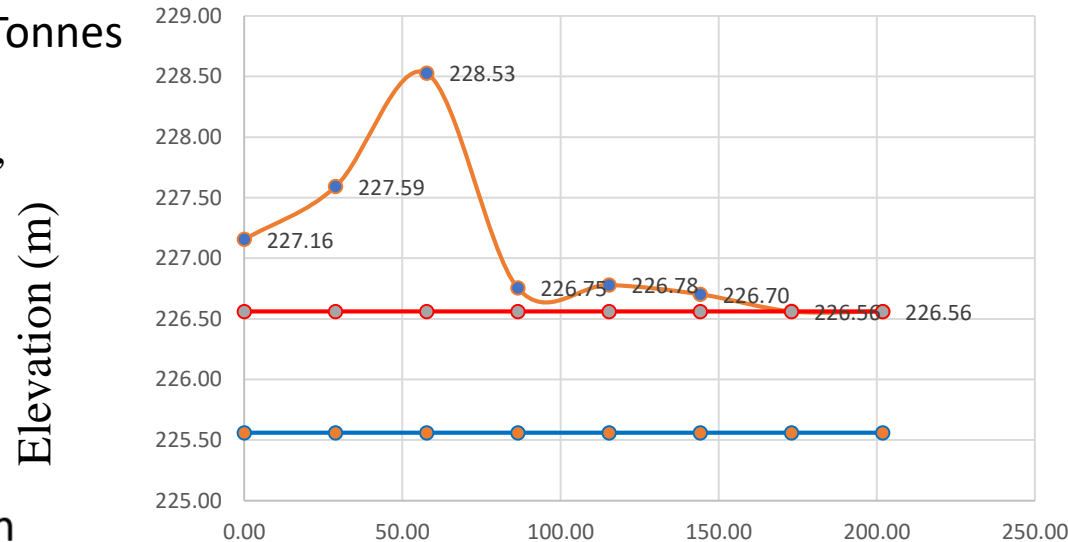
**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_22**



Pre Monsoon  
 Average Thickness: 0.68

Pre Thickness	Post Thickness
0.30	0.60
0.45	1.03
1.57	1.97
0.46	0.19
0.36	0.22
0.85	0.14
0.79	0.00
0.66	0.00
<b>0.68</b>	<b>0.52</b>

**PO\_JL\_NR\_ST\_22-25**



Post Monsoon  
 Average Thickness: 0.52



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 3.63 Ha.**(Source:Table no. 7.2)

➤ **No mining area: 1.32 Ha.** (Source: Page No 83)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $3.63-1.32=2.31\text{Ha.}$

➤ Potential Area(Ha.):2.31

➤ Average Thickness:3.0

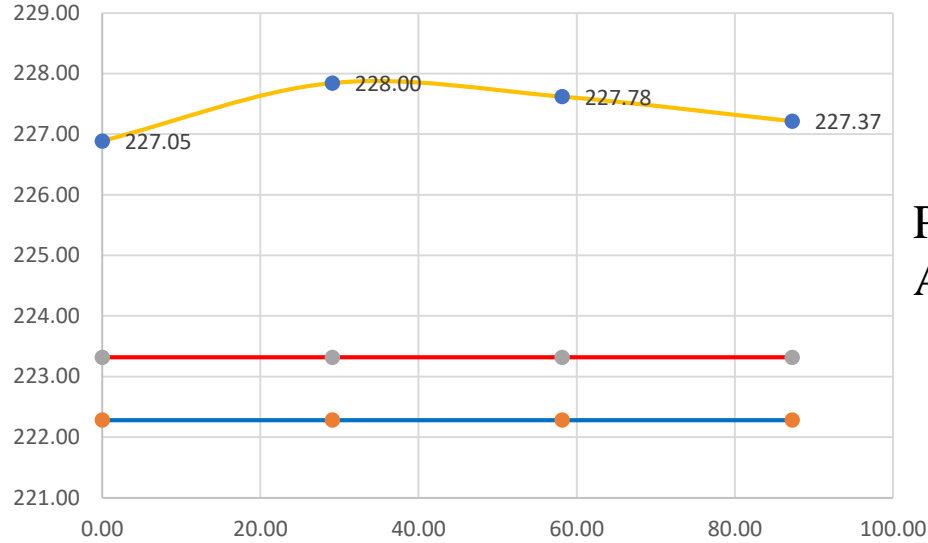
➤ Bulk Density:1.52

$2.31*10000*3*1.52=105336.00$  Tonnes

➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=63201.6

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

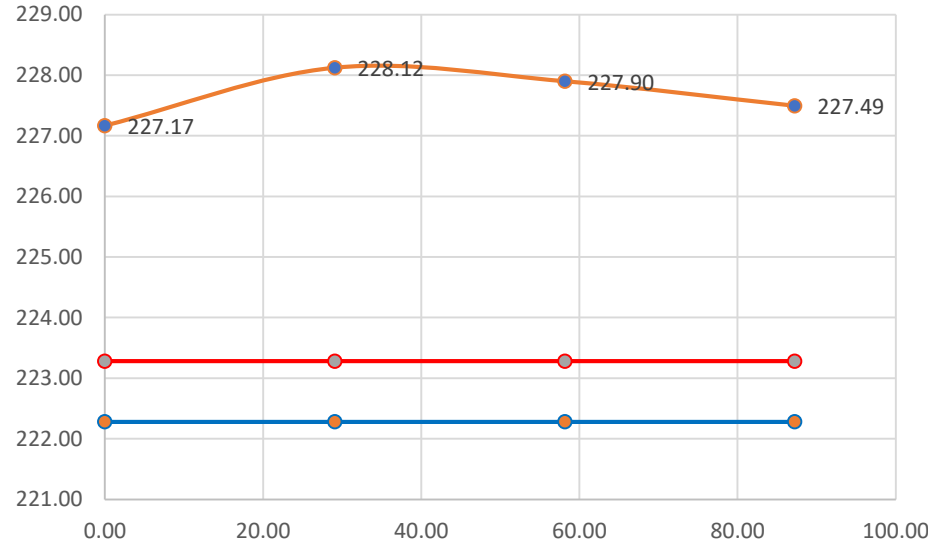
**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_24**



Pre Monsoon  
 Average Thickness:4.39

Pre Thickness	Post Thickness
3.89	4.62
4.84	4.97
4.62	<b>4.80</b>
4.21	
<b>4.39</b>	

**PO\_JL\_NR\_ST\_24**



Post Monsoon  
 Average Thickness:4.80



Distance of the sand bar from river bank towards river (m)  
 Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

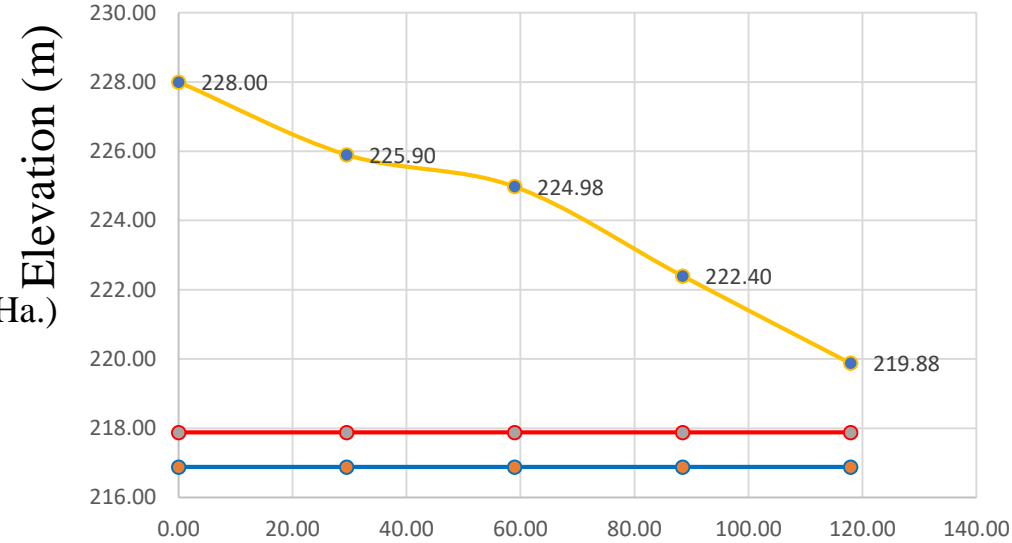
**Calculation**

- **Total Area: 5.02 Ha.**(Source:Table no. 7.2)
  - **No mining area: 2.62 Ha.** (Source: Page No 83)
- Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $5.02 - 2.62 = 2.40 \text{ Ha.}$

- Potential Area(Ha.):2.40
  - Average Thickness:3.0
  - Bulk Density:1.52
- $2.40 * 10000 * 3.0 * 1.52 = 109440.00 \text{ Tonnes}$
- Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=65664

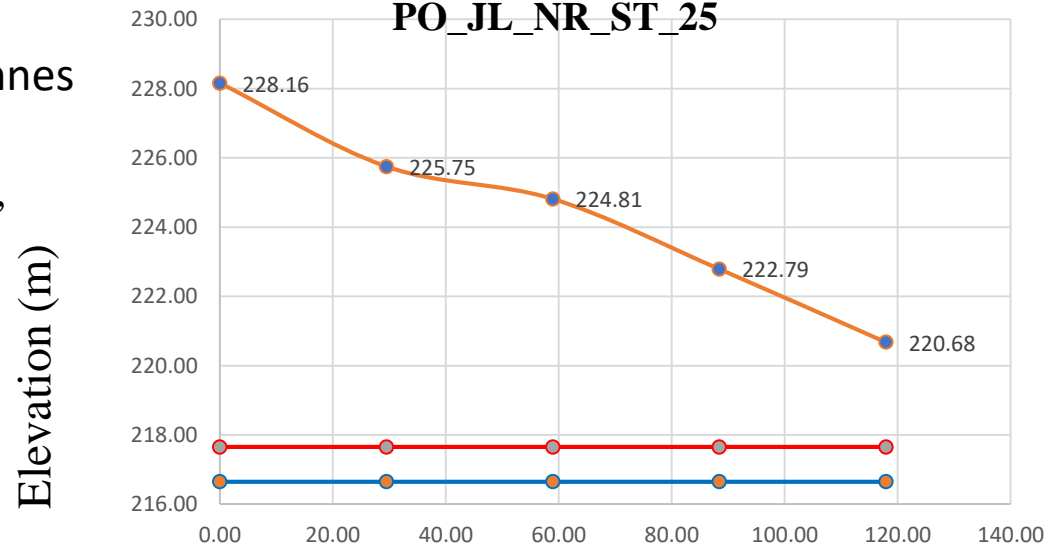
**Cross Section Sand Bar**

**PR\_JL\_NR\_ST\_25**



Pre Monsoon  
 Average  
 Thickness: 6.35

**PO\_JL\_NR\_ST\_25**



Post Monsoon  
 Average Thickness: 6.79

Pre Thickness	Post Thickness
10.12	10.51
8.02	8.10
7.10	7.16
4.52	5.14
2.00	3.03
<b>6.35</b>	<b>6.79</b>



- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.



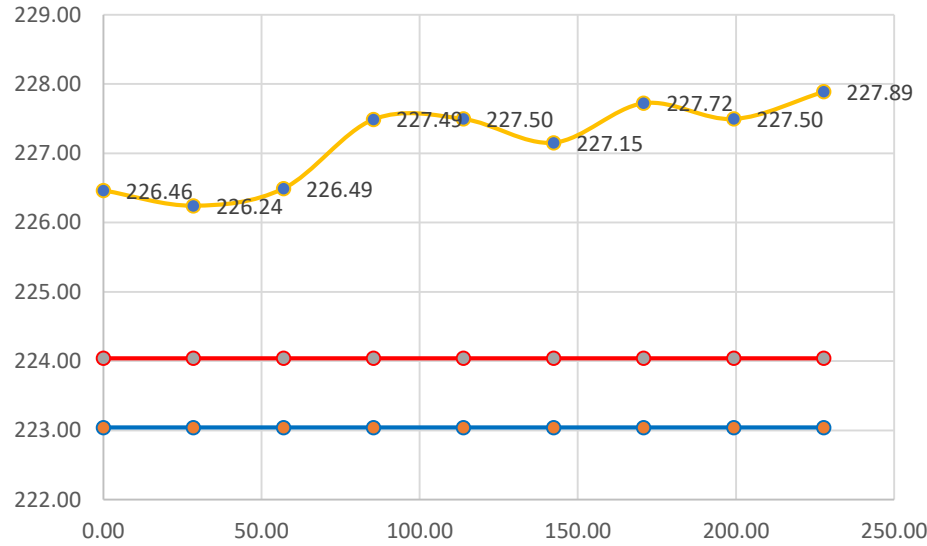
**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

- **Total Area: 17.72Ha.**(Source:Table no. 7.2)
- **No mining area: 5.64 Ha.** (Source: Page No 84)
- Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $17.72-5.64=12.08$  Ha.
- Potential Area(Ha.):12.08
- Average Thickness:3.0
- Bulk Density:1.52
- $12.08*10000*3*1.52=550848.00$  Tonnes
- Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=330508.8

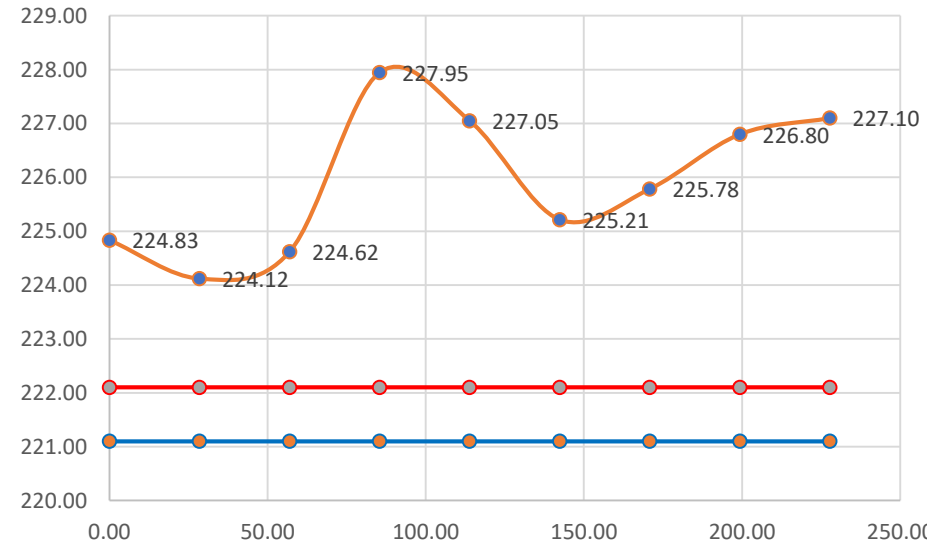
- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_26**



Pre Monsoon  
 Average Thickness: 3.12

**PO\_JL\_NR\_ST\_26A**



Post Monsoon  
 Average Thickness:3.84

Pre-Thickness	Post - Thickness
2.42	2.73
2.20	2.02
2.45	2.52
3.45	5.85
3.46	4.95
3.11	3.11
3.68	3.68
3.46	4.70
3.85	5.00
<b>3.12</b>	<b>3.84</b>



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

## Cross Section Sand Bar

**PO\_JL\_NR\_ST\_26B**

### Calculation

➤ **Total Area: 1.15Ha.**(Source:Table no. 7.2)

➤ **No mining area: 0.19 Ha.** (Source: Page No 84)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $1.15-0.19=0.96$  Ha.

➤ Potential Area(Ha.):0.96

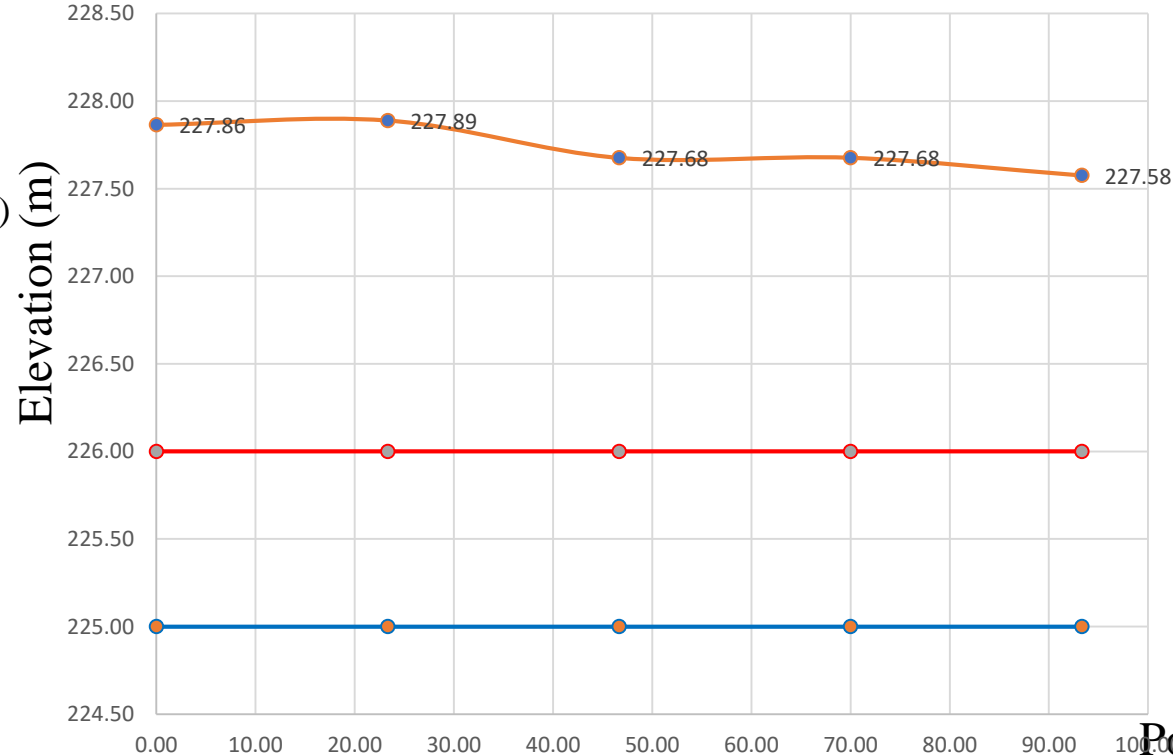
➤ Average Thickness:1.74

➤ Bulk Density:1.52

$0.96*10000*1.74*1.52=25390.08$  Tonnes

➤ Total excavation in Tonnes

(Considering 60% as per EMGSM, 2020)=15234.048



Post Thickness
1.86
1.89
1.68
1.68
1.58
<b>1.74</b>

Post Monsoon  
 Average Thickness: 1.74



- Red Line
- Post monsoon Elevation
- Thalweg line

Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

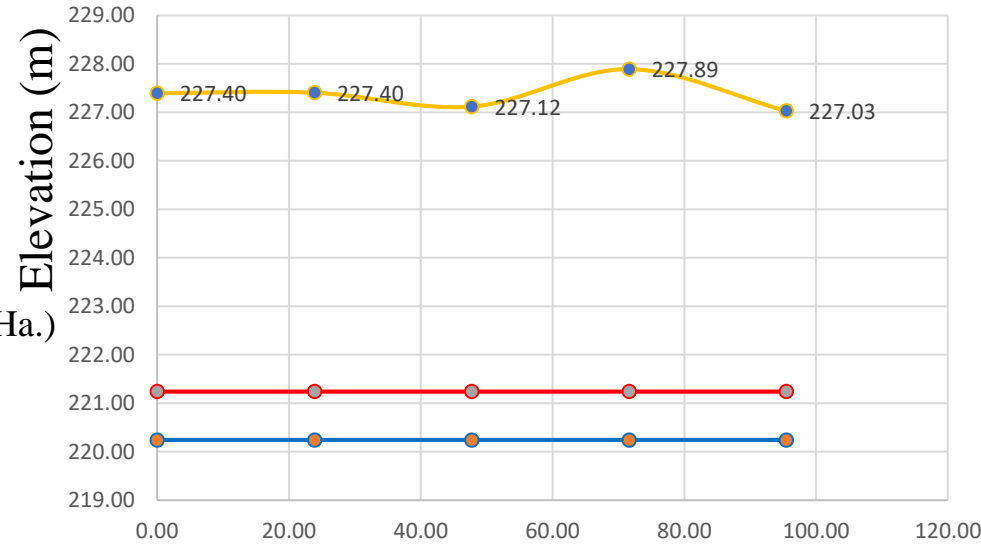
**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

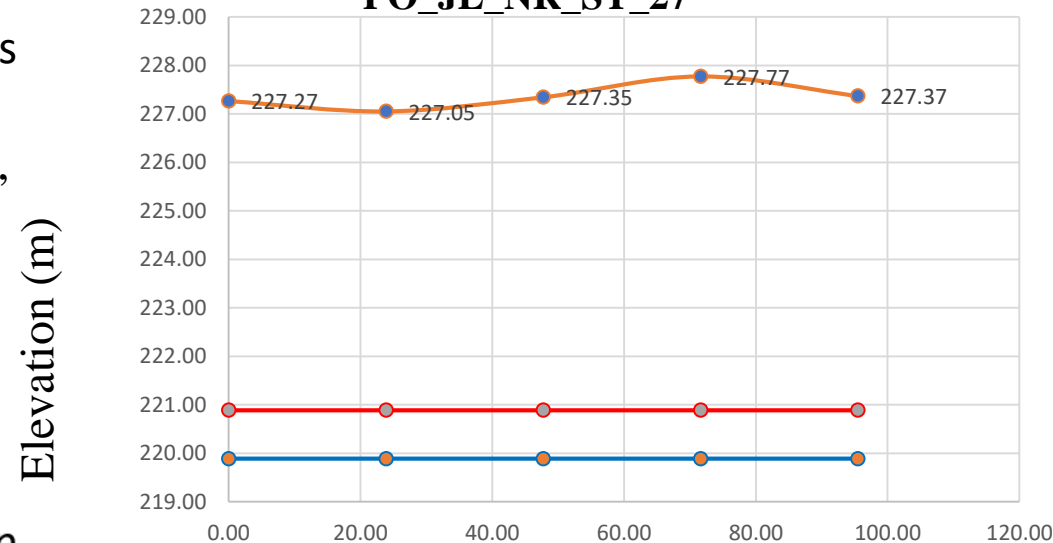
- **Total Area: 0.97Ha.**(Source:Table no. 7.2)
- **No mining area: 0.07 Ha.** (Source: Page No 84)  
 Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $0.97-0.07=0.90$  Ha.
- **Potential Area(Ha.):0.90**
- **Average Thickness:3.0**
- **Bulk Density:1.52**  
 $0.90*10000*3*1.52=41040.00$  Tonnes
- **Total excavation in Tonnes**  
 (Considering 60% as per EMGSM, 2020)=24624

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_27**



**PO\_JL\_NR\_ST\_27**



Pre Monsoon  
 Average Thickness:6.13

Pre-Thickness	Post-Thickness
6.16	6.38
6.16	6.16
5.88	6.46
6.65	6.88
5.79	6.48
<b>6.13</b>	<b>6.47</b>

Post Monsoon  
 Average Thickness: 6.47



Distance of the sand bar from river bank towards river (m)  
 Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

## Cross Section Sand Bar

**PO\_JL\_NR\_ST\_27B**

### Calculation

➤ **Total Area: 0.15Ha.**(Source:Table no. 7.2)

➤ **No mining area: 0 Ha.** (Source: Page No 84)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $0.15-0=0.15$  Ha.

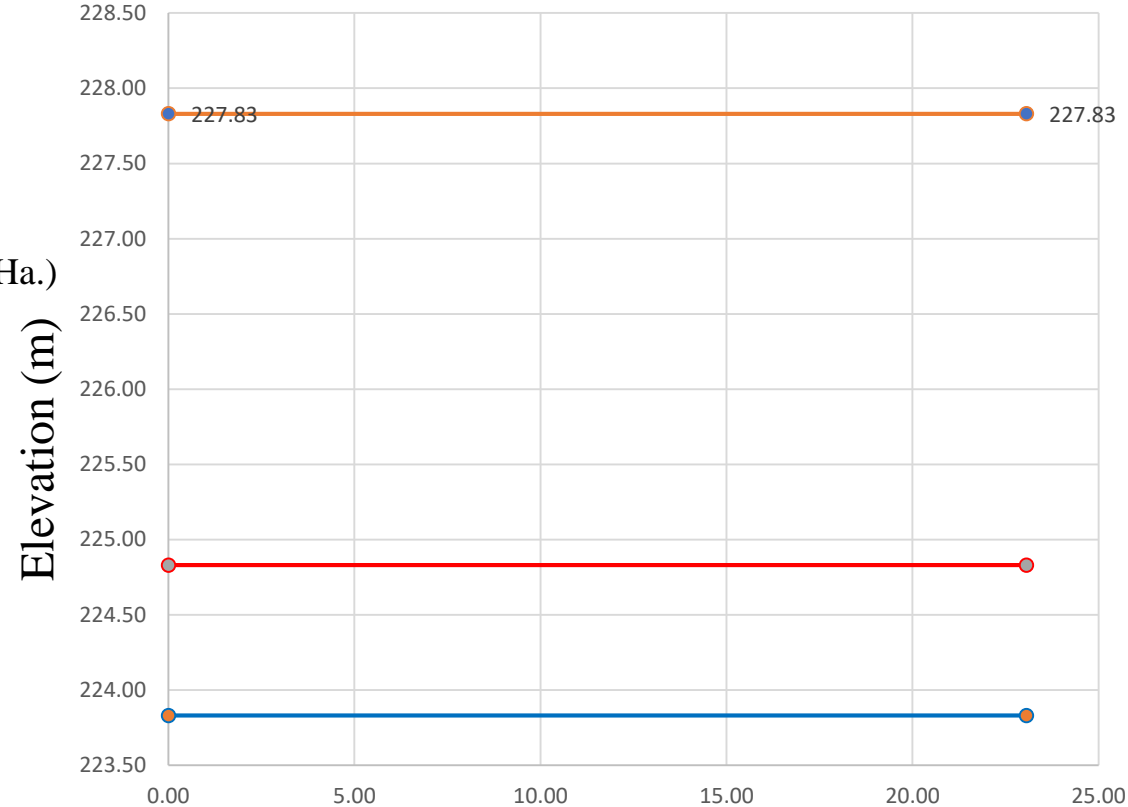
➤ Potential Area(Ha.):0.15

➤ Average Thickness:3.0

➤ Bulk Density:1.52

$0.15 * 10000 * 3 * 1.52 = 6840.00$  Tonnes

➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=4104



Post Thickness
3.00
3.00
<b>3.00</b>

Post Monsoon  
 Average Thickness: 3.0



- Red Line
- Post monsoon Elevation
- Thalweg line

Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

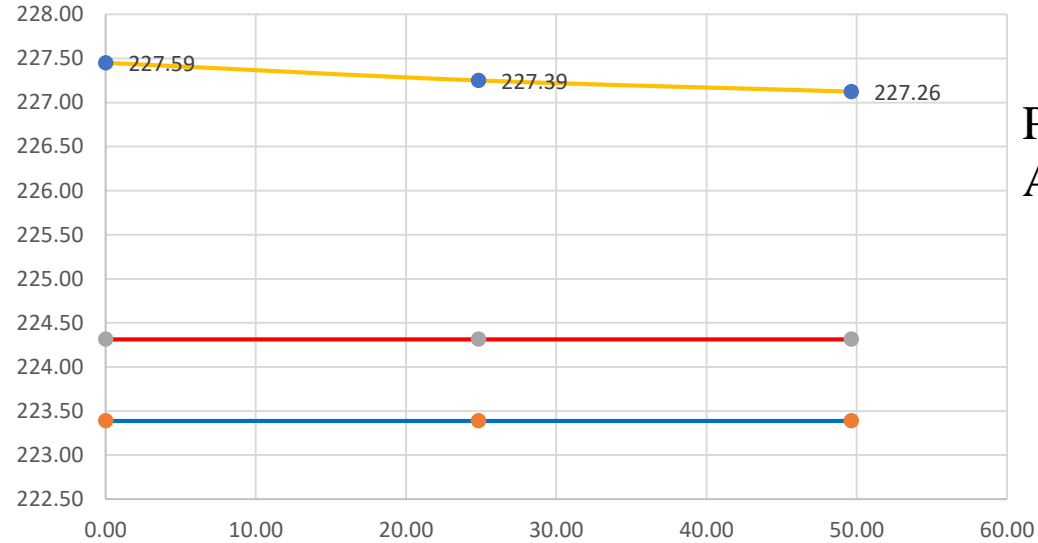
**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

- **Total Area: 1.60Ha.(Source:Table no. 7.2)**
- **No mining area: 0 Ha.** (Source: Page No 84)  
 Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 1.60-0=1.60 Ha.
- **Potential Area(Ha.):1.60**
- **Average Thickness:3.0**
- **Bulk Density:1.52**  
 $1.60 * 10000 * 3.0 * 1.52 = 72960.00$  Tonnes
- **Total excavation in Tonnes**  
 (Considering 60% as per EMGSM, 2020)=43776

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

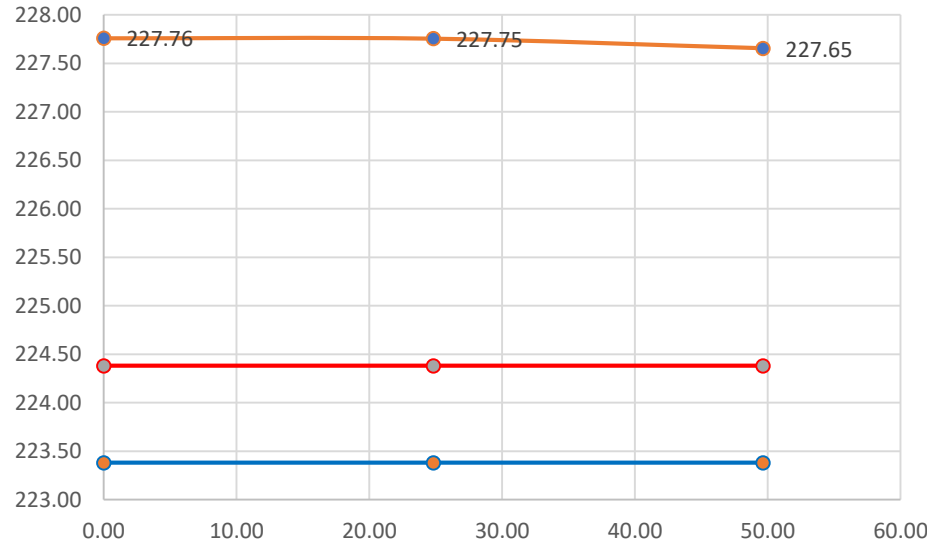
**Cross Section Sand Bar  
 PR\_JL\_NR\_ST\_28**



Pre Monsoon  
 Average Thickness:3.27

Pre-Thickness	Post-Thickness
3.45	3.38
3.25	3.37
3.12	3.27
<b>3.27</b>	<b>3.34</b>

**PO\_JL\_NR\_ST\_28**



Post Monsoon  
 Average Thickness:3.34



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

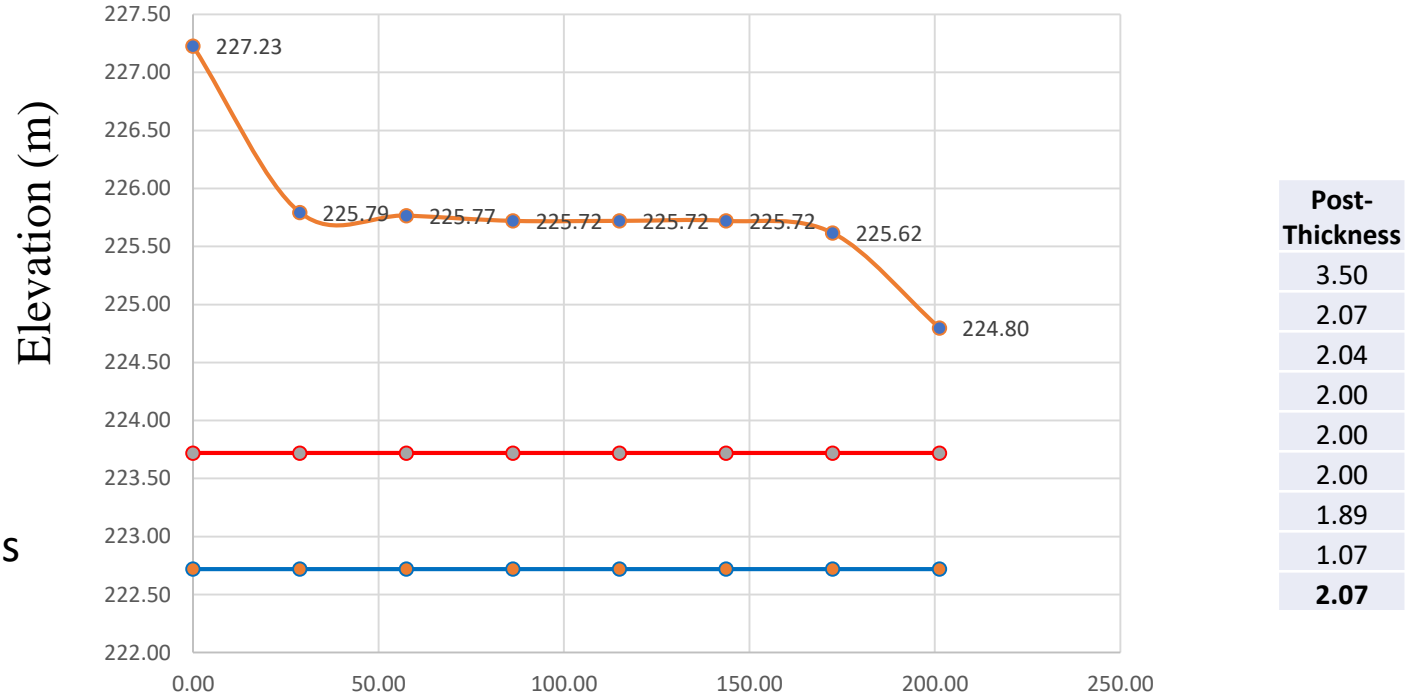
**Calculation**

- **Total Area: 19.19Ha.**(Source: Table No. 7.2)
- **No mining area: 2.17 Ha.** (Source: Page No 85)
- Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 19.19-2.17=17.02 Ha.
- Potential Area(Ha.):17.02
- Average Thickness:2.07
- Bulk Density:1.52
- 17.02\*10000\*2.07\*1.52=535517.28 Tonnes
- Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=321310.368

- Red Line
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar**

**PO\_JL\_NR\_ST\_30B**



Post Monsoon  
 Average Thickness:2.07



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 15.83Ha.(Source: Table No. 7.2)**

➤ **No mining area: 4.61 Ha. (Source: Page No 86)**

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 15.83-4.61=11.22 Ha.

➤ **Potential Area(Ha.):11.22**

➤ **Average Thickness:3.0**

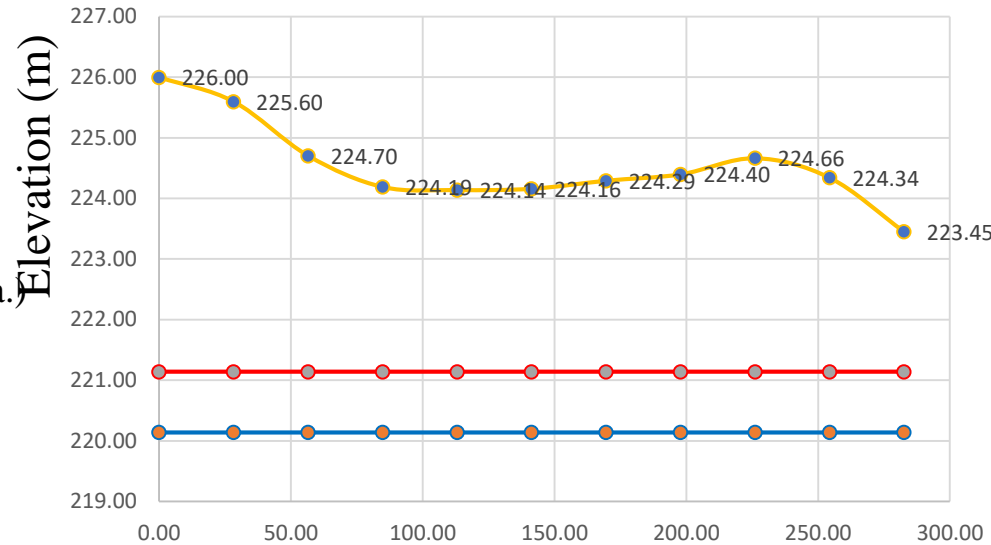
➤ **Bulk Density:1.54**

**11.22\*10000\*3\*1.54=518364.00 Tonnes**

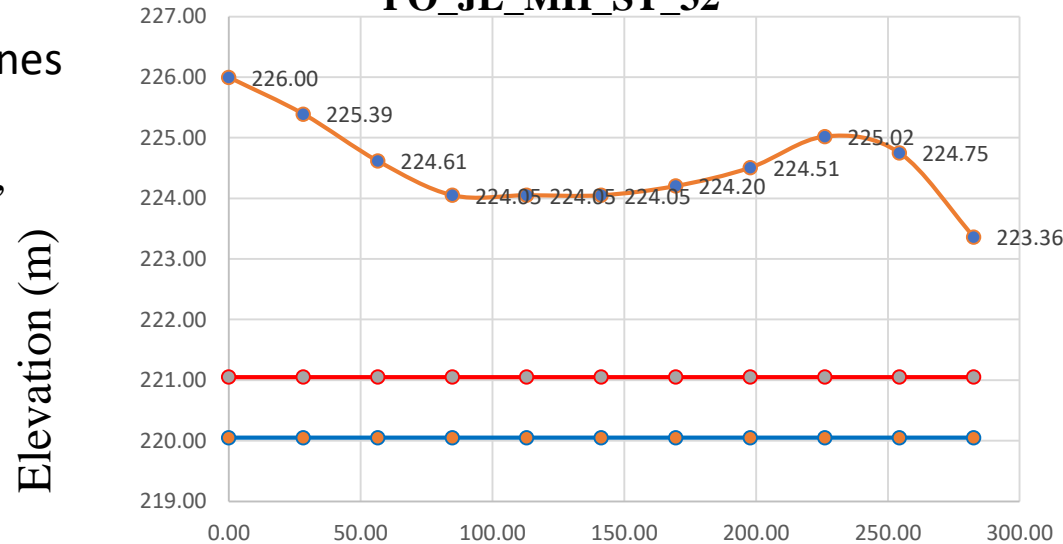
➤ **Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=311018.4**

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_MH\_ST\_32**



**PO\_JL\_MH\_ST\_32**



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

Pre Monsoon  
 Average Thickness:3.40

Pre Thickness	Post Thickness
4.86	4.95
4.46	4.34
3.56	3.56
3.05	3.00
3.00	3.00
3.02	3.00
3.15	3.15
3.26	3.46
3.52	3.97
3.20	3.70
2.31	2.31
<b>3.40</b>	<b>3.49</b>

Post Monsoon  
 Average Thickness: 3.49



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 10.90 Ha.**(Source: Table 7.2 )

➤ **No mining area: 3.82Ha**(Source: Page No 86)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 10.90-3.82=7.08 Ha.

➤ Potential Area(Ha.):7.08

➤ Average Thickness:3.0

➤ Bulk Density:1.54

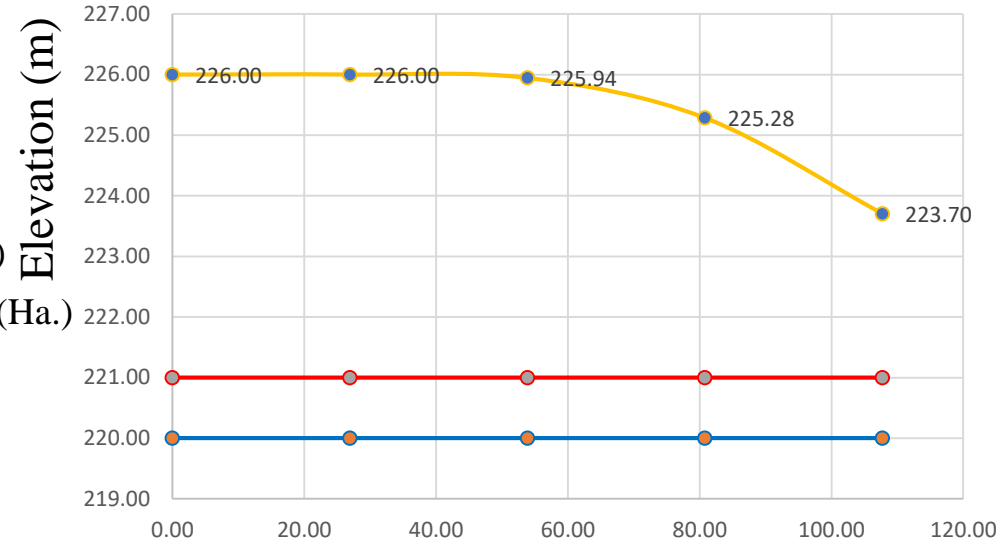
7.08\*10000\*3\*1.54=327096.00 Tonnes

➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=196257.6

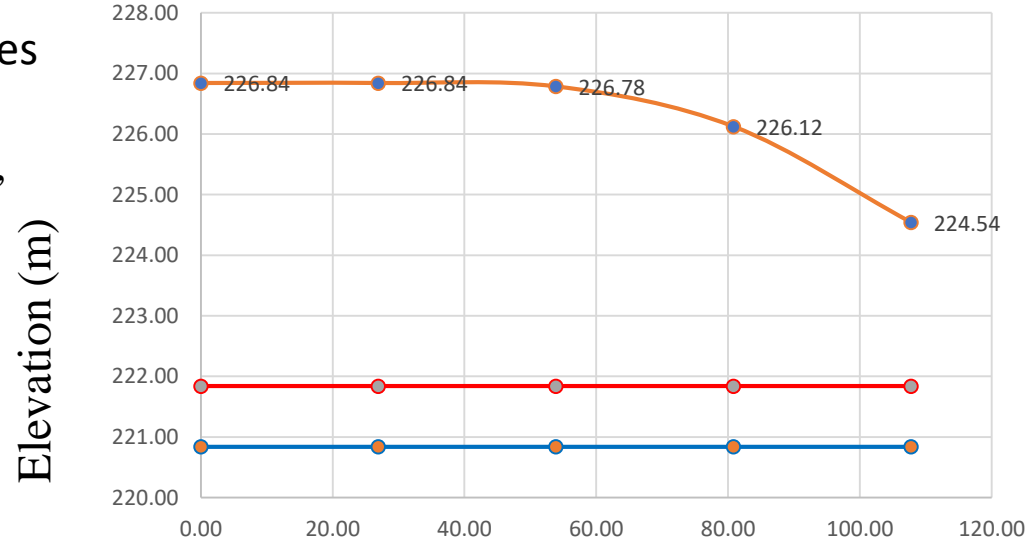
- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar**

**PR\_JL\_MH\_ST\_33**



**PO\_JL\_MH\_ST\_33**



Pre Monsoon  
 Average Thickness:2.81

Pre-Thickness	Post-Thickness
3.89	4.50
3.85	4.00
3.56	3.89
3.02	2.87
1.52	1.63
1.02	1.18
<b>2.81</b>	<b>3.01</b>

Post Monsoon  
 Average Thickness:3.01



Distance of the sand bar from river bank towards river (m)  
 Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 1.08 Ha.(Source: Table 7.2 )**

➤ **No mining area: 0.43Ha(Source: Page No 86)**

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $1.08-0.43=0.65$  Ha.

➤ **Potential Area(Ha.):0.65**

➤ **Average Thickness:3.0**

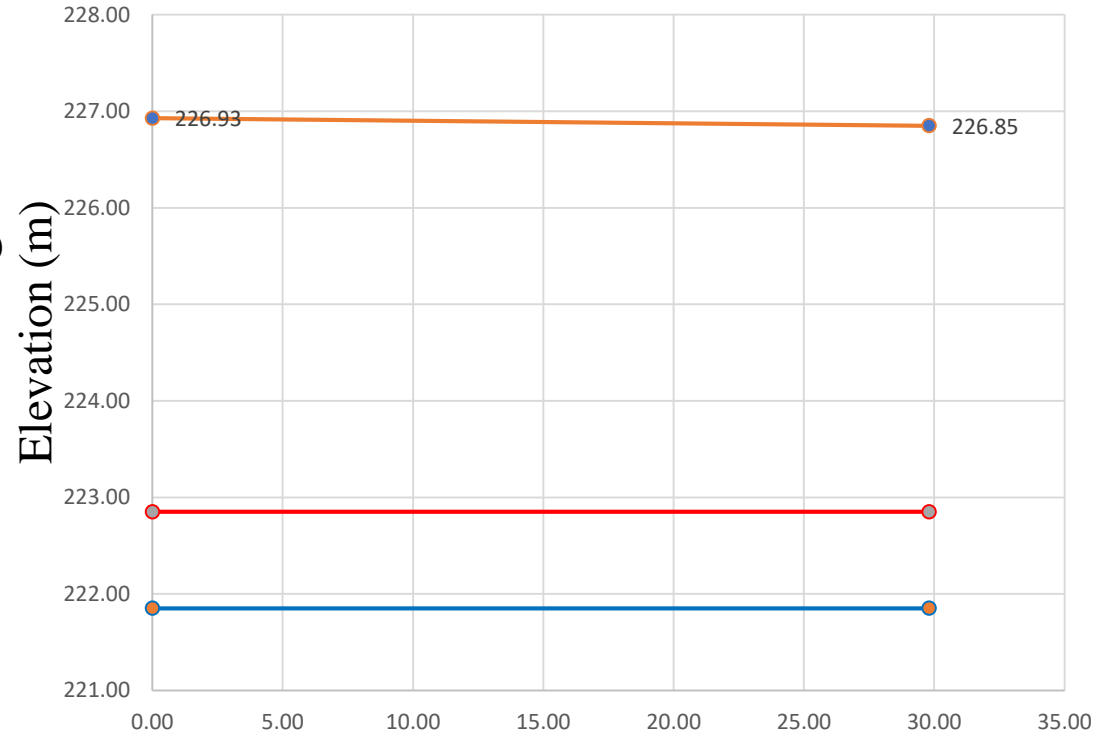
➤ **Bulk Density:1.54**

$0.65*10000*3*1.54=30030.00$  Tonnes

➤ **Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=18018**

- Red Line
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PO\_JL\_MH\_ST\_33A**



Post Thickness
4.08
4.00
<b>4.04</b>

Post-Monsoon  
 Average Thickness:4.04



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

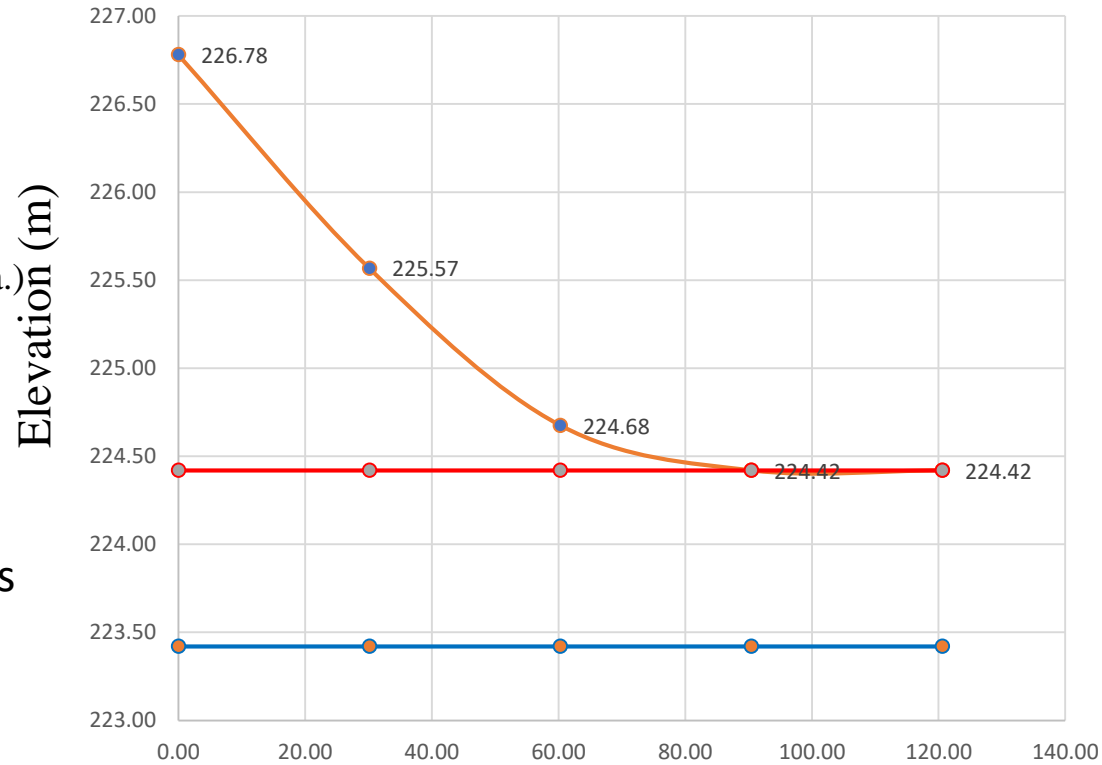
- **Total Area: 3.17 Ha.**(Source: Table 7.2 )
- **No mining area: 0.43Ha.** (Source: Page No 86)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $3.17-0.45=2.72$  Ha.

- Potential Area(Ha.):2.72
- Average Thickness:0.75
- Bulk Density:1.54
- $2.72*10000*0.75*1.54=31416.00$  Tonnes
- Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=18849.6

**Cross Section Sand Bar**

**PO\_JL\_MH\_ST\_33B**



Post Thickness
2.36
1.15
0.26
0.00
0.00
<b>0.75</b>

- Red Line
- Post monsoon Elevation
- Thalweg line

Post Monsoon  
 Average Thickness:0.75



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

- **Total Area: 33.13 Ha.(Source: Table 7.2)**
- **No mining area: 9.6Ha.** (Source: Page No 87)

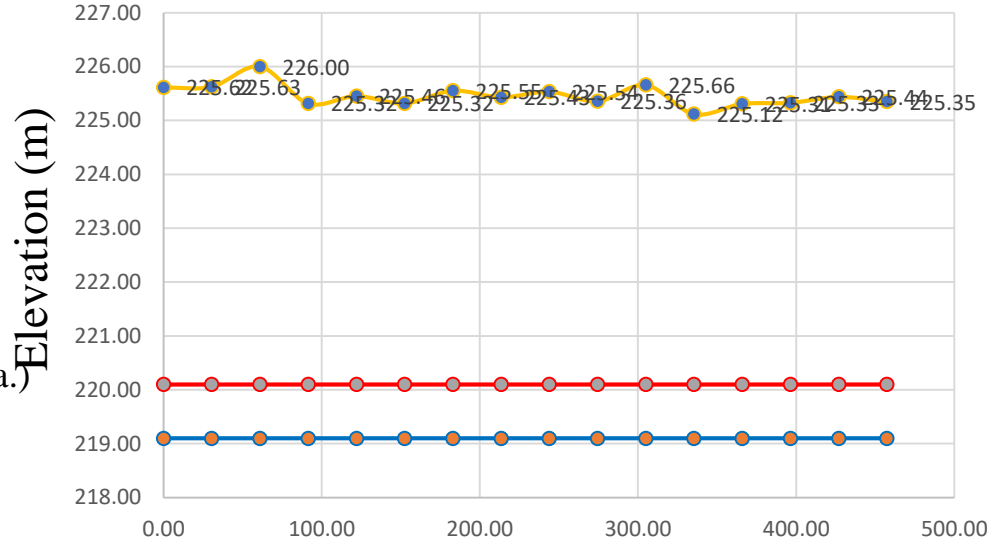
Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $33.13-9.6=23.53$  Ha.

- **Potential Area(Ha.):23.53**
- **Average Thickness:3.0**
- **Bulk Density:1.51**
- $23.53*10000*3.0*1.51=1065909.00$  Tonnes
- **Total excavation in Tonnes**  
 (Considering 60% as per EMGSM, 2020)=639545.4

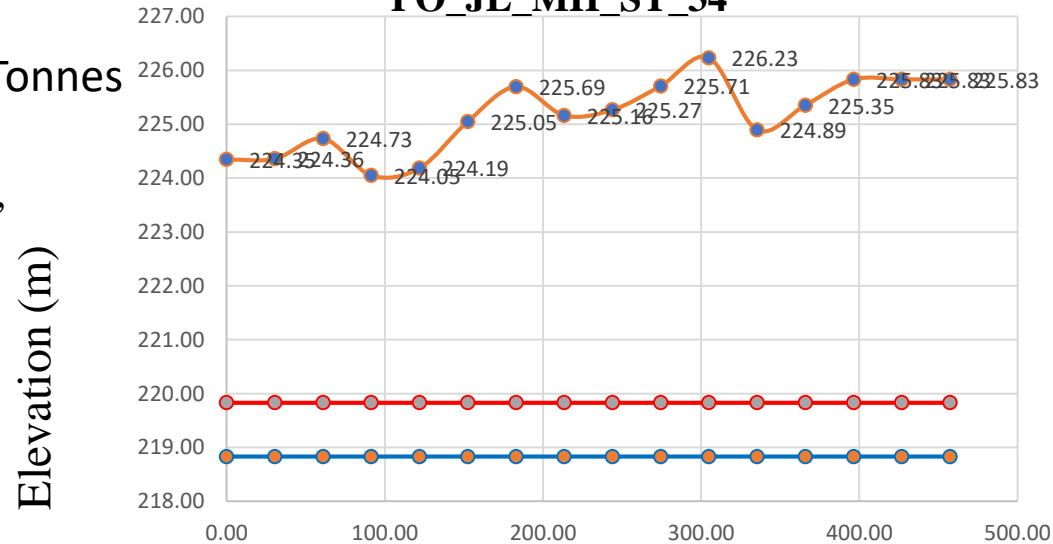
- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar**

**PR\_JL\_MH\_ST\_34**



**PO\_JL\_MH\_ST\_34**



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

Pre Monsoon  
 Average Thickness:5.36

Pre-Thickness	Post Thickness
5.52	4.52
5.53	4.53
5.90	4.90
5.22	4.22
5.36	4.36
5.22	5.22
5.45	5.86
5.33	5.33
5.44	5.44
5.26	5.88
5.56	6.40
5.02	5.06
5.21	5.52
5.23	6.00
5.24	6.00
5.25	6.00
<b>5.36</b>	<b>5.33</b>

Post Monsoon  
 Average Thickness:5.33



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 24.82 Ha.**(Source: Table 7.2 )

➤ **No mining area: 6.05Ha.** (Source: Page No 87)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 24.82-6.05=18.77 Ha.

➤ Potential Area(Ha.):18.77

➤ Average Thickness:3.0

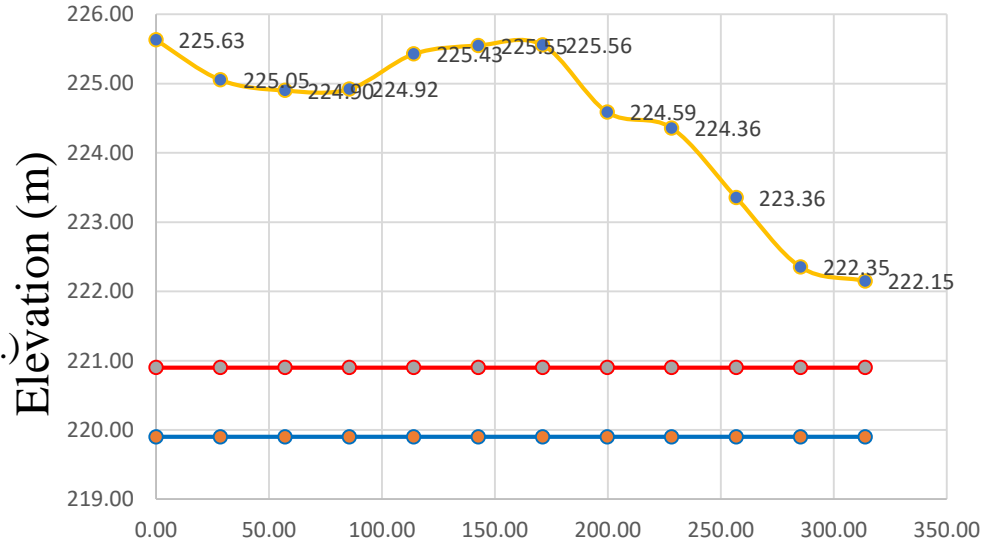
➤ Bulk Density:1.51

18.77\*10000\*3.0\*1.51=850281.00 Tonnes

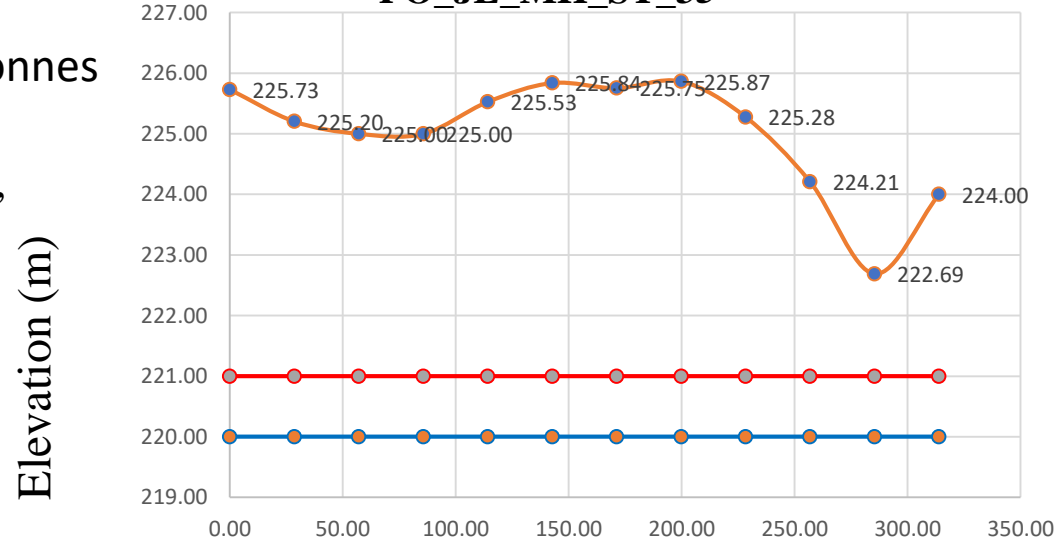
➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=510168.6

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_MH\_ST\_35**



**PO\_JL\_MH\_ST\_35**



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

Pre Monsoon  
 Average Thickness:3.58

Pre-Thickness	Post Thickness
4.73	4.73
4.15	4.20
4.00	4.00
4.02	4.00
4.53	4.53
4.65	4.84
4.60	4.75
3.69	4.87
3.46	4.28
2.46	3.21
1.45	1.69
1.25	3.00
<b>3.58</b>	<b>4.01</b>

Post Monsoon  
 Average Thickness:4.01



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 6.13 Ha.**(Source: Table 7.2 )

➤ **No mining area: 3.15Ha.** (Source: Page No 87)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 6.13-3.15=2.98 Ha.

➤ Potential Area(Ha.):2.98

➤ Average Thickness:2.98

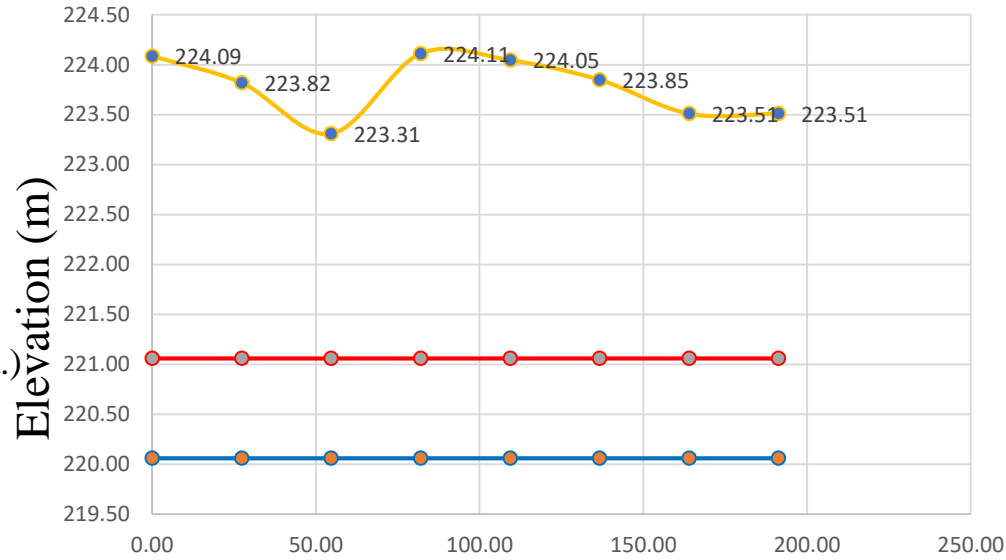
➤ Bulk Density:1.56

2.98\*10000\*2.98\*1.56=138534.24 Tonnes

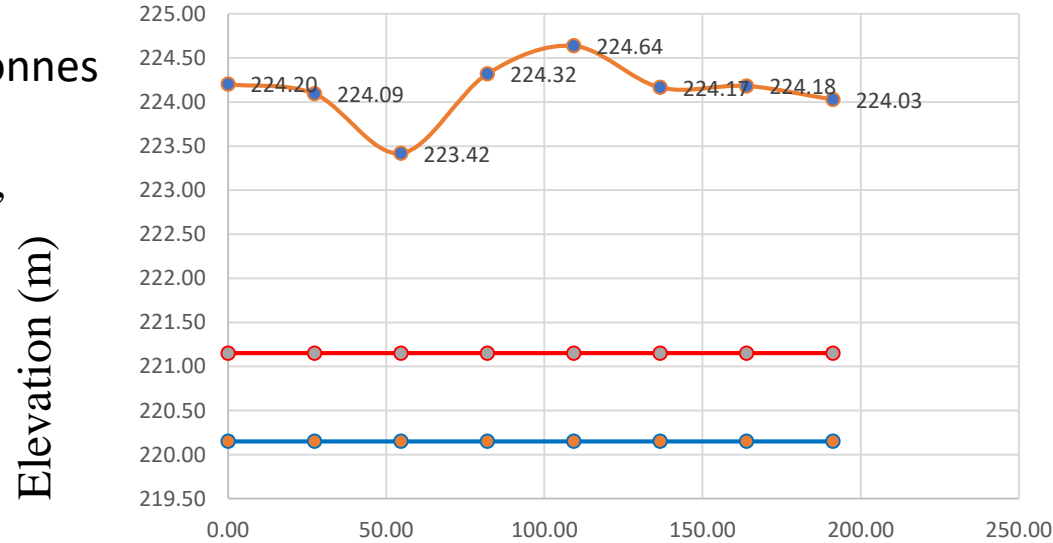
➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=83120.544

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

**Cross Section Sand Bar  
 PR\_JL\_MH\_ST\_36**



**PO\_JL\_MH\_ST\_36**



Pre Monsoon  
 Average Thickness:

Pre-Thickness	Post Thickness
3.03	3.05
2.76	2.94
2.25	2.27
3.05	3.17
2.99	3.49
2.79	3.02
2.45	3.03
2.45	2.88
<b>2.72</b>	<b>2.98</b>

Post Monsoon  
 Average Thickness:



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 46.23 Ha.**(Source: Table 7.2 )

➤ **No mining area: 4.47Ha.** (Source: Page No 88)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 46.23-4.47=41.76 Ha.

➤ Potential Area(Ha.):41.76

➤ Average Thickness:1.27

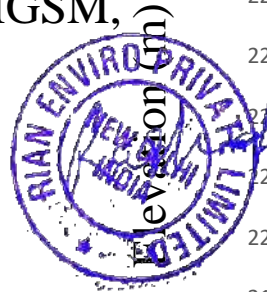
➤ Bulk Density:1.57

41.76\*10000\*1.27\*1.57= 832652.64

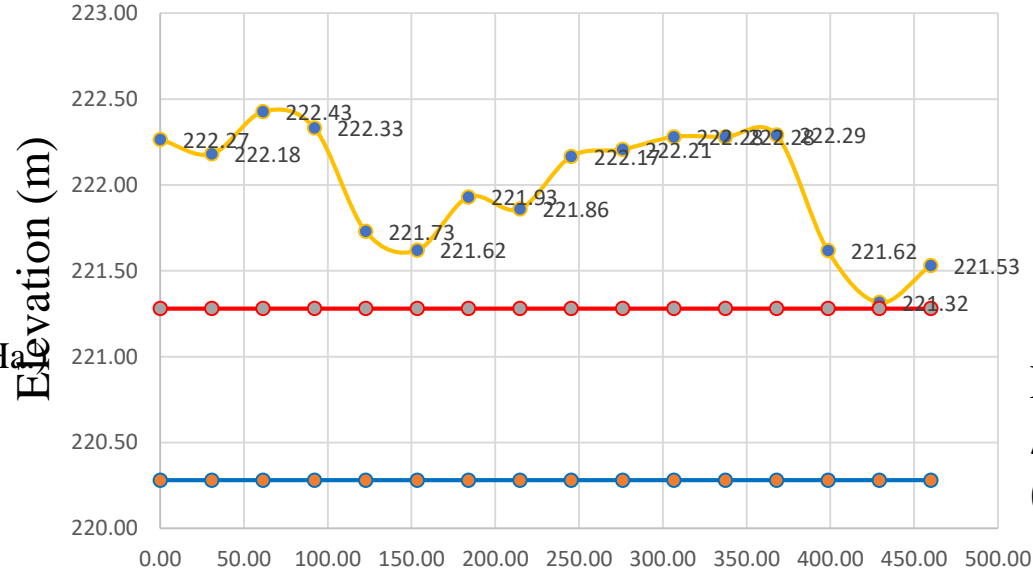
Tonnes

➤ Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=4,99,591.584

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

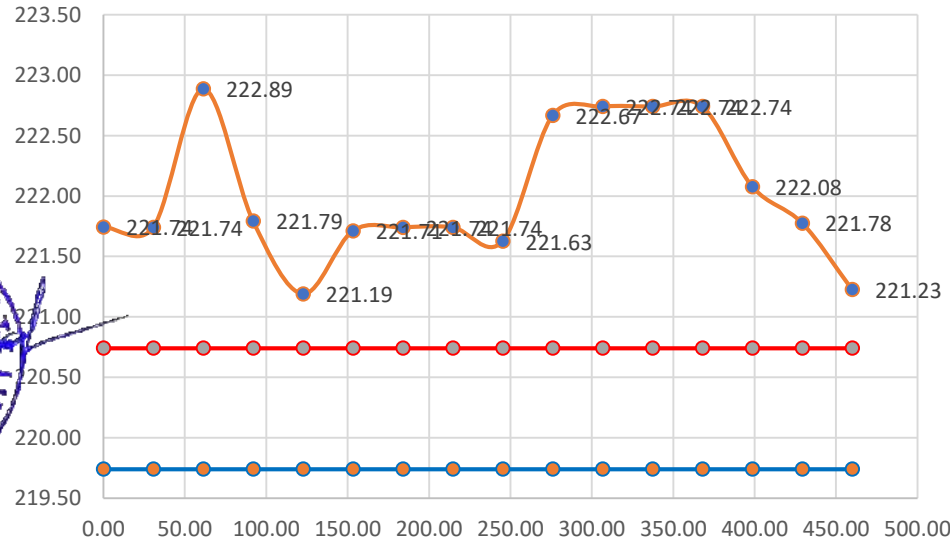


**Cross Section Sand Bar  
 PR\_JL\_SH\_ST\_50A**



Pre Monsoon  
 Average Thickness:  
**0.72**

**PO\_JL\_SH\_ST\_50A**



Post Monsoon  
 Average Thickness:  
**1.27**

Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross-section as observed in the field has been checked and found nearly matching with the office record.

Pre-Thickness
0.99
0.9
1.15
1.05
0.45
0.34
0.65
0.58
0.89
0.93
1
1
1.01
0.34
0.04
0.25
<b>0.72</b>

Post Thickness
1
1
2.15
1.05
0.45
0.97
1
1
0.89
1.93
2
2
2
1.04
1.34
0.49
<b>1.27</b>

**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 2.78 Ha.**(Source: Table 7.2 )

➤ **No mining area: 0Ha.** (Source: Page No 88)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 2.78-0=2.78 Ha.

➤ Potential Area(Ha.): 2.78

➤ Average Thickness: 1.01

➤ Bulk Density: 1.57

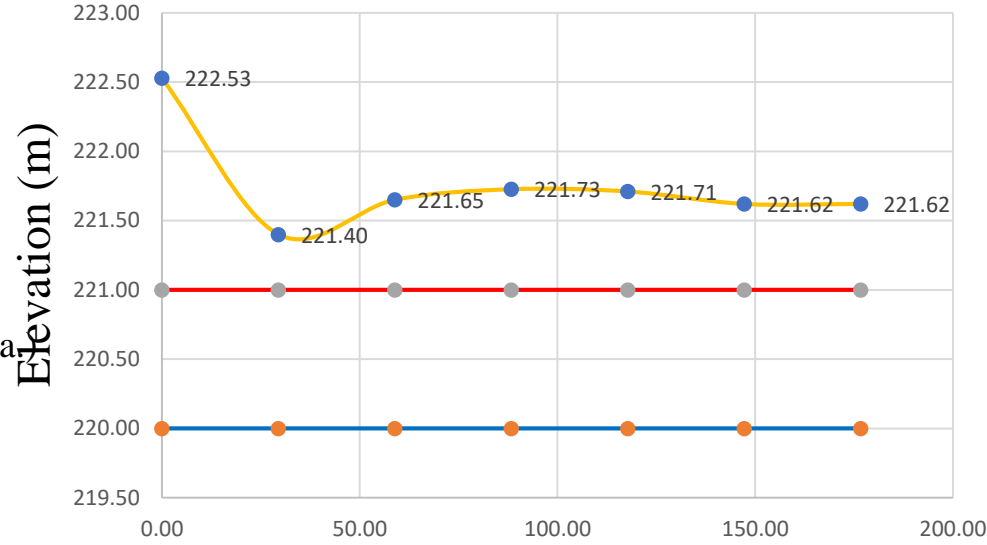
2.78\*10000\*1.01\*1.57=44,082.46 Tonnes

➤ Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)=26,449.476

- Red Line
- Pre monsoon Elevation
- Post monsoon Elevation
- Thalweg line

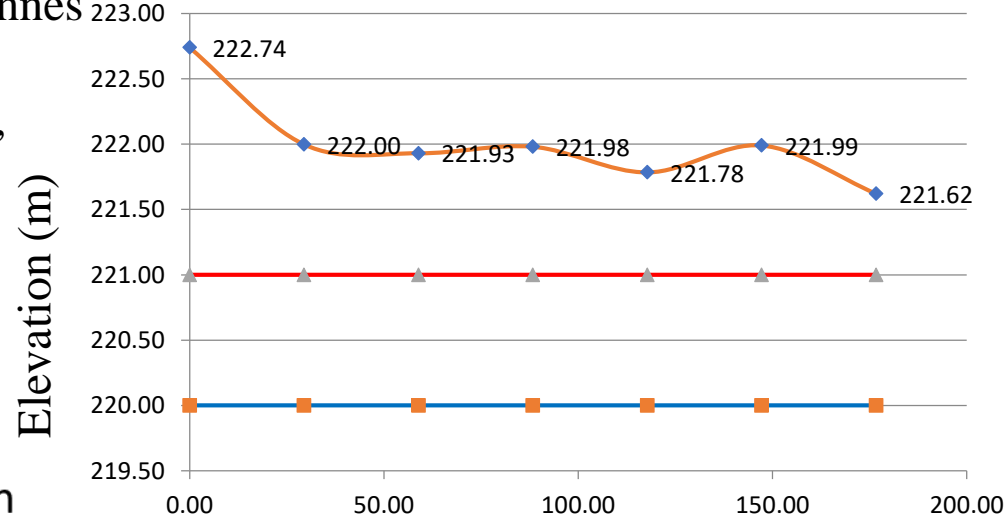
**Cross Section Sand Bar**

**PR\_JL\_SH\_ST\_52**



Distance of the sand bar from river bank towards river (m)

**PO\_JL\_SH\_ST\_52**



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

Pre Monsoon

**Average Thickness:0.75**

Pre-Thickness
1.53
0.40
0.65
0.73
0.71
0.62
0.62
<b>0.75</b>

Post Monsoon

**Average Thickness:1.01**

Post-Thickness
1.74
1.00
0.93
0.98
0.78
0.99
0.62
<b>1.01</b>



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

## Cross Section Sand Bar

**PO\_JL\_SH\_ST\_53A**

### Calculation

➤ **Total Area: 0.49 Ha.**(Source: Table 7.2 )

➤ **No mining area: 0.08Ha.** (Source: Page No 88)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $0.49 - 0.08 = 0.41$  Ha.

➤ Potential Area(Ha.):0.41

➤ Average Thickness:2.11

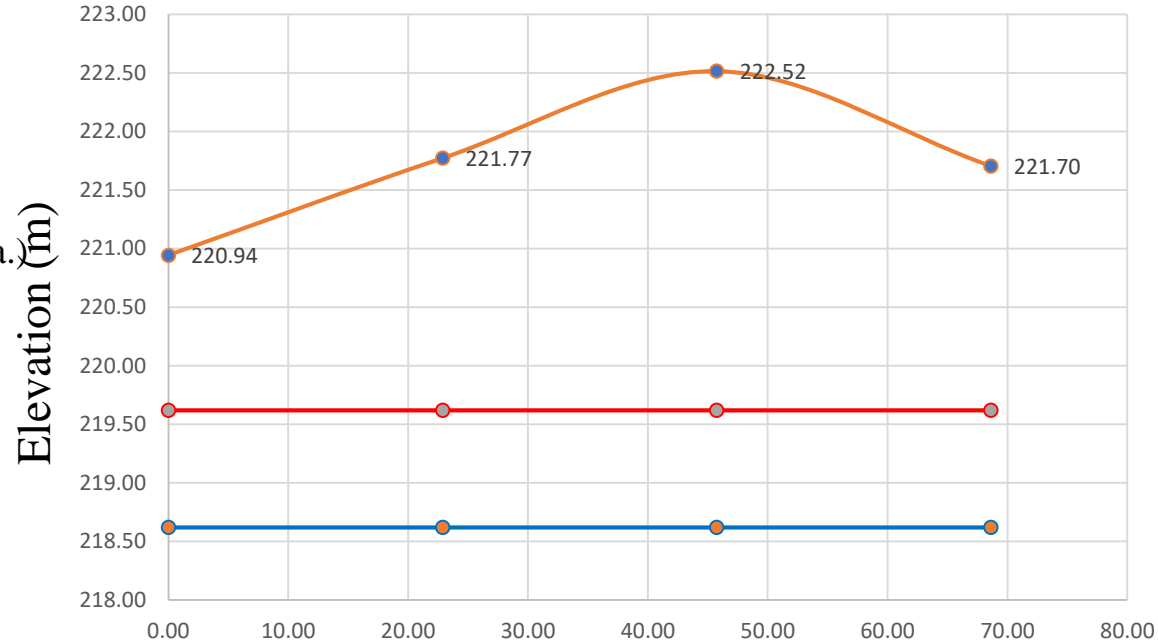
➤ Bulk Density:1.57

$0.41 * 10000 * 2.11 * 1.57 = 13582.07$  Ton

nes

➤ Total excavation in Tonnes

(Considering 60% as per EMGSM, 2020)=8,149.242



Post -Thickness
1.32
2.15
2.90
2.08
<b>2.11</b>

Distance of the sand bar from river bank towards river (m)

Post Monsoon

Average Thickness: 2.11

- Red Line
- Post monsoon Elevation
- Thalweg line



Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.



**Source-** Primary Data generated by DGPS  
 Hi- Target DGPS ( Model No. V30plus)

**Calculation**

➤ **Total Area: 1.24 Ha.**(Source: Table 7.2 )

➤ **No mining area: 0 Ha.** (Source: Page No 88)

Potential area(Ha.): Total area(Ha.)- No mining Area(Ha.)  
 $1.24-0=1.24\text{Ha.}$

➤ Potential Area(Ha.):1.24

➤ Average Thickness:1.72

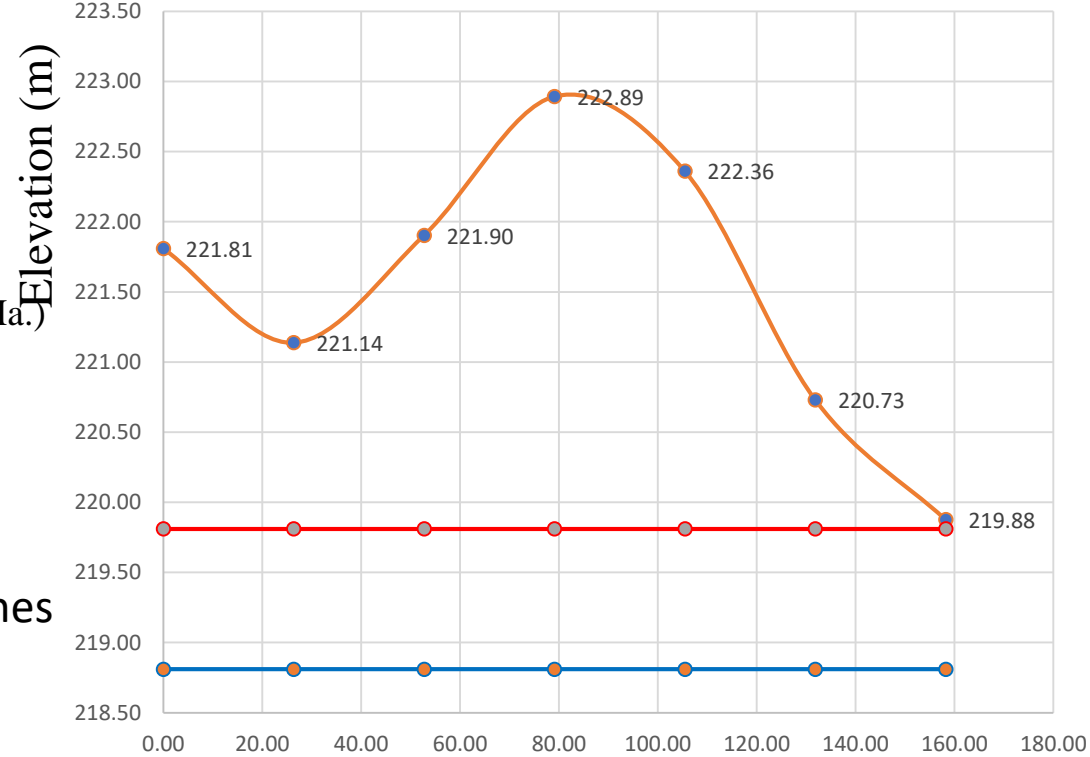
➤ Bulk Density:1.57

$1.24*10000*1.72*1.57= 33484.96$  Tonnes

➤ Total excavation in Tonnes  
 (Considering 60% as per EMGSM, 2020)=20,090.976

**Cross Section Sand Bar**

**PO\_JL\_SH\_ST\_53B**



Post Thickness	
2.00	Average Thickness
1.33	
2.09	
3.08	
2.55	
0.92	
0.07	
<b>1.72</b>	

Post Monsoon  
 Average Thickness: **1.72**



Distance of the sand bar from river bank towards river (m)

Note: The levels given in the cross- section as observed in the field has been checked and found nearly matching with the office record.

- Red Line
- Post monsoon Elevation
- Thalweg line

**Plate V**  
**Route Map (Riverbed & Agriculture Site)**



## **(Route Map Riverbed)**




# Haul Road Map

PO\_JL\_PL\_ST\_1B

A'

## Legend

 Haul Road 1 (AA')

Google Earth

Image © 2022 Maxar Technologies





300 m

137



# Haul Road Map

## Legend

-  Haul Road 1 (BB')
-  Road

Google Earth

Image © 2022 Maxar Technologies

B

B'

PO\_JL\_PL\_ST\_03

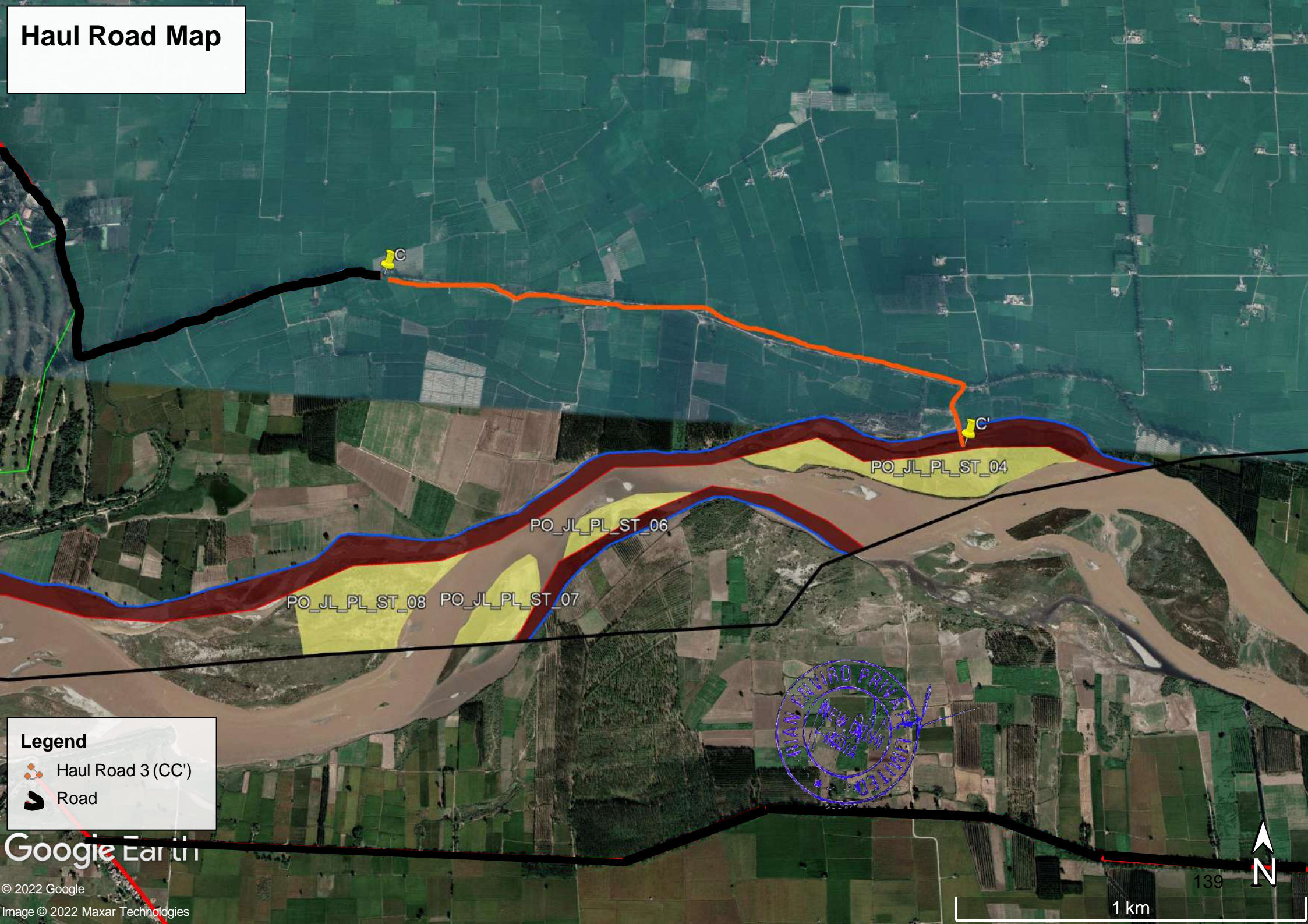


138



500



# Haul Road Map



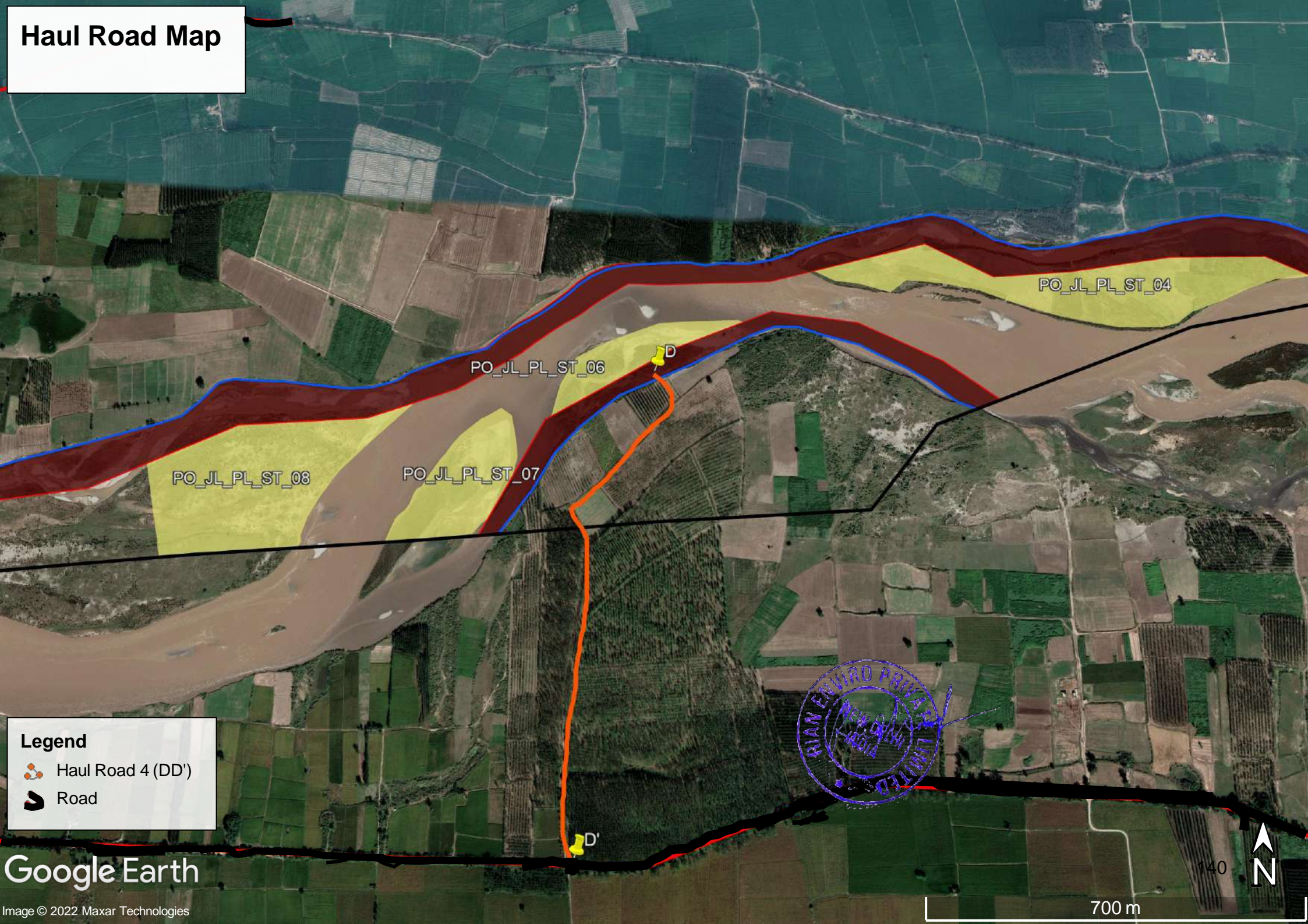
## Legend

-  Haul Road 3 (CC')
-  Road



Google Earth



# Haul Road Map

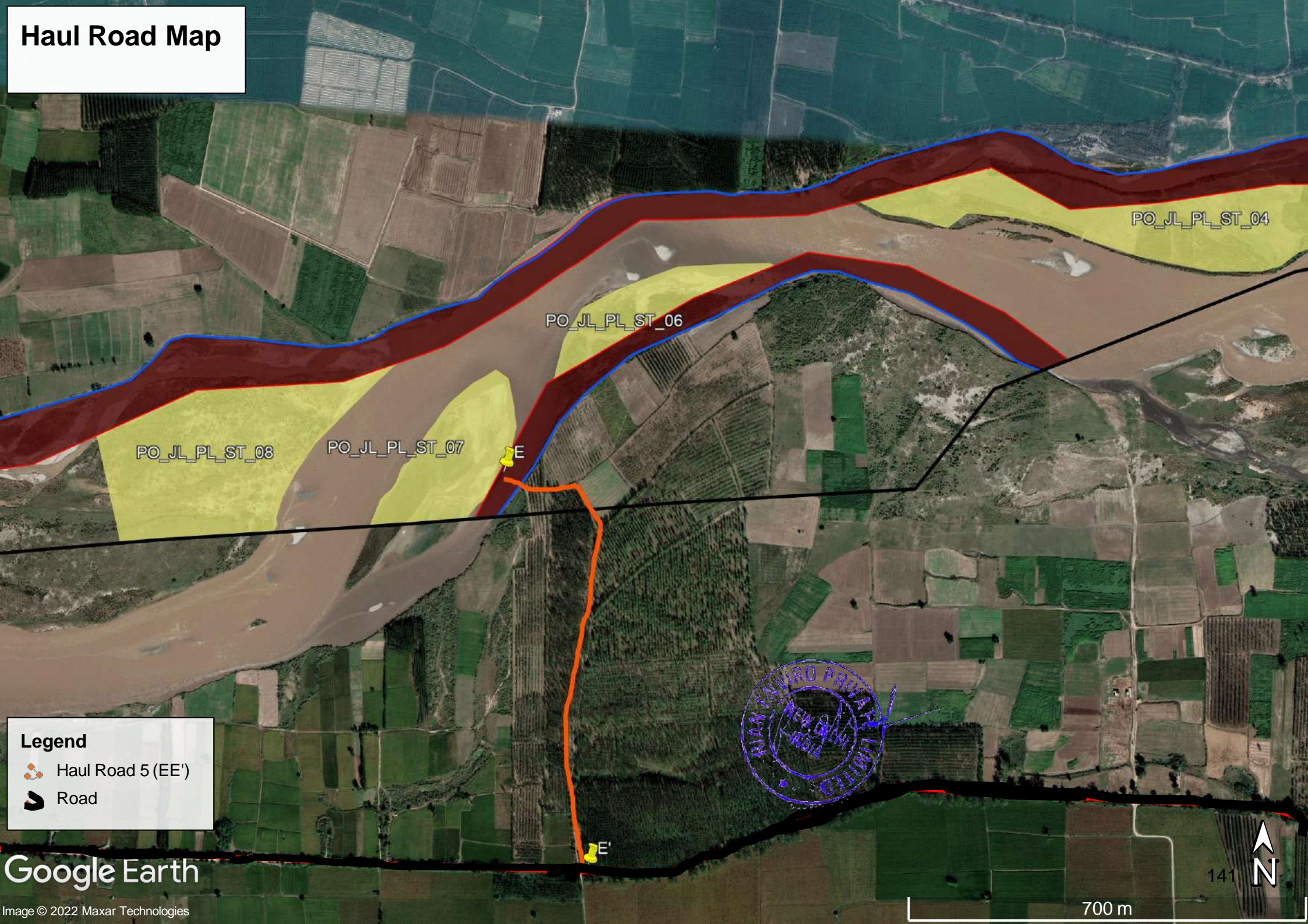


## Legend

-  Haul Road 4 (DD')
-  Road



# Haul Road Map



PO\_JL\_PL\_ST\_04

PO\_JL\_PL\_ST\_06



PO\_JL\_PL\_ST\_08

PO\_JL\_PL\_ST\_07

E

E'

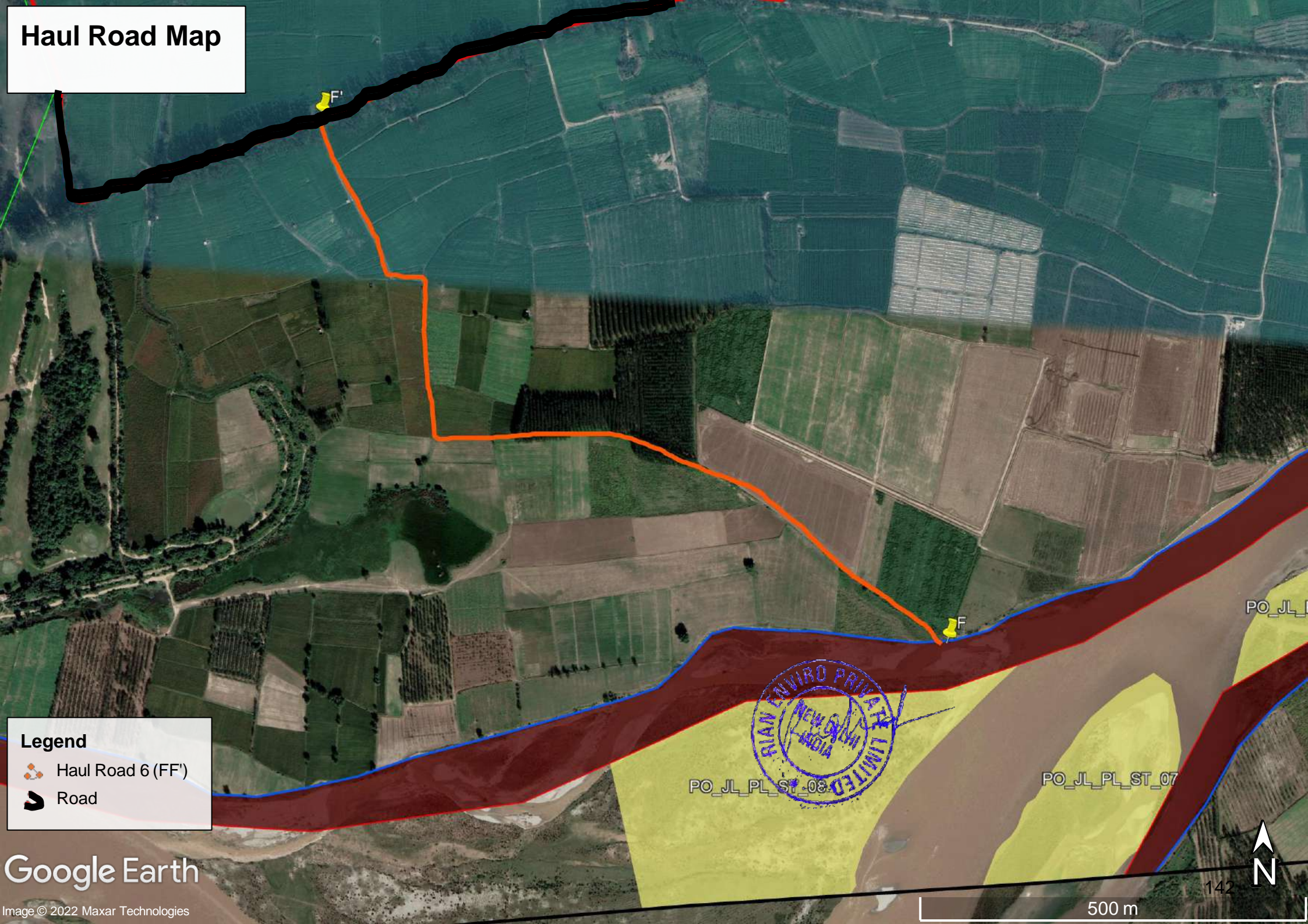
## Legend

-  Haul Road 5 (EE')
-  Road







# Haul Road Map



## Legend

-  Haul Road 6 (FF')
-  Road

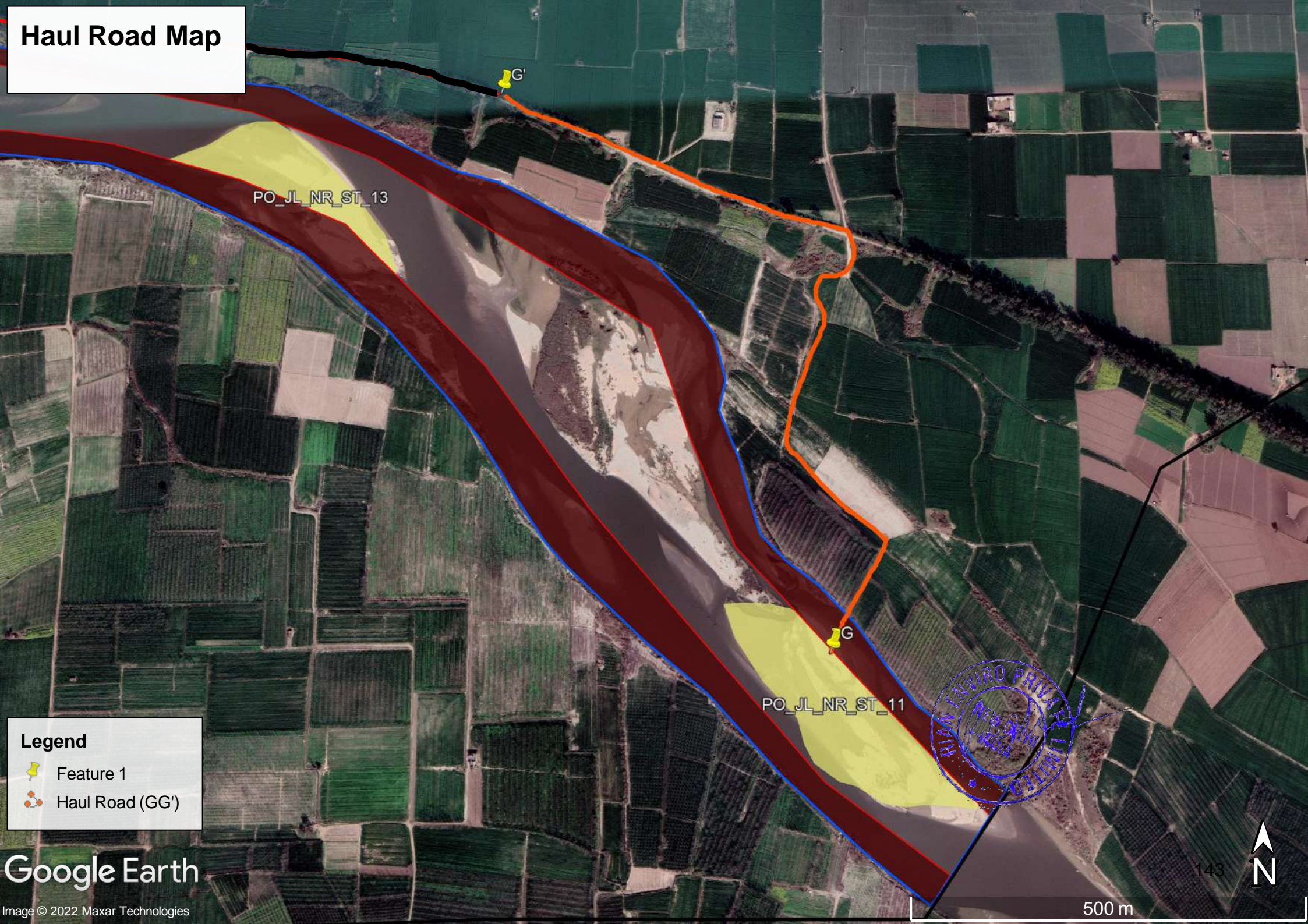


PO\_JL\_PL\_St\_08

PO\_JL\_PL\_ST\_07

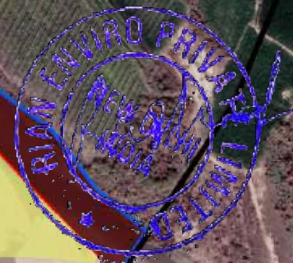


# Haul Road Map





PO\_JL\_NR\_ST\_13

PO\_JL\_NR\_ST\_11



**Legend**

-  Feature 1
-  Haul Road (GG')



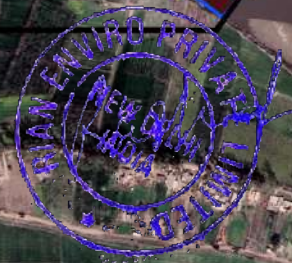
# Haul Road Map

PO\_JL\_NR\_ST\_13B

PO\_JL\_NR\_ST\_13

PO\_JL\_NR\_ST\_11

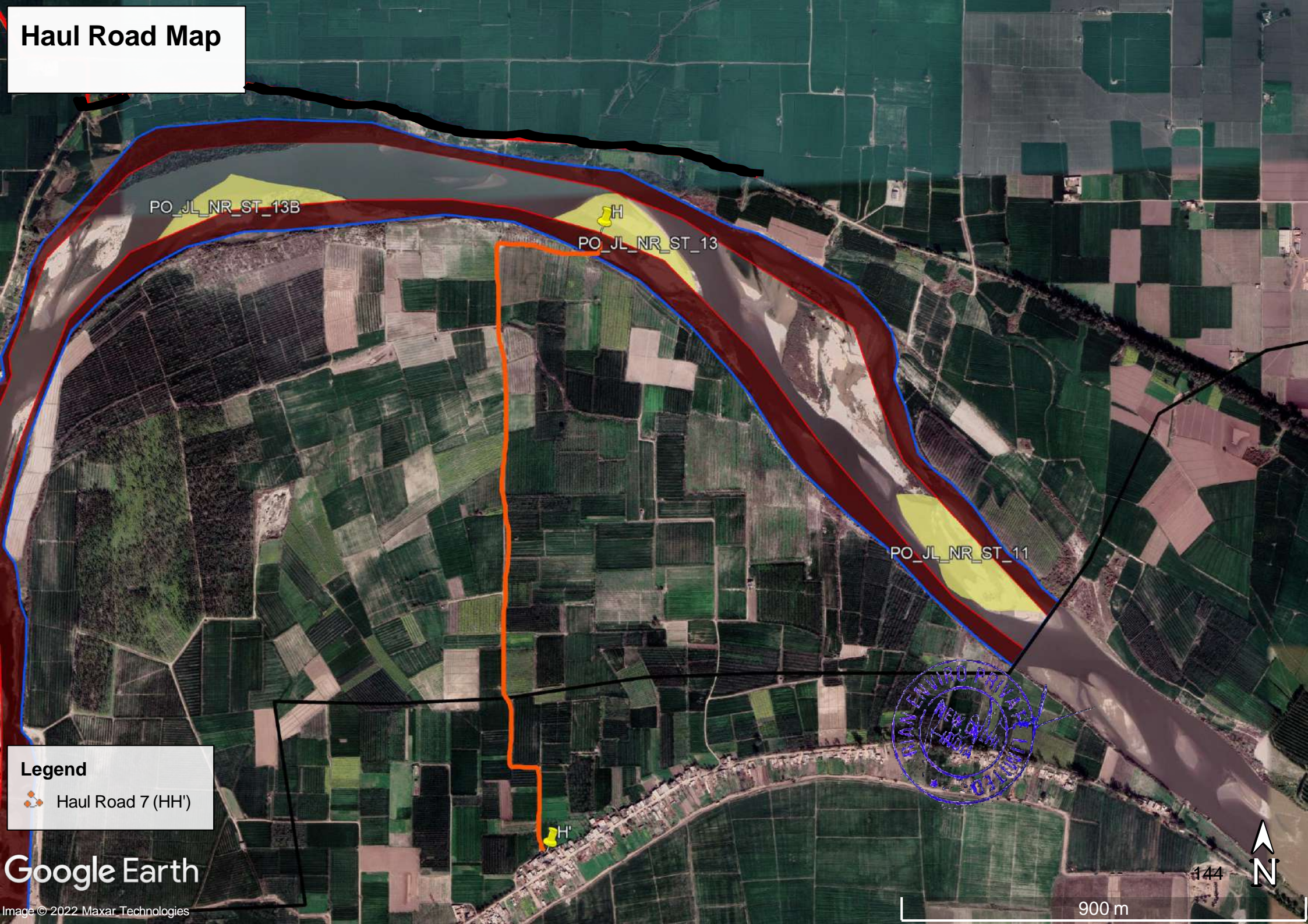
**Legend**  
Haul Road 7 (HH')



Google Earth

Image © 2022 Maxar Technologies

900 m




# Haul Road Map

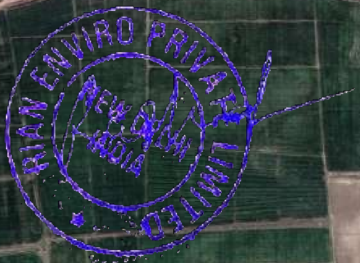
PO\_JL\_NR\_ST\_13B

PO\_JL\_NR\_ST\_13

PO\_JL\_NR\_ST\_11

**Legend**

-  Haul Road 8 (II)



# Haul Road Map

PO\_JL\_NR\_ST\_16 JJ

**Legend**  
Haul Road 10 (JJ')

Google Earth

Image © 2022 Airbus  
Image © 2022 Maxar Technologies

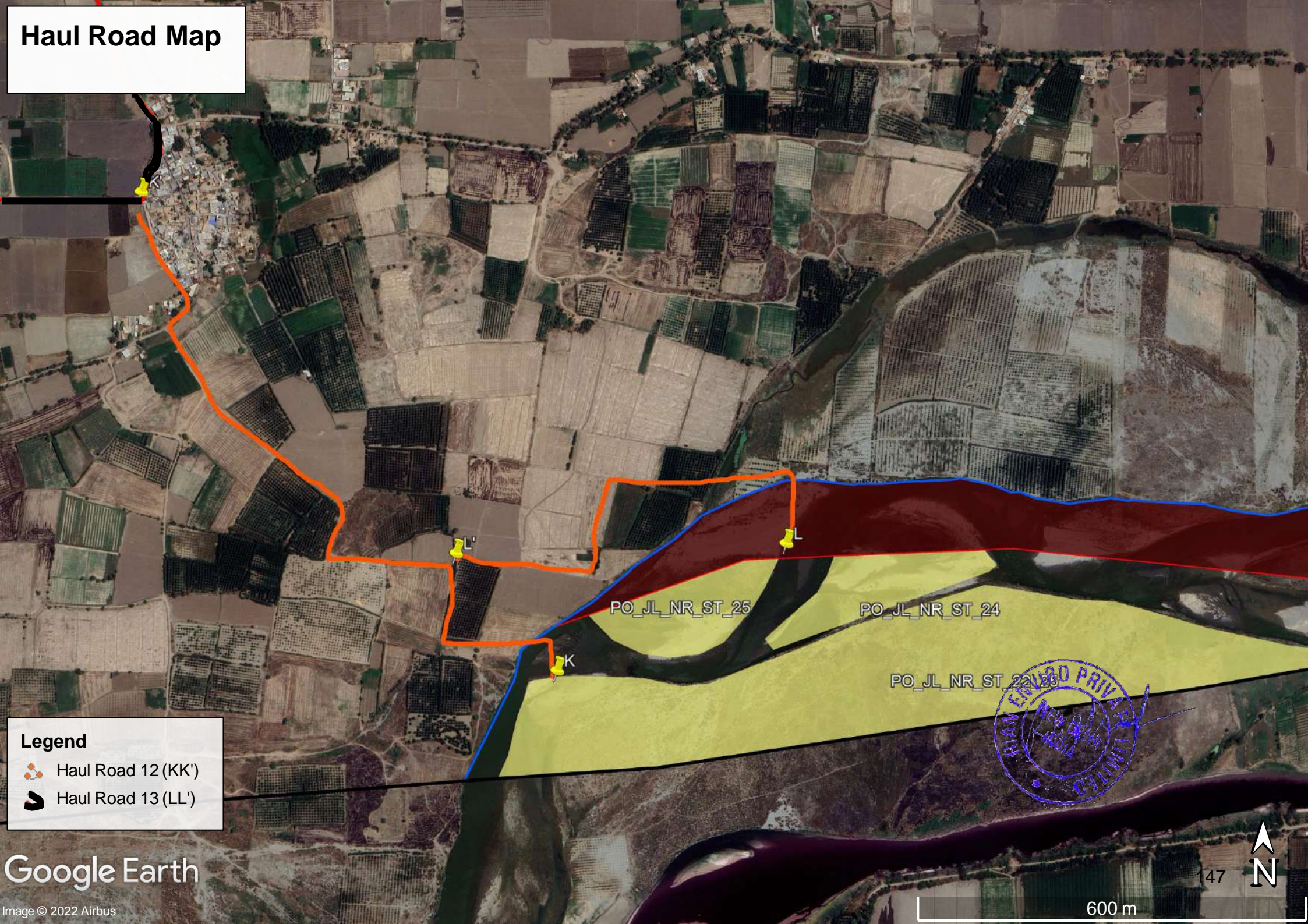


146





1 km

# Haul Road Map



## Legend

-  Haul Road 12 (KK')
-  Haul Road 13 (LL')

Google Earth

Image © 2022 Airbus

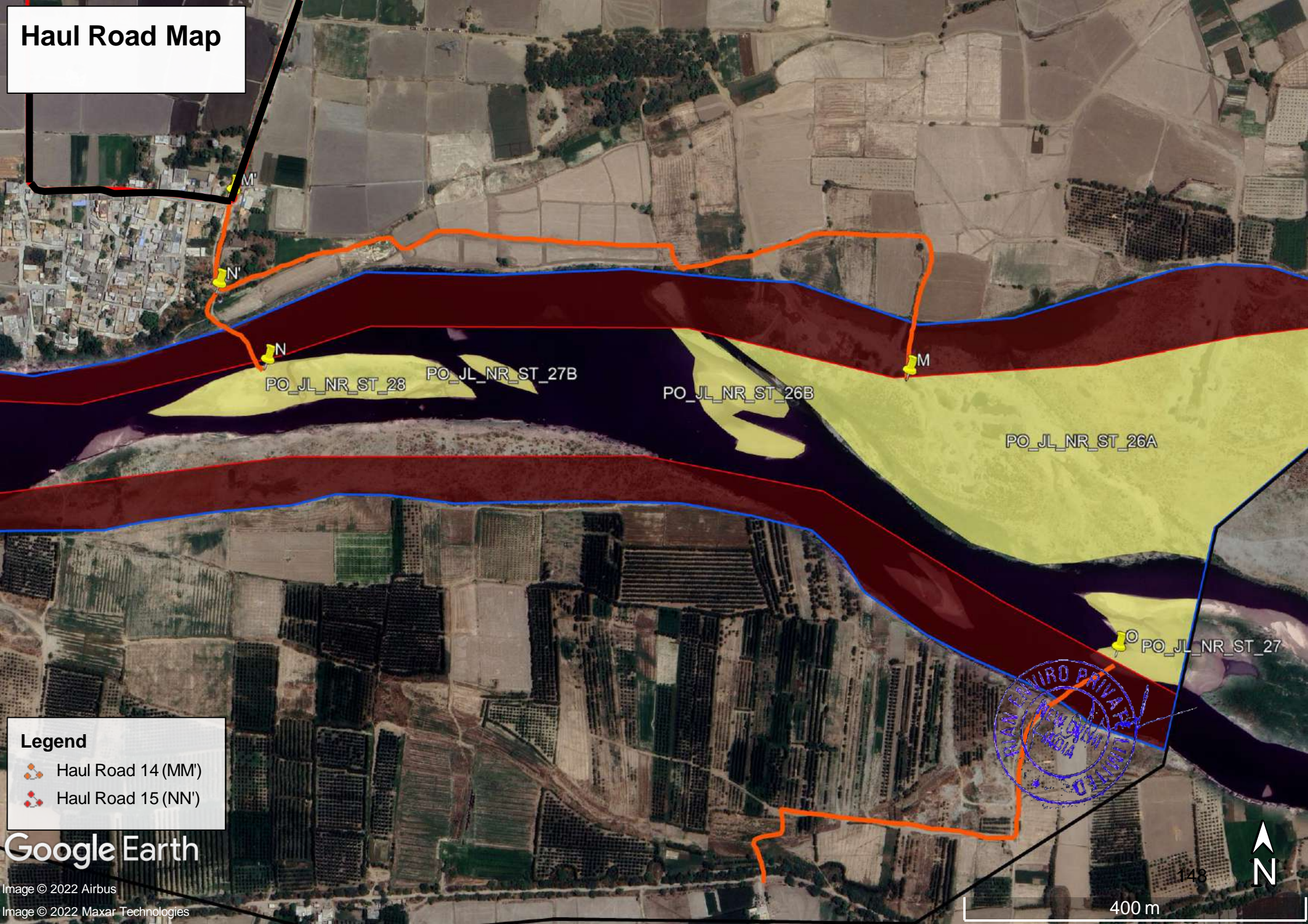


147





600 m

# Haul Road Map



## Legend

-  Haul Road 14 (MM')
-  Haul Road 15 (NN')

Google Earth

Image © 2022 Airbus

Image © 2022 Maxar Technologies

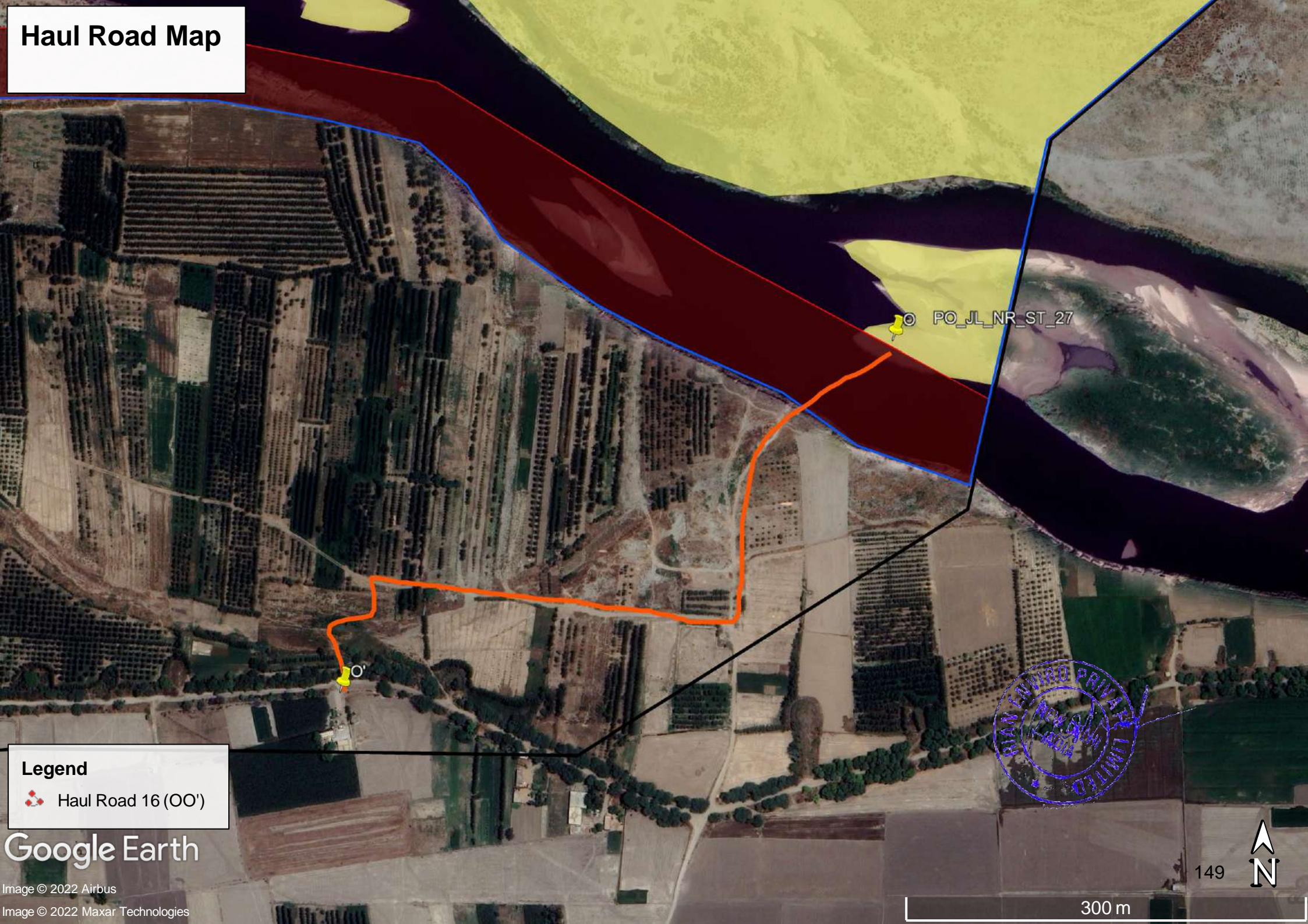


400 m



148

# Haul Road Map



## Legend

 Haul Road 16 (OO')

Google Earth

Image © 2022 Airbus  
Image © 2022 Maxar Technologies



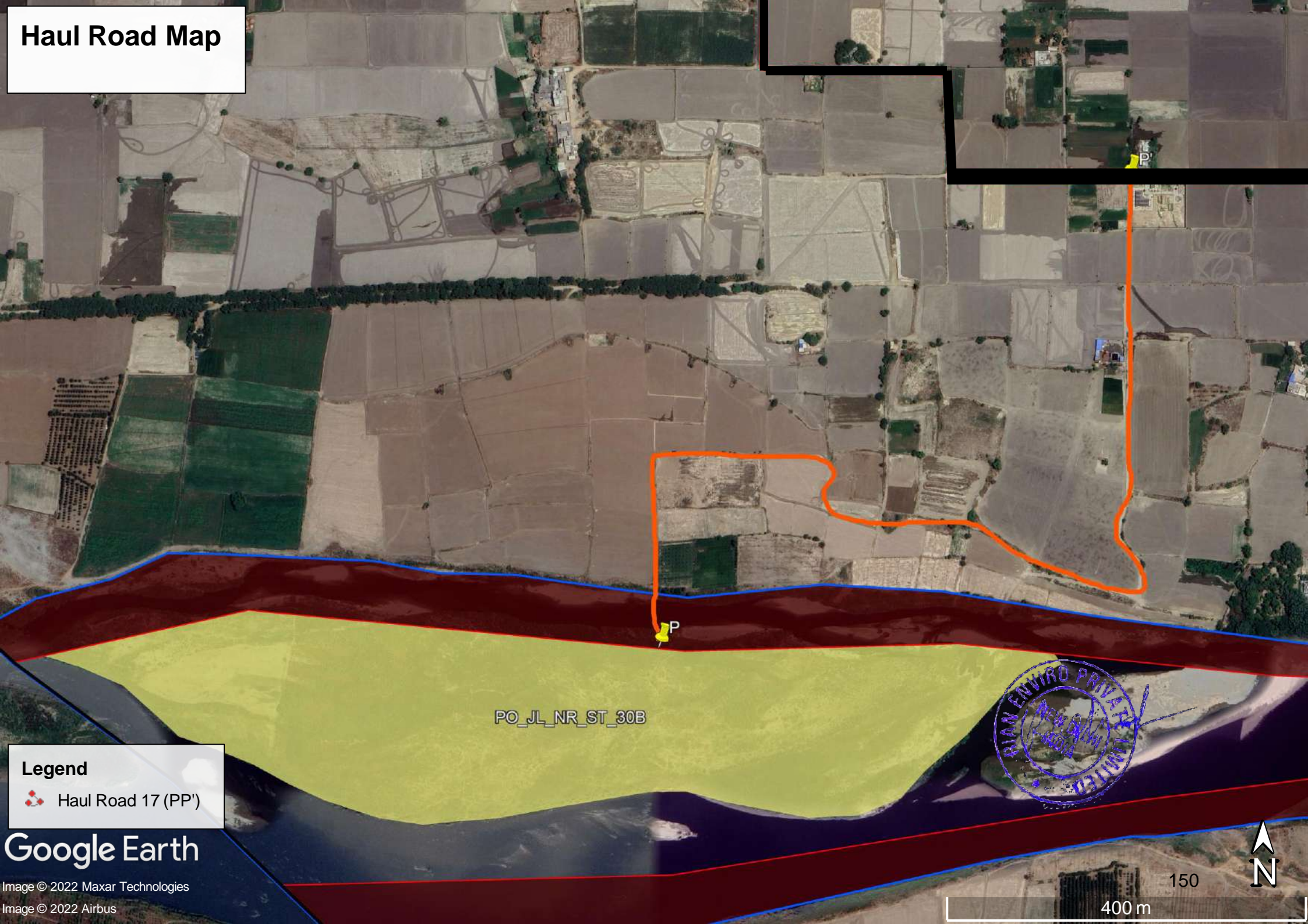
149




300 m



# Haul Road Map



## Legend

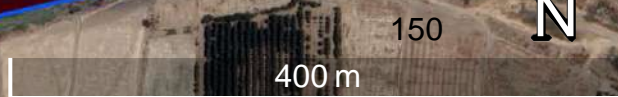
 Haul Road 17 (PP')

Google Earth

Image © 2022 Maxar Technologies

Image © 2022 Airbus


PO\_JL\_NR\_ST\_30B



# Haul Road Map



## Legend

-  Haul Road 18 (QQ')

Google Earth

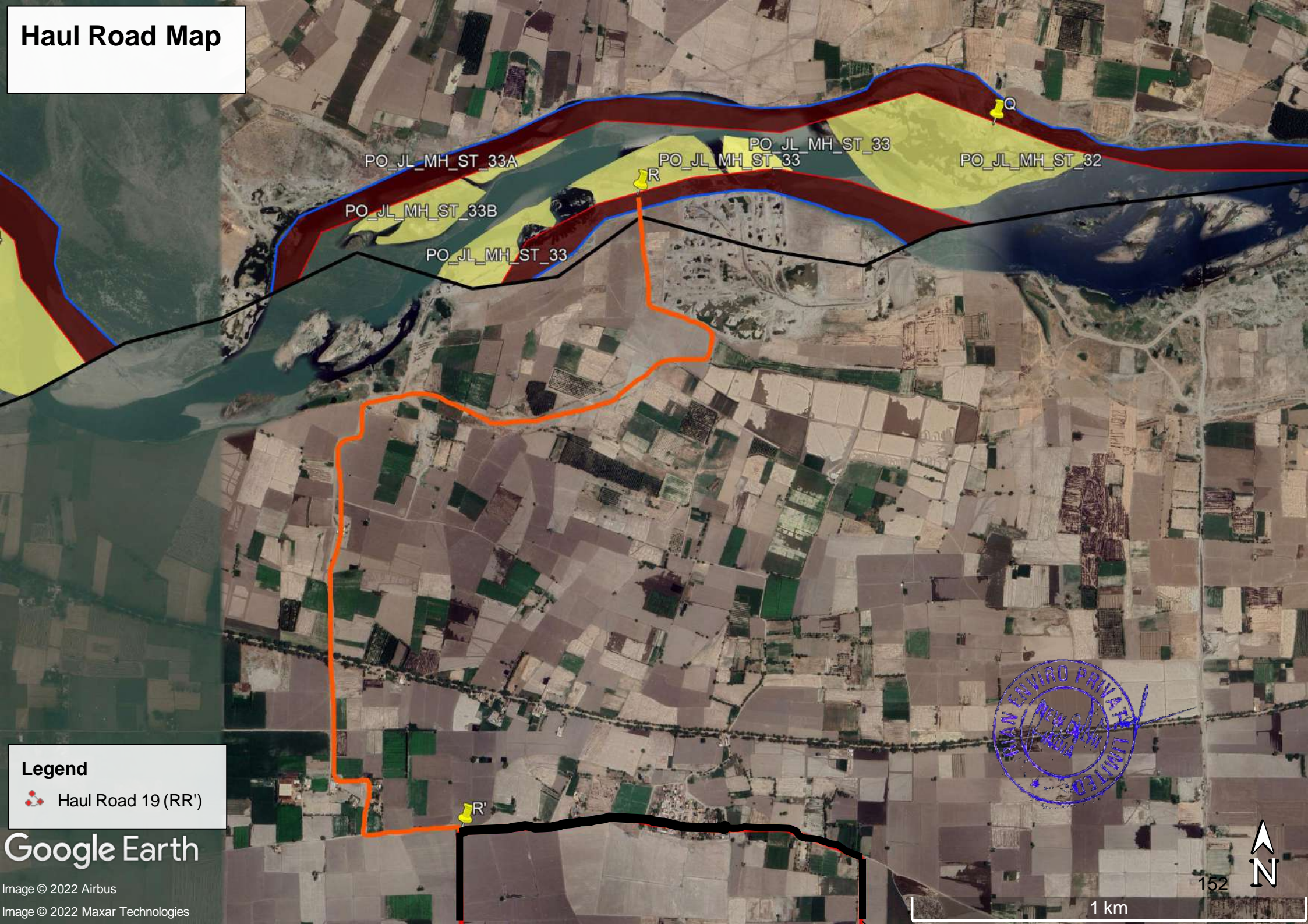
Image © 2022 Maxar Technologies  
Image © 2022 Airbus




500 m

151

# Haul Road Map



**Legend**

-  Haul Road 19 (RR')

Google Earth

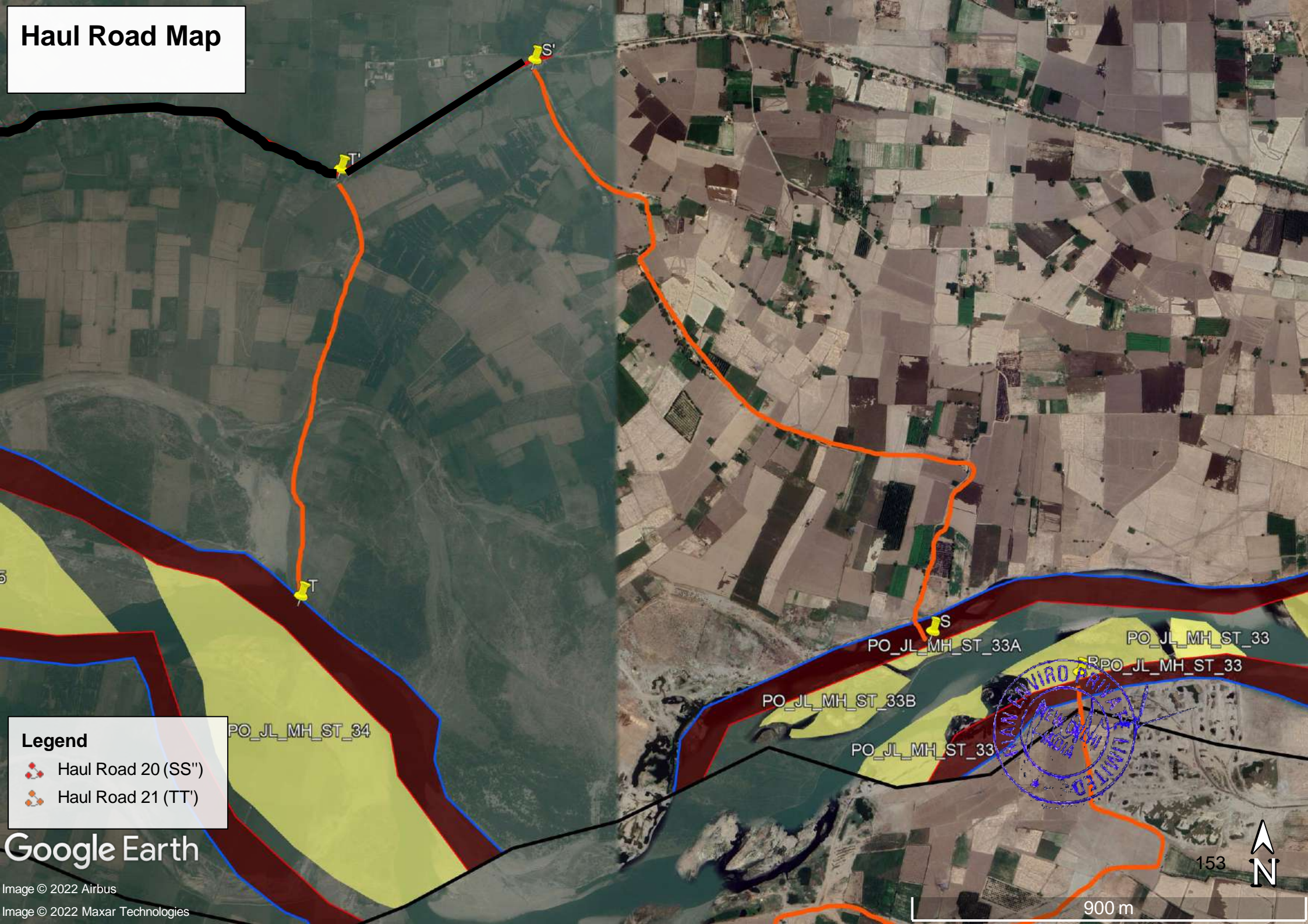
Image © 2022 Airbus  
Image © 2022 Maxar Technologies





152

1 km

# Haul Road Map

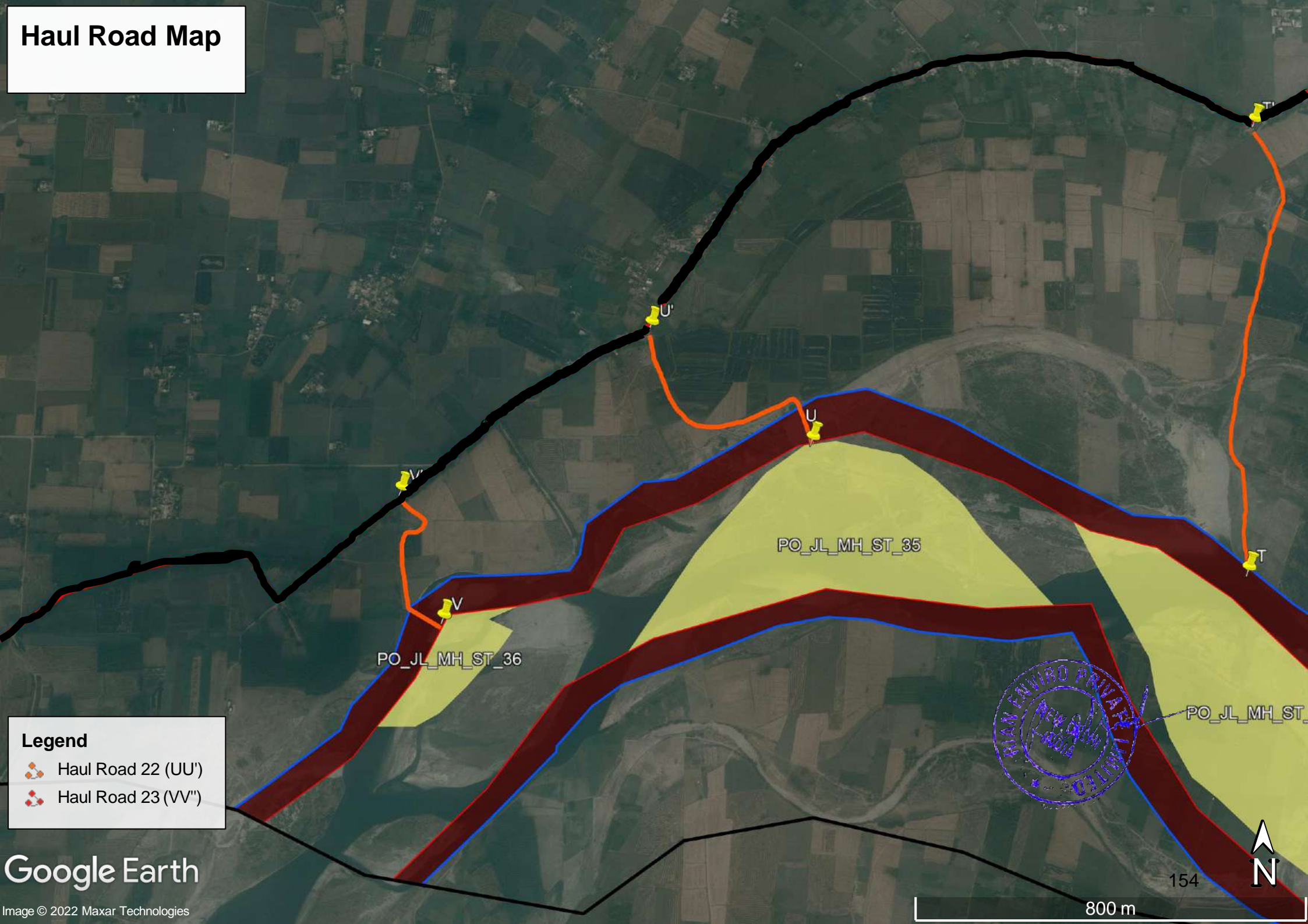


## Legend

-  Haul Road 20 (SS'')
-  Haul Road 21 (TT')

Google Earth

# Haul Road Map

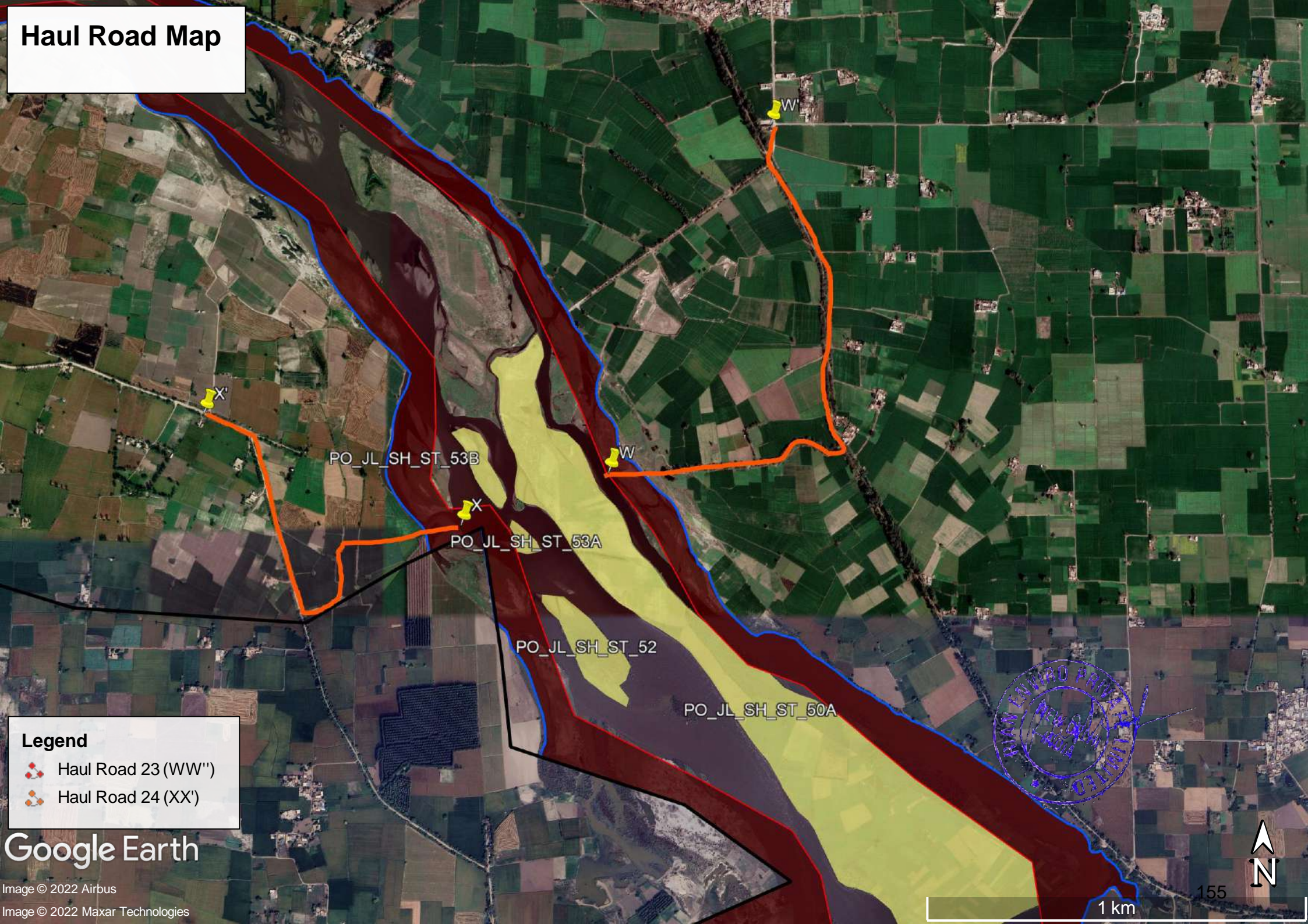


## Legend



- Haul Road 22 (UU')
- Haul Road 23 (VV'')



# Haul Road Map



## Legend

-  Haul Road 23 (WW'')
-  Haul Road 24 (XX')

Google Earth

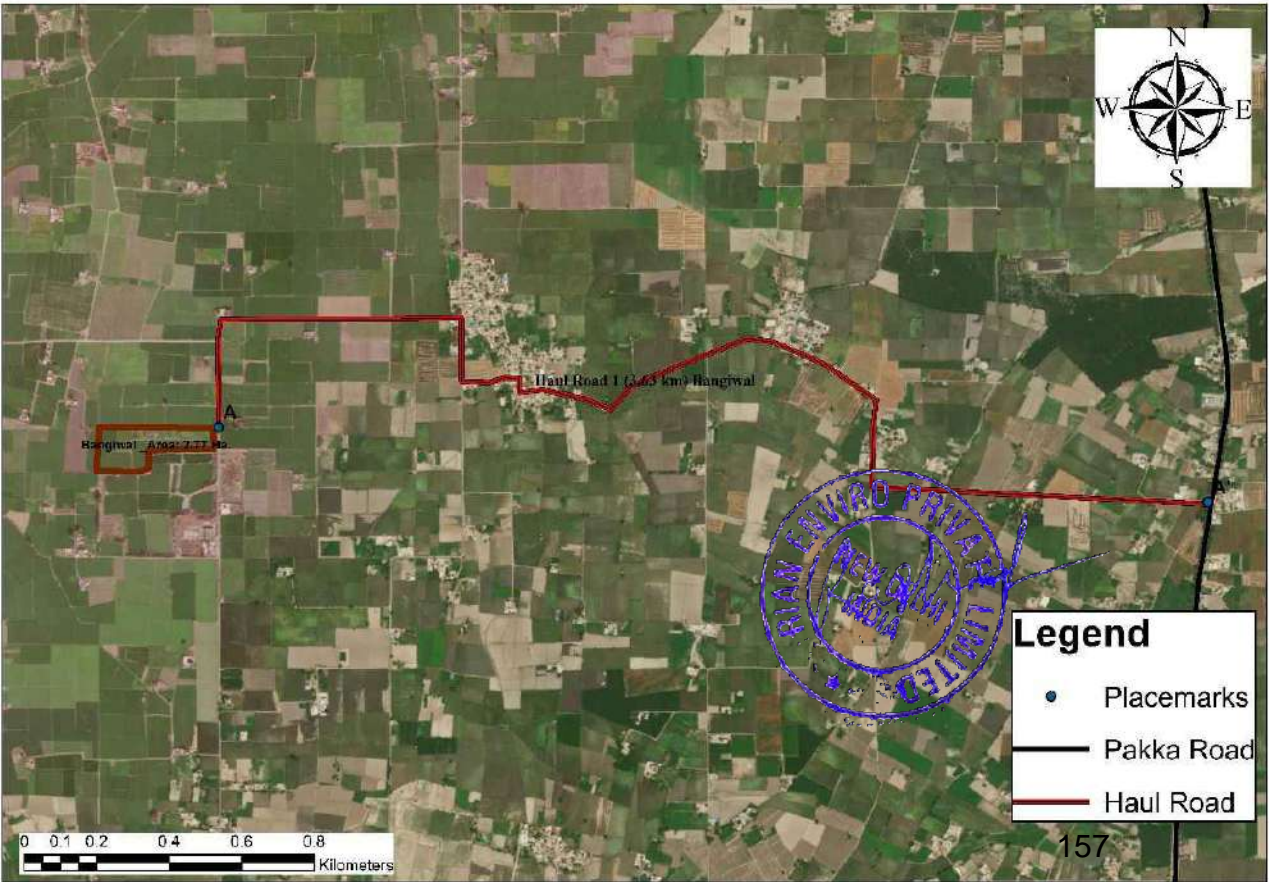
Image © 2022 Airbus  
Image © 2022 Maxar Technologies



1 km 155

## Route Map Agriculture Sites





Hangiwal Area: 2.77 Ha

Haul Road 1 (3.63 km) Hangiwal

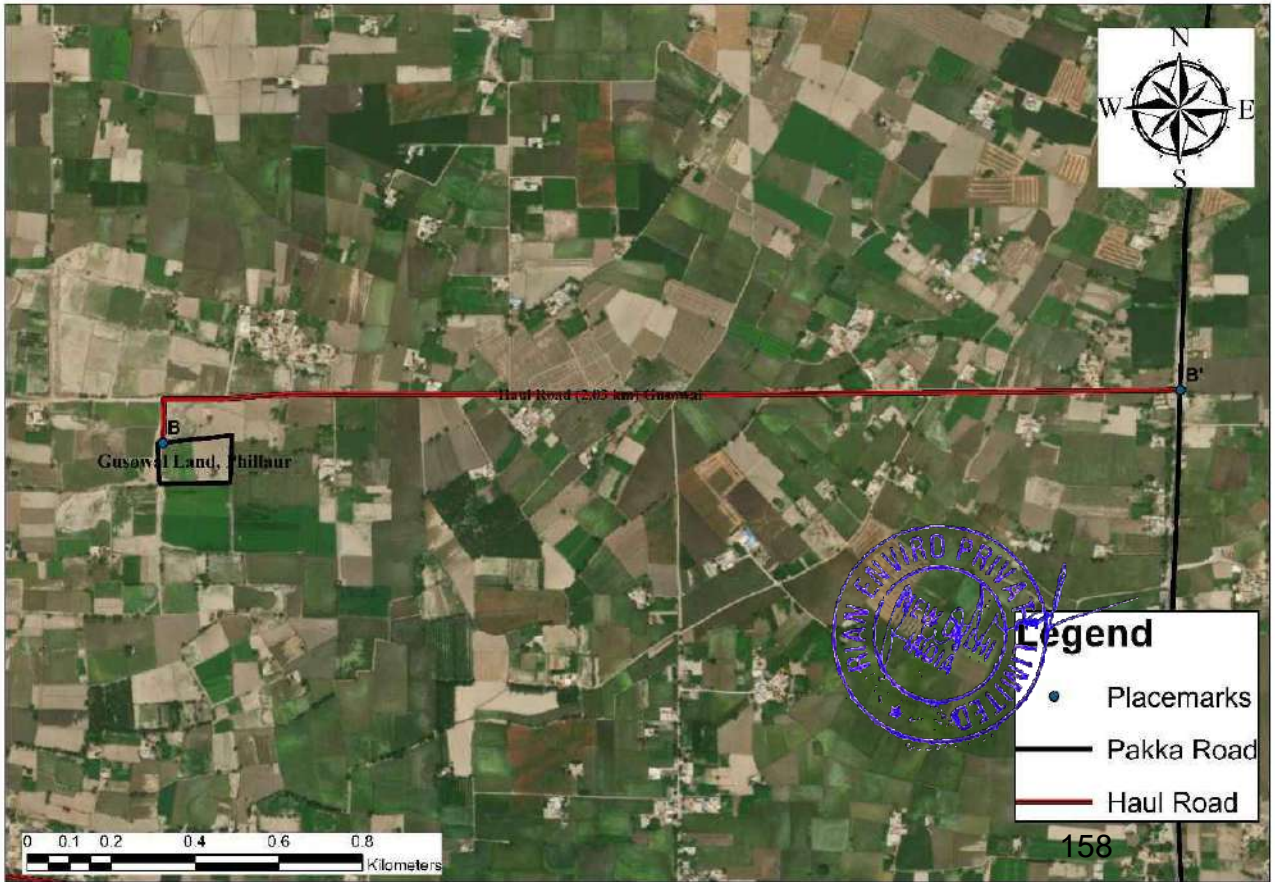


**Legend**

- Placemarks
- Pakka Road
- Haul Road







Haul Road (2.03 km) Guawal

Gusawal Land, Phillaur

B

B'



**Legend**

- Placemarks
- Pakka Road
- Haul Road

**Annexure A**  
**(Annexure as prescribed in the EMGSM, 2020)**



## Annexure-I

## Details of Sand/M-Sand Sources

## a) Rivers:

River Name/M-Sand Plant	Total Stretch of River (in KM)	Type of River (Perennial or Non-Perennial )
Sutlej	90.66	Perennial

## b) De-Siltation Location: (Lakes/Ponds/Dams etc.)

Name of Reservoir/Dams	Maintain/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha)
Sutlej	State Govt.	31°00'56" N 75°54'59"E	Jalandhar	Phillaur	Powari	10.93
Sutlej	State Govt.	31°00'35"N 75°52'49"E	Jalandhar	Phillaur	Kadiana	12.42
Sutlej	State Govt.	31°00'06"N 75°42'32"E	Jalandhar	Phillaur	Meowal & Mausahib	23.14
Sutlej	State Govt.	30°58'27"N 75°36'48"E	Jalandhar	Phillaur	Talwandi Naubad, Aliwal & Burj Hasun	25

## c) Patta Lands/Khatedari Land:

Owner	Sy. No	Area (Ha)	District	Tehsil	Village	Agricultural Land (Yes/No)
Raj Kumar, S/O- Divan Chand	8//21,8//22,8//23,8//24,8//24,15//1,15//2	2.77	Jalandhar	Shahkot	Bangiwal	Yes
Sh. Wazir Singh, S/O- Chhnan Singh	15//24,21//11,21//19,20//3,3,3,15, //9/2,10/2,11,12,19,20,21,22,20, //4,21//12/2,12/2	3.11	Jalandhar	Shahkot	Gosuwal	Yes

## d) M-Sand Plants:

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annun
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available



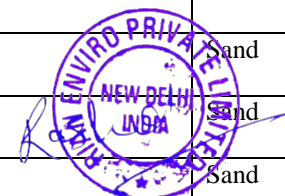
**Note:** For inclusion of M-Sand Plant/Patta Land in DSR the plant/landowners need to submit the request to the Mining Department with complete details. Inclusion in DSR does not give them the right to operate the M-Sand Plant/Sand Mining lease.



**Annexure-II**

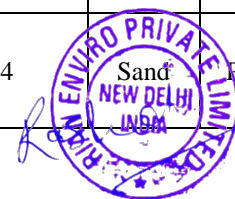
**List of Potential Mining Leases (existing & proposed) Rivers**

River Details	Sand Bar_Code	Lease Details	Area (Ha.)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Minin g leases within 500 meters (if yes cluster area)	Bulk Densit y(g/cc)	Depth of the Deposits [Actual average depth or 3m (in case actual average depth exceeds 3m)	Total excavation in Tonnes	Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)	Minera l to be mined (Sand/ Bajri/ RBM etc.)	Existing / Proposed
Sutlej		Kaimwala	2.42	NA	More than 500m				600000		Sand	Existing
Sutlej		Pipli	4.45	NA	More than 500m				194643		Sand	Existing
Sutlej		Vehran	14.15	NA	More than 500m				575181		Sand	Existing
Sutlej		Thamuwal	9.40	NA	More than 500m				411156		Sand	Existing
Sutlej		Chhaura	15.89	NA	More than 500m				116348		Sand	Existing
Sutlej		Lassara	22.40	NA	More than 500m				642392		Sand	Existing
Sutlej		Umrewal	3.52	NA	More than 500m				119750		Sand	Existing
Sutlej		Raipur Arian	17.98	NA	More than 500m				334860		Sand	Existing
Sutlej		Kadiana	32.21	NA	More than 500m				500000		Sand	Existing
Sutlej		Kadiana-2	3.86	NA	More than 500m				15359		Sand	Existing
Sutlej		Phillaur	13.06	NA	More than 500m				681614		Sand	Existing



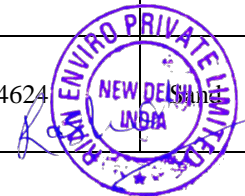
**Enforcement & Monitoring Guidelines for Sand Mining**

Sutlej		Bangiwal	1.62	NA	More than 500m				55112		Sand	Existing
Sutlej		Rame Taharpur	1.62	NA	More than 500m				55112		Sand	Existing
Sutlej		Sangowal	13.58	NA	More than 500m				461991		Sand	Existing
Sutlej		Danewal	10.12	NA	More than 500m				304966		Sand	Existing
Sutlej		Chak Budala	7.66	NA	More than 500m				230834		Sand	Existing
Sutlej		Rame	3.73	NA	More than 500m				87013		Sand	Existing
Sutlej		Raipur gujran	13.86	NA	More than 500m				417671		Sand	Existing
Sutlej		Chak Bahminia	18.31	NA	More than 500m				551780		Sand	Existing
Sutlej		Mau Saab	12.62	NA	More than 500m				551999		Sand	Existing
Sutlej	PO_JL_PL_ST_1B	Jalandhar Sutlej -1 Vill- Kadiana, Block- Phillaur	4.80	NA	More than 500m	Yes, Area: 25.27 Ha.	1.54	1.74	128620.80	77172.48	Sand	Proposed
	PO_JL_PL_ST_03	Jalandhar Sutlej -2 Vill- Kadiana, Block- Phillaur	20.47	NA	More than 500m			3	945714.00	567428.4	Sand	Proposed
	PO_JL_PL_ST_04	Jalandhar Sutlej -3 Vill- Chhaura, Block- Phillaur	8.24	NA	More than 500m	Yes, Area: 23.43 Ha	1.54	3	380688.00	228412.8	Sand	Proposed
	PO_JL_PL_ST_06	Jalandhar Sutlej -4 Vill- Chhaura, Block- Phillaur	2.40	NA	More than 500m			3	110880.00	66528	Sand	Proposed
	PO_JL_PL_ST_07	Jalandhar Sutlej -5 Vill- Chhaura, Block- Phillaur	3.82	NA	More than 500m			2.07	121773.96	73064.376	Sand	Proposed
	PO_JL_PL_ST_08	Jalandhar Sutlej -6 Vill- Chhaura, Block- Phillaur	8.97	NA	More than 500m			3	414414.00	248648.4	Sand	Proposed



Enforcement & Monitoring Guidelines for Sand Mining

PO_JL_NR_ST_11	Jalandhar Sutlej -7 Vill- Meowal and Mau Sahib, Block- Nurmahal	3.30	NA	More than 500m	No	1.53	3	151470.00	90882	Sand	Proposed
PO_JL_NR_ST_13	Jalandhar Sutlej -8 Vill- Meowal and Mau Sahib, Block- Nurmahal	2.03	NA	More than 500m	No		3	93177.00	55906.2	Sand	Proposed
PO_JL_NR_ST_13B	Jalandhar Sutlej -9 Vill- Meowal and Mau Sahib, Block- Nurmahal	1.99	NA	More than 500m	No		2.63	80075.61	48045.366	Sand	Proposed
PO_JL_NR_ST_16	Jalandhar Sutlej -10 Vill- Akkuwal , Block- Nurmahal	7.90	NA	More than 500m	No	1.54	3	364980.00	218988	Sand	Proposed
PO_JL_NR_ST_22_25	Jalandhar Sutlej -11 Vill- Sidhara, Block- Nurmahal	17.59	NA	More than 500m	Yes, Area: 22.30 Ha	1.52	0.52	139031.36	83418.816	Sand	Proposed
PO_JL_NR_ST_24	Jalandhar Sutlej -12 Vill- Sidhara, Block- Nurmahal	2.31	NA	More than 500m			3	105336.00	63201.6	Sand	Proposed
PO_JL_NR_ST_25	Jalandhar Sutlej -13 Vill- Sidhara, Block- Nurmahal	2.40	NA	More than 500m			3	109440.00	65664	Sand	Proposed
PO_JL_NR_ST_26A	Jalandhar Sutlej -14 Vill- Burj Hasun, Block- Nurmahal	12.08	NA	More than 500m	Yes, Area: 21.93 Ha	1.52	3	550848.00	330508.8	Sand	Proposed
PO_JL_NR_ST_26B	Jalandhar Sutlej -15 Vill- Burj Hasun, Block- Nurmahal	0.96	NA	More than 500m			1.74	25390.08	15234.048	Sand	Proposed
PO_JL_NR_ST_27	Jalandhar Sutlej -16 Vill- Burj Hasun, Block- Nurmahal	0.90	NA	More than 500m			3	41040.00	24624	Sand	Proposed



**Enforcement & Monitoring Guidelines for Sand Mining**

PO_JL_NR_ST_27B	Jalandhar Sutlej -17 Vill- Burj Hasun, Block- Nurmahal	0.15	NA	More than 500m			3	6840.00	4104	Sand	Proposed
PO_JL_NR_ST_28	Jalandhar Sutlej -18 Vill- Burj Hasun, Block- Nurmahal	1.60	NA	More than 500m			3	72960.00	43776	Sand	Proposed
PO_JL_NR_ST_30B	Jalandhar Sutlej -19 Vill- Dhagara, Block- Nurmahal	17.02	NA	More than 500m	No		2.07	535517.28	321310.368	Sand	Proposed
PO_JL_MH_ST_32	Jalandhar Sutlej -20	11.22	NA	More than 500m	Yes, Area: 21.67 Ha	1.54	3	518364.00	311018.4	Sand	Proposed
PO_JL_MH_ST_33	Jalandhar Sutlej -21	7.08	NA	More than 500m			3	327096.00	196257.6	Sand	Proposed
PO_JL_MH_ST_33A	Jalandhar Sutlej -22	0.65	NA	More than 500m			3	30030.00	18018	Sand	Proposed
PO_JL_MH_ST_33B	Jalandhar Sutlej -23	2.72	NA	More than 500m			0.75	31416.00	18849.6	Sand	Proposed
PO_JL_MH_ST_34	Jalandhar Sutlej -24	23.53	NA	More than 500m	Yes, Area: 45.28 Ha	1.51	3	1065909.00	639545.4	Sand	Proposed
PO_JL_MH_ST_35	Jalandhar Sutlej -25	18.77	NA	More than 500m			3	850281.00	510168.6	Sand	Proposed
PO_JL_MH_ST_36	Jalandhar Sutlej -26	2.98	NA	More than 500m		1.56	2.98	138534.24	83120.544	Sand	Proposed
PO_JL_SH_ST_50A	Jalandhar Sutlej -27	41.76	NA	More than 500m	Yes, Area: 46.19 Ha	1.57	1.27	832652.64	499591.584	Sand	Proposed
PO_JL_SH_ST_52	Jalandhar Sutlej -28	2.78	NA	More than 500m			1.01	44082.46	26449.476	Sand	Proposed
PO_JL_SH_ST_53A	Jalandhar Sutlej -29	0.41	NA	More than 500m			2.11	13582.07	8149.242	Sand	Proposed
PO_JL_SH_ST_53B	Jalandhar Sutlej -30	1.24	NA	More than 500m			1.72	33484.96	20090.976	Sand	Proposed
		<b>232.07</b>						<b>8263628.46</b>	<b>4958177.076</b>		

**Note: The average depth for each potential sandbar has been mentioned in cross sections available on pages 92 to 121. There is no Protected Area, Wildlife Sanctuary and Eco Sensitivity Zone in District Jalandhar (Source: DFO/ Wildlife Phillaur Division).**





Enforcement & Monitoring Guidelines for Sand Mining

**Patta Lands/Khatedari Land: (existing & proposed)**

Owner	Sy.No	Area(Ha.)	District	Tehsil	Village	Total Reserve (MT) Considering Bulk Density 1.52	Total Mineral to be mined (MT) (Considering 60%)	Existing /Proposed
Raj Kumar, S/O-Divan Chand	8//21,8//22,8//23,8//24,8//24,15//1,15//2	2.77	Jalandhar	Shahkot	Bangiwal	1,26,312	75787.2	Proposed
Sh. Wazir Singh, S/O- Chhnan Singh	15//24,21//11,21//19,20//3,3,3,15,//9/2,10/2,11,12,19,20,21,22,20,//4,21//12/2,12/2	3.11	Jalandhar	Shahkot	Gosuwal	1,41,816	85,089.6	Proposed
<b>Total</b>		<b>5.88</b>				<b>2,68,128</b>	<b>1,60,876.8</b>	

**De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)**

Name of Reservoir /Dams	Maintain /Controlle d by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha)	Quantity MT /Year	Existing /Proposed
Sutlej	State Govt.	31°00'56" N 75°54'59"E	Jalandhar	Phillaur	Powari	10.93	-	Existing
Sutlej	State Govt.	31°00'35"N 75°52'49"E	Jalandhar	Phillaur	Kadiana	12.42	-	Existing
Sutlej	State Govt.	31°00'06"N 75°42'32"E	Jalandhar	Phillaur	Meowal & Mausahib	23.14	-	Existing
Sutlej	State Govt.	30°58'27"N 75°36'48"E	Jalandhar	Phillaur	Talwandi Naubad, Aliwal & Burj Hasun	25	-	Existing



Enforcement & Monitoring Guidelines for Sand Mining

<b>Total</b>						<b>71.49</b>		

**Note: The quantity of De-silting shall be assessed as per actual site conditions at the time of de-silting and got approved from the competent authority.**

**M-Sand Plants :( existing & proposed)**

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing/Proposed
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available



**Annexure-III****Cluster & Contiguous Cluster details****Clusters:**

River Name	Cluster No.	Lease No	Location (Riverbed Patta Land)	Village	Area (in Ha.)	Total Excavation (Ton)	Total Mineral Excavation (Ton) (Considering 60% as per EMGSM, 2020)
Sutlej	1	Jalandhar Sutlej 1,2	Riverbed	Kadiana	25.27	1074334.80	644600.88
	2	Jalandhar Sutlej 3,4,5,6	Riverbed	Chhaura	23.43	1027755.96	616653.576
	3	Jalandhar Sutlej 11,12,13	Riverbed	Sidhara	22.30	353807.36	212284.416
	4	Jalandhar Sutlej 14,15,16,17,18	Riverbed	Burj Hasun	21.93	697078.08	418246.848
	5	Jalandhar Sutlej 20,21,22,23	Riverbed	-	21.67	906906.00	544143.6
	6	Jalandhar Sutlej 24,25,26	Riverbed	-	45.28	2054724.24	1232834.544
	7	Jalandhar Sutlej 27,28,29,30	Riverbed	-	46.19	923802.13	554281.278
<b>Total</b>					<b>206.07</b>	<b>7038408.57</b>	<b>4223045.142</b>



**Contiguous Clusters:**

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed / Patta Land)	Distance between clusters	Village	Area Of Cluster ( Ha)	Total Mineral Excavation (Ton)
Sutlej	NA	NA	NA	NA	NA	NA	NA	NA



## Annexure-IV

## Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tipper s /day of lease	Number of tipper s /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location
Jalandhar Sutlej -1 Vill- Kadiana, Block- Phillaur	A-A'	43	NA	0.73	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -2 Vill- Kadiana, Block- Phillaur	B-B'	315	NA	0.48	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -3 Vill- Chhaura, Block- Phillaur	C-C'	127	NA	2.1	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -4 Vill- Chhaura, Block- Phillaur	D-D'	37	NA	1.1	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -5 Vill- Chhaura, Block- Phillaur	E-E'	41	NA	0.84	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -6 Vill- Chhaura, Block- Phillaur	F-F'	138	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -7 Vill- Meowal and Mau Sahib, Block- Nurmahal	G-G'	50	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -8 Vill- Meowal and Mau Sahib, Block- Nurmahal	H-H'	31	NA	1.67	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -9 Vill- Meowal and Mau Sahib, Block- Nurmahal	I-I'	27	NA	2.19	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -10 Vill- Akkuwal ,	J-J'	122	NA	4.1	Unpaved	Unpaved	Lease Owner	Route Map

Enforcement & Monitoring Guidelines for Sand Mining

Block- Nurmahal								attached
Jalandhar Sutlej -11 Vill- Sidhara, Block- Nurmahal	K-K'	46	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -12 Vill- Sidhara, Block- Nurmahal	L-L'	35	NA	0.76	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -13 Vill- Sidhara, Block- Nurmahal		36	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -14 Vill- Burj Hasun, Block- Nurmahal	M-M'	184	NA	1.15	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -15 Vill- Burj Hasun, Block- Nurmahal		8	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -16 Vill- Burj Hasun, Block- Nurmahal	O-O'	14	NA	0.64	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -17 Vill- Burj Hasun, Block- Nurmahal	N-N'	2	NA	0.12	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -18 Vill- Burj Hasun, Block- Nurmahal		24	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -19 Vill- Dhagara, Block- Nurmahal	P-P'	179	NA	1.3	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -20	Q-Q'	173	NA	1.67	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -21	R-R'	109	NA	2.92	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -22	S-S'	10	NA	2.0	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -23		10	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -24	T-T'	355	NA	1.0	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -25	U-U'	283	NA	0.56	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -26	V-V'	46	NA	0.37	Unpaved	Unpaved	Lease Owner	Route Map

Enforcement & Monitoring Guidelines for Sand Mining

								attached
Jalandhar Sutlej -27	W-W'	278	NA	1.66	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -28	X-X'	15	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -29		5	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -30		11	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
<b>Total</b>		<b>2755</b>						

Cluster No	Transportation Route No	Number of tipper s /day of cluster	Number of tipper s /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location
Jalandhar Sutlej 1,2	A-A', B-B'	358	NA	0.73	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 3,4,5,6	C-C' TO F-F'	343	NA	2.1	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 11,12,13	K-K' TO L-L'	118	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 14,15,16,17,18	M-M;, O-O' & N-N'	232	NA	1.15	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 20,21,22,23	Q-Q', R-R' & S-S'	302	NA	2.92	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 24, 25,26	U-U' TO V-V'	330	NA	1.66	Unpaved	Unpaved	Lease Owner	Route Map attached

Jalandhar Sutlej 27, 28,29,30	X-X'	30	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
<b>Total</b>		<b>1713</b>						

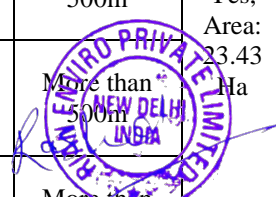
**Note:** The above mention transportation routes are as per the present infrastructure, which may change according to the development/ identifications of new routes after temporary acquisition of land if required.





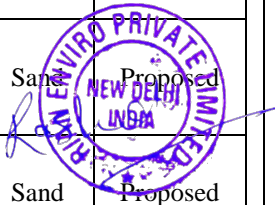
**Final List of Potential Mining Leases (existing & proposed)**

River Details	Sand Bar_Code	Lease Details	Area (Ha.)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Minin g leases within 500 meters (if yes cluster area)	Bulk Densit y(g/cc)	Depth of the Deposit s [Actual average depth or 3m (in case actual average depth exceeds 3m)	Total excavation in Tonnes	Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)	Minera l to be mined (Sand/ Bajri/ RBM etc.)	Existing / Proposed
Sutlej	PO_JL_PL_ST_1B	Jalandhar Sutlej -1 Vill- Kadiana, Block- Phillaur	4.80	NA	More than 500m	Yes, Area: 25.27 Ha.	1.54	1.74	128620.80	77172.48	Sand	Proposed
	PO_JL_PL_ST_03	Jalandhar Sutlej -2 Vill- Kadiana, Block- Phillaur	20.47	NA	More than 500m			3	945714.00	567428.4	Sand	Proposed
	PO_JL_PL_ST_04	Jalandhar Sutlej -3 Vill- Chhaura, Block- Phillaur	8.24	NA	More than 500m	Yes, Area: 23.43 Ha	1.54	3	380688.00	228412.8	Sand	Proposed
	PO_JL_PL_ST_06	Jalandhar Sutlej -4 Vill- Chhaura, Block- Phillaur	2.40	NA	More than 500m			3	110880.00	66528	Sand	Proposed
	PO_JL_PL_ST_07	Jalandhar Sutlej -5 Vill- Chhaura, Block- Phillaur	3.82	NA	More than 500m			2.07	121773.96	73064.376	Sand	Proposed
	PO_JL_PL_ST_08	Jalandhar Sutlej -6 Vill- Chhaura, Block- Phillaur	8.97	NA	More than 500m			3	414414.00	248648.4	Sand	Proposed



**Enforcement & Monitoring Guidelines for Sand Mining**

PO_JL_NR_ST_11	Jalandhar Sutlej -7 Vill- Meowal and Mau Sahib, Block- Nurmahal	3.30	NA	More than 500m	No	1.53	3	151470.00	90882	Sand	Proposed	
PO_JL_NR_ST_13	Jalandhar Sutlej -8 Vill- Meowal and Mau Sahib, Block- Nurmahal	2.03	NA	More than 500m	No		3	93177.00	55906.2	Sand	Proposed	
PO_JL_NR_ST_13B	Jalandhar Sutlej -9 Vill- Meowal and Mau Sahib, Block- Nurmahal	1.99	NA	More than 500m	No		2.63	80075.61	48045.366	Sand	Proposed	
PO_JL_NR_ST_16	Jalandhar Sutlej -10 Vill- Akkuwal , Block- Nurmahal	7.90	NA	More than 500m	No	1.54	3	364980.00	218988	Sand	Proposed	
PO_JL_NR_ST_25	Jalandhar Sutlej -13 Vill- Sidhara, Block- Nurmahal	2.40	NA	More than 500m	No	1.52	3	109440.00	65664	Sand	Proposed	
PO_JL_NR_ST_26A	Jalandhar Sutlej -14 Vill- Burj Hasun, Block- Nurmahal	12.08	NA	More than 500m	Yes, Area: 21.93 Ha	1.52	3	550848.00	330508.8	Sand	Proposed	
PO_JL_NR_ST_26B	Jalandhar Sutlej -15 Vill- Burj Hasun, Block- Nurmahal	0.96	NA	More than 500m			1.74	25390.08	15234.048	Sand	Proposed	
PO_JL_NR_ST_27	Jalandhar Sutlej -16 Vill- Burj Hasun, Block- Nurmahal	0.90	NA	More than 500m			3	41040.00	24624	Sand	Proposed	
PO_JL_NR_ST_27B	Jalandhar Sutlej -17 Vill- Burj Hasun, Block- Nurmahal	0.15	NA	More than 500m			3	6840.00	4104	Sand	Proposed	
PO_JL_NR_ST_28	Jalandhar Sutlej -18 Vill- Burj Hasun, Block- Nurmahal	1.60	NA	More than 500m			3	72960.00	43776	Sand	Proposed	
PO_JL_NR_ST_30B	Jalandhar Sutlej -19 Vill- Dhagara, Block- Nurmahal	17.02	NA	More than 500m			No	2.07	535517.28	321310.368	Sand	Proposed



**Enforcement & Monitoring Guidelines for Sand Mining**

PO_JL_MH_ST_32	Jalandhar Sutlej -20	11.22	NA	More than 500m	Yes, Area: 21.67 Ha	1.54	3	518364.00	311018.4	Sand	Proposed
PO_JL_MH_ST_33	Jalandhar Sutlej -21	7.08	NA	More than 500m			3	327096.00	196257.6	Sand	Proposed
PO_JL_MH_ST_33A	Jalandhar Sutlej -22	0.65	NA	More than 500m			3	30030.00	18018	Sand	Proposed
PO_JL_MH_ST_33B	Jalandhar Sutlej -23	2.72	NA	More than 500m			0.75	31416.00	18849.6	Sand	Proposed
PO_JL_MH_ST_34	Jalandhar Sutlej -24	23.53	NA	More than 500m	Yes, Area: 45.28 Ha	1.51	3	1065909.00	639545.4	Sand	Proposed
PO_JL_MH_ST_35	Jalandhar Sutlej -25	18.77	NA	More than 500m			3	850281.00	510168.6	Sand	Proposed
PO_JL_MH_ST_36	Jalandhar Sutlej -26	2.98	NA	More than 500m		1.56	2.98	138534.24	83120.544	Sand	Proposed
PO_JL_SH_ST_52	Jalandhar Sutlej -28	2.78	NA	More than 500m	Yes, Area: 4.43 Ha	1.57	1.01	44082.46	26449.476	Sand	Proposed
PO_JL_SH_ST_53A	Jalandhar Sutlej -29	0.41	NA	More than 500m			2.11	13582.07	8149.242	Sand	Proposed
PO_JL_SH_ST_53B	Jalandhar Sutlej -30	1.24	NA	More than 500m			1.72	33484.96	20090.976	Sand	Proposed
		<b>170.41</b>						<b>7186608.46</b>	<b>4311965.076</b>		

**Note: The average depth for each potential sandbar has been mentioned in cross sections available on pages 92 to 121. There is no Protected Area, Wildlife Sanctuary and Eco Sensitivity Zone in District Jalandhar (Source: DFO/Wildlife Phillaur Division).**

**The above recommended sites will be allowed for mining activity after taking NOC from the Forest Department.**

**(Distance certificate from Forest)**

**Note:** The no. of sites which are taken in Annexure- V were proposed and recommended by the respective Sub Divisional Committees after following the guideline of SSMG-2016 and EMGS-2020.

For the recommended sites, the procedure of mining activities will be followed up or will be started only after taking the required NOC's from the concerned department i.e. Forest Department.

**Inspection Report along with Observation of Sub Divisional Committees, Phillaur.**

- The land of site PO\_JL\_NR\_ST\_11,12,13,13A,13B would be confirmed after demarcation of land. (Observation of Divisional Forest Officer, Page-237)

**Inspection Report along with Observation of Sub Divisional Committees, Nakodar.**

- The land of site PO\_JL\_MH\_ST\_33B,34,35,36 falls in village in which forest department has land. So proper recommendation can be given after demarcation is done. (Observation of Divisional Forest Officer, Page-226)

**Inspection Report along with Observation of Sub Divisional Committees, Shahkot.**

- The land of Recommend Site falls in village in which forest department has land. So proper recommendation can be given after demarcation is done. (Observation of Divisional Forest Officer, Page 231).



**Enforcement & Monitoring Guidelines for Sand Mining**

- PO\_JL\_SH\_ST\_50A,52,53B lies in central portion of active channel. Hence These should be considered. (Observation of Executive Engineer, Drainage Cum Mining Department Page 233).

**Site 27A of sub-division/ tehsil Phillaur is recommended by sub Divisional level committee but this site is not proposed in DSR as necessary documents of the site is not available with department of Mines and Geology.**

**Patta Lands/Khatedari Land: (existing & proposed)**

Owner	Sy.No	Area(Ha.)	District	Tehsil	Village	Total Reserve (MT) Considering Bulk Density 1.52	Total Mineral to be mined (MT) (Considering 60%)	Existing /Proposed
Raj Kumar, S/O-Divan Chand	8//21,8//22,8//23,8//24,8//24,15//1,15//2	2.77	Jalandhar	Shahkot	Bangiwal	1,26,312	75787.2	Proposed
Sh. Wazir Singh, S/O- Chhnan Singh	15//24,21//11,21//19,20//3,3,3,15,//9/2,10/2,11,12,19,20,21,22,20,//4,21//12/2,12/2	3.11	Jalandhar	Shahkot	Gosuwal	1,41,816	85,089.6	Proposed
<b>Total</b>		<b>5.88</b>				<b>2,68,128</b>	<b>1,60,876.8</b>	

**De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)**

Name of Reservoir /Dams	Maintain /Controlle d by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha)	Quantity MT /Year	Existing /Proposed
Sutlej	State Govt.	31°00'56" N 75°54'59"E	Jalandhar	Phillaur	Powari	10.93	-	Existing
Sutlej	State Govt.	31°00'35"N 75°52'49"E	Jalandhar	Phillaur	Kadiana	12.42	-	Existing
Sutlej	State Govt.	31°00'06"N 75°42'32"E	Jalandhar	Phillaur	Meowal & Mausahib	23.14	-	Existing
Sutlej	State Govt.	30°58'27"N 75°36'48"E	Jalandhar	Phillaur	Talwandi Naubad, Aliwal & Burj	25	-	Existing



Enforcement & Monitoring Guidelines for Sand Mining

					Hasun			
<b>Total</b>						<b>71.49</b>		

**Note: The quantity of De-silting shall be assessed as per actual site conditions at the time of de-silting and got approved from the competent authority.**

**M-Sand Plants :( existing & proposed)**

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing/Proposed
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available



**Annexure-VI****Final Cluster & Contiguous Cluster details****Clusters:**

River Name	Cluster No.	Lease No	Location (Riverbed Patta Land)	Village	Area (in Ha.)	Total Excavation (Ton)	Total Mineral Excavation (Ton) (Considering 60% as per EMGSM, 2020)
Sutlej	1	Jalandhar Sutlej 1,2	Riverbed	Kadiana	25.27	1074334.80	644600.88
	2	Jalandhar Sutlej 3,4,5,6	Riverbed	Chhaura	23.43	1027755.96	616653.576
	3	Jalandhar Sutlej 14,15,16,17 18	Riverbed	Burj Hasun	21.93	697078.08	418246.848
	4	Jalandhar Sutlej 20,21,22,23	Riverbed	-	21.67	906906.00	544143.6
	5	Jalandhar Sutlej 24, 25,26	Riverbed	-	45.28	2054724.24	1232834.544
	6	Jalandhar Sutlej 28,29,30	Riverbed	-	4.43	91149.49	54689.694
<b>Total</b>					<b>142.01</b>	<b>5851948.57</b>	<b>3,511,169.14</b>

**Contiguous Clusters:**

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed Patta Land)	Distance between clusters	Village	Area Of Cluster ( Ha)	Total Mineral Excavation (Ton)
Sutlej	NA	NA	NA	NA	NA	NA	NA	NA

## Final Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tipper s /day of lease	Number of tipper s /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ Unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location
Jalandhar Sutlej -1 Vill- Kadiana, Block- Phillaur	A-A'	43	NA	0.73	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -2 Vill- Kadiana, Block- Phillaur	B-B'	315	NA	0.48	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -3 Vill- Chhaura, Block- Phillaur	C-C'	127	NA	2.1	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -4 Vill- Chhaura, Block- Phillaur	D-D'	37	NA	1.1	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -5 Vill- Chhaura, Block- Phillaur	E-E'	41	NA	0.84	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -6 Vill- Chhaura, Block- Phillaur	F-F'	138	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -7 Vill- Meowal and Mau Sahib, Block-	G-G'	50	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached

Enforcement & Monitoring Guidelines for Sand Mining

Nurmahal								
Jalandhar Sutlej -8 Vill- Meowal and Mau Sahib, Block- Nurmahal	H-H'	31	NA	1.67	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -9 Vill- Meowal and Mau Sahib, Block- Nurmahal	I-I'	27	NA	2.19	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -10 Vill- Akkuwal , Block- Nurmahal	J-J'	122	NA	4.1	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -13 Vill- Sidhara, Block- Nurmahal	L-L'	36	NA	0.76	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -14 Vill- Burj Hasun, Block- Nurmahal	M-M'	184	NA	1.15	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -15 Vill- Burj Hasun, Block- Nurmahal		8	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -16 Vill- Burj Hasun, Block- Nurmahal	O-O'	14	NA	0.64	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -17 Vill- Burj Hasun, Block- Nurmahal	N-N'	2	NA	0.12	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -18 Vill- Burj Hasun, Block- Nurmahal		24	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -19 Vill- Dhagara, Block- Nurmahal	P-P'	179	NA	1.3	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -20	Q-Q'	173	NA	1.67	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -21	R-R'	109	NA	2.92	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -22	S-S'	10	NA	2.0	Unpaved	Unpaved	Lease Owner	Route Map attached



**Enforcement & Monitoring Guidelines for Sand Mining**

Jalandhar Sutlej -23		10	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -24	T-T'	355	NA	1.0	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -25	U-U'	283	NA	0.56	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -26	V-V'	46	NA	0.37	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -28	X-X'	15	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -29		5	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej -30		11	NA		Unpaved	Unpaved	Lease Owner	Route Map attached
<b>Total</b>		<b>2395</b>						

**Cluster:**

Cluster No	Transportation Route No	Number of tipper s /day of cluster	Number of tipper s /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location
Jalandhar Sutlej 1,2	A-A', B-B'	358	NA	0.73	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 3,4,5,6	C-C' TO F-F'	343	NA	2.1	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 14,15,16,17,18	M-M;, O-O' & N-N'	232	NA	1.15	Unpaved	Unpaved	Lease Owner	Route Map attached



Enforcement & Monitoring Guidelines for Sand Mining

Jalandhar Sutlej 20,21,22,23	Q-Q', R-R' & S-S'	302	NA	2.92	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 24, 25,26	T-T', U-U' TO V-V'	684	NA	1.66	Unpaved	Unpaved	Lease Owner	Route Map attached
Jalandhar Sutlej 28,29,30	X-X'	31	NA	1.22	Unpaved	Unpaved	Lease Owner	Route Map attached
<b>Total</b>		<b>1950</b>						

**Note:** The above mention transportation routes are as per the present infrastructure, which may change according to the development/ identifications of new routes after temporary acquisition of land if required.



**Annexure B**  
**(Potential Sand Blocks on Sutlej River of Jalandhar District)**



**Potential Block Details**

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
PO_JL_PL_ST_01	1	31° 0' 51.575" N	75° 55' 19.186" E		PHILLAUR
	2	31° 0' 49.119" N	75° 55' 22.737" E		
	3	31° 0' 49.790" N	75° 55' 19.992" E		
	4	31° 0' 51.268" N	75° 55' 16.994" E		
	5	31° 0' 53.840" N	75° 55' 12.324" E		
	6	31° 0' 55.098" N	75° 55' 9.552" E		
	7	31° 0' 56.613" N	75° 55' 9.168" E		
	8	31° 0' 57.301" N	75° 55' 8.470" E		
	9	31° 0' 59.367" N	75° 55' 9.141" E		
	10	31° 0' 59.554" N	75° 55' 9.918" E		
	11	31° 0' 58.855" N	75° 55' 10.754" E		
	12	31° 0' 57.280" N	75° 55' 14.690" E		
	13	31° 0' 55.102" N	75° 55' 16.346" E		
PO_JL_PL_ST_1A	1	31° 1' 2.100" N	75° 55' 5.525" E		PHILLAUR
	2	31° 1' 0.485" N	75° 55' 6.443" E		
	3	31° 0' 58.826" N	75° 55' 6.958" E		
	4	31° 0' 57.842" N	75° 55' 6.915" E		
	5	31° 0' 57.108" N	75° 55' 6.399" E		
	6	31° 0' 56.657" N	75° 55' 6.117" E		
	7	31° 0' 56.989" N	75° 55' 5.387" E		
	8	31° 0' 57.773" N	75° 55' 3.797" E		
	9	31° 1' 1.538" N	75° 54' 55.410" E		
	10	31° 1' 0.629" N	75° 54' 49.742" E		
	11	31° 1' 0.307" N	75° 54' 47.611" E		
	12	31° 1' 0.857" N	75° 54' 45.605" E		
	13	31° 1' 1.347" N	75° 54' 46.813" E		
	14	31° 1' 2.232" N	75° 54' 49.889" E		
	15	31° 1' 3.272" N	75° 54' 52.504" E		
	16	31° 1' 4.637" N	75° 54' 55.434" E		
	17	31° 1' 5.402" N	75° 54' 57.648" E		
	18	31° 1' 5.380" N	75° 54' 58.095" E		
	19	31° 1' 5.061" N	75° 55' 0.875" E		
	20	31° 1' 4.047" N	75° 55' 3.560" E		
	21	31° 1' 4.042" N	75° 55' 3.566" E		
	22	31° 1' 3.097" N	75° 55' 4.773" E		
PO_JL_PL_ST_1B	1	31° 0' 48.886" N	75° 53' 39.686" E		PHILLAUR
	2	31° 0' 48.121" N	75° 53' 37.489" E		
	3	31° 0' 47.214" N	75° 53' 34.086" E		



*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK		
	4	31° 0' 45.964" N	75° 53' 31.294" E			
	5	31° 0' 45.741" N	75° 53' 29.392" E			
	6	31° 0' 46.434" N	75° 53' 27.465" E			
	7	31° 0' 47.331" N	75° 53' 24.967" E			
	8	31° 0' 48.358" N	75° 53' 23.655" E			
	9	31° 0' 48.535" N	75° 53' 25.161" E			
	10	31° 0' 48.236" N	75° 53' 27.351" E			
	11	31° 0' 48.619" N	75° 53' 28.831" E			
	12	31° 0' 49.516" N	75° 53' 26.493" E			
	13	31° 0' 50.244" N	75° 53' 29.310" E			
	14	31° 0' 50.792" N	75° 53' 31.822" E			
	15	31° 0' 51.774" N	75° 53' 35.033" E			
	16	31° 0' 51.969" N	75° 53' 38.541" E			
	17	31° 0' 51.527" N	75° 53' 41.834" E			
	18	31° 0' 51.049" N	75° 53' 42.609" E			
	19	31° 0' 49.961" N	75° 53' 40.684" E			
	PO_JL_PL_ST_1C	1	31° 0' 51.134" N		75° 53' 31.441" E	PHILLAUR
		2	31° 0' 50.835" N		75° 53' 30.343" E	
		3	31° 0' 50.700" N		75° 53' 29.121" E	
4		31° 0' 50.948" N	75° 53' 27.590" E			
5		31° 0' 50.948" N	75° 53' 26.147" E			
6		31° 0' 50.883" N	75° 53' 25.710" E			
7		31° 0' 50.495" N	75° 53' 25.188" E			
8		31° 0' 50.005" N	75° 53' 24.286" E			
9		31° 0' 49.590" N	75° 53' 23.416" E			
10		31° 0' 49.200" N	75° 53' 21.986" E			
11		31° 0' 48.952" N	75° 53' 20.825" E			
12		31° 0' 48.762" N	75° 53' 19.796" E			
13		31° 0' 48.783" N	75° 53' 19.135" E			
14		31° 0' 49.040" N	75° 53' 18.142" E			
15		31° 0' 49.234" N	75° 53' 17.226" E			
16		31° 0' 49.393" N	75° 53' 16.662" E			
17		31° 0' 49.807" N	75° 53' 19.544" E			
18		31° 0' 54.468" N	75° 53' 31.641" E			
19		31° 0' 53.823" N	75° 53' 35.307" E			
20		31° 0' 53.614" N	75° 53' 37.836" E			
21		31° 0' 53.496" N	75° 53' 37.534" E			
22		31° 0' 53.308" N	75° 53' 36.675" E			
23		31° 0' 52.735" N	75° 53' 35.295" E			
24		31° 0' 52.370" N	75° 53' 34.027" E			
25		31° 0' 51.625" N	75° 53' 32.879" E			



*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
PO_JL_PL_ST_1D	1	31° 0' 39.660" N	75° 53' 14.698" E	PHILLAUR
	2	31° 0' 37.839" N	75° 53' 11.740" E	
	3	31° 0' 38.016" N	75° 53' 11.209" E	
	4	31° 0' 38.859" N	75° 53' 10.165" E	
	5	31° 0' 40.399" N	75° 53' 9.476" E	
	6	31° 0' 44.703" N	75° 53' 12.418" E	
	7	31° 0' 45.203" N	75° 53' 14.216" E	
	8	31° 0' 45.199" N	75° 53' 16.134" E	
	9	31° 0' 44.639" N	75° 53' 17.941" E	
	10	31° 0' 43.668" N	75° 53' 19.295" E	
	11	31° 0' 43.399" N	75° 53' 21.546" E	
	12	31° 0' 42.744" N	75° 53' 21.947" E	
PO_JL_PL_ST_02	1	31° 0' 33.541" N	75° 53' 4.758" E	PHILLAUR
	2	31° 0' 33.611" N	75° 53' 4.635" E	
	3	31° 0' 33.637" N	75° 53' 3.572" E	
	4	31° 0' 34.061" N	75° 53' 4.074" E	
	5	31° 0' 34.838" N	75° 53' 5.572" E	
	6	31° 0' 36.199" N	75° 53' 6.777" E	
	7	31° 0' 37.421" N	75° 53' 7.226" E	
	8	31° 0' 38.677" N	75° 53' 8.182" E	
	9	31° 0' 38.552" N	75° 53' 9.236" E	
	10	31° 0' 37.587" N	75° 53' 10.100" E	
	11	31° 0' 37.111" N	75° 53' 10.557" E	
	12	31° 0' 32.403" N	75° 53' 7.107" E	
	13	31° 0' 32.401" N	75° 53' 6.768" E	
PO_JL_PL_ST_03	1	31° 0' 33.674" N	75° 52' 44.215" E	PHILLAUR
	2	31° 0' 32.484" N	75° 52' 31.560" E	
	3	31° 0' 34.274" N	75° 52' 32.275" E	
	4	31° 0' 35.887" N	75° 52' 33.915" E	
	5	31° 0' 39.217" N	75° 52' 39.693" E	
	6	31° 0' 40.262" N	75° 52' 42.688" E	
	7	31° 0' 40.277" N	75° 52' 42.819" E	
	8	31° 0' 41.755" N	75° 52' 48.086" E	
	9	31° 0' 42.447" N	75° 52' 49.124" E	
	10	31° 0' 42.453" N	75° 52' 49.142" E	
	11	31° 0' 42.613" N	75° 52' 49.373" E	
	12	31° 0' 43.569" N	75° 52' 50.807" E	
	13	31° 0' 43.662" N	75° 52' 50.886" E	
	14	31° 0' 45.516" N	75° 52' 53.561" E	
	15	31° 0' 47.887" N	75° 52' 58.360" E	
	16	31° 0' 48.674" N	75° 53' 0.970" E	



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	17	31° 0' 49.653" N	75° 53' 1.937" E	
	18	31° 0' 50.467" N	75° 53' 3.584" E	
	19	31° 0' 50.841" N	75° 53' 9.096" E	
	20	31° 0' 50.275" N	75° 53' 10.807" E	
	21	31° 0' 50.151" N	75° 53' 10.938" E	
	22	31° 0' 48.405" N	75° 53' 10.436" E	
	23	31° 0' 45.236" N	75° 53' 7.454" E	
	24	31° 0' 42.491" N	75° 53' 3.910" E	
	25	31° 0' 40.123" N	75° 53' 0.726" E	
	26	31° 0' 39.121" N	75° 52' 58.874" E	
	27	31° 0' 37.777" N	75° 52' 54.116" E	
	28	31° 0' 36.716" N	75° 52' 51.816" E	
	29	31° 0' 35.143" N	75° 52' 48.167" E	
	30	31° 0' 34.192" N	75° 52' 45.433" E	
PO_JL_PL_ST_04	1	31° 0' 3.794" N	75° 49' 11.291" E	PHILLAUR
	2	31° 0' 1.397" N	75° 49' 16.508" E	
	3	31° 0' 1.789" N	75° 49' 22.497" E	
	4	31° 0' 2.813" N	75° 49' 30.363" E	
	5	31° 0' 2.872" N	75° 49' 37.846" E	
	6	31° 0' 1.563" N	75° 49' 41.078" E	
	7	31° 0' 1.531" N	75° 49' 41.189" E	
	8	31° 0' 1.364" N	75° 49' 40.648" E	
	9	31° 0' 1.239" N	75° 49' 38.461" E	
	10	31° 0' 0.556" N	75° 49' 36.194" E	
	11	30° 59' 59.706" N	75° 49' 34.079" E	
	12	30° 59' 58.916" N	75° 49' 31.664" E	
	13	30° 59' 58.149" N	75° 49' 30.504" E	
	14	30° 59' 57.860" N	75° 49' 29.283" E	
	15	30° 59' 57.857" N	75° 49' 25.871" E	
	16	30° 59' 58.687" N	75° 49' 21.168" E	
	17	30° 59' 59.648" N	75° 49' 17.698" E	
	18	31° 0' 0.496" N	75° 49' 15.116" E	
	19	31° 0' 0.925" N	75° 49' 12.626" E	
	20	31° 0' 1.168" N	75° 49' 9.691" E	
	21	31° 0' 0.336" N	75° 49' 8.427" E	
	22	31° 0' 0.939" N	75° 49' 5.958" E	
	23	31° 0' 1.125" N	75° 49' 4.140" E	
	24	31° 0' 1.839" N	75° 49' 2.476" E	



*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	25	31° 0' 2.903" N	75° 49' 7.274" E	
	26	31° 0' 2.897" N	75° 49' 7.312" E	
	27	31° 0' 2.989" N	75° 49' 7.663" E	
PO_JL_PL_ST_06	1	30° 59' 56.334" N	75° 48' 51.523" E	PHILLAUR
	2	30° 59' 51.717" N	75° 48' 42.246" E	
	3	30° 59' 53.945" N	75° 48' 42.897" E	
	4	30° 59' 55.777" N	75° 48' 44.104" E	
	5	30° 59' 56.845" N	75° 48' 46.489" E	
	6	30° 59' 57.492" N	75° 48' 48.422" E	
	7	30° 59' 58.140" N	75° 48' 50.448" E	
	8	30° 59' 58.279" N	75° 48' 53.321" E	
	9	30° 59' 58.355" N	75° 48' 56.568" E	
	10	30° 59' 58.197" N	75° 48' 56.937" E	
PO_JL_PL_ST_07	1	30° 59' 43.528" N	75° 48' 32.888" E	PHILLAUR
	2	30° 59' 43.372" N	75° 48' 30.040" E	
	3	30° 59' 44.360" N	75° 48' 30.492" E	
	4	30° 59' 44.877" N	75° 48' 30.733" E	
	5	30° 59' 45.165" N	75° 48' 31.004" E	
	6	30° 59' 45.487" N	75° 48' 31.448" E	
	7	30° 59' 45.887" N	75° 48' 31.765" E	
	8	30° 59' 46.591" N	75° 48' 32.063" E	
	9	30° 59' 46.880" N	75° 48' 32.267" E	
	10	30° 59' 47.062" N	75° 48' 32.640" E	
	11	30° 59' 47.837" N	75° 48' 33.172" E	
	12	30° 59' 48.797" N	75° 48' 33.906" E	
	13	30° 59' 49.246" N	75° 48' 34.346" E	
	14	30° 59' 49.347" N	75° 48' 34.416" E	
	15	30° 59' 49.725" N	75° 48' 34.699" E	
	16	30° 59' 50.431" N	75° 48' 35.353" E	
	17	30° 59' 50.983" N	75° 48' 36.099" E	





*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	18	30° 59' 51.561" N	75° 48' 36.915" E		
	19	30° 59' 51.890" N	75° 48' 37.634" E		
	20	30° 59' 52.308" N	75° 48' 38.419" E		
	21	30° 59' 51.799" N	75° 48' 39.265" E		
	22	30° 59' 50.425" N	75° 48' 39.594" E		
	23	30° 59' 49.024" N	75° 48' 39.796" E		
	24	30° 59' 47.722" N	75° 48' 39.448" E		
	25	30° 59' 44.883" N	75° 48' 37.675" E		
	26	30° 59' 44.621" N	75° 48' 37.244" E		
	27	30° 59' 44.016" N	75° 48' 36.643" E		
	28	30° 59' 43.768" N	75° 48' 36.406" E		
PO_JL_PL_ST_08	1	30° 59' 42.595" N	75° 48' 15.858" E		PHILLAUR
	2	30° 59' 42.422" N	75° 48' 13.465" E		
	3	30° 59' 48.536" N	75° 48' 11.887" E		
	4	30° 59' 51.127" N	75° 48' 18.555" E		
	5	30° 59' 51.603" N	75° 48' 28.287" E		
	6	30° 59' 52.664" N	75° 48' 31.871" E		
	7	30° 59' 51.494" N	75° 48' 30.428" E		
	8	30° 59' 49.511" N	75° 48' 28.101" E		
	9	30° 59' 48.044" N	75° 48' 26.436" E		
	10	30° 59' 46.412" N	75° 48' 25.143" E		
	11	30° 59' 44.991" N	75° 48' 24.261" E		
	12	30° 59' 43.831" N	75° 48' 23.840" E		
	13	30° 59' 43.418" N	75° 48' 23.907" E		
	14	30° 59' 43.019" N	75° 48' 23.592" E		
PO_JL_NR_ST_11	1	31° 0' 23.703" N	75° 44' 7.437" E		NURMAHAL
	2	31° 0' 23.517" N	75° 44' 7.292" E		
	3	31° 0' 23.649" N	75° 44' 6.002" E		
	4	31° 0' 23.693" N	75° 44' 4.702" E		
	5	31° 0' 23.621" N	75° 44' 3.883" E		
	6	31° 0' 23.775" N	75° 44' 2.750" E		



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK		
	7	31° 0' 24.461" N	75° 44' 1.491" E			
	8	31° 0' 24.660" N	75° 44' 0.638" E			
	9	31° 0' 25.381" N	75° 43' 59.472" E			
	10	31° 0' 26.178" N	75° 43' 58.985" E			
	11	31° 0' 27.220" N	75° 43' 58.681" E			
	12	31° 0' 28.670" N	75° 43' 57.096" E			
	13	31° 0' 30.559" N	75° 43' 55.691" E			
	14	31° 0' 31.997" N	75° 43' 55.140" E			
	15	31° 0' 32.042" N	75° 43' 55.800" E			
	16	31° 0' 32.047" N	75° 43' 56.354" E			
	17	31° 0' 32.019" N	75° 43' 57.463" E			
	18	31° 0' 31.751" N	75° 43' 58.640" E			
	19	31° 0' 29.006" N	75° 44' 1.561" E			
	20	31° 0' 25.756" N	75° 44' 5.161" E			
	21	31° 0' 25.637" N	75° 44' 5.236" E			
	22	31° 0' 25.455" N	75° 44' 5.496" E			
	PO_JL_NR_ST_1 2	1	31° 0' 48.055" N		75° 43' 44.244" E	NURMAHAL
		2	31° 0' 44.060" N		75° 43' 51.598" E	
		3	31° 0' 39.505" N		75° 43' 53.397" E	
		4	31° 0' 38.160" N		75° 43' 53.776" E	
		5	31° 0' 36.587" N		75° 43' 54.353" E	
		6	31° 0' 34.783" N		75° 43' 55.145" E	
7		31° 0' 32.589" N	75° 43' 57.531" E			
8		31° 0' 32.402" N	75° 43' 56.466" E			
9		31° 0' 32.858" N	75° 43' 55.068" E			
10		31° 0' 34.132" N	75° 43' 53.772" E			
11		31° 0' 35.764" N	75° 43' 52.344" E			
12		31° 0' 37.228" N	75° 43' 50.567" E			
13		31° 0' 37.383" N	75° 43' 49.559" E			
14		31° 0' 37.940" N	75° 43' 48.269" E			
15		31° 0' 38.643" N	75° 43' 47.669" E			
16		31° 0' 39.427" N	75° 43' 46.713" E			
17		31° 0' 41.121" N	75° 43' 45.384" E			
18		31° 0' 42.677" N	75° 43' 44.820" E			
19		31° 0' 43.877" N	75° 43' 44.243" E			
20		31° 0' 44.988" N	75° 43' 43.338" E			
21		31° 0' 44.299" N	75° 43' 43.060" E			
22		31° 0' 45.325" N	75° 43' 41.825" E			
23		31° 0' 46.483" N	75° 43' 41.053" E			
24		31° 0' 48.441" N	75° 43' 40.627" E			
25		31° 0' 50.244" N	75° 43' 40.202" E			



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
PO_JL_NR_ST_13	1	31° 0' 46.839" N	75° 43' 38.371" E	NURMAHAL
	2	31° 0' 46.463" N	75° 43' 38.405" E	
	3	31° 0' 48.851" N	75° 43' 35.669" E	
	4	31° 0' 50.945" N	75° 43' 30.057" E	
	5	31° 0' 51.889" N	75° 43' 26.279" E	
	6	31° 0' 52.581" N	75° 43' 28.228" E	
	7	31° 0' 53.503" N	75° 43' 29.893" E	
	8	31° 0' 53.712" N	75° 43' 30.762" E	
	9	31° 0' 53.720" N	75° 43' 31.767" E	
	10	31° 0' 52.568" N	75° 43' 33.735" E	
	11	31° 0' 50.623" N	75° 43' 35.802" E	
	12	31° 0' 48.369" N	75° 43' 37.752" E	
PO_JL_NR_ST_13 A	1	31° 0' 54.238" N	75° 43' 19.631" E	NURMAHAL
	2	31° 0' 53.867" N	75° 43' 17.604" E	
	3	31° 0' 53.878" N	75° 43' 15.233" E	
	4	31° 0' 54.283" N	75° 43' 13.402" E	
	5	31° 0' 56.215" N	75° 43' 12.312" E	
	6	31° 0' 57.232" N	75° 43' 11.840" E	
	7	31° 0' 55.880" N	75° 43' 20.455" E	
	8	31° 0' 55.305" N	75° 43' 23.795" E	
	9	31° 0' 54.970" N	75° 43' 22.351" E	
PO_JL_NR_ST_13 B	1	31° 0' 52.459" N	75° 42' 58.995" E	NURMAHAL
	2	31° 0' 50.259" N	75° 42' 52.959" E	
	3	31° 0' 52.626" N	75° 42' 55.101" E	
	4	31° 0' 53.628" N	75° 42' 56.606" E	
	5	31° 0' 54.659" N	75° 42' 58.726" E	
	6	31° 0' 55.131" N	75° 42' 59.220" E	
	7	31° 0' 54.456" N	75° 43' 2.724" E	
	8	31° 0' 53.976" N	75° 43' 6.629" E	
	9	31° 0' 53.203" N	75° 43' 9.173" E	
PO_JL_NR_ST_15	1	31° 0' 44.387" N	75° 42' 44.530" E	NURMAHAL
	2	31° 0' 43.583" N	75° 42' 42.476" E	
	3	31° 0' 43.712" N	75° 42' 42.119" E	
	4	31° 0' 45.298" N	75° 42' 42.060" E	
	5	31° 0' 49.037" N	75° 42' 43.733" E	
	6	31° 0' 53.054" N	75° 42' 48.324" E	
	7	31° 0' 53.369" N	75° 42' 49.256" E	
	8	31° 0' 53.900" N	75° 42' 50.125" E	
	9	31° 0' 53.814" N	75° 42' 51.353" E	
	10	31° 0' 52.996" N	75° 42' 51.217" E	
	11	31° 0' 52.357" N	75° 42' 50.853" E	




*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	12	31° 0' 51.027" N	75° 42' 50.298" E		
	13	31° 0' 49.431" N	75° 42' 49.798" E		
	14	31° 0' 48.725" N	75° 42' 49.133" E		
	15	31° 0' 48.263" N	75° 42' 48.660" E		
	16	31° 0' 48.223" N	75° 42' 48.551" E		
	17	31° 0' 47.660" N	75° 42' 47.760" E		
	18	31° 0' 46.439" N	75° 42' 46.972" E		
	19	31° 0' 46.334" N	75° 42' 46.905" E		
	20	31° 0' 45.375" N	75° 42' 45.857" E		
PO_JL_NR_ST_1 6	1	30° 59' 3.693" N	75° 39' 24.785" E		NURMAHAL
	2	30° 59' 3.309" N	75° 39' 27.237" E		
	3	30° 59' 3.401" N	75° 39' 29.233" E		
	4	30° 59' 3.194" N	75° 39' 30.193" E		
	5	30° 59' 2.653" N	75° 39' 32.168" E		
	6	30° 59' 2.366" N	75° 39' 33.728" E		
	7	30° 59' 2.482" N	75° 39' 36.120" E		
	8	30° 59' 2.634" N	75° 39' 38.794" E		
	9	30° 59' 2.560" N	75° 39' 41.002" E		
	10	30° 59' 2.359" N	75° 39' 42.674" E		
	11	30° 59' 2.251" N	75° 39' 44.118" E		
	12	30° 59' 1.973" N	75° 39' 44.315" E		
	13	30° 59' 1.925" N	75° 39' 44.116" E		
	14	30° 59' 1.185" N	75° 39' 41.828" E		
	15	30° 58' 59.983" N	75° 39' 38.108" E		
	16	30° 59' 0.122" N	75° 39' 34.188" E		
	17	30° 58' 59.691" N	75° 39' 28.440" E		
	18	30° 58' 59.906" N	75° 39' 24.896" E		
	19	30° 59' 1.013" N	75° 39' 24.658" E		
	20	30° 59' 0.624" N	75° 39' 23.414" E		
	21	30° 58' 59.574" N	75° 39' 21.461" E		
	22	30° 58' 59.015" N	75° 39' 15.781" E		
	23	30° 58' 57.992" N	75° 39' 11.930" E		
	24	30° 58' 59.414" N	75° 39' 12.475" E		
	25	30° 59' 1.766" N	75° 39' 14.668" E		
	26	30° 59' 2.746" N	75° 39' 16.359" E		
	27	30° 59' 3.253" N	75° 39' 17.711" E		
	28	30° 59' 3.810" N	75° 39' 18.393" E		
	29	30° 59' 4.396" N	75° 39' 19.897" E		



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	30	30° 59' 4.765" N	75° 39' 21.689" E	
	31	30° 59' 4.848" N	75° 39' 22.896" E	
	32	30° 59' 4.288" N	75° 39' 23.675" E	
PO_JL_NR_ST_2 0	1	30° 58' 46.042" N	75° 38' 25.630" E	NURMAHAL
	2	30° 58' 39.937" N	75° 38' 18.112" E	
	3	30° 58' 39.856" N	75° 38' 18.010" E	
	4	30° 58' 39.884" N	75° 38' 15.610" E	
	5	30° 58' 41.022" N	75° 38' 14.358" E	
	6	30° 58' 42.076" N	75° 38' 13.257" E	
	7	30° 58' 43.231" N	75° 38' 12.800" E	
	8	30° 58' 44.824" N	75° 38' 12.762" E	
	9	30° 58' 44.626" N	75° 38' 14.214" E	
	10	30° 58' 44.261" N	75° 38' 15.746" E	
	11	30° 58' 45.096" N	75° 38' 17.344" E	
	12	30° 58' 45.435" N	75° 38' 21.167" E	
	13	30° 58' 45.653" N	75° 38' 23.067" E	
	14	30° 58' 45.731" N	75° 38' 23.746" E	
	15	30° 58' 45.840" N	75° 38' 23.913" E	
	16	30° 58' 46.219" N	75° 38' 25.630" E	
PO_JL_NR_ST_2 1	1	30° 58' 44.699" N	75° 37' 52.617" E	NURMAHAL 
	2	30° 58' 43.568" N	75° 38' 5.812" E	
	3	30° 58' 44.434" N	75° 38' 10.095" E	
	4	30° 58' 43.559" N	75° 38' 10.359" E	
	5	30° 58' 42.121" N	75° 38' 11.271" E	
	6	30° 58' 40.782" N	75° 38' 12.990" E	
	7	30° 58' 39.917" N	75° 38' 12.770" E	
	8	30° 58' 40.008" N	75° 38' 4.882" E	
	9	30° 58' 40.448" N	75° 38' 3.797" E	
	10	30° 58' 40.738" N	75° 38' 2.175" E	
	11	30° 58' 41.256" N	75° 37' 59.316" E	

District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	12	30° 58' 41.545" N	75° 37' 56.739" E	
	13	30° 58' 41.985" N	75° 37' 53.711" E	
	14	30° 58' 42.745" N	75° 37' 52.285" E	
	15	30° 58' 44.510" N	75° 37' 51.916" E	
PO_JL_NR_ST_2 2_25	1	30° 58' 40.003" N	75° 38' 3.192" E	NURMAHAL
	2	30° 58' 38.524" N	75° 37' 53.209" E	
	3	30° 58' 37.346" N	75° 37' 43.489" E	
	4	30° 58' 37.096" N	75° 37' 41.454" E	
	5	30° 58' 36.947" N	75° 37' 40.294" E	
	6	30° 58' 34.591" N	75° 37' 22.008" E	
	7	30° 58' 34.079" N	75° 37' 12.871" E	
	8	30° 58' 35.243" N	75° 37' 13.473" E	
	9	30° 58' 37.158" N	75° 37' 14.003" E	
	10	30° 58' 38.934" N	75° 37' 14.781" E	
	11	30° 58' 39.173" N	75° 37' 16.388" E	
	12	30° 58' 39.188" N	75° 37' 18.169" E	
	13	30° 58' 39.145" N	75° 37' 19.556" E	
	14	30° 58' 39.068" N	75° 37' 21.454" E	
	15	30° 58' 38.669" N	75° 37' 23.538" E	
	16	30° 58' 38.816" N	75° 37' 25.202" E	
	17	30° 58' 39.440" N	75° 37' 26.988" E	
	18	30° 58' 40.137" N	75° 37' 29.176" E	
	19	30° 58' 40.836" N	75° 37' 31.239" E	
	20	30° 58' 41.709" N	75° 37' 33.566" E	
	21	30° 58' 42.659" N	75° 37' 37.181" E	
	22	30° 58' 43.421" N	75° 37' 40.050" E	
	23	30° 58' 43.729" N	75° 37' 41.216" E	
	24	30° 58' 43.611" N	75° 37' 42.270" E	
	25	30° 58' 43.296" N	75° 37' 44.505" E	



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	26	30° 58' 42.983" N	75° 37' 46.667" E		
	27	30° 58' 42.942" N	75° 37' 48.122" E		
	28	30° 58' 42.920" N	75° 37' 48.708" E		
	29	30° 58' 42.331" N	75° 37' 51.234" E		
	30	30° 58' 41.599" N	75° 37' 54.086" E		
	31	30° 58' 40.736" N	75° 37' 58.771" E		
	32	30° 58' 40.311" N	75° 38' 2.252" E		
PO_JL_NR_ST_2 3	1	30° 58' 44.591" N	75° 37' 45.960" E		NURMAHAL
	2	30° 58' 44.472" N	75° 37' 45.043" E		
	3	30° 58' 44.682" N	75° 37' 44.286" E		
	4	30° 58' 45.171" N	75° 37' 43.779" E		
	5	30° 58' 45.447" N	75° 37' 43.890" E		
	6	30° 58' 45.046" N	75° 37' 48.569" E		
	7	30° 58' 44.764" N	75° 37' 47.345" E		
PO_JL_NR_ST_2 4	1	30° 58' 44.378" N	75° 37' 41.456" E		NURMAHAL
	2	30° 58' 40.480" N	75° 37' 28.886" E		
	3	30° 58' 41.038" N	75° 37' 28.377" E		
	4	30° 58' 42.413" N	75° 37' 30.143" E		
	5	30° 58' 43.356" N	75° 37' 31.428" E		
	6	30° 58' 44.202" N	75° 37' 32.004" E		
	7	30° 58' 45.172" N	75° 37' 32.419" E		
	8	30° 58' 45.480" N	75° 37' 41.223" E		
	9	30° 58' 45.323" N	75° 37' 41.326" E		
	10	30° 58' 44.718" N	75° 37' 41.916" E		
PO_JL_NR_ST_2 5	1	30° 58' 40.262" N	75° 37' 24.590" E		NURMAHAL
	2	30° 58' 40.100" N	75° 37' 22.882" E		
	3	30° 58' 40.268" N	75° 37' 21.329" E		
	4	30° 58' 40.978" N	75° 37' 19.557" E		
	5	30° 58' 41.056" N	75° 37' 19.466" E		



*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK		
	6	30° 58' 42.137" N	75° 37' 18.224" E				
	7	30° 58' 42.243" N	75° 37' 18.179" E				
	8	30° 58' 44.993" N	75° 37' 27.279" E				
	9	30° 58' 45.060" N	75° 37' 29.205" E				
	10	30° 58' 43.447" N	75° 37' 28.294" E				
	11	30° 58' 42.258" N	75° 37' 27.467" E				
	12	30° 58' 42.129" N	75° 37' 27.263" E				
	13	30° 58' 40.867" N	75° 37' 26.040" E				
	PO_JL_NR_ST_2 6A	1	30° 58' 32.577" N	75° 36' 42.095" E			NURMAHAL
		2	30° 58' 31.650" N	75° 36' 41.930" E			
		3	30° 58' 31.563" N	75° 36' 41.000" E			
		4	30° 58' 26.682" N	75° 36' 34.273" E			
		5	30° 58' 25.491" N	75° 36' 33.959" E			
6		30° 58' 25.617" N	75° 36' 33.365" E				
7		30° 58' 25.825" N	75° 36' 31.606" E				
8		30° 58' 25.634" N	75° 36' 29.864" E				
9		30° 58' 25.366" N	75° 36' 28.083" E				
10		30° 58' 25.311" N	75° 36' 26.408" E				
11		30° 58' 26.129" N	75° 36' 23.506" E				
12		30° 58' 27.381" N	75° 36' 21.427" E				
13		30° 58' 29.123" N	75° 36' 18.916" E				
14		30° 58' 30.501" N	75° 36' 17.434" E				
15		30° 58' 31.673" N	75° 36' 16.031" E				
16		30° 58' 32.519" N	75° 36' 14.735" E				
17		30° 58' 33.914" N	75° 36' 12.573" E				
18		30° 58' 32.356" N	75° 36' 20.147" E				
19		30° 58' 32.851" N	75° 36' 29.127" E				
20		30° 58' 33.897" N	75° 36' 35.243" E				
21		30° 58' 34.570" N	75° 36' 41.801" E				






*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
<b>PO_JL_NR_ST_2 6B</b>	1	30° 58' 34.122" N	75° 36' 11.557" E	<b>NURMAHAL</b>
	2	30° 58' 33.799" N	75° 36' 11.909" E	
	3	30° 58' 33.800" N	75° 36' 12.062" E	
	4	30° 58' 33.248" N	75° 36' 12.944" E	
	5	30° 58' 32.300" N	75° 36' 14.396" E	
	6	30° 58' 31.638" N	75° 36' 15.306" E	
	7	30° 58' 31.180" N	75° 36' 15.542" E	
	8	30° 58' 30.846" N	75° 36' 15.306" E	
	9	30° 58' 30.861" N	75° 36' 14.832" E	
	10	30° 58' 31.136" N	75° 36' 13.515" E	
	11	30° 58' 30.934" N	75° 36' 13.018" E	
	12	30° 58' 30.627" N	75° 36' 13.910" E	
	13	30° 58' 29.831" N	75° 36' 16.244" E	
	14	30° 58' 29.554" N	75° 36' 16.182" E	
	15	30° 58' 29.295" N	75° 36' 15.653" E	
	16	30° 58' 29.336" N	75° 36' 14.749" E	
	17	30° 58' 29.351" N	75° 36' 14.733" E	
	18	30° 58' 29.482" N	75° 36' 13.760" E	
	19	30° 58' 29.646" N	75° 36' 13.136" E	
	20	30° 58' 30.003" N	75° 36' 13.309" E	
	21	30° 58' 30.443" N	75° 36' 12.583" E	
	22	30° 58' 31.094" N	75° 36' 11.795" E	
	23	30° 58' 31.825" N	75° 36' 11.388" E	
	24	30° 58' 32.482" N	75° 36' 11.284" E	
	25	30° 58' 32.518" N	75° 36' 11.282" E	
	26	30° 58' 33.108" N	75° 36' 11.385" E	
	27	30° 58' 33.716" N	75° 36' 10.803" E	
	28	30° 58' 34.186" N	75° 36' 10.350" E	
	29	30° 58' 34.229" N	75° 36' 10.298" E	



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	30	30° 58' 34.225" N	75° 36' 11.057" E	
PO_JL_NR_ST_2 7	1	30° 58' 24.083" N	75° 36' 30.768" E	NURMAHAL
	2	30° 58' 23.962" N	75° 36' 31.950" E	
	3	30° 58' 24.033" N	75° 36' 33.079" E	
	4	30° 58' 23.976" N	75° 36' 33.559" E	
	5	30° 58' 20.727" N	75° 36' 32.702" E	
	6	30° 58' 20.865" N	75° 36' 31.895" E	
	7	30° 58' 20.905" N	75° 36' 31.473" E	
	8	30° 58' 22.028" N	75° 36' 29.027" E	
	9	30° 58' 22.135" N	75° 36' 29.182" E	
	10	30° 58' 22.319" N	75° 36' 30.444" E	
	11	30° 58' 22.773" N	75° 36' 29.900" E	
	12	30° 58' 23.297" N	75° 36' 29.518" E	
	13	30° 58' 23.793" N	75° 36' 28.720" E	
	14	30° 58' 24.113" N	75° 36' 28.489" E	
	15	30° 58' 24.240" N	75° 36' 28.866" E	
	16	30° 58' 24.243" N	75° 36' 29.787" E	
PO_JL_NR_ST_2 7B	1	30° 58' 32.195" N	75° 36' 4.199" E	
	2	30° 58' 31.729" N	75° 36' 4.482" E	
	3	30° 58' 31.858" N	75° 36' 4.045" E	
	4	30° 58' 32.094" N	75° 36' 3.054" E	
	5	30° 58' 32.403" N	75° 36' 2.208" E	
	6	30° 58' 32.721" N	75° 36' 1.548" E	
	7	30° 58' 33.178" N	75° 36' 0.975" E	
	8	30° 58' 33.253" N	75° 36' 1.259" E	
	9	30° 58' 33.184" N	75° 36' 1.945" E	
	10	30° 58' 32.759" N	75° 36' 3.253" E	
PO_JL_NR_ST_2 8	1	30° 58' 31.920" N	75° 36' 1.550" E	NURMAHAL
	2	30° 58' 31.604" N	75° 36' 1.773" E	

District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	3	30° 58' 31.644" N	75° 36' 0.793" E		
	4	30° 58' 31.617" N	75° 36' 0.006" E		
	5	30° 58' 31.568" N	75° 35' 59.145" E		
	6	30° 58' 31.586" N	75° 35' 58.213" E		
	7	30° 58' 31.536" N	75° 35' 57.380" E		
	8	30° 58' 31.596" N	75° 35' 55.906" E		
	9	30° 58' 31.570" N	75° 35' 55.097" E		
	10	30° 58' 31.455" N	75° 35' 54.567" E		
	11	30° 58' 31.339" N	75° 35' 53.771" E		
	12	30° 58' 31.045" N	75° 35' 52.709" E		
	13	30° 58' 30.908" N	75° 35' 51.589" E		
	14	30° 58' 30.903" N	75° 35' 50.647" E		
	15	30° 58' 30.921" N	75° 35' 49.821" E		
	16	30° 58' 30.915" N	75° 35' 48.685" E		
	17	30° 58' 30.890" N	75° 35' 47.917" E		
	18	30° 58' 31.018" N	75° 35' 47.233" E		
	19	30° 58' 31.469" N	75° 35' 48.518" E		
	20	30° 58' 32.230" N	75° 35' 50.098" E		
	21	30° 58' 32.682" N	75° 35' 51.576" E		
	22	30° 58' 33.001" N	75° 35' 53.403" E		
	23	30° 58' 33.280" N	75° 35' 55.995" E		
	24	30° 58' 33.199" N	75° 35' 58.947" E		
	25	30° 58' 32.869" N	75° 36' 0.128" E		
	26	30° 58' 32.378" N	75° 36' 0.858" E		
PO_JL_NR_ST_3 oA	1	30° 58' 27.341" N	75° 35' 29.108" E		NURMAHAL
	2	30° 58' 27.246" N	75° 35' 27.599" E		
	3	30° 58' 27.458" N	75° 35' 26.205" E		
	4	30° 58' 27.546" N	75° 35' 26.117" E		
	5	30° 58' 28.120" N	75° 35' 25.535" E		



*District Survey Report  
Jalandhar District,  
Punjab*


SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK		
	6	30° 58' 29.028" N	75° 35' 26.299" E				
	7	30° 58' 29.584" N	75° 35' 27.102" E				
	8	30° 58' 30.427" N	75° 35' 27.694" E				
	9	30° 58' 30.909" N	75° 35' 29.390" E				
	10	30° 58' 31.679" N	75° 35' 29.904" E				
	11	30° 58' 31.798" N	75° 35' 33.910" E				
	12	30° 58' 31.805" N	75° 35' 35.246" E				
	13	30° 58' 31.586" N	75° 35' 37.750" E				
	14	30° 58' 31.519" N	75° 35' 39.538" E				
	15	30° 58' 30.434" N	75° 35' 37.847" E				
	16	30° 58' 29.674" N	75° 35' 35.297" E				
	17	30° 58' 28.656" N	75° 35' 33.278" E				
	18	30° 58' 28.062" N	75° 35' 31.445" E				
	19	30° 58' 27.392" N	75° 35' 30.474" E				
	PO_JL_NR_ST_3 oB	1	30° 58' 33.929" N	75° 34' 54.999" E			NURMAHAL
		2	30° 58' 32.450" N	75° 35' 13.318" E			
		3	30° 58' 32.720" N	75° 35' 24.790" E			
		4	30° 58' 32.367" N	75° 35' 28.823" E			
		5	30° 58' 31.982" N	75° 35' 29.137" E			
6		30° 58' 30.847" N	75° 35' 26.628" E				
7		30° 58' 29.474" N	75° 35' 25.179" E				
8		30° 58' 28.185" N	75° 35' 23.454" E				
9		30° 58' 28.141" N	75° 35' 23.400" E				
10		30° 58' 27.148" N	75° 35' 22.363" E				
11		30° 58' 26.549" N	75° 35' 20.623" E				
12		30° 58' 26.454" N	75° 35' 18.505" E				
13		30° 58' 27.025" N	75° 35' 15.017" E				
14		30° 58' 27.400" N	75° 35' 13.376" E				
15		30° 58' 27.392" N	75° 35' 11.848" E				



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	16	30° 58' 26.863" N	75° 35' 8.152" E		
	17	30° 58' 26.429" N	75° 35' 5.412" E		
	18	30° 58' 26.338" N	75° 35' 3.907" E		
	19	30° 58' 26.205" N	75° 35' 2.318" E		
	20	30° 58' 26.447" N	75° 35' 0.466" E		
	21	30° 58' 27.068" N	75° 34' 58.233" E		
	22	30° 58' 27.659" N	75° 34' 56.717" E		
	23	30° 58' 28.389" N	75° 34' 55.158" E		
	24	30° 58' 28.910" N	75° 34' 53.660" E		
	25	30° 58' 29.392" N	75° 34' 52.058" E		
	26	30° 58' 30.110" N	75° 34' 51.153" E		
	27	30° 58' 31.208" N	75° 34' 49.720" E		
	28	30° 58' 31.857" N	75° 34' 47.971" E		
	29	30° 58' 32.282" N	75° 34' 46.414" E		
	1	30° 58' 33.861" N	75° 32' 45.806" E		
	2	30° 58' 33.855" N	75° 32' 44.381" E		
	3	30° 58' 35.131" N	75° 32' 40.110" E		
	4	30° 58' 37.043" N	75° 32' 37.808" E		
	5	30° 58' 40.046" N	75° 32' 35.249" E		
	6	30° 58' 41.192" N	75° 32' 34.541" E		
	7	30° 58' 43.399" N	75° 32' 43.270" E		
	8	30° 58' 38.829" N	75° 32' 57.159" E		
	9	30° 58' 38.194" N	75° 33' 0.698" E		
	10	30° 58' 37.526" N	75° 32' 58.749" E		
	11	30° 58' 36.422" N	75° 32' 56.292" E		
	12	30° 58' 35.946" N	75° 32' 53.392" E		
	13	30° 58' 35.288" N	75° 32' 50.969" E		
	14	30° 58' 34.285" N	75° 32' 49.097" E		
PO_JL_MH_ST_3 2					MEHATPUR
PO_JL_MH_ST_3 3(I)	1	30° 58' 39.514" N	75° 32' 27.898" E		MEHATPUR

District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	2	30° 58' 37.073" N	75° 32' 31.312" E	
	3	30° 58' 36.891" N	75° 32' 31.336" E	
	4	30° 58' 37.140" N	75° 32' 29.619" E	
	5	30° 58' 36.743" N	75° 32' 25.365" E	
	6	30° 58' 36.942" N	75° 32' 25.192" E	
	7	30° 58' 38.448" N	75° 32' 24.665" E	
	8	30° 58' 39.842" N	75° 32' 24.826" E	
PO_JL_MH_ST_3 3(II)	1	30° 58' 34.245" N	75° 32' 12.696" E	MEHATPUR
	2	30° 58' 34.168" N	75° 32' 12.526" E	
	3	30° 58' 34.414" N	75° 32' 12.574" E	
	4	30° 58' 35.322" N	75° 32' 12.106" E	
	5	30° 58' 35.719" N	75° 32' 9.887" E	
	6	30° 58' 36.525" N	75° 32' 11.417" E	
	7	30° 58' 38.645" N	75° 32' 16.401" E	
	8	30° 58' 39.815" N	75° 32' 19.634" E	
	9	30° 58' 39.834" N	75° 32' 21.901" E	
	10	30° 58' 38.879" N	75° 32' 23.270" E	
	11	30° 58' 38.247" N	75° 32' 23.722" E	
	12	30° 58' 37.515" N	75° 32' 24.019" E	
	13	30° 58' 36.702" N	75° 32' 24.848" E	
	14	30° 58' 36.696" N	75° 32' 24.857" E	
	15	30° 58' 36.400" N	75° 32' 21.685" E	
PO_JL_MH_ST_3 3(III)	1	30° 58' 32.902" N	75° 32' 8.826" E	MEHATPUR 
	2	30° 58' 32.348" N	75° 32' 8.519" E	
	3	30° 58' 32.337" N	75° 32' 8.495" E	
	4	30° 58' 32.405" N	75° 32' 7.546" E	
	5	30° 58' 32.658" N	75° 32' 6.545" E	
	6	30° 58' 32.481" N	75° 32' 5.701" E	
	7	30° 58' 31.214" N	75° 32' 4.972" E	

*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	8	30° 58' 30.358" N	75° 32' 5.302" E		
	9	30° 58' 30.393" N	75° 32' 5.400" E		
	10	30° 58' 27.638" N	75° 32' 3.490" E		
	11	30° 58' 27.299" N	75° 32' 0.685" E		
	12	30° 58' 28.204" N	75° 31' 57.302" E		
	13	30° 58' 29.250" N	75° 31' 57.965" E		
	14	30° 58' 30.027" N	75° 31' 58.760" E		
	15	30° 58' 30.466" N	75° 31' 59.511" E		
	16	30° 58' 31.389" N	75° 32' 1.046" E		
	17	30° 58' 32.228" N	75° 32' 2.549" E		
	18	30° 58' 33.043" N	75° 32' 4.156" E		
	19	30° 58' 33.870" N	75° 32' 5.719" E		
	20	30° 58' 34.153" N	75° 32' 6.985" E		
	21	30° 58' 34.875" N	75° 32' 8.267" E		
	22	30° 58' 34.445" N	75° 32' 8.294" E		
	23	30° 58' 33.764" N	75° 32' 8.163" E		
	1	30° 58' 36.251" N	75° 32' 2.673" E		
	2	30° 58' 35.925" N	75° 32' 1.771" E		
	3	30° 58' 35.980" N	75° 32' 1.099" E		
	4	30° 58' 36.260" N	75° 32' 0.508" E		
	5	30° 58' 36.484" N	75° 31' 59.946" E		
	6	30° 58' 37.509" N	75° 32' 2.989" E		
	7	30° 58' 39.543" N	75° 32' 8.889" E		
	8	30° 58' 39.548" N	75° 32' 9.768" E		
	9	30° 58' 38.386" N	75° 32' 7.805" E		
	10	30° 58' 37.727" N	75° 32' 6.432" E		
	11	30° 58' 37.157" N	75° 32' 4.825" E		
	12	30° 58' 36.859" N	75° 32' 3.520" E		
<b>PO_JL_MH_ST_3 3A</b>					<b>MEHATPUR</b>
<b>PO_JL_MH_ST_3 3B</b>	1	30° 58' 33.023" N	75° 31' 59.423" E		<b>MEHATPUR</b>

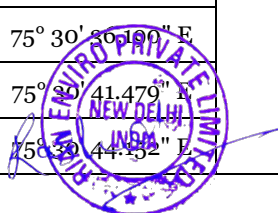
District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	AREA	ADMINISTRATIVE BLOCK
	2	30° 58' 32.047" N	75° 31' 58.138" E		
	3	30° 58' 31.705" N	75° 31' 57.596" E		
	4	30° 58' 31.386" N	75° 31' 56.454" E		
	5	30° 58' 31.137" N	75° 31' 54.747" E		
	6	30° 58' 30.961" N	75° 31' 52.816" E		
	7	30° 58' 30.956" N	75° 31' 51.795" E		
	8	30° 58' 31.142" N	75° 31' 51.487" E		
	9	30° 58' 31.618" N	75° 31' 51.728" E		
	10	30° 58' 31.551" N	75° 31' 52.716" E		
	11	30° 58' 32.136" N	75° 31' 53.634" E		
	12	30° 58' 32.884" N	75° 31' 54.159" E		
	13	30° 58' 32.303" N	75° 31' 52.708" E		
	14	30° 58' 31.932" N	75° 31' 51.749" E		
	15	30° 58' 32.075" N	75° 31' 51.119" E		
	16	30° 58' 32.069" N	75° 31' 50.101" E		
	17	30° 58' 31.723" N	75° 31' 48.897" E		
	18	30° 58' 32.333" N	75° 31' 49.340" E		
	19	30° 58' 32.886" N	75° 31' 50.157" E		
	20	30° 58' 33.527" N	75° 31' 51.166" E		
	21	30° 58' 36.336" N	75° 31' 59.507" E		
	22	30° 58' 36.247" N	75° 31' 59.941" E		
	23	30° 58' 35.605" N	75° 32' 1.079" E		
	24	30° 58' 35.499" N	75° 32' 1.558" E		
	25	30° 58' 35.198" N	75° 32' 2.157" E		
	26	30° 58' 33.982" N	75° 32' 0.559" E		
	PO_JL_MH_ST_3 4	1	30° 58' 18.701" N		
2		30° 58' 18.423" N	75° 31' 17.696" E		
3		30° 58' 18.903" N	75° 31' 15.999" E		
4		30° 58' 20.702" N	75° 31' 12.293" E		



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	5	30° 58' 22.946" N	75° 31' 8.816" E		
	6	30° 58' 25.907" N	75° 31' 5.273" E		
	7	30° 58' 27.215" N	75° 31' 3.429" E		
	8	30° 58' 29.857" N	75° 31' 1.859" E		
	9	30° 58' 32.747" N	75° 31' 0.948" E		
	10	30° 58' 35.128" N	75° 31' 0.609" E		
	11	30° 58' 37.943" N	75° 30' 59.015" E		
	12	30° 58' 41.414" N	75° 30' 56.836" E		
	13	30° 58' 44.469" N	75° 30' 55.116" E		
	14	30° 58' 43.789" N	75° 30' 56.477" E		
	15	30° 58' 42.651" N	75° 31' 1.758" E		
	16	30° 58' 39.190" N	75° 31' 7.524" E		
	17	30° 58' 34.354" N	75° 31' 13.184" E		
	18	30° 58' 31.245" N	75° 31' 16.957" E		
	19	30° 58' 28.148" N	75° 31' 17.639" E		
	20	30° 58' 21.187" N	75° 31' 23.861" E		
	1	30° 58' 41.202" N	75° 30' 50.688" E		
	2	30° 58' 38.683" N	75° 30' 53.302" E		
	3	30° 58' 38.483" N	75° 30' 47.903" E		
	4	30° 58' 39.823" N	75° 30' 35.143" E		
	5	30° 58' 36.439" N	75° 30' 21.360" E		
	6	30° 58' 35.498" N	75° 30' 19.325" E		
	7	30° 58' 38.431" N	75° 30' 21.665" E		
	8	30° 58' 42.356" N	75° 30' 24.786" E		
	9	30° 58' 47.852" N	75° 30' 30.483" E		
	10	30° 58' 49.767" N	75° 30' 33.619" E		
	11	30° 58' 50.081" N	75° 30' 36.190" E		
	12	30° 58' 49.109" N	75° 30' 41.479" E		
	13	30° 58' 47.434" N	75° 30' 44.432" E		
<b>PO_JL_MH_ST_3 5</b>					<b>MEHATPUR</b>



*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	14	30° 58' 45.688" N	75° 30' 46.289" E	
	15	30° 58' 43.607" N	75° 30' 47.993" E	
PO_JL_MH_ST_3 6	1	30° 58' 30.548" N	75° 30' 2.670" E	MEHATPUR
	2	30° 58' 30.535" N	75° 29' 59.819" E	
	3	30° 58' 30.573" N	75° 29' 59.671" E	
	4	30° 58' 33.774" N	75° 30' 2.560" E	
	5	30° 58' 38.061" N	75° 30' 5.076" E	
	6	30° 58' 38.642" N	75° 30' 10.465" E	
	7	30° 58' 38.692" N	75° 30' 10.752" E	
	8	30° 58' 38.656" N	75° 30' 10.671" E	
	9	30° 58' 37.755" N	75° 30' 8.303" E	
	10	30° 58' 36.988" N	75° 30' 10.257" E	
	11	30° 58' 35.685" N	75° 30' 9.185" E	
	12	30° 58' 33.168" N	75° 30' 6.600" E	
	13	30° 58' 31.423" N	75° 30' 4.518" E	
PO_JL_SH_ST_4 6	1	30° 59' 58.458" N	75° 20' 14.306" E	SHAHKOT
	2	30° 59' 56.922" N	75° 20' 15.285" E	
	3	30° 59' 55.376" N	75° 20' 15.958" E	
	4	30° 59' 54.169" N	75° 20' 16.162" E	
	5	30° 59' 53.198" N	75° 20' 16.529" E	
	6	30° 59' 53.821" N	75° 20' 15.395" E	
	7	30° 59' 56.099" N	75° 20' 13.015" E	
	8	30° 59' 57.305" N	75° 20' 12.240" E	
	9	30° 59' 58.161" N	75° 20' 11.503" E	
	10	30° 59' 56.908" N	75° 20' 10.177" E	
	11	30° 59' 57.311" N	75° 20' 9.544" E	
	12	30° 59' 57.825" N	75° 20' 8.653" E	
	13	30° 59' 58.682" N	75° 20' 7.351" E	
	14	30° 59' 59.470" N	75° 20' 6.357" E	



District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	15	31° 0' 0.948" N	75° 20' 13.699" E	
	16	31° 0' 0.268" N	75° 20' 13.728" E	
PO_JL_SH_ST_5 oA	1	31° 0' 50.791" N	75° 19' 48.205" E	SHAHKOT
	2	31° 0' 49.362" N	75° 19' 47.551" E	
	3	31° 0' 48.341" N	75° 19' 47.233" E	
	4	31° 0' 47.341" N	75° 19' 47.617" E	
	5	31° 0' 45.571" N	75° 19' 48.057" E	
	6	31° 0' 44.438" N	75° 19' 48.583" E	
	7	31° 0' 44.128" N	75° 19' 49.573" E	
	8	31° 0' 43.999" N	75° 19' 50.594" E	
	9	31° 0' 42.848" N	75° 19' 51.905" E	
	10	31° 0' 41.503" N	75° 19' 52.678" E	
	11	31° 0' 40.223" N	75° 19' 53.293" E	
	12	31° 0' 38.966" N	75° 19' 53.979" E	
	13	31° 0' 38.174" N	75° 19' 54.822" E	
	14	31° 0' 37.541" N	75° 19' 55.608" E	
	15	31° 0' 36.477" N	75° 19' 56.388" E	
	16	31° 0' 35.293" N	75° 19' 56.974" E	
	17	31° 0' 34.166" N	75° 19' 57.371" E	
	18	31° 0' 33.432" N	75° 19' 58.024" E	
	19	31° 0' 32.256" N	75° 19' 59.467" E	
	20	31° 0' 30.543" N	75° 20' 0.820" E	
	21	31° 0' 28.778" N	75° 20' 2.816" E	
	22	31° 0' 26.945" N	75° 20' 5.361" E	
	23	31° 0' 23.726" N	75° 20' 9.076" E	
	24	31° 0' 23.060" N	75° 20' 11.155" E	
	25	31° 0' 21.754" N	75° 20' 12.739" E	
	26	31° 0' 21.144" N	75° 20' 14.314" E	
	27	31° 0' 20.743" N	75° 20' 15.752" E	
	28	31° 0' 19.944" N	75° 20' 17.410" E	
	29	31° 0' 19.891" N	75° 20' 17.578" E	
	30	31° 0' 14.013" N	75° 20' 25.805" E	
	31	31° 0' 7.021" N	75° 20' 37.304" E	
	32	31° 0' 3.439" N	75° 20' 37.873" E	
	33	31° 0' 2.974" N	75° 20' 36.456" E	
	34	31° 0' 1.884" N	75° 20' 34.021" E	
	35	31° 0' 0.714" N	75° 20' 32.713" E	
	36	30° 59' 59.504" N	75° 20' 31.983" E	
	37	30° 59' 59.152" N	75° 20' 31.163" E	




*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	38	30° 59' 58.841" N	75° 20' 30.438" E	
	39	30° 59' 58.341" N	75° 20' 29.759" E	
	40	30° 59' 57.176" N	75° 20' 28.948" E	
	41	30° 59' 55.999" N	75° 20' 28.936" E	
	42	30° 59' 55.058" N	75° 20' 28.538" E	
	43	30° 59' 54.844" N	75° 20' 28.494" E	
	44	30° 59' 54.312" N	75° 20' 28.021" E	
	45	30° 59' 54.274" N	75° 20' 27.337" E	
	46	30° 59' 54.977" N	75° 20' 26.257" E	
	47	30° 59' 56.311" N	75° 20' 25.230" E	
	48	30° 59' 57.272" N	75° 20' 24.984" E	
	49	30° 59' 58.403" N	75° 20' 24.907" E	
	50	30° 59' 59.791" N	75° 20' 24.731" E	
	51	31° 0' 0.895" N	75° 20' 24.151" E	
	52	31° 0' 2.025" N	75° 20' 23.695" E	
	53	31° 0' 3.054" N	75° 20' 23.096" E	
	54	31° 0' 3.764" N	75° 20' 22.126" E	
	55	31° 0' 4.354" N	75° 20' 21.247" E	
	56	31° 0' 4.861" N	75° 20' 19.654" E	
	57	31° 0' 4.988" N	75° 20' 18.743" E	
	58	31° 0' 5.419" N	75° 20' 17.946" E	
	59	31° 0' 7.002" N	75° 20' 17.079" E	
	60	31° 0' 8.498" N	75° 20' 16.248" E	
	61	31° 0' 9.650" N	75° 20' 15.638" E	
	62	31° 0' 9.697" N	75° 20' 15.633" E	
	63	31° 0' 10.498" N	75° 20' 14.999" E	
	64	31° 0' 11.260" N	75° 20' 13.962" E	
	65	31° 0' 13.314" N	75° 20' 12.389" E	
	66	31° 0' 13.665" N	75° 20' 12.241" E	
	67	31° 0' 15.341" N	75° 20' 11.137" E	
	68	31° 0' 15.445" N	75° 20' 11.071" E	
	69	31° 0' 16.959" N	75° 20' 9.650" E	
	70	31° 0' 18.512" N	75° 20' 8.352" E	
	71	31° 0' 22.562" N	75° 20' 5.261" E	
	72	31° 0' 24.836" N	75° 20' 3.218" E	



*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	73	31° 0' 25.750" N	75° 20' 2.046" E	
	74	31° 0' 25.796" N	75° 20' 1.943" E	
	75	31° 0' 26.724" N	75° 20' 0.304" E	
	76	31° 0' 27.713" N	75° 19' 58.282" E	
	77	31° 0' 27.761" N	75° 19' 58.276" E	
	78	31° 0' 28.291" N	75° 19' 57.497" E	
	79	31° 0' 29.057" N	75° 19' 56.025" E	
	80	31° 0' 29.150" N	75° 19' 55.912" E	
	81	31° 0' 30.433" N	75° 19' 54.330" E	
	82	31° 0' 31.923" N	75° 19' 52.873" E	
	83	31° 0' 33.925" N	75° 19' 51.136" E	
	84	31° 0' 35.655" N	75° 19' 49.888" E	
	85	31° 0' 37.059" N	75° 19' 48.556" E	
	86	31° 0' 37.586" N	75° 19' 47.413" E	
	87	31° 0' 37.732" N	75° 19' 46.370" E	
	88	31° 0' 38.251" N	75° 19' 45.457" E	
	89	31° 0' 39.218" N	75° 19' 45.266" E	
	90	31° 0' 40.966" N	75° 19' 45.550" E	
	91	31° 0' 42.072" N	75° 19' 45.301" E	
	92	31° 0' 42.946" N	75° 19' 44.695" E	
	93	31° 0' 44.603" N	75° 19' 44.095" E	
	94	31° 0' 46.056" N	75° 19' 43.649" E	
	95	31° 0' 47.763" N	75° 19' 43.665" E	
	96	31° 0' 48.874" N	75° 19' 43.500" E	
	97	31° 0' 49.384" N	75° 19' 42.873" E	
	98	31° 0' 50.009" N	75° 19' 42.619" E	
	99	31° 0' 50.821" N	75° 19' 43.343" E	
	100	31° 0' 50.659" N	75° 19' 44.727" E	
	101	31° 0' 51.302" N	75° 19' 46.305" E	
	102	31° 0' 52.134" N	75° 19' 46.781" E	
	103	31° 0' 52.845" N	75° 19' 47.474" E	
	104	31° 0' 51.919" N	75° 19' 48.013" E	
<b>PO_JL_SH_ST_5 oB</b>	1	31° 0' 45.762" N	75° 19' 43.233" E	<b>SHAHKOT</b> 
	2	31° 0' 44.313" N	75° 19' 43.672" E	
	3	31° 0' 45.104" N	75° 19' 42.448" E	
	4	31° 0' 45.276" N	75° 19' 41.676" E	
	5	31° 0' 45.377" N	75° 19' 40.517" E	
	6	31° 0' 45.586" N	75° 19' 39.437" E	
	7	31° 0' 45.691" N	75° 19' 38.701" E	
	8	31° 0' 46.879" N	75° 19' 37.776" E	
	9	31° 0' 48.019" N	75° 19' 37.586" E	

*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	10	31° 0' 49.416" N	75° 19' 37.288" E	
	11	31° 0' 50.432" N	75° 19' 36.848" E	
	12	31° 0' 50.624" N	75° 19' 36.839" E	
	13	31° 0' 50.698" N	75° 19' 36.771" E	
	14	31° 0' 53.130" N	75° 19' 36.809" E	
	15	31° 0' 55.993" N	75° 19' 36.787" E	
	16	31° 0' 57.351" N	75° 19' 36.998" E	
	17	31° 0' 59.383" N	75° 19' 36.350" E	
	18	31° 1' 1.192" N	75° 19' 35.301" E	
	19	31° 1' 2.294" N	75° 19' 34.072" E	
	20	31° 1' 3.615" N	75° 19' 32.953" E	
	21	31° 1' 4.153" N	75° 19' 30.816" E	
	22	31° 1' 4.250" N	75° 19' 29.324" E	
	23	31° 1' 5.047" N	75° 19' 28.411" E	
	24	31° 1' 7.139" N	75° 19' 27.670" E	
	25	31° 1' 8.634" N	75° 19' 27.054" E	
	26	31° 1' 10.102" N	75° 19' 26.488" E	
	27	31° 1' 11.328" N	75° 19' 26.596" E	
	28	31° 1' 11.501" N	75° 19' 27.387" E	
	29	31° 1' 9.769" N	75° 19' 29.671" E	
	30	31° 1' 8.687" N	75° 19' 32.274" E	
	31	31° 1' 6.421" N	75° 19' 36.307" E	
	32	31° 1' 5.184" N	75° 19' 37.750" E	
	33	31° 1' 4.915" N	75° 19' 38.635" E	
	34	31° 1' 4.874" N	75° 19' 38.819" E	
	35	31° 1' 2.512" N	75° 19' 42.091" E	
	36	31° 1' 2.457" N	75° 19' 42.082" E	
	37	31° 1' 1.384" N	75° 19' 42.175" E	
	38	31° 0' 59.981" N	75° 19' 42.775" E	
	39	31° 0' 58.800" N	75° 19' 43.431" E	
	40	31° 0' 58.163" N	75° 19' 44.637" E	
	41	31° 0' 55.172" N	75° 19' 45.997" E	
	42	31° 0' 53.295" N	75° 19' 47.048" E	
	43	31° 0' 52.819" N	75° 19' 46.932" E	
	44	31° 0' 52.044" N	75° 19' 46.230" E	
	45	31° 0' 51.679" N	75° 19' 45.430" E	
	46	31° 0' 51.513" N	75° 19' 44.304" E	
	47	31° 0' 51.252" N	75° 19' 42.773" E	
	48	31° 0' 50.688" N	75° 19' 42.274" E	
	49	31° 0' 50.119" N	75° 19' 42.096" E	
	50	31° 0' 49.323" N	75° 19' 42.557" E	



*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	51	31° 0' 48.724" N	75° 19' 43.044" E	
	52	31° 0' 47.696" N	75° 19' 43.073" E	
	53	31° 0' 46.877" N	75° 19' 43.177" E	
PO_JL_SH_ST_5 OC	1	31° 0' 58.647" N	75° 19' 45.141" E	SHAHKOT
	2	31° 0' 58.515" N	75° 19' 44.882" E	
	3	31° 0' 58.977" N	75° 19' 44.355" E	
	4	31° 0' 59.190" N	75° 19' 43.869" E	
	5	31° 0' 59.444" N	75° 19' 43.617" E	
	6	31° 1' 0.220" N	75° 19' 43.192" E	
	7	31° 1' 0.967" N	75° 19' 42.928" E	
	8	31° 1' 1.649" N	75° 19' 42.678" E	
	9	31° 1' 2.149" N	75° 19' 42.593" E	
	10	31° 1' 1.306" N	75° 19' 43.761" E	
	11	31° 0' 58.736" N	75° 19' 45.176" E	
PO_JL_SH_ST_51	1	31° 0' 14.298" N	75° 20' 3.933" E	SHAHKOT
	2	31° 0' 13.758" N	75° 20' 4.641" E	
	3	31° 0' 13.940" N	75° 20' 4.253" E	
	4	31° 0' 18.621" N	75° 19' 53.338" E	
	5	31° 0' 19.505" N	75° 19' 53.175" E	
	6	31° 0' 18.515" N	75° 19' 54.983" E	
	7	31° 0' 17.701" N	75° 19' 56.470" E	
	8	31° 0' 16.524" N	75° 19' 58.472" E	
	9	31° 0' 15.583" N	75° 20' 0.747" E	
	10	31° 0' 15.332" N	75° 20' 2.454" E	
PO_JL_SH_ST_51 A	1	31° 0' 21.574" N	75° 19' 50.938" E	SHAHKOT
	2	31° 0' 19.311" N	75° 19' 51.729" E	
	3	31° 0' 19.388" N	75° 19' 51.550" E	
	4	31° 0' 24.168" N	75° 19' 49.469" E	
	5	31° 0' 23.160" N	75° 19' 50.468" E	
PO_JL_SH_ST_5 2	1	31° 0' 20.846" N	75° 19' 57.051" E	SHAHKOT
	2	31° 0' 20.083" N	75° 19' 56.825" E	
	3	31° 0' 21.063" N	75° 19' 54.820" E	
	4	31° 0' 22.602" N	75° 19' 52.495" E	
	5	31° 0' 25.202" N	75° 19' 51.169" E	
	6	31° 0' 27.590" N	75° 19' 49.930" E	
	7	31° 0' 28.454" N	75° 19' 48.781" E	
	8	31° 0' 29.168" N	75° 19' 48.176" E	
	9	31° 0' 29.785" N	75° 19' 48.225" E	
	10	31° 0' 29.626" N	75° 19' 50.406" E	
	11	31° 0' 27.691" N	75° 19' 53.118" E	
	12	31° 0' 25.931" N	75° 19' 54.847" E	




*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	13	31° 0' 24.829" N	75° 19' 56.407" E	
	14	31° 0' 23.599" N	75° 19' 57.224" E	
	15	31° 0' 22.387" N	75° 19' 56.749" E	
	16	31° 0' 21.929" N	75° 19' 56.051" E	
PO_JL_SH_ST_5 3A	1	31° 0' 33.458" N	75° 19' 47.687" E	SHAHKOT
	2	31° 0' 33.320" N	75° 19' 46.622" E	
	3	31° 0' 33.517" N	75° 19' 45.565" E	
	4	31° 0' 34.530" N	75° 19' 45.161" E	
	5	31° 0' 34.532" N	75° 19' 45.283" E	
	6	31° 0' 35.057" N	75° 19' 45.280" E	
	7	31° 0' 35.674" N	75° 19' 44.826" E	
	8	31° 0' 36.292" N	75° 19' 45.062" E	
	9	31° 0' 35.983" N	75° 19' 45.643" E	
	10	31° 0' 35.239" N	75° 19' 46.648" E	
	11	31° 0' 34.380" N	75° 19' 47.635" E	
	12	31° 0' 33.589" N	75° 19' 48.088" E	
PO_JL_SH_ST_5 3B	1	31° 0' 38.226" N	75° 19' 44.550" E	SHAHKOT
	2	31° 0' 37.325" N	75° 19' 44.022" E	
	3	31° 0' 37.413" N	75° 19' 43.570" E	
	4	31° 0' 38.627" N	75° 19' 42.217" E	
	5	31° 0' 39.889" N	75° 19' 41.240" E	
	6	31° 0' 41.183" N	75° 19' 40.654" E	
	7	31° 0' 42.617" N	75° 19' 40.046" E	
	8	31° 0' 43.984" N	75° 19' 38.685" E	
	9	31° 0' 44.457" N	75° 19' 39.983" E	
	10	31° 0' 43.934" N	75° 19' 41.657" E	
	11	31° 0' 42.664" N	75° 19' 42.559" E	
	12	31° 0' 41.560" N	75° 19' 42.497" E	
	13	31° 0' 39.718" N	75° 19' 43.800" E	
PO_JL_SH_ST_5 4	1	31° 0' 37.235" N	75° 19' 38.855" E	SHAHKOT
	2	31° 0' 37.212" N	75° 19' 38.590" E	
	3	31° 0' 39.795" N	75° 19' 36.653" E	
	4	31° 0' 43.765" N	75° 19' 37.051" E	
	5	31° 0' 43.561" N	75° 19' 37.236" E	
	6	31° 0' 42.425" N	75° 19' 37.751" E	
	7	31° 0' 40.730" N	75° 19' 38.515" E	
	8	31° 0' 39.639" N	75° 19' 38.344" E	
	9	31° 0' 38.568" N	75° 19' 38.379" E	
PO_JL_SH_ST_5 5	1	31° 0' 35.224" N	75° 19' 59.537" E	SHAHKOT
	2	31° 0' 32.216" N	75° 20' 1.429" E	
	3	31° 0' 32.428" N	75° 20' 1.158" E	





*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	ADMINISTRATIVE BLOCK
	4	31° 0' 32.804" N	75° 20' 0.661" E	
	5	31° 0' 33.493" N	75° 19' 59.976" E	
	6	31° 0' 33.875" N	75° 19' 59.691" E	
	7	31° 0' 34.106" N	75° 19' 59.300" E	
	8	31° 0' 34.986" N	75° 19' 58.672" E	
	9	31° 0' 36.341" N	75° 19' 58.024" E	
	10	31° 0' 37.046" N	75° 19' 57.606" E	
	11	31° 0' 37.535" N	75° 19' 57.127" E	
	12	31° 0' 37.569" N	75° 19' 57.052" E	
	13	31° 0' 38.274" N	75° 19' 56.457" E	
	14	31° 0' 38.325" N	75° 19' 56.418" E	
	15	31° 0' 38.854" N	75° 19' 56.086" E	
	16	31° 0' 39.040" N	75° 19' 55.993" E	
PO_JL_SH_ST_5 6	1	31° 0' 46.202" N	75° 19' 51.942" E	SHAHKOT
	2	31° 0' 43.864" N	75° 19' 53.043" E	
	3	31° 0' 44.013" N	75° 19' 52.875" E	
	4	31° 0' 43.987" N	75° 19' 52.409" E	
	5	31° 0' 44.131" N	75° 19' 52.123" E	
	6	31° 0' 44.326" N	75° 19' 51.803" E	
	7	31° 0' 44.645" N	75° 19' 51.360" E	
	8	31° 0' 44.818" N	75° 19' 51.038" E	
	9	31° 0' 44.863" N	75° 19' 50.085" E	
	10	31° 0' 45.036" N	75° 19' 49.563" E	
	11	31° 0' 45.337" N	75° 19' 49.219" E	
	12	31° 0' 46.001" N	75° 19' 48.941" E	
	13	31° 0' 46.918" N	75° 19' 48.829" E	
	14	31° 0' 47.832" N	75° 19' 48.981" E	
	15	31° 0' 48.658" N	75° 19' 48.795" E	
	16	31° 0' 49.561" N	75° 19' 48.748" E	
	17	31° 0' 51.076" N	75° 19' 48.876" E	
	18	31° 0' 51.792" N	75° 19' 48.980" E	
	19	31° 0' 43.184" N	75° 19' 53.363" E	
	20	31° 0' 41.856" N	75° 19' 53.988" E	
	21	31° 0' 41.975" N	75° 19' 53.871" E	
	22	31° 0' 43.175" N	75° 19' 53.365" E	
PO_JL_SH_ST_5 9	1	31° 1' 8.959" N	75° 19' 23.952" E	
	2	31° 1' 8.691" N	75° 19' 22.866" E	
	3	31° 1' 9.247" N	75° 19' 21.007" E	
	4	31° 1' 10.548" N	75° 19' 19.057" E	
	5	31° 1' 11.663" N	75° 19' 17.487" E	
	6	31° 1' 12.588" N	75° 19' 16.019" E	

District Survey Report  
Jalandhar District,  
Punjab

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE	AREA	ADMINISTRATIVE BLOCK
	7	31° 1' 14.826" N	75° 19' 13.956" E		
	8	31° 1' 17.394" N	75° 19' 12.913" E		
	9	31° 1' 19.190" N	75° 19' 12.911" E		
	10	31° 1' 19.868" N	75° 19' 13.770" E		
	11	31° 1' 19.138" N	75° 19' 16.688" E		
	12	31° 1' 18.989" N	75° 19' 17.011" E		
	13	31° 1' 16.746" N	75° 19' 18.795" E		
	14	31° 1' 14.959" N	75° 19' 20.215" E		
	15	31° 1' 14.907" N	75° 19' 20.273" E		
	16	31° 1' 13.256" N	75° 19' 20.627" E		
	17	31° 1' 12.357" N	75° 19' 21.067" E		
	18	31° 1' 11.762" N	75° 19' 23.132" E		
	19	31° 1' 11.163" N	75° 19' 24.100" E		
	20	31° 1' 10.203" N	75° 19' 24.454" E		
21	31° 1' 10.018" N	75° 19' 24.513" E			
PO_JL_LH_ST_6 2	1	31° 7' 26.626" N	75° 7' 23.438" E		LOHIAN
	2	31° 7' 25.839" N	75° 7' 23.747" E		
	3	31° 7' 27.378" N	75° 7' 17.931" E		
	4	31° 7' 33.139" N	75° 7' 16.261" E		
	5	31° 7' 37.095" N	75° 7' 14.028" E		
	6	31° 7' 37.577" N	75° 7' 13.775" E		
	7	31° 7' 37.447" N	75° 7' 14.136" E		
	8	31° 7' 35.870" N	75° 7' 16.857" E		
	9	31° 7' 34.432" N	75° 7' 18.323" E		
	10	31° 7' 33.443" N	75° 7' 18.511" E		
	11	31° 7' 32.105" N	75° 7' 19.619" E		
	12	31° 7' 30.953" N	75° 7' 20.305" E		
	13	31° 7' 29.748" N	75° 7' 21.267" E		
	14	31° 7' 28.836" N	75° 7' 22.048" E		
	15	31° 7' 27.770" N	75° 7' 22.595" E		
PO_JL_LH_ST_6 3	1	31° 7' 42.424" N	75° 7' 13.555" E		LOHIAN
	2	31° 7' 42.404" N	75° 7' 13.134" E		
	3	31° 7' 42.532" N	75° 7' 12.124" E		
	4	31° 7' 43.043" N	75° 7' 11.075" E		
	5	31° 7' 43.829" N	75° 7' 9.390" E		
	6	31° 7' 44.938" N	75° 7' 7.276" E		
	7	31° 7' 46.537" N	75° 7' 5.721" E		
	8	31° 7' 48.422" N	75° 7' 4.268" E		
	9	31° 7' 49.937" N	75° 7' 3.208" E		
	10	31° 7' 51.180" N	75° 7' 2.371" E		
	11	31° 7' 51.208" N	75° 7' 2.195" E		

*District Survey Report  
Jalandhar District,  
Punjab*

SANDBAR CODE	POINT NO	LATITUDE	LONGITUDE		ADMINISTRATIVE BLOCK
	12	31° 7' 51.020" N	75° 7' 2.989" E		
	13	31° 7' 50.576" N	75° 7' 3.966" E		
	14	31° 7' 49.612" N	75° 7' 5.636" E		
	15	31° 7' 49.542" N	75° 7' 5.868" E		
	16	31° 7' 48.050" N	75° 7' 7.975" E		
	17	31° 7' 46.597" N	75° 7' 10.100" E		
	18	31° 7' 45.413" N	75° 7' 11.556" E		
	19	31° 7' 45.329" N	75° 7' 11.615" E		
	20	31° 7' 44.369" N	75° 7' 12.256" E		
	21	31° 7' 43.262" N	75° 7' 13.299" E		
PO_JL_LH_ST_6 9	1	31° 8' 9.626" N	75° 5' 36.469" E		LOHIAN
	2	31° 8' 8.691" N	75° 5' 36.288" E		
	3	31° 8' 6.576" N	75° 5' 36.044" E		
	4	31° 8' 4.451" N	75° 5' 35.961" E		
	5	31° 8' 3.653" N	75° 5' 35.990" E		
	6	31° 8' 3.751" N	75° 5' 35.147" E		
	7	31° 8' 5.247" N	75° 5' 29.634" E		
	8	31° 8' 5.603" N	75° 5' 28.818" E		
	9	31° 8' 6.381" N	75° 5' 26.923" E		
	10	31° 8' 7.034" N	75° 5' 25.690" E		
	11	31° 8' 7.984" N	75° 5' 24.812" E		
	12	31° 8' 9.184" N	75° 5' 27.959" E		
	13	31° 8' 9.431" N	75° 5' 31.368" E		
	14	31° 8' 9.227" N	75° 5' 32.939" E		
	15	31° 8' 9.491" N	75° 5' 34.608" E		
	16	31° 8' 9.630" N	75° 5' 36.169" E		



**Annexure C**  
**(The structure of the Sub-Divisional Committee**  
**Constituted for the preparation of the District**  
**Survey Report for Sand minerals of District**  
**Jalandhar)**





ਦਫਤਰ ਡਿਪਟੀ ਕਮਿਸ਼ਨਰ ਜਲੰਧਰ  
Office of the Deputy Commissioner  
Jalandhar (Punjab)

No. ....

Date .....

Ph. : 0181-2224783 (O)  
: 2459664 (R)  
Fax : 2224727  
e-mail : dc.jal@punjabmail.gov.in

**OFFICER ORDER**

1.0 In view of the directions issued by the Government of Punjab, Department of Mines & Geology vide letter no. PSWR/ E321792 /414 dated 05.05.2022, following Sub Division Level Committees are hereby constituted for the preparation of District Survey Report (DSR) for district Jalandhar-

**i. For Jalandhar-1 Sub-Division**

- (a) Sub-Divisional Magistrate Jalandhar-1 -Chairperson
- (b) Environment Engineer PPCB, Jalandhar - Member
- (c) Executive Engineer, Irrigation(Bist doab Canal), Jalandhar -Member
- (d) Executive Engineer, Buildings and Roads, Jalandhar-Member
- (e) Executive Engineers, Drainage Division, Jalandhar and Phagwar - Member
- (f) Divisional Forest Officer, Jalandhar -Member
- (g) Chief Agriculture Officer, Jalandhar -Member
- (h) All Block Development and Panchayat Officer, Jalandhar-Member
- (i) District Mining Officer, Jalandhar -Member Secretary

**ii. For Jalandhar-2 Sub-Division**

- (a) Sub-Divisional Magistrate Jalandhar-2 -Chairperson
- (b) Environment Engineer PPCB, Jalandhar - Member
- (c) Executive Engineer, Irrigation(Bist doab Canal), Jalandhar -Member
- (d) Executive Engineer, Buildings and Roads, Jalandhar-Member
- (e) Executive Engineers, Drainage Division, Jalandhar and Phagwar - Member
- (f) Divisional Forest Officer, Jalandhar -Member
- (g) Chief Agriculture Officer, Jalandhar -Member
- (h) All Block Development and Panchayat Officer, Jalandhar-Member
- (i) District Mining Officer, Jalandhar -Member Secretary

**iii. For Nakodar Sub-Division**

- (a) Sub-Divisional Magistrate Nakodar -Chairperson
- (b) Environment Engineer PPCB, Jalandhar - Member
- (c) Executive Engineer, Irrigation(Bist doab Canal), Jalandhar -Member
- (d) Executive Engineer, Buildings and Roads, Jalandhar-Member
- (e) Executive Engineers, Drainage Division, Jalandhar and Phagwar - Member
- (f) Divisional Forest Officer, Jalandhar -Member
- (g) Chief Agriculture Officer, Jalandhar -Member
- (h) All Block Development and Panchayat Officer, Jalandhar -Member
- (i) District Mining Officer, Jalandhar -Member Secretary



**iv. For Shahkot Sub-Division**

- (a) Sub-Divisional Magistrate, Shahkot -Chairperson
- (b) Environment Engineer PPCB, Jalandhar - Member
- (c) Executive Engineer, Irrigation(Bist doab Canal), Jalandhar -Member
- (d) Executive Engineer, Buildings and Roads, Jalandhar-Member
- (e) Executive Engineers, Drainage Division, Jalandhar and Phagwar - Member
- (f) Divisional Forest Officer, Jalandhar -Member
- (g) Chief Agriculture Officer, Jalandhar -Member
- (h) All Block Development and Panchayat Officer, Jalandhar -Member
- (i) District Mining Officer, Jalandhar -Member Secretary

**v. For Phillaur Sub-Division**

- (a) Sub-Divisional Magistrate, Phillaur -Chairperson
- (b) Environment Engineer PPCB, Jalandhar - Member
- (c) Executive Engineer, Irrigation(Bist doab Canal), Jalandhar -Member
- (d) Executive Engineer, Buildings and Roads, Jalandhar-Member
- (e) Executive Engineers, Drainage Division, Jalandhar and Phagwar - Member
- (f) Divisional Forest Officer, Jalandhar -Member
- (g) Chief Agriculture Officer, Jalandhar -Member
- (h) All Block Development and Panchayat Officer, Jalandhar -Member
- (i) District Mining Officer, Jalandhar -Member Secretary

2.0 The Sub Division Level Committees shall get the DSR prepared with the help of consultant accredited by NABET (National Accreditation Board of Education & Training).

3.0 The Committees shall prepare and submit the DSR in accordance with the sustainable Sand Mining Management Guidelines, 2016, Enforcement & Monitoring Guidelines for Sand Mining, 2020 and as per various directions passed by Hon'ble Supreme Court and National Green Tribunal from time to time.

  
Deputy Commissioner  
Jalandhar

Endst No. 5105-5109/MA

Date: 08-05-2022

Copy of the above is forwarded to the following for information and further necessary action-

1. Worthy Principal Secretary, Mines & Geology.
2. Director, Mines & Geology.
3. Additional Deputy Commissioner (G), Jalandhar
4. All concerned SDMs cum Chairman of the Committees.
5. All concerned officers/members of the committees.

  
Deputy Commissioner  
Jalandhar

**Annexure D**  
**(Photographs of the site survey)**











Latitude: 31.001285  
Longitude: 75.823105  
Elevation: 254.78±18 m  
Accuracy: 18.0 m  
Azimuth: 196° (S)  
Pitch: -9.6° (0.9°)  
Time: 06-11-2022 15:43  
Note: Chhaura Jalandhar

*Powered by AngleCam*



Latitude: 31.001124  
Longitude: 75.823056  
Elevation: 252.87±9 m  
Accuracy: 9.9 m  
Azimuth: 89° (E)  
Pitch: -13.8° (-1.1°)  
Time: 06-11-2022 15:40  
Note: Chhaura Jalandhar

*Powered by AngleCam*



**Annexure E**  
**(Sub- Divisional Committee visit report)**



**A REPORT OF SUB-DIVISION LEVEL COMMITTEE NAKODAR SITE VISIT OF  
POTENTIAL SAND MINING SITES IN TEHSIL NAKODAR DISTRICT JALANDHAR  
DATED:23-11-2022 REGARDING**

In connection with the above, it is submitted that the Sub-Division Level Committee Nakodar, constituted by the Hon'ble Deputy Commissioner Jalandhar vide his office order Ref No. 16486/ma dated 21-11-2022, conducted a joint site visit on Dated 23-11-2022 for the purpose of inclusion in the District Survey Report of Jalandhar of sand mining sites shown below ;

**River Bed Sand Mining Sites**

Sr. No.	Site Name	Tehsil	Area (Sq. m.)	Recommended or Not
1	PO_JL_MH_ST_32	Nakodar	158278.90	Recommended due to availability of sand but subject to availability of access road, objections of Gram Panchayats and exact demarcation as detailed in the report.
2	PO_JL_MH_ST_33	Nakodar	108961.44	
3	PO_JL_MH_ST_33A	Nakodar	10784.93	
4	PO_JL_MH_ST_33B	Nakodar	31687.77	
5	PO_JL_MH_ST_34	Nakodar	331274	
6	PO_JL_MH_ST_35	Nakodar	248209.71	
7	PO_JL_MH_ST_36	Nakodar	61322.18	

**Agriculture Mining Sites**

Sr. No.	Name of Land Owner	Village Name	Hadbast No.	Khasra No.	Area (Hectare)	Recommended or Not
1	Raj Kumar S/o Divan Chand	Bangiwal	345	8//21,8//22,8//23,8// /24,8//24,15//1,15// 2	2.77	Recommended only for certain Khasra numbers subject to ownership, demarcation and objection/ litigation as detailed in the report
2	Sh. Wazir Singh s/o chhnan Singh	Gosuwal	344	15//24,21//11,21//1 9,20//3,3,3,15,19/2 .10/2,11,12,19,20, 21,22,20,14,21//12 /2,12/2	3.11	

The inspection report along with observation of respective Member of Sub Division Level Committee Nakodar in this regard are shown below as :-

1. Divisional Forest Officer, Department of Forests and Wildlife Prevention Punjab

The land of site no. ST32,33,33A in KML file falls in villages in which there is no



Handwritten signatures and initials at the bottom left of the page.

land of forest department. The land of site no. ST 33B, 34,35,36 falls in villages in which forest department has land. The list of khasra numbers of the forest department land is attached along the report. So, proper recommendation can be given after demarcation is done. Both Agricultural sites fall in village where there is no land of forest department.

Report regarding wild life protection act 1972 and Punjab wild life preservation act, 1959 should be taken from District Forest Office, Wild life Phillaur.

Report of DFO Jalandhar is attached as Annexure1.

**2. Environmental Engineer, Punjab Pollution Control Board**

The proposed mining sites shall obtain the prior environmental clearance from SEIAA as per the EIA notification 2006 and subsequent amendments and shall obtain the consent to establish/consent to operate from the Punjab Pollution Control Board under the water act 1974 and air act 1981 before its establishment and commissioning respectively.

Report in this regard is attached herewith as Annexure2.

**3. Block Development and Panchayat Officer**

The most of the potential of ST32 falls under village Bhagela, it has been observed that Gram Panchayat of village Baghela has objection if sand mining is being done in the above proposed sand mining sites but if Gram Panchayat gets land compensation from it then Gram Panchayat has not any objection.


The most of the potential of ST 33, 33A and 33B falls under village Behran it has been observed that Gram Panchayat of village Behran does not have any objection if sand mining is being done in the above proposed sand mining sites.

The most of the potential of ST 34 and 35 falls under village falls under village Chaulle which is under gram panchayat Raipur ariyan and it has been observed that gram panchayat Raipur Ariyan has an objection if sand mining is being done in the above proposed sand mining sites that Village Chaulle is situated near River Satluj. If the flow of water is high in river than village may be in danger.

The most of the potential of ST36 falls under village Raipur Gujran, it has been observed that Gram Panchayat of village Raipur Gujran has said in its resolution that village is near the Bandh and if water level in river increases, damage can occur to the village.

For agricultural mining sites it has been observed that Gram Panchayat of above



 DFO


 Xen PPCB

 Xen PWD

 Xen Irri.

 CAO

 BDPO Meh.

 Xen Drain./Min. SDM Nkd



Drain./Min.mentioned villages do not have any objection if sand mining is being done in the above proposed agricultural sand mining sites.

Copies of resolution by concerned Gram Panchayat are attached herewith as **Annexure A.**

All the above said quarries are more than 50 meters from any public place such as Public roads and Buildings or Residential Areas and more than 10 meters from village roads, 7.5 meters from nearby Private/government Land. Sand is available in all the above mentioned sites; however there is no approach road for sites ST 34, 35 and 36.

Report in this regard by concerned BDPO is attached herewith as **Annexure 3 .**

**4. Executive Engineer, Building & Roads, Punjab Public Works Department**

It has been observed that all the above said sand mines are more than 1.0 KM from any Bridge Or National Highway and more than 500 meters upstream/downstream of any High Level Bridge and 250 meters upstream/downstream of other bridges. Therefore above mentioned proposed sand mining sites fulfill all the instructions of PWD department. So, there is no objection in this regard.

Report in this regard is attached herewith as **Annexure 4.**

**5. Executive Engineer, Irrigation Branch, Department of Water Resources Punjab**

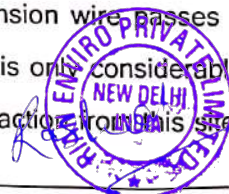
It has been observed that the above said potential sand sites from sr. no. 1 to 7 and agricultural mining sites sr not 1 to 2 is more than 50 meters distance from any Reservoir, Tank, Canal etc. There is no objection in this regard.



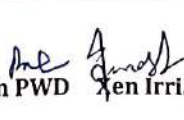

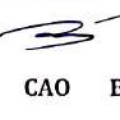



Report in this regard is attached herewith as **Annexure 5.**

**6. Executive Engineer, Drainage-cum-Mining, Department of Water Resources Punjab**

It has been observed that for the above said sand quarry Sr. No. 1 to 7 there is no Flood Protection Embankment within 100 meters (inside/outside) of the above said proposed sand mining sites. There is no objection in this regard. Sites ST 32, 33, 33A, 33B, 34, 35 lies in central portion of the active channel. Hence, these should be considered. Site ST 36 potential is more on site than what is shown in KML file so the potential may be revised. For ST 33 the extraction of the mineral

may be from Ludhiana side embankment, hence, it should be considered, but the high tension wire passes over this site. For ST 33A the high tension wire passes over it. For ST 34 potential is less than what is shown in kml file, it is only considerable when the active creek may be excluded from potential and the extraction from this site may



 DFO  Xen PPCB  Xen PWD  Xen Irri.  CAO  BDPO Meh.  Xen Drain./Min.  SDM Nkd

be possibly from Ludhiana bandh side, For ST 35 potential is less than what is shown in kml file, it is only considerable when the active creek may be excluded from potential and the extraction may be possibly from ludhiana bandh side.

For agricultural sites it has been observed that there is no Flood Protection Embankment within 100 meters (inside/outside) of the above said agricultural sand mining site. Both sites have good potential. There is no objection in this regard.

Report in this regard is attached herewith as Annexure 6.

**7. Chief Agriculture Officer, Department of Agriculture Punjab**

There is no objection on above riverbed proposed mining sites.

For Agricultural mining sites, it has been observed that the crop is cultivated in the land of the above agricultural sand mining site and also in the nearby field. Field has water, electricity connection. The sand is available in sr. no. 1 to 2. Both sites are near road. For Agricultural Site No. 1, there is objection from village Panchayat. Also, there is a Court Case/ litigation by the neighbouring land owners.

Report in this regard is attached herewith as Annexure 7.

**8. Executive Engineer, Punjab Mandi Board Jalandhar**

It has been observed that the above said river bed sand mines as well as agricultural sand mines which connects to all Link Roads belong to Punjab Mandi Board is only 10' wide up to Satluj Dhussi Bandh and if the above sites should be recommended for Sand Quarry then first these Roads should need to be 10' to 18' wide. So that the movement of Loaded Tipper should be smooth and hassle free. If the Roads should be 18' wide then there is no objection in this regard.

Report in this regard is attached herewith as Annexure 8.

**9. Naib Tehsildar, Mehatpur**

It has been observed that sand is available in all the above mentioned sites

For site ST32:- No access is there as per revenue record. However, before the actual site, the land belongs to Panchayat where road is present.

For Site ST33:- Access is available from Ludhiana side.

For ST33A and 33B:- There is no Government access road available. However, before the actual site, land belongs to Punjab Government Rehabilitation department where road is present. High Tension electric wires also pass nearby from the site.

For ST34 and 35:- No access road is available to the site on ground.

For ST36:- No access road is available as per record.

  
DFO Xen PPCB Xen PWD Xen Irri. CAO BDPO Melh. Xen Drain./Min. SDM Nkd

## Agricultural Sites

For Site No.1:- Village Bangiwal, it is observed on preliminary observation that Khasra No. 8//21,22,23,24,25 has sand and also road access. It's Ownership is private.

Khasra No. 16//5 and 15//1,2 is land of Central Government and sand is available.

For Site No. 2:- Village Gonsuwal, on preliminary observation, it is observed that Khasra No. 15//9/2, 10/2, 11, 12 has sand and also road access. It's ownership is private.

There is no sand available on Khasra No. 15//19,20,21,22,. There is no road access to Khasra No. 15//24,20//3,4,21//1, 2/2,11,12/1, 12/2,19.


It is also worth mentioning that there is no survey stone near these sites. Therefore, exact report can be done only after demarcation is done via DGPS.

Report in this regard is attached herewith as Annexure 9.

Further, it is worth mentioning that all the sites are recommended on the basis of sand availability as visible to the naked eye and on preliminary observation. The consultant who prepared the DSR was repeatedly asked vide letters to the Mining department to ensure that Location (Latitude, Longitude) of the site and Khasra Numbers of the site (after proper demarcation) are updated in the DSR so that the site appraisal committee can give exact report. However, the post monsoon DSR document did not have either the location or the Khasra number of the sites. Due to which it is possible that there will be variations of the sand availability as on ground as to what is shown on the KML file. Reports have been done and recommendations given on the basis of checklist provided by the Mining department.

Checklist is attached as Annexure 10.

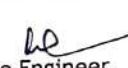
Member 1

  
Divisional Forest Officer, Phillaur  
Department of Forests and Wildlife  
Prevention Punjab


Member 2

  
Environmental Engineer,  
PPCB, Jalandhar

Member 3

  
Executive Engineer,  
PWD (B&R)  
Jalandhar Cantt


Member 4

  
Executive Engineer,  
Bist Doab Div  
Jalandhar (Irrigation)


Member 5

  
Chief Agriculture Officer,  
Jalandhar


Member 6

  
Block Development  
and Panchayat Officer  
Mehatpur


Member 7

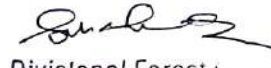
  
Executive Engineer  
Punjab Mandi Board  
Jalandhar

Member 8

  
Executive Magistrate  
Naib Teh. Mehatpur

Member Secretary

  
Executive Engineer,  
Jalandhar Drainage-cum-Mining Division,  
Department of Water Resources Punjab

  
Divisional Forest Officer,  
Wild Life, PHILLAUR

Chairman

  
Sub Divisional Magistrate Nakodar





**A REPORT OF SUB-DIVISION LEVEL COMMITTEE SHAHKOT SITE VISIT OF POTENTIAL SAND MINING SITES IN TEHSIL SHAHKOT DISTRICT JALANDHAR ON DATED: 22-11-2022 and 26-11-2022 REGARDING**

In connection with the above, it is submitted that in compliance of the Hon'ble Deputy Commissioner Jalandhar office order Ref No. 16486/ma dated 21-11-2022, the Sub-Division Level Committee Shahkot, constituted under Punjab Mineral rules 2013 conducted a joint site visit on Dated 22-11-2022 and 26-11-2022 for the purpose of inclusion in the District Survey Report of Jalandhar of sand mining sites as per kmf file provided by the consultant, the report of the committee is shown below :

**River Bed Sand Mining Sites**

Sr. No.	Site Name	Area (Sq. Ft.)	Tehsil	Whether Recommended or Not
1	PO_JL_SH_ST_46	47904.76	Shahkot	Not Recommended
2	PO_JL_SH_ST_50A	462299.62	Shahkot	Partially Recommended
3	PO_JL_SH_ST_50B	150968.29	Shahkot	Not Recommended
4	PO_JL_SH_ST_50C	4751.34	Shahkot	Not Recommended
5	PO_JL_SH_ST_51	44976.38	Shahkot	Not Recommended
6	PO_JL_SH_ST_51A	23180.24	Shahkot	Not Recommended
7	PO_JL_SH_ST_52	27774.03	Shahkot	Recommended
8	PO_JL_SH_ST_53A	4868.24	Shahkot	Recommended
9	PO_JL_SH_ST_53B	12418.78	Shahkot	Recommended
10	PO_JL_SH_ST_54	28733.74	Shahkot	Not Recommended
11	PO_JL_SH_ST_55	25131.57	Shahkot	Not Recommended
12	PO_JL_SH_ST_56	50711.12	Shahkot	Not Recommended
13	PO_JL_SH_ST_59	44782.37	Shahkot	Not Recommended
14	PO_JL_SH_ST_62	37018.42	Shahkot	Not Recommended
15	PO_JL_SH_ST_63	22608.50	Shahkot	Not Recommended
16	PO_JL_SH_ST_69	92411.91	Shahkot	Not Recommended

Handwritten signatures and initials on the left margin, including a large signature at the bottom and several smaller ones above it.



**Agriculture Mining Sites**

Sr. No.	Name of Land Owner	Village Name	Hadba st No.	Khasra No.	Area (Hectare)	Whether Recommended or Not
1	Sh. Mangal Singh S/o Phulla Singh	Rame Tarepur, Shahkot, Jalandhar	296	-	2.79	Not Recommended
2	Sh. Pritam Singh s/o Ajit Singh	Rame Tarepur, Shahkot, Jalandhar	296	40//6, 40//7, 40//8, 40//1	1.33	Not Recommended
3	Smt. Mohinder Kaur w/o Kashmir Singh	Thammuw al, Shahkot, Jalandhar	278	24//1498-0),39//16(8-0),17(3-0),18(7-4),24//16(80),25//24, 43//10(8-0),19(8-0),11(8-0),18(8-0),43//15(8-0),42//1(8-0),2(8-0),3(8-0),8(5-14)	6.46	Not Recommended
4	Sh. Jail Singh S/o Surjan Singh	Rampur, Shahkot, Jalandhar	281	28//25,38//16,38//2 5,46//5	1.35	Not Recommended

The inspection report along with observation of respective Members of Sub-Division Level Committee Shahkot in this regard are shown below as :-

**1. Divisional Forest Officer, Department of Forests and Wildlife Prevention Punjab**

The land of above river bed mining sites mentioned above from sr no. 1 to 16 falls in villages in which forest department has land. The list of khasra numbers of the forest department land is attached along the report. So, proper recommendation can be given after demarcation is done.

For agricultural mining sites no forest land is there in agricultural mine sites shown above from sr. no. 1 to 4.

Report regarding wild life protection act 1972 and Punjab wild life preservation act, 1959 should be taken from District Forest Office, Wild life Phillaur.

Report of DFO Phillaur is attached as **Annexure1**.

Report of District Forest Office, Wild life Phillaur is attached as **Annexure1a**.

Divisional Forest Officer, Phillaur

CAO, Jalandhar

Executive Engineer, Drainage cum Mining

Environmental Engineer, PPCB

BDPO, Shahkot

XEN, PWD

BDPO, Lohian

XEN, Irrigation

Sub Divisional Magistrate, Shahkot



2. **Environmental Engineer, Punjab Pollution Control Board**

The proposed mining sites shall obtain the prior environmental clearance from SEIAA as per the EIA notification 2006 and subsequent amendments and shall obtain the consent to establish/consent to operate from the Punjab Pollution Control Board under the water act 1974 and air act 1981 before its establishment and commissioning respectively.

Report in this regard is attached herewith as Annexure 2

3. **Block Development and Panchayat Officer**

The most of the potential of ST 46, 50A, 50B, 50C falls under village Baupur and Rame Tarepur, it has been observed that Gram Panchayat of village Baupur and Rame Tarepur has no objection if sand mining is being done in the above proposed sand mining sites.

The most of the potential of ST 51, 51A, 52, 53 B, 54, 55, 56 and 59 falls under village Thamuwal it has been observed that Gram Panchayat of village Thamuwal gave their consent on three basis are as follow

- a) The agricultural land should not get harm due to the above mining sites
- b) The consent of the land owner should be taken.
- c) The roads of gram panchayat should not get damage.
- d) If any panchayat land comes under mining then the land owner compensation should be given to panchayat.

For the site ST 62, 63, 69 the consent of concerned villages could not be taken.

For agricultural mining sites the consent of concerned villages could not be taken.

Copies of resolution by concerned Gram Panchayat are attached herewith as Annexure A.

All the above said quarries are more than 50 meters from any public place such as Public roads and Buildings or Residential Areas and more than 10 meters from village roads, 7.5 meters from nearby Private/government Land. Sand is available in all the above mentioned sites; however there is no approach road for sites ST 34, 35 and 36.

Report in this regard by concerned BDPO is attached herewith as Annexure 3.

4. **Executive Engineer, Building & Roads, Punjab Public Works Department**

It has been observed that the above said sand mines from sr. no. 1 to 16 and agricultural sand mines from sr no 1- to 4 is more than 1.0 KM from any Bridge Or National Highway and more than 500 meters upstream/downstream of any High Level Bridge and 250 meters upstream/downstream of other bridges. Therefore above mentioned proposed sand mining sites fulfill all the instructions of PWD department. So, there is no objection in this regard.

Report in this regard is attached herewith as Annexure 4.

5. **Executive Engineer, Punjab Mandi Board Jalandhar**

It has been observed that the above said river bed sand mines as well as agricultural sand mines which connects to all Link Roads belong to Punjab Mandi Board is only 10' wide up to Satluj Dhussi Bandh and if the above sites should be recommended for Sand Quarry then first these Roads should need to be 10' to 18' wide. So that the movement of Loaded Tipper should be smooth and hassle free. If the Roads should be 18' wide then there is no objection in this regard.

Report in this regard is attached herewith as Annexure 5.

Divisional Forest Officer, Phillaur

Environmental Engineer, PPCB



XEN, Irrigation

CAO, Jalandhar

BDPO, Shahkot

BDPO, Lohian

Executive Engineer, Drainage cum Mining

Sub Divisional Magistrate, Shahkot

6. **Executive Engineer, Irrigation Branch, Department of Water Resources Punjab**  
 It has been observed that the above said potential sand sites from sr. no. 1 to 16 and agricultural mining sites sr not 1 to 4 is more than 50 meters distance from any Reservoir, Tank, Canal etc. There is no objection in this regard.

Report in this regard is attached herewith as **Annexure 6**.

7. **Executive Engineer, Drainage-cum-Mining, Department of Water Resources Punjab**  
 It has been observed that for the above said sand quarry Sr. No. 1 to 16 there is no Flood Protection Embankment within 100 meters (inside/outside) of the above said proposed sand mining sites. There is no objection in this regard. Sites ST 50A,, 52, 53 B lies in central portion of the active channel. Hence, these should be considered.

Site ST 50 B, 50C, 51, 51 A, 54, 55, 56 has very low potential on site than it shown in kml file

For site 50 A the high tension wire is passing over some part of the potential

For agricultural sites mentioned above at sr . no. 1 to 4 it has been observed that This site is in river bed and very near to the main channel if it get extracted then it will endanger to nearby agricultural land. There is no Flood Protection Embankment within 100 meters (inside/outside) of the above said agricultural sand mining site. Both sites have good potential.

Report in this regard is attached herewith as **Annexure 7**.

8. **Chief Agriculture Officer, Department of Agriculture Punjab**

It has been observed that the above sand mines shown above from sr no. 1 to 16 except 13 is comes under agriculture land hence the mining should not be recommended in this regard

For agricultural sand mining sites from sr. no. 1 to 4 the cultivation of crops is being take place.

Report in this regard is attached herewith as **Annexure 8**.

Checklist is attaches as **Annexure 9**


Member 1

  
 Divisional Forest Officer, Phillaur  
 Department of Forests and Wildlife  
 Prevention Punjab


Member 2

  
 Environmental Engineer,  
 PPCB, Jalandhar

Member 3

  
 Executive Engineer,  
 PWD (B&R)  
 Jalandhar Cantt


Member 4

  
 Executive Engineer,  
 Bist Doab Div  
 Jalandhar (Irrigation)

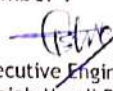
Member 5

  
 Chief Agriculture Officer,  
 Jalandhar

Member 6

  
 Block Development  
 and Panchayat Officer  
 Shahkot


Member 7

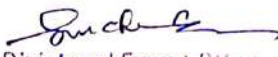
  
 Executive Engineer  
 Punjab Mandi Board  
 Jalandhar

Member 8

  
 Block Development  
 and Panchayat Officer  
 Lohisan

Member Secretary

  
 Executive Engineer,  
 Jalandhar Drainage-cum-Mining Division,  
 Department of Water Resources Punjab

  
 Divisional Forest Officer,  
 Wild Life, PHILLAUR

Chairman

  
 Sub Divisional Magistrate Shahkot



**REPORT OF SUB-DIVISION LEVEL COMMITTEE, TESHIL PHILLAUR AFTER SITE VISIT OF POTENTIAL SAND MINING AND AGRICULTURAL SITES IN TEHSIL PHILLAUR DISTRICT JALANDHAR ON DATED : 25/11/2022 AND 26/11/2022 REGARDING**

In connection to the above subject and in compliance to the Hon'ble Deputy Commissioner orders vide office letter no.164486/MA Date 21/11/2022, the Sites were visited and examined by Sub Divisional Level Committee, Phillaur on 25/11/2022 and 26/11/2022 under the chairmanship of the Sub Divisional Magistrate, Phillaur. The Potential Sand Site and Agricultural Site were inspected by Sub Divisional Level Committee, Phillaur. The report of the same is as under and the detailed report is attached.

**Potential Sand Mining Sites**

Sr.No.	Sand Bar_Code	Village	Administrative Block Name	Area in sq.m.	Remarks
1	PO_JL_PL_ST_01	Lassara/Powari	PHILLAUR	51316.60	Not Recommended
2	PO_JL_PL_ST_1A		PHILLAUR	63382.10	Not Recommended
3	PO_JL_PL_ST_1B	Kadiana	PHILLAUR	47981.60	Recommended
4	PO_JL_PL_ST_1C		PHILLAUR	57352.80	Not Recommended
5	PO_JL_PL_ST_1D		PHILLAUR	47402.20	Not Recommended
6	PO_JL_PL_ST_02		PHILLAUR	23771.70	Not Recommended
7	PO_JL_PL_ST_03		PHILLAUR	225337.64	Recommended
8	PO_JL_PL_ST_3A	—————	PHILLAUR	9009.38	Not Recommended
9	PO_JL_PL_ST_3B		PHILLAUR	6092.88	Not Recommended
10	PO_JL_PL_ST_04	Chhaura	PHILLAUR	124100.31	Recommended
11	PO_JL_PL_ST_06		PHILLAUR	44027.77	Recommended
12	PO_JL_PL_ST_07		PHILLAUR	38831.12	Recommended
13	PO_JL_PL_ST_08		PHILLAUR	266067.47	Recommended
14	PO_JL_PL_ST_09	—————	PHILLAUR	80457.76	Not Recommended
15	PO_JL_PL_ST_10		PHILLAUR	22819.00	Not Recommended
16	PO_JL_NR_ST_11	Meowal and Mau Sahib	NURMAHAL	37894.26	Recommended
17	PO_JL_NR_ST_12		NURMAHAL	85815.43	Not Recommended
18	PO_JL_NR_ST_13		NURMAHAL	50134.20	Recommended
19	PO_JL_NR_ST_13A		NURMAHAL	28161.81	Not Recommended
20	PO_JL_NR_ST_13B		NURMAHAL	47220.66	Recommended
21	PO_JL_NR_ST_15		NURMAHAL	39587.47	Not Recommended
22	PO_JL_NR_ST_16	Akkuwal	NURMAHAL	79026.42	Recommended
23	PO_JL_NR_ST_20	Sidhara	NURMAHAL	36072.59	Not Recommended
24	PO_JL_NR_ST_21		NURMAHAL	76328.24	Not Recommended
25	PO_JL_NR_ST_22_25		NURMAHAL	175927.32	Partially Recommended
26	PO_JL_NR_ST_23		NURMAHAL	19332.50	Not Recommended
27	PO_JL_NR_ST_24		NURMAHAL	36330.13	Partially Recommended
28	PO_JL_NR_ST_25		NURMAHAL	50153.83	Recommended
29	PO_JL_NR_ST_26A	Burj Hasun	NURMAHAL	177244.68	Recommended
30	PO_JL_NR_ST_26B		NURMAHAL	11471.84	Recommended
31	PO_JL_NR_ST_27		NURMAHAL	9664.34	Recommended
32	PO_JL_NR_ST_27A		NURMAHAL	144.36	Recommended
33	PO_JL_NR_ST_27B		NURMAHAL	110	Recommended
34	PO_JL_NR_ST_28		NURMAHAL	2806.87	Recommended

*Handwritten signatures and initials on the left margin of the table.*



35	PO_JL_NR_ST_30A	Dhagara	NURMAHAL	30969.04	Not Recommended
36	PO_JL_NR_ST_30B		NURMAHAL	191935.17	Recommended

**Agricultural mining sites**

Sr No.	Name of applicant	VILLAGE Hadbast no.	Area (Hect)	Khasra No.	Remarks
1	Amriksingh s/o Joginder Singh Vill. Ganna	VillGanna Hadbast no.124	11.6	89//1,89//9,89//2,87//15,86//12,86//19,86//2,89//8,71//22,86//9,86//22,89//18,86//7,89//13,89//23,89//25,104//3,104//4,104//5,104//6,104//7,104//8,104//13/2,104//14,104//17,104//18,104//24/1,104//15,104//16/2,104//25/1	Not Recommended
2	Baljit Kaur w/o Amrik Singh	Vill Mianwal Hadbast no. 122	3.23	85//1, 85//2, 85//3, 85//8, 85//9, 85//10, 85//12, 85//13,	Not Recommended
3	Gurdeep Singh s/o Lachman Singh	Mianwal Hadbast no. 122	1.82	76//4,73//15/1,24,76//5,73//14	Not Recommended
4	Jagroop Singh S/o Balbir Singh	Mianwal Hadbast no. 122	5.66	72//8,72//9,72//12,72//13,72//18,72//19,72//21,72//24,77//3,77//4,77//7,77//8,77//13,77//14	Not Recommended
5	Navdeep Kaur, Maharaj Singh	Mianwal Hadbast no. 122	31.17	63//1,10,11/1,11/2,20/1,20/2,21/1,21/2,64//13/2,10/1,18/2,22/2,81//10/2,11,20,22/1,82//16,72//3,4,60//13,18,23,72//6,7,14,16,17,25,73//11/2,20/2,21,76//1.10,11,20,77//5,6,63//6/2,7,14,15	Not Recommended
		Mau Hadbast no. 111		6/9,218/274,815/994	
		Rajowal hadbast no.112		47//18,27,29,26	
6	Maharaj Singh, Balraj Singh s/o Balbir Singh	Mau Hadbast no. 111	14.56	3095,3194,3248,3249,3250,3251,3272,3273,3287,3288,3289,3292,3293,3294,3307,3308,3309,3312,3314,3336,3337,3339,3340,3341,3342,3343,3344,3345,3271,3290,3291,3310,3311,3346,3347,3348,3349,3353,3354,3355,3357,3356	Not Recommended
7	Amrit gill	Mau saab Hadbast no. 111	6.84	3285,3286,3295,3296,3305,3315,3316,3333,3213,3214,3245,3246,3247,3330,3331,3274	Not Recommended
8	Gurpreet Singh s/o Maal Singh, Malkit Singh s/o Bishan Singh, Kulwinder Singh Sandhu s/o Gurmej Singh Sandhu, Sukhrajvir Singh Sandhu s/o Kulwinder Singh Sandhu	Mianwal Hadbast no. 122		85//1,2,3,8,9,10,12,13,79//2,9,10/2,12,13,18,19,20,80//6/2,16,17/1,22/1,23,24/1,86//23-min,3,8,69/11/3,12/3,20/1,21/2,80//1/2,10/1,11/2,20,63//22/3,69//9/1,63//12/3,19/1,69//2/3,63//17,24,69//4,7/2,13/2,14/1	Not Recommended
		Mau saab Hadbast no. 111		954,1025,1622,1637,1715,1736,1739,2526,2590,2591,2625,2639,2678,2691,2746,2760,2823,2838,2930,2933/2,956-min,963,1005,2542,2575,955,957,987-min,956- min 962,987-min,988,1004,2421,2533,899-min,898,894,895,896,901,899-min,955,960,1026,1478,1485,1843/1,1844,1845,1846,1862/3,1863/2,918	



9	Avtar Singh S/o Sarwan Singh	Vill Kadiana Hadbast no. 168	11.8	73//16,17,24,25,74//19,20,21,22,23,24,2 5,76//2,8,9,85//1,1,2/1,86//4,2,86//5,1,94 //10,11,20,21,22,109//1,2,9,10,110//21/1, 116//7,2,8/1,13/2,14,17,18//1,117//1/1	Not Recommended
10	Gram Panchyat Kadian	Vill Kadian	31.06	95//1/1,95//2/1,95//3/1,95//4,95//5, 95//6, 95//7, 95//8, 95//9, 95//10/2, 95//11, 95//12, 95//13, 95//14,97//1,97//2, 97//3, 97//4, 97//5/2, 97//6/1, 97//7/2, 97//8, 97//9, 97//10, 97//11, 97//12/1, 97//13/1, 97//14/2, 97//15, 97//16, 97//17, 97//18/2, 97//19/1, 97//20/1, 97//21/2,97//22,97//23,97//24,97//25,98// 15, 98//16, 98//17, 98//18, 98//19, 98//20, 98//21, 98//22, 98//23, 98//24, 98//25,99//1,99//2,99//3,99//4,99//5,99//6 99//7,99//8,99//9,99//10, 99//11, 99//12, 99//13, 99//14, 99//15, 99//16, 99//17, 99//18, 99//19, 99//20, 99//21, 99//22, 99//23, 99//24, 99//25,100//1,100//2, 100//3,100//4/1,96//1,96//2,96//10	Not Recommended
11	Gurwinderlal S/o Butta ram	Vill Kadiana Hadbast no. 168	5.22	95//16/1,95//16/2,95//17,95//18,95//23/1, 95//24/1,95//25/1/1,95//25/2,96//12,96//1 6/2/1,96//19,96//20/1,96//20/2/1,96//21,9 6//22,96//23,108//5,108//6/2	Not Recommended
12	Gurwinderlal s/o Butta Ram	Vill Kadiana Hadbast no. 168	1.01	109//23,109//24,109//25/1	Not Recommended
13	Lakhbir Singh , Satnam Singh S/o Veer Singh, Ajaib Singh , Gurnam Singh S/o Lal singh	Vill Kadiana Hadbast No. 168	6.77	106//1,2,8,9,19,20,24,25,13,18,3,4,5,6,7, 14,15,16,17	Not Recommended
14	Ravinder Singh S/o Jagdev Singh, Ajit Singh s/o Mahinder Singh	Vill. Powari Hadbast No.172	8.09	469,470,471,511,512,513,518,522,585,5 87,464,465,467,507,505,506,508,509,51 4,515,516,517,520,521,510,468,504	Not Recommended
15	Parmjit Singh, Gurpreet Singh, Amarjit Singh	Vill Kadiana Hadbast no. 168	7.31	105//4,105//5,105//6,105//7,105//15,122/ /3,122//4,122//5,122//6,122//15,121//5/1, 121//6,121//15,121//16,121//11/2,105//9, 122//12/2,122//13,122//14,122//18/1	Not Recommended
16	Davinder Singh S/o Satnam Singh	Vill Kadian Hadbast no. 168	2.82	116//8/2,13/1,18/2,23,9,12,19,22/2,	Not Recommended
17	Joginder Singh S/o Sarwan Singh, Kulwinder Singh s/o Sarwan Singh	Villkadiana hadbast no. 168	1.62		Not Recommended
18	Harjit Singh S/o Hamek Singh	Vill Kadiana Hadbast no. 168	2.37	100//4/2-7-8-9-10,100//5,6	Not Recommended
19	Jaswant Singh s/o Jit Singh	Vill. Kadiana Hadbast no. 168	1.21	84//16,84//24,84	Not Recommended



20	Parmjitsingh	VillKadiana Hadbast no. 168	5.35	105//4-5-6-7-15,122//3-4-5-6- 15,121//5/1-6-15-16	Not Recommended
21	Jagwinder Singh s/o HarchandSingh, S/o Amar Singh	Vill Raipur RaiyaHadba st no. 170	3.69	69//9,10/1,12/1,18/1,70//2/4/5/6/7,14/15/ 1	Not Recommended
22	Dilbag Singh S/o Shingara Singh	VillLassara Hadbast no. 173	4.38	166//20/2/2,166//21/2,166//22/2,170//1,1 70//2,170//9,170//10,170//11,170//12/1,1 70//5/2,170//6/1,170//15/2,171//1,171//1 1/1	Not Recommended
23	Panchyat Gag Dhangra, Block Nurmahal	Vill Gag Dhangra	42.89	46/6,7,8,9,10,11,12,13,14,15,16,17,18,1 9,20,21,22,23,24,25,45/6 To 25,44/21 to 25,43/9 to 25,57/1 to 5,43/9 to 25,51/1 to 25,50/1 to 25	Not Recommended
24	PanchyatBurj Hasun, Block Nurmahal	VillBurjHasun	45.21		Not Recommended

The inspection report along with observation of respective Members of Sub-Division Level Committee, Phillaur in this regard are as below :-

**Divisional Forest Officer, Department of Forests and Wildlife Prevention Punjab**

It observed that Serial No. of List of Potential Sand Site are 1 to 15 and 22 to 36 which have no forest area but Serial No. 16 to 20 would be confirmed after demarcation of land. Serial No. of List of Potential Sand Sites 1 to 36 have no area falling in the Eco-Sensitive Zones Of Wildlife Sanctuary & Conservation Reserves cover under Wildlife Protection Act, 1972 and Punjab Wildlife Preservation Act, 1959. The detailed report may be seen as Annexure-1.

**Environmental Engineer, Punjab Pollution Control Board**

The proposed mining site shall obtain the prior Environmental Clearance from SEIAA as per the EIA Notification, 2006 and subsequent amendments and shall obtain the Consent to Establish/ Consent to operate from the Punjab Pollution Control Board under the Water Act, 1974 and Air Act, 1981 before its establishment and commissioning respectively.

This proposed site is recommended, if it fulfils all the sitting criteria of relevant departments as per their guidelines. Report of Punjab Pollution Control Board is attached.(Annexure-2)

**3. Block Development and Panchayat Officer**

**Phillaur** :-It has been observed that Gram Panchayat of Village Kadian (KML name 1B,1C,1D,02,03) and Agricultural site (Sr.no. 9,10,11,12,13,15,16,17,18,19,20,) does not have any objection if sand mining is being done in these sand mining sites and copy of resolution Gram Panchayat VillageKadianDated 26/11/2022 is attached herewith as Annexure 3 but Other Village Gram Panchayat have refused to pass resolution which are sites with KML filesS.No.01,1A,04,06,07,08,11,12,13,13A,15. The above said quarry is more than 50 meters from any Public Works such as Public Roads and Buildings or Residential Areas and more than 10 meters from Village Roads, 7.5 meters from nearby Private/Government Land.

**Nurmahal** :-It has been observed that Gram Panchayat of Village BurjHasun and Dhangra does not have any objection if sand mining is being done in the above proposed sand mining sites and copy of resolution of Gram Panchayat Village BurjHasun and Dhangra Dated 18/11/2022 is attached herewith as Annexure 4 butvillages Akuwal and Sadhara (sites S.No. 16,20,21,22,25,23,24,25)are under Powadra Gram Panchyatand since the Ownership the land is not yet known(could be ascertained after demarcation) so Gram PanchyatPowadra has refused to pass resolution.

**4. (a)Executive Engineer, Building & Roads, Punjab Public Works Department**

It has been observed that Potential Sand Site at list serial no. 1 to 22, 29 to 36 are recommended but Serial no.23, 24 and26 are not recommended. Some Sites as per Serial No. 27 are recommended partially. The recommended sites and Partially recommended sitesare more than 100KM from any Bridge Or National Highway and more than 500 meters upstream/downstream of any High Level Bridge and 250 meters upstream/downstream



of other bridges. The existing Premix Carpet Road Links to this mine required to be strengthen and widened from 10' to 16' for smooth and hassle free movement of loaded tippers.

**(b) Executive Engineer, Punjab Mandi Board**

It has been observed that the above said sand mines are more than 1.0 KM from any Bridge Or National Highway 500 meters upstream/downstream of any High Level Bridge and 250 meters upstream/downstream of other bridges. There is no objection in this regard. However the existing Premix Carpet Road Links to this mine approx. 0.89, 2.16 and 3.50km required to be strengthened and widened from 10' to 16' for smooth and hassle free movement of loaded tippers. Sites Serial No 17 to 36 and Agricultural Site Serial No.1 to 24 are recommended. Detailed report may be seen at Annexures.

**5. Executive Engineer, Irrigation Branch, Department of Water Resources Punjab**

List of Potential Sand Site and Agricultural Site are recommended and as per list of Site of Potential Sand Site and Agricultural site are more than 50 meters distance from any Reservoir, Tank, Canal etc.. There is no objection in this regard.

**6. Executive Engineer, Drainage-cum-Mining, Department of Water Resources Punjab**


It has been observed that above list of Potential sand site Serial No. 3,7,10 to 13, 16, 18, 20, 22, 28 to 34,36 are recommended and also Serial No. 25 and 27 are recommended partially. Remaining site are not recommended as per guideline of Punjab Minor Mineral Rule and observation of site.

**7. Chief Agriculture Officer, Department of Agriculture Punjab**


No objection has been raised and the sites S. No. 1 to 16 have been recommended.

Keeping in the view the above said, the potential sand mining sites in Tehsil Phillaur, District Jalandhar are recommended/Not recommended as per list subject to observations by various team members for inclusion of recommended sites in District Survey Report of Jalandhar.

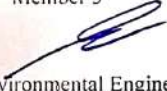
Member 1

  
Divisional Forest Officer,  
Department of Forests Punjab  
Jalandhar


Member 2

  
Divisional Forest Officer,  
Department of Wildlife Prevention  
Punjab  
Jalandhar


Member 3

  
Environmental Engineer,  
Punjab Pollution Control Board  
Jalandhar


Member 4

  
Executive Engineer,  
Building & Roads,  
Punjab Public Works Department  
Jalandhar

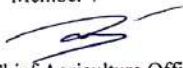
Member 5

  
Executive Engineer,  
Punjab Mandi Board,  
Jalandhar

Member 6

  
Executive Engineer,  
Bist Doab Canal Division,  
Jalandhar

Member 7

  
Chief Agriculture Officer,  
Department of Agriculture Punjab  
Jalandhar

Member 8

  
Executive Magistrate,  
Teshil Phillaur  
Jalandhar

Member 9

  
Executive Magistrate  
Teshil Phillaur


Member 10

  
Executive Magistrate  
Nurmahal, Teshil Phillaur


Member 10

  
Block Development and Panchayat  
Officer,  
Block Phillaur, Teshil Phillaur


Member 11

  
Block Development and Panchayat  
Officer,  
Block Nurmahal, Teshil Phillaur

Member Secretary

  
Executive Engineer,  
Drainage-cum-Mining,  
Jalandhar

Chairman

  
Sub Divisional Magistrate-cum- Chairman  
Teshil Phillaur, Jalandhar

**Annexure F**  
**(Sp. Gravity & Bulk Density data of sand from**  
**NABL lab)**





**TEST REPORT**

To,		ULR No. : TC901322000000412F	
District Mining Officer , Jalandhar		Date of Receipt: 21.11.2022	
Member of Secretary of Sub divisional Committees Jalandhar		Date of Testing: 21.11.2022-22.11.2022	
Description of Sample : Sandi Soil		Date of Report : 22.11.2022	
Location : Village- Mandi Kalu , Tahsil – Shahkot (Sutlej River)			
Ref No: Nil      Dated: 21.11.2022			
SL No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.65
2	Bulk density ,g/cc	IS 2386 (P-3)	1.59



\*End of Test Report\*



*[Signature]*  
**Checked By**  
**Remarks:**

- The results listed in the report refer only to the item(s) tested and it's Parameters (s). Endorsement of products is neither inferred nor implied.
- Sample will be destroyed after 30 days from the date of issue of test report unless otherwise specified.
- Report refer to the sample as received and not drawn by us unless mentioned otherwise
- The report shall not be reproduced exception full, without the approval of the laboratory and cannot be used as evidence In the Court of law and Should not be used in any advertising media without our special permission in writing.

**Address : Madhepura Bhawan Devi Mandir, Road, Punaichak, Patna-23**

E-mail : finitybihar@gmail.com  
fecrlbihar@gmail.com



# FINITY ENGINEERING CONSULTANCY AND RESEARCH LABORATORY PVT. LTD.

(An ISO 9001 : 2015 Certified & NABL Accredited Laboratory)



CIN NO- U7499BR2018PTC039944

6203263339  
7903718229  
9102030954

www.fecrl.com

## TEST REPORT

To,		ULR No. : TC901322000000406F	
District Mining Officer , Jalandhar		Date of Receipt: 21.11.2022	
Member of Secretary of Sub divisional Committees Jalandhar		Date of Testing: 21.11.2022-22.11.2022	
Description of Sample : Sandi Soil		Date of Report : 22.11.2022	
Location : Village-Rampur , P.S – Sahkot ,Tahsil – sahkot (Agriculture Land)			
Ref No: Nil      Dated: 21.11.2022			
SL. No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.64
2	Bulk density ,g/cc	IS 2386 (P-3)	1.57



\*End of Test Report\*



Checked By  
Remarks:

- The results listed in the report refer only to the item(s) tested and it's Parameters (s). Endorsement of products is neither inferred nor implied.
- Sample will be destroyed after 30 days from the date of issue of test report unless otherwise specified.
- Report refer to the sample as received and not drawn by us unless mentioned otherwise
- The report shall not be reproduced exception full, without the approval of the laboratory and cannot be used as evidence In the Court of law and Should not be used in any advertising media without our special permission in writing.

Address : Madhepura Bhawan Devi Mandir, Road, Punaichak, Patna-23

E-mail : finitybihar@gmail.com  
fecribihar@gmail.com



# FINITY ENGINEERING CONSULTANCY AND RESEARCH LABORATORY PVT. LTD.

(An ISO 9001 : 2015 Certified & NABL Accredited Laboratory)



CIN NO- U7499BR2018PTC039944

6203263339

7903718229

9102030954

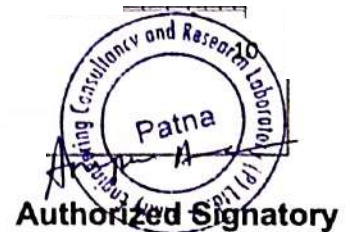
www.fecrl.com

## TEST REPORT

<b>To,</b>		<b>ULR No. : TC901322000000407F</b>	
District Mining Officer , Jalandhar		Date of Receipt: 21.11.2022	
Member of Secretary of Sub divisional Committees Jalandhar		Date of Testing: 21.11.2022-22.11.2022	
Description of Sample : Sandi Soil		Date of Report : 22.11.2022	
Location : Village-Sadhara , Tahsil – Phillaur (Sutlej River)			
Ref No: Nil      Dated: 21.11.2022			
SL. No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.55
2	Bulk density ,g/cc	IS 2386 (P-3)	1.52

  
**Checked By**  
**Remarks:**

\*End of Test Report



- The results listed in the report refer only to the item(s) tested and its Parameters (s). Endorsement of products is neither inferred nor implied.
- Sample will be destroyed after 30 days from the date of issue of test report unless otherwise specified.
- Report refer to the sample as received and not drawn by us unless mentioned otherwise
- The report shall not be reproduced exception full, without the approval of the laboratory and cannot be used as evidence In the Court of law and Should not be used in any advertising media without our special permission in writing.

**Address : Madhepura Bhawan Devi Mandir, Road, Punaichak, Patna-23**

E-mail : finitybihar@gmail.com  
 fecrlbihar@gmail.com



# FINITY ENGINEERING CONSULTANCY AND RESEARCH LABORATORY PVT. LTD.

(An ISO 9001 : 2015 Certified & NABL Accredited Laboratory)



CIN No- U7499BR2018PTC039944

6203263339  
7903718229  
9102030954

www.fecrl.com

## TEST REPORT

To, District Mining Officer , Jalandhar Member of Secretary of Sub divisional Committees Jalandhar		ULR No. : TC901322000000408F Date of Receipt: 21.11.2022 Date of Testing: 21.11.2022-22.11.2022 Date of Report : 22.11.2022	
Description of Sample : Sandi Soil			
Location : Village-Behar , Tahsil – Nakodar (Sutlej River)			
Ref No: Nil      Dated: 21.11.2022			
SL. No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.60
2	Bulk density ,g/cc	IS 2386 (P-3)	1.51

  
**Checked By**  
**Remarks:**

- The results listed in the report refer only to the item(s) tested and it's Parameters (s). Endorsement of products is neither inferred nor implied.
- Sample will be destroyed after 30 days from the date of issue of test report unless otherwise specified.
- Report refer to the sample as received and not drawn by us unless mentioned otherwise
- The report shall not be reproduced exception full, without the approval of the laboratory and cannot be used as evidence In the Court of law and Should not be used in any advertising media without our special permission in writing.

**\*End of Test Report\***



**Authorized Signatory**

**Address : Madhepura Bhawan Devi Mandir, Road, Punaichak, Patna-23**

E-mail : finitybihar@gmail.com  
fecrlbihar@gmail.com



# FINITY ENGINEERING CONSULTANCY AND RESEARCH LABORATORY PVT. LTD.

(An ISO 9001 : 2015 Certified & NABL Accredited Laboratory)



CIN NO- U7499BR2018PTC039944

6203263339  
7903718229  
9102030954

www.fecrl.com

## TEST REPORT

To, District Mining Officer , Jalandhar Member of Secretary of Sub divisional Committees Jalandhar	ULR No. : TC901322000000409F Date of Receipt: 21.11.2022 Date of Testing: 21.11.2022-22.11.2022 Date of Report : 22.11.2022
--	--

Description of Sample : Sandi Soil  
Location : Village- Baupur , P.S- Shahkot Tahsil – Shahkot (Sutlej River)  
Ref No: Nil Dated: 21.11.2022

SL. No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.59
2	Bulk density , g/cc	IS 2386 (P-3)	1.57

\*End of Test Report\*

Checked By  
Remarks:

- The results listed in the report refer only to the item(s) tested and it's Parameters (s). Endorsement of products is neither inferred nor implied.
- Sample will be destroyed after 30 days from the date of issue of test report unless otherwise specified.
- Report refer to the sample as received and not drawn by us unless mentioned otherwise
- The report shall not be reproduced exception full, without the approval of the laboratory and cannot be used as evidence In the Court of law and Should not be used in any advertising media without our special permission in writing.

ENVIRO PRIVATE LIMITED  
NEW DELHI  
INBA  
Patna  
Authorized Signatory

Address : Madhepura Bhawan Devi Mandir, Road, Punaichak, Patna-23

E-mail : finitybihar@gmail.com  
fecrlbihar@gmail.com



**TEST REPORT**

<b>To,</b>		<b>ULR No. : TC901322000000410F</b>	
District Mining Officer , Jalandhar		Date of Receipt: 21.11.2022	
Member of Secretary of Sub divisional Committees Jalandhar		Date of Testing: 21.11.2022-22.11.2022	
Description of Sample : Sandi Soll		Date of Report : 22.11.2022	
Location : Village- Akuwal , Tahsil – Phillaur (Sutlaj River)			
Ref No: Nil		Dated: 21.11.2022	
SL. No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.57
2	Bulk density , g/cc	IS 2386 (P-3)	1.54



*[Signature]*  
**Checked By**  
**Remarks:**

**\*End of Test Report\***

*[Signature]*  
**Authorized Signatory**

- The results listed in the report refer only to the item(s) tested and it's Parameters (s). Endorsement of products is neither inferred nor implied.
- Sample will be destroyed after 30 days from the date of issue of test report unless otherwise specified.
- Report refer to the sample as received and not drawn by us unless mentioned otherwise
- The report shall not be reproduced exception full, without the approval of the laboratory and cannot be used as evidence In the Court of law and Should not be used in any advertising media without our special permission in writing.

**Address : Madhepura Bhawan Devi Mandir, Road, Punaichak, Patna-23**

E-mail : finitybihar@gmail.com  
 fecrlbihar@gmail.com





**FINITY ENGINEERING CONSULTANCY AND  
RESEARCH LABORATORY PVT. LTD.**  
(An ISO 9001 : 2015 Certified & NABL Accredited Laboratory)



CIN NO- U7499BR2018PTC039944

6203263339  
7903718229  
9102030954

www.fecrl.com

## TEST REPORT

To,		ULR No. : TC901322000000411F	
District Mining Officer , Jalandhar		Date of Receipt: 21.11.2022	
Member of Secretary of Sub divisional Committees Jalandhar		Date of Testing: 21.11.2022-22.11.2022	
Date of Report : 22.11.2022			
Description of Sample : Sandi Soil			
Location : Village-Mau , Tahsil - Phillaur (Sutlej River)			
Ref No: Nil Dated: 21.11.2022			
SL. No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.61
2	Bulk density g/cc	IS 2386 (P-3)	1.53



  
**Checked By**  
**Remarks:**

\*End of Test Report\*

  
**Authorized Signatory**

- The results listed in the report refer only to the item(s) tested and it's Parameters (s). Endorsement of products is neither inferred nor implied.
- Sample will be destroyed after 30 days from the date of issue of test report unless otherwise specified.
- Report refer to the sample as received and not drawn by us unless mentioned otherwise
- The report shall not be reproduced exception full, without the approval of the laboratory and cannot be used as evidence In the Court of law and Should not be used in any advertising media without our special permission in writing.

**Address : Madhepura Bhawan Devi Mandir, Road, Punaichak, Patna-23**  
E-mail : finitybihar@gmail.com  
fecrlbihar@gmail.com



## TEST REPORT

<b>To,</b>		<b>ULR No.: TC1021422000000132F</b>	
<b>District Mining Officer , Jalandhar</b>		<b>Date of Receipt: 17.11.2022</b>	
<b>Member of Secretary of Sub divisional Committees Jalandhar</b>		<b>Date of Testing: 17.11.2022-20.11.2022</b>	
		<b>Date of Report : 21.11.2022</b>	
<b>Description of Sample : Sandi Soil</b>			
<b>Location : Village-Chhaaula , Tahsil – Phillaur (Sutlej River)</b>			
<b>Ref No: Nil      Dated: 17.11.2022</b>			
SL. No.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.63
2	Bulk density , g/cc	IS 2386 (P-3)	1.56



\*End of Test Report\*



### Terms & Conditions:

1. This report shall not be reproduced except in full without the approval of the Rappid Test Lab Pvt. Ltd., 2. This report will not be valid for judicial Purpose. 3. The above results are related only to the test performed on the sample, Endorsement of the product is neither inferred not implied, 4. Total liability of hour Test Lab is limited to the invoiced amount., 5 Report refers to the sample received by Rappid Test Lab Pvt. Ltd. unless mentioned otherwise.



# RAPPID TEST LAB PVT. LTD.

Our Dream is Quality only....



Block-A, Raut City, Commercial Complex, Garikhana, Khagaul, Near Radiant International School, Patna - 801105 (Bihar)

## TEST REPORT

<b>To,</b> District Mining Officer , Jalandhar Member of Secretary of Sub divisional Committees Jalandhar		<b>ULR No.:</b> TC1021422000000131F	
		<b>Date of Receipt:</b> 17.11.2022	
		<b>Date of Testing:</b> 17.11.2022-20.11.2022	
		<b>Date of Report :</b> 21.11.2022	
<b>Description of Sample :</b> Sandi Soil			
<b>Location :</b> Village-Kaimwala , P.S – Mahetpur ,Tahsil – Nakodar (Sutlej River)			
<b>Ref No:</b> Nil <b>Dated:</b> 17.11.2022			
<b>SL. No.</b>	<b>TEST PARAMETERS</b>	<b>TEST METHOD</b>	<b>Results</b>
1	Specific Gravity	IS 2720 (P-3)	2.61
2	Bulk density , g/cc	IS 2386 (P-3)	1.54

\*End of Test Report\*

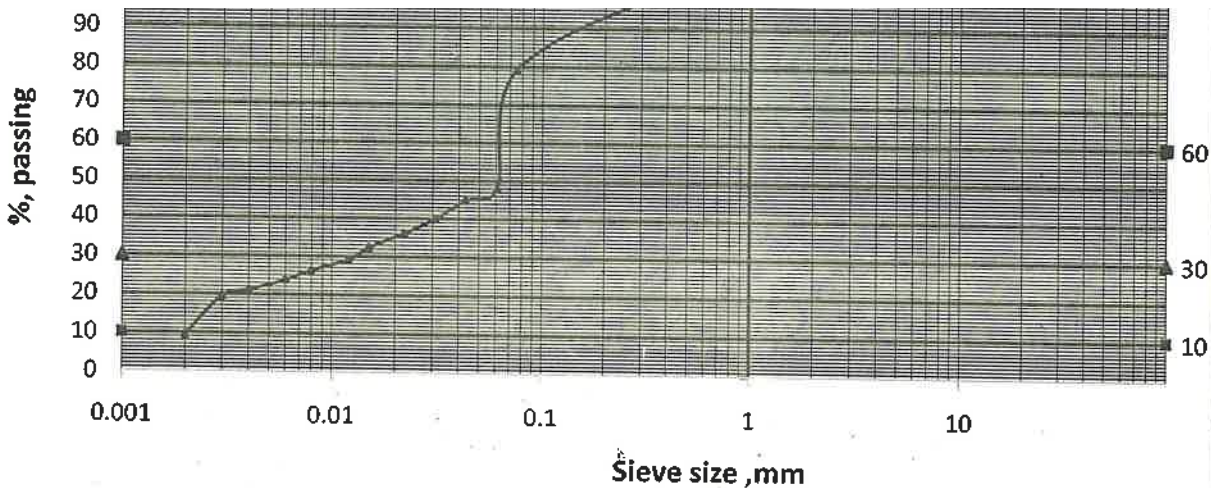


### Terms & Conditions:

1. This report shall not be reproduced except in full without the approval of the Rappid Test Lab Pvt. Ltd., 2. This report will not be valid for judicial Purpose. 3. The above results are related only to the test performed on the sample, Endorsement of the product is neither inferred not implied, 4. Total liability of hour Test Lab is limited to the invoiced amount., 5 Report refers to the sample received by Rappid Test Lab Pvt. Ltd. unless mentioned otherwise.



To,		ULR No. : TC1021422000000126F	
District Mining Office Jalandhar		Date of Receipt: 27.10.2022	
Member of Secretary of Sub divisional Committees Jalandhar		Date of Testing: 02-11.2022-04.11.2022	
Description of Sample : Sandi Soil		Date of Report : 04.11.2022	
Name of River: Sutlej			
Name of District: Jalandhar			
Ref No: Nil      Dated: 27.10.2022			
SL.	TEST PARAMETERS	TEST METHOD	Results
1	Specific Gravity	IS 2720 (P-3)	2.67
2	Bulk density ,g/cc	IS 2386 (P-3)	1.54



**Terms & Conditions:**

1. This report shall not be reproduced except in full without the approval of the Rappid Test Lab Pvt. Ltd.,
2. This report will not be valid for judicial Purpose.
3. The above results are related only to the test performed on the sample, Endorsement of the product is neither inferred not implied,
4. Total liability of our Test Lab is limited to the invoiced amount.,
- 5 Report refers to the sample received by Rappid Test Lab Pvt. Ltd. unless mentioned otherwise.



Satish Kumar



**TEST REPORT**

To,

District Mining Officer, Jalandhar  
Member of Secretary of Sub divisional Committees Jalandhar

ULR No. : TC1021422000000137F

Date of Receipt: 29.11.2022

Date of Testing: 30.11.2022-01.12.2022

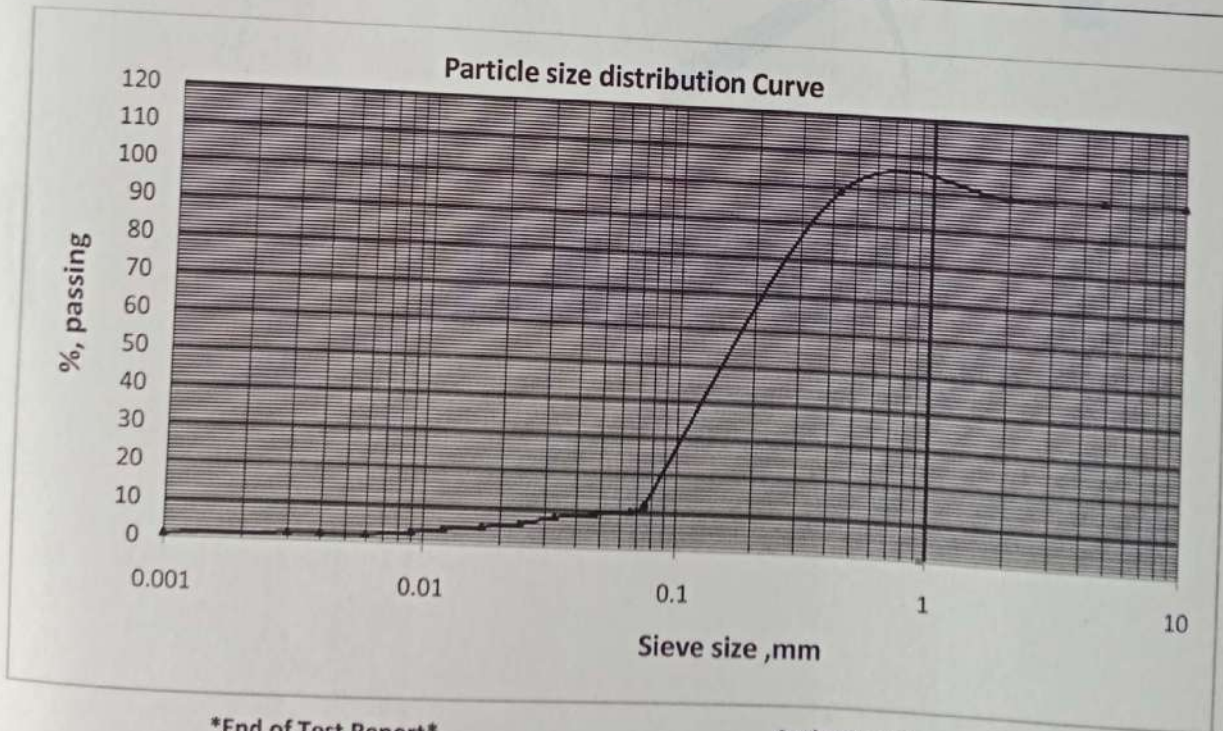
Date of Report : 01.12.2022

Description of Sample : Sandi Soil

Location : Village-Kariana, P.S – Phillaur, Tahsil – Phillaur (Agriculture Land)

Ref No: Nil Dated: 29.11.2022

SL. No.	TEST PARAMETERS		TEST METHOD	Results
1	Specific Gravity			2.65
2	Bulk density, g/cc		IS 2720 (P-3)	1.54
3	Particle Size Distribution		IS 2386 (P-3)	
	IS sieve size (mm) Grain Size Analysis, %			% Passing
	10			100
	4.75			100
	2.0			99.8
	0.425			98.9
	0.075		IS 2720 (P-4)	11.9
	Gravel, %	0	Sand, %	88.1
			Silt & Clay, %	11.9



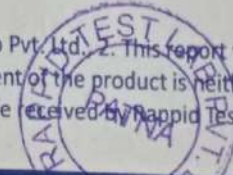
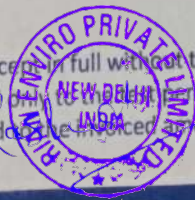
\*End of Test Report\*

Authorized Signatory

*Satish Kumar*

**Terms & Conditions:**

1. This report shall not be reproduced except in full without the approval of the Rappid Test Lab Pvt. Ltd. 2. This report will not be valid for judicial Purpose. 3. The above results are related only to the sample performed on the sample, Endorsement of the product is neither inferred not implied, 4. Total liability of our Test Lab is limited to the assessed amount., 5 Report refers to the sample received by Rappid Test Lab Pvt. Ltd. unless mentioned otherwise.





# RAPPID TEST LAB PVT. LTD.

Our Dream is Quality only....

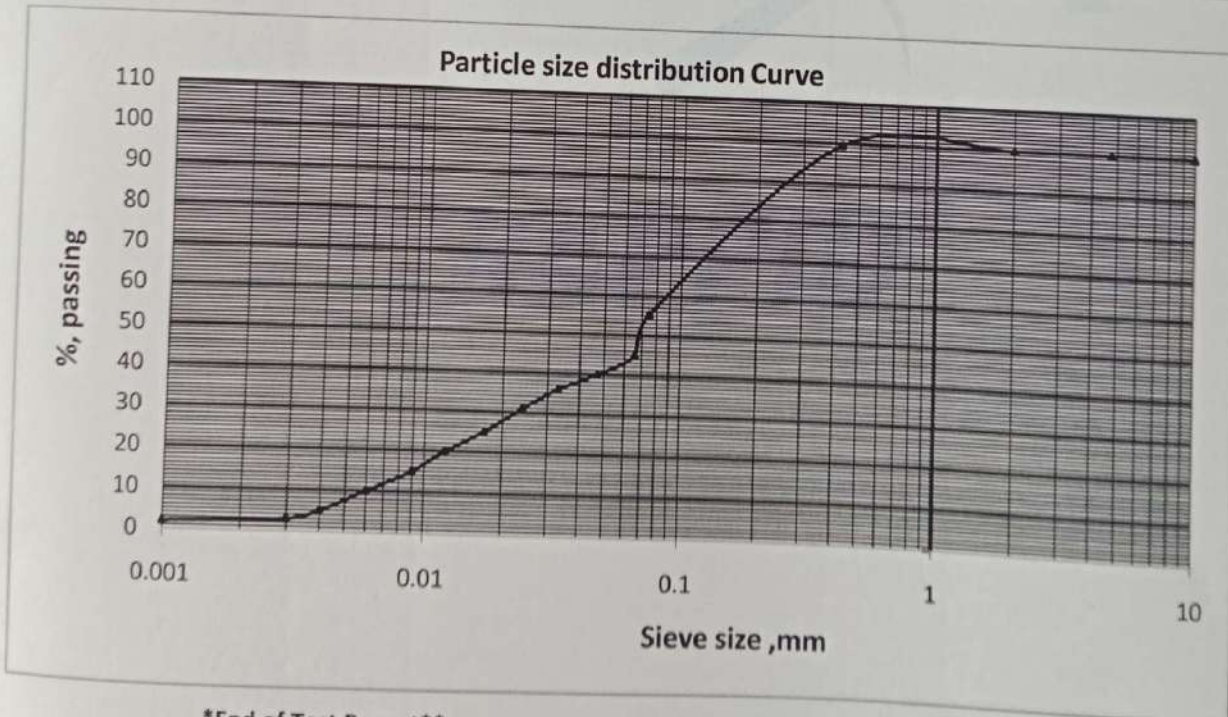


Block-A, Raut City, Commercial Complex, Garikhana, Khagaul, Near Radiant International School, Patna - 801105 (Bihar)

## TEST REPORT

To, District Mining Officer , Jalandhar Member of Secretary of Sub divisional Committees Jalandhar	ULR No. : : TC1021422000000138F Date of Receipt: 29.11.2022 Date of Testing: 30.11.2022-01.12.2022 Date of Report : 01.12.2022
Description of Sample : Sandi Soil	
Location : Village-Bangiwal , P.S – Mehatpur ,Tahsil – Nakodar (Agriculture Land)	
Ref No: Nil      Dated: 29.11.2022	

SL. No.	TEST PARAMETERS	TEST METHOD	Results	
1	Specific Gravity	IS 2720 (P-3)	2.59	
2	Bulk density ,g/cc	IS 2386 (P-3)	1.52	
3	Particle Size Distribution	IS 2720 (P-4)	% Passing	
	IS sieve size (mm) Grain Size Analysis, %			
	10			100
	4.75			100
	2.0			100
	0.425			99.55
	0.075	55.41		
	Gravel, %    0    Sand , %    44.59	Silt & Clay ,%    55.41		



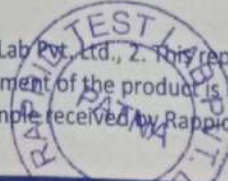
**\*End of Test Report\*\***

Authorized Signatory

Satish Kumar

### Terms & Conditions:

1. This report shall not be reproduced except in full without the approval of the Rappid Test Lab Pvt. Ltd., 2. This report will not be valid for judicial Purpose. 3. The above results are related only to the test performed on the sample, Endorsement of the product is neither inferred not implied, 4. Total liability of hour Test Lab is limited to the invoiced amount, 5. Report refers to the sample received by Rappid Test Lab Pvt. Ltd. unless mentioned otherwise.



**Annexure G**  
**(Final Block Sand Ghats Coordinates)**



**Final Block Sand Ghats Coordinates**

SANDBAR CODE	Lease Details	POINT NO	LATITUDE	LONGITUDE	AREA(Ha.)
PO_JL_PL_ST_1B	Jalandhar Sutlej -1 Vill- Kadiana, Block- Phillaur	1	31° 0' 48.886" N	75° 53' 39.686" E	4.80
		2	31° 0' 48.121" N	75° 53' 37.489" E	
		3	31° 0' 47.214" N	75° 53' 34.086" E	
		4	31° 0' 45.964" N	75° 53' 31.294" E	
		5	31° 0' 45.741" N	75° 53' 29.392" E	
		6	31° 0' 46.434" N	75° 53' 27.465" E	
		7	31° 0' 47.331" N	75° 53' 24.967" E	
		8	31° 0' 48.358" N	75° 53' 23.655" E	
		9	31° 0' 48.535" N	75° 53' 25.161" E	
		10	31° 0' 48.236" N	75° 53' 27.351" E	
		11	31° 0' 48.619" N	75° 53' 28.831" E	
		12	31° 0' 49.516" N	75° 53' 26.493" E	
		13	31° 0' 50.244" N	75° 53' 29.310" E	
		14	31° 0' 50.792" N	75° 53' 31.822" E	
		15	31° 0' 51.774" N	75° 53' 35.033" E	
		16	31° 0' 51.969" N	75° 53' 38.541" E	
		17	31° 0' 51.527" N	75° 53' 41.834" E	
		18	31° 0' 51.049" N	75° 53' 42.609" E	
		19	31° 0' 49.961" N	75° 53' 40.684" E	
PO_JL_PL_ST_03	Jalandhar Sutlej -2 Vill- Kadiana, Block- Phillaur	1	31° 0' 33.674" N	75° 52' 44.215" E	20.47
		2	31° 0' 32.484" N	75° 52' 31.560" E	
		3	31° 0' 34.274" N	75° 52' 32.275" E	
		4	31° 0' 35.887" N	75° 52' 33.915" E	
		5	31° 0' 39.217" N	75° 52' 39.693" E	
		6	31° 0' 40.262" N	75° 52' 42.688" E	
		7	31° 0' 40.277" N	75° 52' 42.819" E	
		8	31° 0' 41.755" N	75° 52' 48.086" E	
		9	31° 0' 42.447" N	75° 52' 49.124" E	
		10	31° 0' 42.453" N	75° 52' 49.142" E	
		11	31° 0' 42.613" N	75° 52' 49.373" E	
		12	31° 0' 43.569" N	75° 52' 50.807" E	
		13	31° 0' 43.662" N	75° 52' 50.886" E	
		14	31° 0' 45.516" N	75° 52' 53.561" E	
		15	31° 0' 47.887" N	75° 52' 58.360" E	
		16	31° 0' 48.674" N	75° 53' 0.970" E	
		17	31° 0' 49.653" N	75° 53' 1.937" E	





District Survey Report  
Jalandhar District,  
Punjab

		18	31° 0' 50.467" N	75° 53' 3.584" E	
		19	31° 0' 50.841" N	75° 53' 9.096" E	
		20	31° 0' 50.275" N	75° 53' 10.807" E	
		21	31° 0' 50.151" N	75° 53' 10.938" E	
		22	31° 0' 48.405" N	75° 53' 10.436" E	
		23	31° 0' 45.236" N	75° 53' 7.454" E	
		24	31° 0' 42.491" N	75° 53' 3.910" E	
		25	31° 0' 40.123" N	75° 53' 0.726" E	
		26	31° 0' 39.121" N	75° 52' 58.874" E	
		27	31° 0' 37.777" N	75° 52' 54.116" E	
		28	31° 0' 36.716" N	75° 52' 51.816" E	
		29	31° 0' 35.143" N	75° 52' 48.167" E	
		30	31° 0' 34.192" N	75° 52' 45.433" E	
<b>PO_JL_PL_ ST_04</b>	Jalandhar Sutlej -3 Vill- Chhaura, Block- Phillaur	1	31° 0' 3.794" N	75° 49' 11.291" E	<b>8.24</b>
		2	31° 0' 1.397" N	75° 49' 16.508" E	
		3	31° 0' 1.789" N	75° 49' 22.497" E	
		4	31° 0' 2.813" N	75° 49' 30.363" E	
		5	31° 0' 2.872" N	75° 49' 37.846" E	
		6	31° 0' 1.563" N	75° 49' 41.078" E	
		7	31° 0' 1.531" N	75° 49' 41.189" E	
		8	31° 0' 1.364" N	75° 49' 40.648" E	
		9	31° 0' 1.239" N	75° 49' 38.461" E	
		10	31° 0' 0.556" N	75° 49' 36.194" E	
		11	30° 59' 59.706" N	75° 49' 34.079" E	
		12	30° 59' 58.916" N	75° 49' 31.664" E	
		13	30° 59' 58.149" N	75° 49' 30.504" E	
		14	30° 59' 57.860" N	75° 49' 29.283" E	
		15	30° 59' 57.857" N	75° 49' 25.871" E	
		16	30° 59' 58.687" N	75° 49' 21.168" E	
		17	30° 59' 59.648" N	75° 49' 17.698" E	
		18	31° 0' 0.496" N	75° 49' 15.116" E	
		19	31° 0' 0.925" N	75° 49' 12.626" E	
		20	31° 0' 1.168" N	75° 49' 9.691" E	
		21	31° 0' 0.336" N	75° 49' 8.427" E	
		22	31° 0' 0.939" N	75° 49' 5.958" E	
		23	31° 0' 1.125" N	75° 49' 4.140" E	
		24	31° 0' 1.839" N	75° 49' 2.476" E	
		25	31° 0' 2.903" N	75° 49' 7.274" E	
		26	31° 0' 2.897" N	75° 49' 7.312" E	
		27	31° 0' 2.989" N	75° 49' 7.663" E	
<b>PO_JL_PL_ ST_06</b>		1	30° 59' 56.334" N	75° 48' 31.523" E	
		2	30° 59' 51.717" N	75° 48' 42.246" E	

District Survey Report  
Jalandhar District,  
Punjab

	Jalandhar Sutlej -4 Vill- Chhaura, Block- Phillaur	3	30° 59' 53.945" N	75° 48' 42.897" E	<b>2.40</b>
		4	30° 59' 55.777" N	75° 48' 44.104" E	
		5	30° 59' 56.845" N	75° 48' 46.489" E	
		6	30° 59' 57.492" N	75° 48' 48.422" E	
		7	30° 59' 58.140" N	75° 48' 50.448" E	
		8	30° 59' 58.279" N	75° 48' 53.321" E	
		9	30° 59' 58.355" N	75° 48' 56.568" E	
		10	30° 59' 58.197" N	75° 48' 56.937" E	
<b>PO_JL_PL_</b> <b>ST_07</b>	Jalandhar Sutlej -5 Vill- Chhaura, Block- Phillaur	1	30° 59' 43.528" N	75° 48' 32.888" E	<b>3.82</b>
		2	30° 59' 43.372" N	75° 48' 30.040" E	
		3	30° 59' 44.360" N	75° 48' 30.492" E	
		4	30° 59' 44.877" N	75° 48' 30.733" E	
		5	30° 59' 45.165" N	75° 48' 31.004" E	
		6	30° 59' 45.487" N	75° 48' 31.448" E	
		7	30° 59' 45.887" N	75° 48' 31.765" E	
		8	30° 59' 46.591" N	75° 48' 32.063" E	
		9	30° 59' 46.880" N	75° 48' 32.267" E	
		10	30° 59' 47.062" N	75° 48' 32.640" E	
		11	30° 59' 47.837" N	75° 48' 33.172" E	
		12	30° 59' 48.797" N	75° 48' 33.906" E	
		13	30° 59' 49.246" N	75° 48' 34.346" E	
		14	30° 59' 49.347" N	75° 48' 34.416" E	
		15	30° 59' 49.725" N	75° 48' 34.699" E	
		16	30° 59' 50.431" N	75° 48' 35.353" E	
		17	30° 59' 50.983" N	75° 48' 36.099" E	
		18	30° 59' 51.561" N	75° 48' 36.915" E	
		19	30° 59' 51.890" N	75° 48' 37.634" E	
		20	30° 59' 52.308" N	75° 48' 38.419" E	
		21	30° 59' 51.799" N	75° 48' 39.265" E	
		22	30° 59' 50.425" N	75° 48' 39.594" E	
		23	30° 59' 49.024" N	75° 48' 39.796" E	
		24	30° 59' 47.722" N	75° 48' 39.448" E	
		25	30° 59' 44.883" N	75° 48' 37.675" E	
		26	30° 59' 44.621" N	75° 48' 37.244" E	
		27	30° 59' 44.016" N	75° 48' 36.643" E	
		28	30° 59' 43.768" N	75° 48' 36.406" E	
<b>PO_JL_PL_</b> <b>ST_08</b>		1	30° 59' 42.595" N	75° 48' 15.858" E	<b>8.97</b>
		2	30° 59' 42.422" N	75° 48' 13.465" E	
		3	30° 59' 48.536" N	75° 48' 11.887" E	
		4	30° 59' 51.127" N	75° 48' 18.555" E	
		5	30° 59' 51.603" N	75° 48' 28.287" E	
		6	30° 59' 51.304" N	75° 48' 31.871" E	

*District Survey Report  
Jalandhar District,  
Punjab*

	Jalandhar Sutlej -6 Vill- Chhaura, Block- Phillaur	7	30° 59' 51.494" N	75° 48' 30.428" E	
		8	30° 59' 49.511" N	75° 48' 28.101" E	
		9	30° 59' 48.044" N	75° 48' 26.436" E	
		10	30° 59' 46.412" N	75° 48' 25.143" E	
		11	30° 59' 44.991" N	75° 48' 24.261" E	
		12	30° 59' 43.831" N	75° 48' 23.840" E	
		13	30° 59' 43.418" N	75° 48' 23.907" E	
		14	30° 59' 43.019" N	75° 48' 23.592" E	
<b>PO_JL_NR_</b> <b>ST_11</b>	Jalandhar Sutlej -7 Vill- Meowal and Mau Sahib, Block- Nurmahal	1	31° 0' 23.703" N	75° 44' 7.437" E	<b>3.30</b>
		2	31° 0' 23.517" N	75° 44' 7.292" E	
		3	31° 0' 23.649" N	75° 44' 6.002" E	
		4	31° 0' 23.693" N	75° 44' 4.702" E	
		5	31° 0' 23.621" N	75° 44' 3.883" E	
		6	31° 0' 23.775" N	75° 44' 2.750" E	
		7	31° 0' 24.461" N	75° 44' 1.491" E	
		8	31° 0' 24.660" N	75° 44' 0.638" E	
		9	31° 0' 25.381" N	75° 43' 59.472" E	
		10	31° 0' 26.178" N	75° 43' 58.985" E	
		11	31° 0' 27.220" N	75° 43' 58.681" E	
		12	31° 0' 28.670" N	75° 43' 57.096" E	
		13	31° 0' 30.559" N	75° 43' 55.691" E	
		14	31° 0' 31.997" N	75° 43' 55.140" E	
		15	31° 0' 32.042" N	75° 43' 55.800" E	
		16	31° 0' 32.047" N	75° 43' 56.354" E	
		17	31° 0' 32.019" N	75° 43' 57.463" E	
		18	31° 0' 31.751" N	75° 43' 58.640" E	
		19	31° 0' 29.006" N	75° 44' 1.561" E	
		20	31° 0' 25.756" N	75° 44' 5.161" E	
		21	31° 0' 25.637" N	75° 44' 5.236" E	
		22	31° 0' 25.455" N	75° 44' 5.496" E	
<b>PO_JL_NR_</b> <b>ST_13</b>	Jalandhar Sutlej - 8 Vill- Meowal and Mau Sahib, Block- Nurmahal	1	31° 0' 46.839" N	75° 43' 38.371" E	<b>2.03</b>
		2	31° 0' 46.463" N	75° 43' 38.405" E	
		3	31° 0' 48.851" N	75° 43' 35.669" E	
		4	31° 0' 50.945" N	75° 43' 30.057" E	
		5	31° 0' 51.889" N	75° 43' 26.279" E	
		6	31° 0' 52.581" N	75° 43' 28.228" E	
		7	31° 0' 53.503" N	75° 43' 29.893" E	
		8	31° 0' 53.712" N	75° 43' 30.762" E	
		9	31° 0' 53.720" N	75° 43' 31.767" E	
		10	31° 0' 52.568" N	75° 43' 33.735" E	
		11	31° 0' 50.629" N	75° 43' 35.802" E	
		12	31° 0' 48.369" N	75° 43' 37.752" E	

District Survey Report  
Jalandhar District,  
Punjab

PO_JL_NR_ ST_13B	Jalandhar Sutlej -9 Vill- Meowal and Mau Sahib, Block- Nurmahal	1	31° 0' 52.459" N	75° 42' 58.995" E	1.99
		2	31° 0' 50.259" N	75° 42' 52.959" E	
		3	31° 0' 52.626" N	75° 42' 55.101" E	
		4	31° 0' 53.628" N	75° 42' 56.606" E	
		5	31° 0' 54.659" N	75° 42' 58.726" E	
		6	31° 0' 55.131" N	75° 42' 59.220" E	
		7	31° 0' 54.456" N	75° 43' 2.724" E	
		8	31° 0' 53.976" N	75° 43' 6.629" E	
		9	31° 0' 53.203" N	75° 43' 9.173" E	
PO_JL_NR_ ST_16	Jalandhar Sutlej - 10 Vill- Akkuwal , Block- Nurmahal	1	30° 59' 3.693" N	75° 39' 24.785" E	7.90
		2	30° 59' 3.309" N	75° 39' 27.237" E	
		3	30° 59' 3.401" N	75° 39' 29.233" E	
		4	30° 59' 3.194" N	75° 39' 30.193" E	
		5	30° 59' 2.653" N	75° 39' 32.168" E	
		6	30° 59' 2.366" N	75° 39' 33.728" E	
		7	30° 59' 2.482" N	75° 39' 36.120" E	
		8	30° 59' 2.634" N	75° 39' 38.794" E	
		9	30° 59' 2.560" N	75° 39' 41.002" E	
		10	30° 59' 2.359" N	75° 39' 42.674" E	
		11	30° 59' 2.251" N	75° 39' 44.118" E	
		12	30° 59' 1.973" N	75° 39' 44.315" E	
		13	30° 59' 1.925" N	75° 39' 44.116" E	
		14	30° 59' 1.185" N	75° 39' 41.828" E	
		15	30° 58' 59.983" N	75° 39' 38.108" E	
		16	30° 59' 0.122" N	75° 39' 34.188" E	
		17	30° 58' 59.691" N	75° 39' 28.440" E	
		18	30° 58' 59.906" N	75° 39' 24.896" E	
		19	30° 59' 1.013" N	75° 39' 24.658" E	
		20	30° 59' 0.624" N	75° 39' 23.414" E	
		21	30° 58' 59.574" N	75° 39' 21.461" E	
		22	30° 58' 59.015" N	75° 39' 15.781" E	
		23	30° 58' 57.992" N	75° 39' 11.930" E	
		24	30° 58' 59.414" N	75° 39' 12.475" E	
		25	30° 59' 1.766" N	75° 39' 14.668" E	
		26	30° 59' 2.746" N	75° 39' 16.359" E	
		27	30° 59' 3.253" N	75° 39' 17.711" E	
		28	30° 59' 3.810" N	75° 39' 18.393" E	
		29	30° 59' 4.396" N	75° 39' 19.897" E	
		30	30° 59' 4.765" N	75° 39' 21.689" E	
		31	30° 59' 4.848" N	75° 39' 22.896" E	
		32	30° 59' 4.288" N	75° 39' 23.675" E	
		1	30° 58' 40.003" N	75° 38' 3.192" E	

District Survey Report  
Jalandhar District,  
Punjab

PO_JL_NR_ ST_22_25	Jalandhar Sutlej - 11 Vill- Sidhara, Block- Nurmahal	2	30° 58' 38.524" N	75° 37' 53.209" E	17-59
		3	30° 58' 37.346" N	75° 37' 43.489" E	
		4	30° 58' 37.096" N	75° 37' 41.454" E	
		5	30° 58' 36.947" N	75° 37' 40.294" E	
		6	30° 58' 34.591" N	75° 37' 22.008" E	
		7	30° 58' 34.079" N	75° 37' 12.871" E	
		8	30° 58' 35.243" N	75° 37' 13.473" E	
		9	30° 58' 37.158" N	75° 37' 14.003" E	
		10	30° 58' 38.934" N	75° 37' 14.781" E	
		11	30° 58' 39.173" N	75° 37' 16.388" E	
		12	30° 58' 39.188" N	75° 37' 18.169" E	
		13	30° 58' 39.145" N	75° 37' 19.556" E	
		14	30° 58' 39.068" N	75° 37' 21.454" E	
		15	30° 58' 38.669" N	75° 37' 23.538" E	
		16	30° 58' 38.816" N	75° 37' 25.202" E	
		17	30° 58' 39.440" N	75° 37' 26.988" E	
		18	30° 58' 40.137" N	75° 37' 29.176" E	
		19	30° 58' 40.836" N	75° 37' 31.239" E	
		20	30° 58' 41.709" N	75° 37' 33.566" E	
		21	30° 58' 42.659" N	75° 37' 37.181" E	
		22	30° 58' 43.421" N	75° 37' 40.050" E	
		23	30° 58' 43.729" N	75° 37' 41.216" E	
		24	30° 58' 43.611" N	75° 37' 42.270" E	
		25	30° 58' 43.296" N	75° 37' 44.505" E	
		26	30° 58' 42.983" N	75° 37' 46.667" E	
		27	30° 58' 42.942" N	75° 37' 48.122" E	
		28	30° 58' 42.920" N	75° 37' 48.708" E	
		29	30° 58' 42.331" N	75° 37' 51.234" E	
		30	30° 58' 41.599" N	75° 37' 54.086" E	
		31	30° 58' 40.736" N	75° 37' 58.771" E	
		32	30° 58' 40.311" N	75° 38' 2.252" E	
		PO_JL_NR_ ST_24	Jalandhar Sutlej - 12 Vill- Sidhara, Block- Nurmahal	1	
2	30° 58' 40.480" N			75° 37' 28.886" E	
3	30° 58' 41.038" N			75° 37' 28.377" E	
4	30° 58' 42.413" N			75° 37' 30.143" E	
5	30° 58' 43.356" N			75° 37' 31.428" E	
6	30° 58' 44.202" N			75° 37' 32.004" E	
7	30° 58' 45.172" N			75° 37' 32.419" E	
8	30° 58' 45.480" N			75° 37' 41.223" E	
9	30° 58' 45.323" N			75° 37' 41.326" E	
10	30° 58' 44.718" N			75° 37' 41.916" E	
		1	30° 58' 40.262" N	75° 37' 24.590" E	

*District Survey Report  
Jalandhar District,  
Punjab*

<b>PO_JL_NR_ ST_25</b>	Jalandhar Sutlej - 13 Vill- Sidhara, Block- Nurmahal	2	30° 58' 40.100" N	75° 37' 22.882" E	<b>2.40</b>
		3	30° 58' 40.268" N	75° 37' 21.329" E	
		4	30° 58' 40.978" N	75° 37' 19.557" E	
		5	30° 58' 41.056" N	75° 37' 19.466" E	
		6	30° 58' 42.137" N	75° 37' 18.224" E	
		7	30° 58' 42.243" N	75° 37' 18.179" E	
		8	30° 58' 44.993" N	75° 37' 27.279" E	
		9	30° 58' 45.060" N	75° 37' 29.205" E	
		10	30° 58' 43.447" N	75° 37' 28.294" E	
		11	30° 58' 42.258" N	75° 37' 27.467" E	
		12	30° 58' 42.129" N	75° 37' 27.263" E	
		13	30° 58' 40.867" N	75° 37' 26.040" E	
		<b>PO_JL_NR_ ST_26A</b>	Jalandhar Sutlej - 14 Vill- Burj Hasun, Block- Nurmahal	1	
2	30° 58' 31.650" N			75° 36' 41.930" E	
3	30° 58' 31.563" N			75° 36' 41.000" E	
4	30° 58' 26.682" N			75° 36' 34.273" E	
5	30° 58' 25.491" N			75° 36' 33.959" E	
6	30° 58' 25.617" N			75° 36' 33.365" E	
7	30° 58' 25.825" N			75° 36' 31.606" E	
8	30° 58' 25.634" N			75° 36' 29.864" E	
9	30° 58' 25.366" N			75° 36' 28.083" E	
10	30° 58' 25.311" N			75° 36' 26.408" E	
11	30° 58' 26.129" N			75° 36' 23.506" E	
12	30° 58' 27.381" N			75° 36' 21.427" E	
13	30° 58' 29.123" N			75° 36' 18.916" E	
14	30° 58' 30.501" N			75° 36' 17.434" E	
15	30° 58' 31.673" N			75° 36' 16.031" E	
16	30° 58' 32.519" N			75° 36' 14.735" E	
17	30° 58' 33.914" N			75° 36' 12.573" E	
18	30° 58' 32.356" N			75° 36' 20.147" E	
19	30° 58' 32.851" N			75° 36' 29.127" E	
20	30° 58' 33.897" N			75° 36' 35.243" E	
21	30° 58' 34.570" N			75° 36' 41.801" E	
<b>PO_JL_NR_ ST_26B</b>	Jalandhar Sutlej - 15 Vill- Burj Hasun, Block- Nurmahal	1	30° 58' 34.122" N	75° 36' 11.557" E	<b>0.96</b>
		2	30° 58' 33.799" N	75° 36' 11.909" E	
		3	30° 58' 33.800" N	75° 36' 12.062" E	
		4	30° 58' 33.248" N	75° 36' 12.944" E	
		5	30° 58' 32.300" N	75° 36' 14.396" E	
		6	30° 58' 31.638" N	75° 36' 15.306" E	
		7	30° 58' 31.180" N	75° 36' 15.542" E	
		8	30° 58' 30.846" N	75° 36' 15.306" E	
		9	30° 58' 30.861" N	75° 36' 14.832" E	



District Survey Report  
Jalandhar District,  
Punjab

		10	30° 58' 31.136" N	75° 36' 13.515" E	
		11	30° 58' 30.934" N	75° 36' 13.018" E	
		12	30° 58' 30.627" N	75° 36' 13.910" E	
		13	30° 58' 29.831" N	75° 36' 16.244" E	
		14	30° 58' 29.554" N	75° 36' 16.182" E	
		15	30° 58' 29.295" N	75° 36' 15.653" E	
		16	30° 58' 29.336" N	75° 36' 14.749" E	
		17	30° 58' 29.351" N	75° 36' 14.733" E	
		18	30° 58' 29.482" N	75° 36' 13.760" E	
		19	30° 58' 29.646" N	75° 36' 13.136" E	
		20	30° 58' 30.003" N	75° 36' 13.309" E	
		21	30° 58' 30.443" N	75° 36' 12.583" E	
		22	30° 58' 31.094" N	75° 36' 11.795" E	
		23	30° 58' 31.825" N	75° 36' 11.388" E	
		24	30° 58' 32.482" N	75° 36' 11.284" E	
		25	30° 58' 32.518" N	75° 36' 11.282" E	
		26	30° 58' 33.108" N	75° 36' 11.385" E	
		27	30° 58' 33.716" N	75° 36' 10.803" E	
		28	30° 58' 34.186" N	75° 36' 10.350" E	
		29	30° 58' 34.229" N	75° 36' 10.298" E	
		30	30° 58' 34.225" N	75° 36' 11.057" E	
PO_JL_NR_ ST_27	Jalandhar Sutlej - 16 Vill- Burj Hasun, Block- Nurmahal	1	30° 58' 24.083" N	75° 36' 30.768" E	0.90
		2	30° 58' 23.962" N	75° 36' 31.950" E	
		3	30° 58' 24.033" N	75° 36' 33.079" E	
		4	30° 58' 23.976" N	75° 36' 33.559" E	
		5	30° 58' 20.727" N	75° 36' 32.702" E	
		6	30° 58' 20.865" N	75° 36' 31.895" E	
		7	30° 58' 20.905" N	75° 36' 31.473" E	
		8	30° 58' 22.028" N	75° 36' 29.027" E	
		9	30° 58' 22.135" N	75° 36' 29.182" E	
		10	30° 58' 22.319" N	75° 36' 30.444" E	
		11	30° 58' 22.773" N	75° 36' 29.900" E	
		12	30° 58' 23.297" N	75° 36' 29.518" E	
		13	30° 58' 23.793" N	75° 36' 28.720" E	
		14	30° 58' 24.113" N	75° 36' 28.489" E	
		15	30° 58' 24.240" N	75° 36' 28.866" E	
		16	30° 58' 24.243" N	75° 36' 29.787" E	
PO_JL_NR_ ST_27B	Jalandhar Sutlej - 17	1	30° 58' 32.195" N	75° 36' 4.199" E	0.15
		2	30° 58' 31.729" N	75° 36' 4.482" E	
		3	30° 58' 31.858" N	75° 36' 4.045" E	
		4	30° 58' 32.094" N	75° 36' 3.054" E	
		5	30° 58' 32.403" N	75° 36' 2.208" E	



*District Survey Report*  
*Jalandhar District,*  
*Punjab*

	Vill- Burj Hasun, Block- Nurmahal	6	30° 58' 32.721" N	75° 36' 1.548" E	
		7	30° 58' 33.178" N	75° 36' 0.975" E	
		8	30° 58' 33.253" N	75° 36' 1.259" E	
		9	30° 58' 33.184" N	75° 36' 1.945" E	
		10	30° 58' 32.759" N	75° 36' 3.253" E	
<b>PO_JL_NR_</b> <b>ST_28</b>	Jalandhar Sutlej - 18 Vill- Burj Hasun, Block- Nurmahal	1	30° 58' 31.920" N	75° 36' 1.550" E	<b>1.60</b>
		2	30° 58' 31.604" N	75° 36' 1.773" E	
		3	30° 58' 31.644" N	75° 36' 0.793" E	
		4	30° 58' 31.617" N	75° 36' 0.006" E	
		5	30° 58' 31.568" N	75° 35' 59.145" E	
		6	30° 58' 31.586" N	75° 35' 58.213" E	
		7	30° 58' 31.536" N	75° 35' 57.380" E	
		8	30° 58' 31.596" N	75° 35' 55.906" E	
		9	30° 58' 31.570" N	75° 35' 55.097" E	
		10	30° 58' 31.455" N	75° 35' 54.567" E	
		11	30° 58' 31.339" N	75° 35' 53.771" E	
		12	30° 58' 31.045" N	75° 35' 52.709" E	
		13	30° 58' 30.908" N	75° 35' 51.589" E	
		14	30° 58' 30.903" N	75° 35' 50.647" E	
		15	30° 58' 30.921" N	75° 35' 49.821" E	
		16	30° 58' 30.915" N	75° 35' 48.685" E	
		17	30° 58' 30.890" N	75° 35' 47.917" E	
		18	30° 58' 31.018" N	75° 35' 47.233" E	
		19	30° 58' 31.469" N	75° 35' 48.518" E	
		20	30° 58' 32.230" N	75° 35' 50.098" E	
		21	30° 58' 32.682" N	75° 35' 51.576" E	
		22	30° 58' 33.001" N	75° 35' 53.403" E	
		23	30° 58' 33.280" N	75° 35' 55.995" E	
		24	30° 58' 33.199" N	75° 35' 58.947" E	
		25	30° 58' 32.869" N	75° 36' 0.128" E	
		26	30° 58' 32.378" N	75° 36' 0.858" E	
<b>PO_JL_NR_</b> <b>ST_30B</b>	Jalandhar Sutlej - 19 Vill- Dhagara, Block- Nurmahal	1	30° 58' 33.929" N	75° 34' 54.999" E	<b>17.02</b>
		2	30° 58' 32.450" N	75° 35' 13.318" E	
		3	30° 58' 32.720" N	75° 35' 24.790" E	
		4	30° 58' 32.367" N	75° 35' 28.823" E	
		5	30° 58' 31.982" N	75° 35' 29.137" E	
		6	30° 58' 30.847" N	75° 35' 26.628" E	
		7	30° 58' 29.474" N	75° 35' 25.179" E	
		8	30° 58' 28.185" N	75° 35' 23.454" E	
		9	30° 58' 28.141" N	75° 35' 23.400" E	
		10	30° 58' 27.148" N	75° 35' 22.363" E	
		11	30° 58' 26.549" N	75° 35' 20.623" E	





District Survey Report  
Jalandhar District,  
Punjab

		12	30° 58' 26.454" N	75° 35' 18.505" E	
		13	30° 58' 27.025" N	75° 35' 15.017" E	
		14	30° 58' 27.400" N	75° 35' 13.376" E	
		15	30° 58' 27.392" N	75° 35' 11.848" E	
		16	30° 58' 26.863" N	75° 35' 8.152" E	
		17	30° 58' 26.429" N	75° 35' 5.412" E	
		18	30° 58' 26.338" N	75° 35' 3.907" E	
		19	30° 58' 26.205" N	75° 35' 2.318" E	
		20	30° 58' 26.447" N	75° 35' 0.466" E	
		21	30° 58' 27.068" N	75° 34' 58.233" E	
		22	30° 58' 27.659" N	75° 34' 56.717" E	
		23	30° 58' 28.389" N	75° 34' 55.158" E	
		24	30° 58' 28.910" N	75° 34' 53.660" E	
		25	30° 58' 29.392" N	75° 34' 52.058" E	
		26	30° 58' 30.110" N	75° 34' 51.153" E	
		27	30° 58' 31.208" N	75° 34' 49.720" E	
		28	30° 58' 31.857" N	75° 34' 47.971" E	
		29	30° 58' 32.282" N	75° 34' 46.414" E	
PO_JL_MH _ST_32	Jalandhar Sutlej - 20	1	30° 58' 33.861" N	75° 32' 45.806" E	11.22
		2	30° 58' 33.855" N	75° 32' 44.381" E	
		3	30° 58' 35.131" N	75° 32' 40.110" E	
		4	30° 58' 37.043" N	75° 32' 37.808" E	
		5	30° 58' 40.046" N	75° 32' 35.249" E	
		6	30° 58' 41.192" N	75° 32' 34.541" E	
		7	30° 58' 43.399" N	75° 32' 43.270" E	
		8	30° 58' 38.829" N	75° 32' 57.159" E	
		9	30° 58' 38.194" N	75° 33' 0.698" E	
		10	30° 58' 37.526" N	75° 32' 58.749" E	
		11	30° 58' 36.422" N	75° 32' 56.292" E	
		12	30° 58' 35.946" N	75° 32' 53.392" E	
		13	30° 58' 35.288" N	75° 32' 50.969" E	
		14	30° 58' 34.285" N	75° 32' 49.097" E	
PO_JL_MH _ST_33	Jalandhar Sutlej - 21	1	30° 58' 39.514" N	75° 32' 27.888" E	7.08
		2	30° 58' 37.073" N	75° 32' 31.312" E	
		3	30° 58' 36.891" N	75° 32' 31.336" E	
		4	30° 58' 37.140" N	75° 32' 29.619" E	
		5	30° 58' 36.743" N	75° 32' 25.365" E	
		6	30° 58' 36.942" N	75° 32' 25.192" E	
		7	30° 58' 38.448" N	75° 32' 24.665" E	
		8	30° 58' 39.842" N	75° 32' 24.826" E	
		1	30° 58' 34.245" N	75° 32' 12.696" E	
		2	30° 58' 34.168" N	75° 32' 12.526" E	



District Survey Report  
Jalandhar District,  
Punjab

PO_JL_MH _ST_33	3	30° 58' 34.414" N	75° 32' 12.574" E			
	4	30° 58' 35.322" N	75° 32' 12.106" E			
	5	30° 58' 35.719" N	75° 32' 9.887" E			
	6	30° 58' 36.525" N	75° 32' 11.417" E			
	7	30° 58' 38.645" N	75° 32' 16.401" E			
	8	30° 58' 39.815" N	75° 32' 19.634" E			
	9	30° 58' 39.834" N	75° 32' 21.901" E			
	10	30° 58' 38.879" N	75° 32' 23.270" E			
	11	30° 58' 38.247" N	75° 32' 23.722" E			
	12	30° 58' 37.515" N	75° 32' 24.019" E			
	13	30° 58' 36.702" N	75° 32' 24.848" E			
	14	30° 58' 36.696" N	75° 32' 24.857" E			
	15	30° 58' 36.400" N	75° 32' 21.685" E			
	PO_JL_MH _ST_33	1	30° 58' 32.902" N		75° 32' 8.826" E	
		2	30° 58' 32.348" N		75° 32' 8.519" E	
3		30° 58' 32.337" N	75° 32' 8.495" E			
4		30° 58' 32.405" N	75° 32' 7.546" E			
5		30° 58' 32.658" N	75° 32' 6.545" E			
6		30° 58' 32.481" N	75° 32' 5.701" E			
7		30° 58' 31.214" N	75° 32' 4.972" E			
8		30° 58' 30.358" N	75° 32' 5.302" E			
9		30° 58' 30.393" N	75° 32' 5.400" E			
10		30° 58' 27.638" N	75° 32' 3.490" E			
11		30° 58' 27.299" N	75° 32' 0.685" E			
12		30° 58' 28.204" N	75° 31' 57.302" E			
13		30° 58' 29.250" N	75° 31' 57.965" E			
14		30° 58' 30.027" N	75° 31' 58.760" E			
15		30° 58' 30.466" N	75° 31' 59.511" E			
16		30° 58' 31.389" N	75° 32' 1.046" E			
17		30° 58' 32.228" N	75° 32' 2.549" E			
18		30° 58' 33.043" N	75° 32' 4.156" E			
19		30° 58' 33.870" N	75° 32' 5.719" E			
20		30° 58' 34.153" N	75° 32' 6.985" E			
21		30° 58' 34.875" N	75° 32' 8.267" E			
22		30° 58' 34.445" N	75° 32' 8.294" E			
23		30° 58' 33.764" N	75° 32' 8.163" E			
PO_JL_MH _ST_33A	1	30° 58' 36.251" N	75° 32' 2.673" E	0.65		
	2	30° 58' 35.925" N	75° 32' 1.771" E			
	3	30° 58' 35.980" N	75° 32' 1.099" E			
	4	30° 58' 36.260" N	75° 32' 0.508" E			
	5	30° 58' 36.484" N	75° 31' 59.946" E			
		30° 58' 37.509" N	75° 32' 2.989" E			



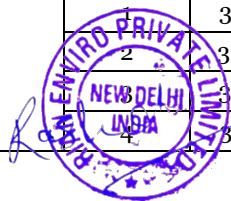
District Survey Report  
Jalandhar District,  
Punjab

	Jalandhar Sutlej - 22	7	30° 58' 39.543" N	75° 32' 8.889" E	
		8	30° 58' 39.548" N	75° 32' 9.763" E	
		9	30° 58' 38.386" N	75° 32' 7.805" E	
		10	30° 58' 37.727" N	75° 32' 6.382" E	
		11	30° 58' 37.157" N	75° 32' 4.825" E	
		12	30° 58' 36.859" N	75° 32' 3.520" E	
PO_JL_MH _ST_33B	Jalandhar Sutlej - 23	1	30° 58' 33.023" N	75° 31' 59.423" E	2.72
		2	30° 58' 32.047" N	75° 31' 58.138" E	
		3	30° 58' 31.705" N	75° 31' 57.596" E	
		4	30° 58' 31.386" N	75° 31' 56.454" E	
		5	30° 58' 31.137" N	75° 31' 54.747" E	
		6	30° 58' 30.961" N	75° 31' 52.816" E	
		7	30° 58' 30.956" N	75° 31' 51.795" E	
		8	30° 58' 31.142" N	75° 31' 51.487" E	
		9	30° 58' 31.618" N	75° 31' 51.728" E	
		10	30° 58' 31.551" N	75° 31' 52.716" E	
		11	30° 58' 32.136" N	75° 31' 53.634" E	
		12	30° 58' 32.884" N	75° 31' 54.159" E	
		13	30° 58' 32.303" N	75° 31' 52.708" E	
		14	30° 58' 31.932" N	75° 31' 51.749" E	
		15	30° 58' 32.075" N	75° 31' 51.119" E	
		16	30° 58' 32.069" N	75° 31' 50.101" E	
		17	30° 58' 31.723" N	75° 31' 48.897" E	
		18	30° 58' 32.333" N	75° 31' 49.340" E	
		19	30° 58' 32.886" N	75° 31' 50.157" E	
		20	30° 58' 33.527" N	75° 31' 51.166" E	
		21	30° 58' 36.336" N	75° 31' 59.507" E	
		22	30° 58' 36.247" N	75° 31' 59.941" E	
		23	30° 58' 35.605" N	75° 32' 1.079" E	
		24	30° 58' 35.499" N	75° 32' 1.558" E	
		25	30° 58' 35.198" N	75° 32' 2.157" E	
		26	30° 58' 33.982" N	75° 32' 0.559" E	
PO_JL_MH _ST_34	Jalandhar Sutlej - 24	1	30° 58' 18.701" N	75° 31' 18.442" E	23.53
		2	30° 58' 18.423" N	75° 31' 17.606" E	
		3	30° 58' 18.903" N	75° 31' 15.999" E	
		4	30° 58' 20.702" N	75° 31' 12.293" E	
		5	30° 58' 22.946" N	75° 31' 8.816" E	
		6	30° 58' 25.907" N	75° 31' 5.273" E	
		7	30° 58' 27.215" N	75° 31' 3.429" E	
		8	30° 58' 29.857" N	75° 31' 1.859" E	
		9	30° 58' 32.747" N	75° 31' 0.948" E	
		10	30° 58' 35.128" N	75° 31' 0.609" E	



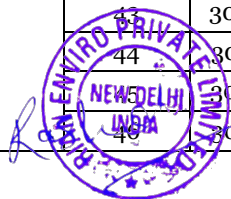
District Survey Report  
Jalandhar District,  
Punjab

		11	30° 58' 37.943" N	75° 30' 59.015" E	
		12	30° 58' 41.414" N	75° 30' 56.836" E	
		13	30° 58' 44.469" N	75° 30' 55.116" E	
		14	30° 58' 43.789" N	75° 30' 56.477" E	
		15	30° 58' 42.651" N	75° 31' 1.758" E	
		16	30° 58' 39.190" N	75° 31' 7.524" E	
		17	30° 58' 34.354" N	75° 31' 13.184" E	
		18	30° 58' 31.245" N	75° 31' 16.957" E	
		19	30° 58' 28.148" N	75° 31' 17.639" E	
		20	30° 58' 21.187" N	75° 31' 23.861" E	
PO_JL_MH _ST_35	Jalandhar Sutlej - 25	1	30° 58' 41.202" N	75° 30' 50.688" E	18.77
		2	30° 58' 38.683" N	75° 30' 53.302" E	
		3	30° 58' 38.483" N	75° 30' 47.903" E	
		4	30° 58' 39.823" N	75° 30' 35.143" E	
		5	30° 58' 36.439" N	75° 30' 21.360" E	
		6	30° 58' 35.498" N	75° 30' 19.325" E	
		7	30° 58' 38.431" N	75° 30' 21.665" E	
		8	30° 58' 42.356" N	75° 30' 24.786" E	
		9	30° 58' 47.852" N	75° 30' 30.483" E	
		10	30° 58' 49.767" N	75° 30' 33.619" E	
		11	30° 58' 50.081" N	75° 30' 36.190" E	
		12	30° 58' 49.109" N	75° 30' 41.479" E	
		13	30° 58' 47.434" N	75° 30' 44.152" E	
		14	30° 58' 45.688" N	75° 30' 46.289" E	
		15	30° 58' 43.607" N	75° 30' 47.993" E	
PO_JL_MH _ST_36	Jalandhar Sutlej - 26	1	30° 58' 30.548" N	75° 30' 2.670" E	2.98
		2	30° 58' 30.535" N	75° 29' 59.819" E	
		3	30° 58' 30.573" N	75° 29' 59.671" E	
		4	30° 58' 33.774" N	75° 30' 2.560" E	
		5	30° 58' 38.061" N	75° 30' 5.076" E	
		6	30° 58' 38.642" N	75° 30' 10.465" E	
		7	30° 58' 38.692" N	75° 30' 10.752" E	
		8	30° 58' 38.656" N	75° 30' 10.671" E	
		9	30° 58' 37.755" N	75° 30' 8.303" E	
		10	30° 58' 36.988" N	75° 30' 10.257" E	
		11	30° 58' 35.685" N	75° 30' 9.185" E	
		12	30° 58' 33.168" N	75° 30' 6.600" E	
		13	30° 58' 31.423" N	75° 30' 4.518" E	
PO_JL_SH_ ST_50A			31° 0' 50.791" N	75° 19' 48.205" E	41.76
			31° 0' 49.362" N	75° 19' 47.551" E	
			31° 0' 48.341" N	75° 19' 47.233" E	
			31° 0' 47.341" N	75° 19' 47.617" E	



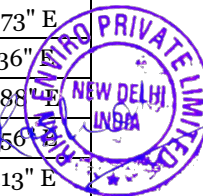
District Survey Report  
Jalandhar District,  
Punjab

Jalandhar Sutlej - 27	5	31° 0' 45.571" N	75° 19' 48.057" E
	6	31° 0' 44.438" N	75° 19' 48.583" E
	7	31° 0' 44.128" N	75° 19' 49.573" E
	8	31° 0' 43.999" N	75° 19' 50.594" E
	9	31° 0' 42.848" N	75° 19' 51.905" E
	10	31° 0' 41.503" N	75° 19' 52.678" E
	11	31° 0' 40.223" N	75° 19' 53.293" E
	12	31° 0' 38.966" N	75° 19' 53.979" E
	13	31° 0' 38.174" N	75° 19' 54.822" E
	14	31° 0' 37.541" N	75° 19' 55.608" E
	15	31° 0' 36.477" N	75° 19' 56.388" E
	16	31° 0' 35.293" N	75° 19' 56.974" E
	17	31° 0' 34.166" N	75° 19' 57.371" E
	18	31° 0' 33.432" N	75° 19' 58.024" E
	19	31° 0' 32.256" N	75° 19' 59.467" E
	20	31° 0' 30.543" N	75° 20' 0.820" E
	21	31° 0' 28.778" N	75° 20' 2.816" E
	22	31° 0' 26.945" N	75° 20' 5.361" E
	23	31° 0' 23.726" N	75° 20' 9.076" E
	24	31° 0' 23.060" N	75° 20' 11.155" E
	25	31° 0' 21.754" N	75° 20' 12.739" E
	26	31° 0' 21.144" N	75° 20' 14.314" E
	27	31° 0' 20.743" N	75° 20' 15.752" E
	28	31° 0' 19.944" N	75° 20' 17.410" E
	29	31° 0' 19.891" N	75° 20' 17.578" E
	30	31° 0' 14.013" N	75° 20' 25.805" E
	31	31° 0' 7.021" N	75° 20' 37.304" E
	32	31° 0' 3.439" N	75° 20' 37.873" E
	33	31° 0' 2.974" N	75° 20' 36.456" E
	34	31° 0' 1.884" N	75° 20' 34.021" E
	35	31° 0' 0.714" N	75° 20' 32.713" E
	36	30° 59' 59.504" N	75° 20' 31.983" E
	37	30° 59' 59.152" N	75° 20' 31.163" E
	38	30° 59' 58.841" N	75° 20' 30.438" E
	39	30° 59' 58.341" N	75° 20' 29.759" E
	40	30° 59' 57.176" N	75° 20' 28.948" E
	41	30° 59' 55.999" N	75° 20' 28.936" E
	42	30° 59' 55.058" N	75° 20' 28.538" E
	43	30° 59' 54.844" N	75° 20' 28.494" E
	44	30° 59' 54.312" N	75° 20' 28.021" E
	45	30° 59' 54.274" N	75° 20' 27.337" E
	46	30° 59' 54.977" N	75° 20' 26.257" E



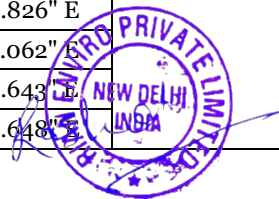
District Survey Report  
Jalandhar District,  
Punjab

		47	30° 59' 56.311" N	75° 20' 25.230" E	
		48	30° 59' 57.272" N	75° 20' 24.984" E	
		49	30° 59' 58.403" N	75° 20' 24.907" E	
		50	30° 59' 59.791" N	75° 20' 24.731" E	
		51	31° 0' 0.895" N	75° 20' 24.151" E	
		52	31° 0' 2.025" N	75° 20' 23.695" E	
		53	31° 0' 3.054" N	75° 20' 23.096" E	
		54	31° 0' 3.764" N	75° 20' 22.126" E	
		55	31° 0' 4.354" N	75° 20' 21.247" E	
		56	31° 0' 4.861" N	75° 20' 19.654" E	
		57	31° 0' 4.988" N	75° 20' 18.743" E	
		58	31° 0' 5.419" N	75° 20' 17.946" E	
		59	31° 0' 7.002" N	75° 20' 17.079" E	
		60	31° 0' 8.498" N	75° 20' 16.248" E	
		61	31° 0' 9.650" N	75° 20' 15.638" E	
		62	31° 0' 9.697" N	75° 20' 15.633" E	
		63	31° 0' 10.498" N	75° 20' 14.999" E	
		64	31° 0' 11.260" N	75° 20' 13.962" E	
		65	31° 0' 13.314" N	75° 20' 12.389" E	
		66	31° 0' 13.665" N	75° 20' 12.241" E	
		67	31° 0' 15.341" N	75° 20' 11.137" E	
		68	31° 0' 15.445" N	75° 20' 11.071" E	
		69	31° 0' 16.959" N	75° 20' 9.650" E	
		70	31° 0' 18.512" N	75° 20' 8.352" E	
		71	31° 0' 22.562" N	75° 20' 5.261" E	
		72	31° 0' 24.836" N	75° 20' 3.218" E	
		73	31° 0' 25.750" N	75° 20' 2.046" E	
		74	31° 0' 25.796" N	75° 20' 1.943" E	
		75	31° 0' 26.724" N	75° 20' 0.304" E	
		76	31° 0' 27.713" N	75° 19' 58.282" E	
		77	31° 0' 27.761" N	75° 19' 58.276" E	
		78	31° 0' 28.291" N	75° 19' 57.497" E	
		79	31° 0' 29.057" N	75° 19' 56.025" E	
		80	31° 0' 29.150" N	75° 19' 55.912" E	
		81	31° 0' 30.433" N	75° 19' 54.330" E	
		82	31° 0' 31.923" N	75° 19' 52.873" E	
		83	31° 0' 33.925" N	75° 19' 51.136" E	
		84	31° 0' 35.655" N	75° 19' 49.888" E	
		85	31° 0' 37.059" N	75° 19' 48.556" E	
		86	31° 0' 37.586" N	75° 19' 47.413" E	
		87	31° 0' 37.732" N	75° 19' 46.370" E	
		88	31° 0' 38.251" N	75° 19' 45.457" E	



District Survey Report  
Jalandhar District,  
Punjab

		89	31° 0' 39.218" N	75° 19' 45.266" E	
		90	31° 0' 40.966" N	75° 19' 45.550" E	
		91	31° 0' 42.072" N	75° 19' 45.301" E	
		92	31° 0' 42.946" N	75° 19' 44.695" E	
		93	31° 0' 44.603" N	75° 19' 44.095" E	
		94	31° 0' 46.056" N	75° 19' 43.649" E	
		95	31° 0' 47.763" N	75° 19' 43.665" E	
		96	31° 0' 48.874" N	75° 19' 43.500" E	
		97	31° 0' 49.384" N	75° 19' 42.873" E	
		98	31° 0' 50.009" N	75° 19' 42.619" E	
		99	31° 0' 50.821" N	75° 19' 43.343" E	
		100	31° 0' 50.659" N	75° 19' 44.727" E	
		101	31° 0' 51.302" N	75° 19' 46.305" E	
		102	31° 0' 52.134" N	75° 19' 46.781" E	
		103	31° 0' 52.845" N	75° 19' 47.474" E	
		104	31° 0' 51.919" N	75° 19' 48.013" E	
<b>PO_JL_SH_ ST_52</b>	<b>Jalandhar Sutlej -28</b>	1	31° 0' 20.846" N	75° 19' 57.051" E	<b>2.78</b>
		2	31° 0' 20.083" N	75° 19' 56.825" E	
		3	31° 0' 21.063" N	75° 19' 54.820" E	
		4	31° 0' 22.602" N	75° 19' 52.495" E	
		5	31° 0' 25.202" N	75° 19' 51.169" E	
		6	31° 0' 27.590" N	75° 19' 49.930" E	
		7	31° 0' 28.454" N	75° 19' 48.781" E	
		8	31° 0' 29.168" N	75° 19' 48.176" E	
		9	31° 0' 29.785" N	75° 19' 48.225" E	
		10	31° 0' 29.626" N	75° 19' 50.406" E	
		11	31° 0' 27.691" N	75° 19' 53.118" E	
		12	31° 0' 25.931" N	75° 19' 54.847" E	
		13	31° 0' 24.829" N	75° 19' 56.407" E	
		14	31° 0' 23.599" N	75° 19' 57.224" E	
		15	31° 0' 22.387" N	75° 19' 56.749" E	
		<b>PO_JL_SH_ ST_53A</b>	Jalandhar Sutlej - 29	1	
2	31° 0' 33.320" N			75° 19' 46.622" E	
3	31° 0' 33.517" N			75° 19' 45.565" E	
4	31° 0' 34.530" N			75° 19' 45.161" E	
5	31° 0' 34.532" N			75° 19' 45.283" E	
6	31° 0' 35.057" N			75° 19' 45.280" E	
7	31° 0' 35.674" N			75° 19' 44.826" E	
8	31° 0' 36.292" N			75° 19' 45.062" E	
9	31° 0' 35.983" N			75° 19' 45.643" E	
10	31° 0' 35.239" N			75° 19' 46.648" E	



*District Survey Report  
Jalandhar District,  
Punjab*

		11	31° 0' 34.380" N	75° 19' 47.635" E	
		12	31° 0' 33.589" N	75° 19' 48.088" E	
<b>PO_JL_SH_ ST_53B</b>	Jalandhar Sutlej - 30	1	31° 0' 38.226" N	75° 19' 44.550" E	<b>1.24</b>
		2	31° 0' 37.325" N	75° 19' 44.022" E	
		3	31° 0' 37.413" N	75° 19' 43.570" E	
		4	31° 0' 38.627" N	75° 19' 42.217" E	
		5	31° 0' 39.889" N	75° 19' 41.240" E	
		6	31° 0' 41.183" N	75° 19' 40.654" E	
		7	31° 0' 42.617" N	75° 19' 40.046" E	
		8	31° 0' 43.984" N	75° 19' 38.685" E	
		9	31° 0' 44.457" N	75° 19' 39.983" E	
		10	31° 0' 43.934" N	75° 19' 41.657" E	
		11	31° 0' 42.664" N	75° 19' 42.559" E	
		12	31° 0' 41.560" N	75° 19' 42.497" E	
		13	31° 0' 39.718" N	75° 19' 43.800" E	





### BENCH MARK

Permanent Bench Mark	Coordinates	Elevation	Sandbars Code
Thamunwal (Top Level on Bridge)	<ul style="list-style-type: none"><li>• 31.025890 N 75.304797 E</li></ul>	221.676 m	59 to 46
Mandi Kalu Bridge (Top Level on Bridge)	<ul style="list-style-type: none"><li>• 31.137402 N 75.1055020 E</li></ul>	222.444 m	62 to 69
Mandi Kalu Railway Bridge (Top Level on Bridge)	<ul style="list-style-type: none"><li>• 31.137186 N 75.108104 E</li></ul>	219.094 m	
Ladowal (Nerby Bridge) Top Surface Level	<ul style="list-style-type: none"><li>• 30.997479 75.788002</li></ul>	222.124 m	1 to 30B
Sidhwan Mehatpur Bridge (Top Level on Bridge)	<ul style="list-style-type: none"><li>• 30.966220 75.481876</li></ul>	225.325 m	32 to 36

**Note:** The survey was started by taking Top level of Pier of Mandi Kalu Railway Bridge as a first reference point/benchmark.



## BENCH MARK PHOTOGRAPHS



Mandi Kalu Bridge



Village- Sadhara



Mandi Kalu Railway Bridge



OFFICE OF EXECUTIVE ENGINEER/JALANDHAR  
DRAINAGE-CUM- MINING DIVISION,  
JALANDHAR



DEPARTMENT OF WATER RESOURCES  
PUNJAB  
INDIA

[Email-xenminingjalandhar@gmail.com](mailto:xenminingjalandhar@gmail.com)

TO WHOM IT MAY CONCERN

It is certified that the co-ordinates as mentioned in the DSR (District Survey Report) has been checked and found matched with the co-ordinates KML files.

Executive Engineer-Cum-  
District Mining Officer  
Jalandhar.



OFFICE OF EXECUTIVE ENGINEER/JALANDHAR  
DRAINAGE-CUM- MINING DIVISION,  
JALANDHAR



DEPARTMENT OF WATER RESOURCES  
PUNJAB  
INDIA

[Email-xenminingjalandhar@gmail.com](mailto:Email-xenminingjalandhar@gmail.com)

TO WHOM IT MAY CONCERN

It is certified that the levels given in cross-section of River Sutlej in the DSR (District Survey Report) as observed in the field has been checked and found approximately matching as per office record.

Executive Engineer-Cum-  
District Mining Officer  
Jalandhar.



OFFICE OF EXECUTIVE ENGINEER/JALANDHAR  
DRAINAGE-CUM- MINING DIVISION,  
JALANDHAR



DEPARTMENT OF WATER RESOURCES  
PUNJAB  
INDIA

[Email-xenminingjalandhar@gmail.com](mailto:Email-xenminingjalandhar@gmail.com)

TO WHOM IT MAY CONCERN

It is certified that the Annexure-5 has been prepared after taking into consideration all the observation of respective Sub Divisional Committee.

Executive Engineer-Cum-  
District Mining Officer  
Jalandhar.



**Annexure H**  
**(Detailed Lithological Section of Agriculture Sites up to 15 feet)**



## Bangiwal Agriculture Site

Depth	Litholog (upto 3m)
0 to 0.61m	Soil
0.61 m to 3 m	Sand

Calculation of total reserve:

Area(Ha.)\*10000\*Bulk Density\*Depth

$2.77*10000*1.52*3= 126312 \text{ MT}$

Total Mineral to be mined (MT) Considering 60% = 75787.2 MT



## Gosuwal Agriculture Site

Depth	Litholog (upto 3m)
0 to 1.22m	Soil
1.22 m to 3 m	Sand

Calculation of total reserve:

Area(Ha.)\*10000\*Bulk Density\*Depth

$3.11*10000*1.52*3= 141816$  MT

Total Mineral to be mined (MT) Considering 60% =  $85089.6$  MT





**Annexure I**  
**(Wildlife/DFO Certificate)**



**Government of Punjab**  
**Department of Forest & Wildlife Preservation**  
**O/o Divisional Forest Officer, Wildlife Division, Phillaur**

**CERTIFICATE**

**TO WHOM IT MAY CONCERN**

It is certified that the land proposed for potential sand mining sites in Wildlife Range, Jalandhar is not included in areas:-

- I. Falling in the Eco-sensitive Zones of Wildlife Sanctuary & Conservation Reserves cover under **Wildlife Protection Act 1972** and **Punjab Wildlife Preservation Act 1959**.
- II. Falling in any Sanctuary and Conservation Reserve.
- III. The Sutlej River Area adjacent to the Wildlife Range, Jalandhar does not fall under the Eco Sensitive Zone of the Wildlife Sanctuary and Conservation Reserve cover under Wildlife (Protection) Act, 1972.

✓ 14/12/2022

Vikram Singh Kundra (I.F.S.)  
Divisional Forest Officer,  
Wildlife Division,  
Phillaur.




Department of Forest and wild life Preservation  
Office of Divisional Forest Officer  
Jalandhar at Phillaur Ph. No. 01826-222537  
Email Id dfojalandhar@gmail.com

**CERTIFICATE**

**TO WHOM IT MAY CONCERN**

It is certified that the land proposed for potential sand mining sites in village Lassara/Powari, Kadiana, Chhole, Ganna Pind, Meowal and Mau Sahib, Akkuwal, Sidhara, Burj hasan, Dhagara, Mianwal, Dhagra tehsil Phillaur district Jalandhar is not included in areas:-

I. Notified under section 4 and 5 of PLPA Act 1900.

  
Divisional Forest Officer,  
Jalandhar at Phillaur.



Department of Forest and wild life Preservation  
Office of Divisional Forest Officer  
Jalandhar at Phillaur Ph. No. 01826-222537  
Email Id dfojalandhar@gmail.com

**CERTIFICATE**

**TO WHOM IT MAY CONCERN**

It is certified that the land proposed for potential sand mining sites in village Rame Taharpur, Baupur, Naurangpur, Thamunwal, Bhando, Gatta Mundi Kasu, Mahmonwal, Mundi Shehrian, Yasafpur Darewal, Mundi Kalu, Rampur tehsil Shahkot district Jalandhar is not included in areas:-

I. Notified under section 4 and 5 of PLPA Act 1900.

  
Divisional Forest Officer,  
Jalandhar at Phillaur.



Department of Forest and wild life Preservation  
Office of Divisional Forest Officer  
Jalandhar at Phillaur Ph. No. 01826-222537  
Email Id dfojalandhar@gmail.com

**CERTIFICATE**

**TO WHOM IT MAY CONCERN**

It is certified that the land proposed for potential sand mining sites in village Vehran, Umrewal, Baghela, kaimwala, Chhaura, Raipur Gujran, Bangiwal, Gaunsuwal tehsil Nakodar district Jalandhar is not included in areas:-

- I. Notified under section 4 and 5 of PLPA Act 1900.

  
Divisional Forest Officer,  
Jalandhar at Phillaur.



Department of Forest and wild life Preservation  
Office of Divisional Forest Officer  
Jalandhar at Phillaur Ph. No. 01826-222537  
Email Id dfojalandhar@gmail.com

**CERTIFICATE**

**TO WHOM IT MAY CONCERN**

It is certified that the land proposed for potential sand mining sites in village Lassara/Powari, Kadiana, Chhole, Ganna Pind, Meowal and Mau Sahib, Akkuwal, Sidhara, Burj hasan, Dhagara, Mianwal, Dhangra tehsil Phillaur district Jalandhar is not included in areas:-

I. Notified under section 4 and 5 of PLPA Act 1900.

*[Signature]*  
Divisional Forest Officer,  
Jalandhar at Phillaur.



**Annexure J**  
**(Public Consultation)**



## **PUBLIC CONSULTATION**

**PUBLIC CONSULTATION:** To incorporate changes and suggestions of general public for the proposed area for mining the public consultation is necessary. When the DSR with mining lease area details is put in public domain on district portals the suggestions and comments from different stakeholders are incorporated in final DSR.

### **PROCEDURE FOR PUBLIC CONSULTATION:**

Preliminary Draft DSR consisting of list of potential mining zones was uploaded Public domain on dated of Public domain 07/12/2022 dated on website Jalandhar.nic.in

Seeking comments /observation /suggestion from general public /various stakeholder. Press releases for same was given in newspaper. The final list of sand mining areas [leases to be granted on riverbed & Patta land/Khatedari land, desiltation location (ponds/lakes/dams), M-Sand Plants (alternate source of sand)] after the public hearing needs to be defined in the final DSR in the format as per **Annexure-V**. The details regarding cluster and contiguous cluster needs to be provided in **Annexure-VI**. The details of the transportation need to be provided in **Annexure-VII**.

**Note: There are no comments received from public /various stakeholder on Public domain till date regarding the DSR uploaded on public portal.**





**NATIONAL POWER TRAINING INSTITUTE**  
(Under Ministry of Power, Govt. of India)  
An ISO 9001 & 14001 Organization  
NPTI Complex, Sec-33, Faridabad – 121003

**ADMISSION NOTICE**

Six Months Online Post Graduate Diploma in Cyber Security (PGDCS) Program  
(NPTI has been given a mandate for Training and Certification in Cyber Security for Power Sector Professionals)  
For details visit our website: [npti.gov.in](http://npti.gov.in)  
[npti.whizhack.in](http://npti.whizhack.in) Starting 1st March, 2023

Over 50 years of Service for Training and Human Resource Development in Power Sector  
CBC 34107/12/0011/2223

**VETERINARY COUNCIL OF INDIA**  
'A' WING, 2ND FLOOR, AUGUST KRANTI BHAWAN,  
BHIKAJI CAMA PLACE, NEW DELHI – 110066

**PUBLIC NOTICE**

It is hereby informed that Veterinary Council of India will be using NEET (UG)-2023 Merit List for admission of students to B.V.Sc. & A.H. Degree Course for the Academic Year 2023-24 for filling up of seats in recognized Veterinary Colleges under 15% All India Quota (AIQ). Students desirous to take admission to B.V.Sc. & A.H. Degree Course under 15% All India Basis are hereby advised to appear in NEET (UG)-2023 to be conducted by National Testing Agency (NTA) on 7th May, 2023 [Sunday].  
Sd/- Secretary, VCI (Addl., Charge)  
CBC 01222/12/0003/2223

**SAI**  
**SPORTS AUTHORITY OF INDIA**  
NORTHERN REGIONAL CENTRE, SONEPAT

**Apply Online**

- Venue :- Sports Authority of India, Joshi Chauhan, Bahalgarh, Sonapat, Haryana-131021
- Post :- Young Professional(Accounts/Finance) & Junior Consultant (Accounts/Finance)(Male & Female)
- Number of Posts:- YP (Accounts/Finance)-03 & JC (Accounts/Finance)-01
- Remuneration :- YP(Accounts/Finance)-Rs.50,000-70,000/-per month & JC (Accounts/Finance)-Rs. 80,250-1,00,000/- per month
- Age limit :- Maximum 32 years for YP & 45 years for JC (Accounts/Finance)- (as on 08.02.2023)
- Date of Start :- 18.01.2023 (online)
- Date of Closing:- 08.02.2023
- Note:- for full details of the advertisement, please visit website [www.sportsauthorityofindia.nic.in](http://www.sportsauthorityofindia.nic.in)

DI-24519 (Executive Director)

**INVITATION FOR EXPRESSION OF INTEREST**

Allotment of Verka Milk Booth for four years lease in 91 Sub Area Shopping Centre. Tender documents available with Manager, 91 Sub Area Canteen. Last date of submission of tender is 1200 hrs, 03 Feb. 2023 at 91 Sub Area Shopping Centre, Jalandhar Cantt. Allotment is open only for Ex-Defence Personnel:-

Sr. No.	Type of Venture/Trade	Area (In Sqms)	Fixed Licence fee per month (Approx Rs.)	Minimum Reserve Rebate per month (Rs.)
1.	Verka Milk Booth	26.85	840.00	2000.00

Note:-  
1. Prepaid electric meters to be installed by the allotted vendors at their own cost.  
2. Clarification, if any, may be sought from Manager, 91 Sub Area Canteen. Phone No. 0181-2263266  
3. Tender will be opened on 04 Feb. 2023 at 11:00 hrs by the board of Officer in presence of all bidders in 91 Sub Area Canteen Complex.  
Dated: 17 Jan 2023 Sd/- Chairman,  
91 Sub Area Shopping Centre  
DI-24545

**RESERVE BANK OF INDIA**  
Central Vista, Sector - 17, Chandigarh -160017

**TENDER NOTICE**

Reserve Bank of India, Chandigarh invites e-Tenders for supply of sufficient number of fully covered, container trucks/vehicles for transportation of banknotes. The tendering would be done through the e-tendering portal of MSTC Ltd. (<https://www.mstcecommerce.com/eprochome/rbi>). All interested commercial firms / institutions / individuals must have registered themselves with MSTC to participate in the tendering process.  
The detailed notice inviting tender is also available at <https://www.rbi.org.in> under the head "Tenders".

e-Tender Schedule	Schedule Date
e-Tender view date at MSTC website	18.01.2023 (Wednesday, 12:00 PM onwards)
Start Bid Date	07.02.2023 (Tuesday, 12:00 PM onwards)
Offline Pre-Bid Meeting, if required	14.02.2023 (Tuesday, 03:00 PM)
Last date of submission of EMD	27.02.2023 (Monday, 12:00 PM)
Close Bid Date	27.02.2023 (Monday, 02:00 PM)
Date & Time of opening of Part-I (Technical Bid)	27.02.2023 (Monday, 04:00 PM)
Date & time of opening of Part-II (Price Bid)	To be informed subsequently

The Bank reserves the right to accept or reject any or all Tenders without assigning any reason thereof.  
Regional Director  
Chandigarh  
18.01.2023

**RESERVE BANK OF INDIA**  
Central Vista, Sector - 17, Chandigarh -160017

**TENDER NOTICE**

Reserve Bank of India, Chandigarh invites e-Tenders for Sale of Briquettes of Shredded Currency Notes. The tendering would be done through the e-tendering portal of MSTC Ltd. (<https://www.mstcecommerce.com/eprochome/rbi>). All interested commercial firms / institutions / individuals must have registered themselves with MSTC to participate in the tendering process.  
The detailed notice inviting tender is also available at <https://www.rbi.org.in> under the head "Tenders".

e-Tender Schedule	Schedule Date
e-Tender view date at MSTC website	18.01.2023 (Wednesday, 12:00 hrs onwards)
Start Bid Date	07.02.2023 (Tuesday, 12:00 hrs onwards)
Offline Pre-Bid Meeting, if required	13.02.2023 (Tuesday, 15:00 hrs)
Last date of submission of EMD	27.02.2023 (Monday, 12:00 hrs)
Close Bid Date	27.02.2023 (Monday, 14:00 hrs)
Date & Time of opening of Part-I (Technical Bid)	27.02.2023 (Monday, 15:30 hrs)
Date & time of opening of Part-II (Price Bid)	To be informed subsequently

The Bank reserves the right to accept or reject any or all Tenders without assigning any reason thereof.  
Regional Director  
Chandigarh  
18.01.2023

**DISCLAIMER**

"The Tribune Trust does not take responsibility for the contents of the advertisements (Display/ Classified) carried in this newspaper. The paper does not endorse the same. Readers are requested to verify the contents on their own before acting there upon."

Like us on: [facebook.com/WesternRly](https://www.facebook.com/WesternRly) Follow us on: [twitter.com/WesternRly](https://twitter.com/WesternRly)

**GOVERNMENT OF HARYANA TENDER NOTICE**

Sr. No.	NAME OF DEPARTMENT	NAME OF WORK/NOTICE/ TENDER	OPENING DATE CLOSING DATE	AMOUNT/ EMD (APPROX.) in Rupees
1	DIRECTORATE OF INFORMATION, PUBLIC RELATIONS & LANGUAGES, HARYANA	E-TENDER FOR INVITING RATES FROM REPUTED FIRMS/AGENCIES FOR SEATING UP THE EXHIBITION AT GURUGRAM, HARYANA ON TURKEY BASIS.	18.01.2023 25.01.2023	EMD RS. 10,000/-

WEBSITE OF THE DEPARTMENT: <https://etenders.hry.nic.in> Tender No. 2023  
NODAL OFFICER/CONTACT DETAILS/E-MAIL: 0172-5059128  
FOR FURTHER INFORMATION KINDLY VISIT: [www.haryanaprocmnt.gov.in](http://www.haryanaprocmnt.gov.in) or [www.etenders.hry.nic.in](http://www.etenders.hry.nic.in)  
PRDH/11/2023/40/15087/11/31/4

**TOWN AND COUNTRY PLANNING DEPARTMENT HIMACHAL PRADESH**

**REQUEST FOR PROPOSAL (RFP) FOR EMPANELMENT OF CONSULTANT FOR PREPARATION OF EXISTING LAND USE MAPS AND REGISTERS, DEVELOPMENT PLANS AND REGIONAL PLANS IN STATE OF HIMACHAL PRADESH**

The Department of Town and Country Planning, is responsible for ensuring planned and regulated development of the Regions, Planning and Special Areas constituted under the provisions of Himachal Pradesh Town and Country Planning Act, 1977. The Department has consistently envisaged and endeavored towards enabling unique and innovative planning to facilitate a socially inclusive, economical, vibrant and environmentally sustainable development of the Regions, Planning Areas/Special Areas. The TCP Department hereby invites Request for Proposal (RFP) for empanelment of consultant for preparation of Existing Land Use Maps and Registers (ELU), Development Plans and Regional Plans in the State of Himachal Pradesh. The RFP Document will be available online on the portal <https://hptenders.gov.in> and can be downloaded from 16.01.2023 onwards.  
All the interested parties are therefore requested to attend the Pre-bid Meeting on 30.01.2023 and submit their proposals up to 22-02-2023, 13:00 PM. For further information please contact TCP Directorate on the following telephone Nos. 0177-2625752 & 2621450.  
Sd/- Director  
Town and Country Planning Deptt.  
Himachal Pradesh, Shimla – 171009  
Ph: 0177-2622494.  
DPR/HP/731

**APPOINTMENT OF SENIOR RESIDENTS IN THE DEPARTMENT OF EMERGENCY MEDICINE AT INDIRA GANDHI MEDICAL COLLEGE SHIMLA – 171001**

Applications are invited from all the candidates fulfilling the requisite qualifications and other eligibility conditions on the prescribed application form as per Appendix-'A' for the posts of Senior Residents in the Department of Emergency Medicine at IGMC, Shimla. The last date by which the interest candidates are required to upload/submit their application forms duly filled in all respects alongwith copy of receipt of the application fee in the office of the Principal, Indira Gandhi Medical College, Shimla in all respects along with requisite application fee (Rs.1500/- for General category and Rs.1000/- for the Reserved category SC/ST/OBC etc. is 24.1.2023 beyond which no application shall be entertained. The requisite application fee will have to be deposited through online mode only i.e. through the link <https://www.onlineshbi.com/sbicollect/collecthome.htm> (PRINCIPAL IGMC SR. RESIDENCY INTERVIEW ACCOUNT). The details of availability of vacancy are provided at Appendix-'B' of this advertisement notice. The eligibility criteria and other terms & conditions for selection/appointment can be seen as well as downloaded from the website [www.igmcshimla.edu.in](http://www.igmcshimla.edu.in) and <http://www.hp.gov.in/hpdmer/>. The candidates should regularly remain in touch with the website as the further changes, if any, & other information will be conveyed through the Institutional website.  
Sd/- Principal,  
I.G.M.C. Shimla.  
DPR/HP/5305

**CHIEF MEDICAL OFFICER, MANDI HIMACHAL PRADESH**  
Website: <http://www.igmcshimla.edu.in>  
E-mail: [cmo@gmail.com](mailto:cmo@gmail.com), Ph. No. 01905222177

**NOTICE INVITING TENDER (NIT)**

Tender Reference Number: 632-34 Dated: 17.01.22

E-tenders are invited from registered Firms, Proprietorship firm(s)/ Partnership firm(s)/ Company/ Corporation/ Cooperative Society or any legal entity for supply of various items as mentioned at Annexure-A. Prescribed tender form can be downloaded from website <https://www.hptenders.gov.in> on or before last date and time for submission of tender.

Date & Time of Online Publication:	17.01.2023
Period for Downloading of e-tender Document:	18.01.2023
Last Date and Time for Submission/uploading of e-tender:	08.02.2023
Date & Time for Opening of Eligibility Bid:	10.02.2023 at 02:30 p.m.
Cost of the Tender Document:	1,000/- (Rupees One Thousand only)
Earnest Money Deposit (EMD):	1,50,000/- (Rupees One Lakh fifty thousand only)

All subsequent corrigendum, modifications and clarifications in respect of this tender will be published only on aforesaid websites. The bidders are advised to visit the aforesaid website regularly regarding corrigendum, modifications and clarifications in respect of this tender. The undersigned reserves the right to reject any or all the tender offers without assigning any reason.  
Chief Medical Officer, Mandi Himachal Pradesh  
DPR/HP/5304

**DISCLAIMER**

"The Tribune Trust does not take responsibility for the contents of the advertisements (Display/ Classified) carried in this newspaper. The paper does not endorse the same. Readers are requested to verify the contents on their own before acting there upon."

**KENDRIYA VIDYALAYA PALAMPUR (H.P.) CORRIGENDUM**

Advertisement published in The Tribune, dated 15-01-2023 regarding the auction of condemnation articles, figure against Chemistry "7508" may be read in place of "70508".  
DI-24500  
Sd/- Principal

**WESTERN RAILWAY E-CORRIGENDUM-2 TO E-TENDER NOTICE**

In continuation to E-Tender Notice No.Dy.CE-C-IV-ADI-KLR-TRD-EPC-01 dated 24.12.2022 published in the new papers & tender uploaded on web site, the following corrigendum have been made in the tender documents uploaded on Web Site: [www.ireps.gov.in](http://www.ireps.gov.in).

Sr. No.	Corrigendum	As per original uploaded on web site	As per Corrigendum uploaded on web site
1	Name of work	Engineering, Procurement and Construction (EPC) for all civil engineering works (Earthwork, Blanketing, Retaining Wall Boundary Wall/ Side Drain, Major Bridges, Minor Bridges and LHS/RUB, LCs, Construction of Station Buildings, Platform, Subways cover over Platforms, Staff Quarters, approach roads, Offices, Service Buildings and Supply of Machine Crushed 50 mm Crushed Stone Ballast, including complete track works linking and Yard work, Electrical (General) and OHE(TRD) works in connection with Gauge Conversion work between Kadi Kadi - Katosan Road (37.23 kms) of Ahmedabad Division on Western Railway.	Engineering, Procurement and Construction (EPC) for all civil works (Earthwork, engineering Blanketing, Retaining Wall / Boundary Wall/ Side Drain, Major Bridges, Minor Bridges and LHS/RUB, LCs, Construction of Station Buildings, Platform, Subways cover over Platforms, approach roads, Offices, Service Buildings and Supply of 50 mm Machine Crushed Stone Ballast, Complete track works including linking and Yard work, Electrical (General) and OHE(TRD) works in connection with Gauge Conversion work between Kadi - Kadi Katosan Road (37.23 kms) of Ahmedabad Division on Western Railway.
2	Cost of work	₹ 206.95 Crore	₹ 203.63 Crore
3	Bid Security	₹ 1,03,47,700.00	₹ 1,01,81,700/-
4	Tender Documents	Tender Document (EPC) & RFP	Modified tender Document (EPC) & RFP dated 16-01-2023
5	Drawings	Nil	Drawings
6	Completion Period	24 Months	18 Months

Note: 1. Other terms & conditions will remain unchanged.  
2. Bidders are requested to see the entire corrigendum uploaded on website before bidding the tender.  
Like us on: [facebook.com/WesternRly](https://www.facebook.com/WesternRly) Follow us on: [twitter.com/WesternRly](https://twitter.com/WesternRly)  
0750

**PUNJAB REMOTE SENSING CENTRE**  
(A Government of Punjab Enterprise)  
PAU Campus, Ludhiana 141004  
[www.psrc.gov.in](http://www.psrc.gov.in)  
(Advertisement No. 02/2023 dated 15.01.2023)

Applications are invited for the posts of and Jr. Research Fellows, Project Fellows and GIS Developer (Mobile Application Developer) on contractual basis for a period of six months likely to be extended based on candidate's performance review and Project Scheme/Centre's requirements. For further details visit website [www.psrc.gov.in](http://www.psrc.gov.in).  
DI-24499 Sd/- Director

**Chandigarh Judicial Academy**  
I.S. Bindra Stadium, Sector-63, S.A.S. Nagar, Mohali Sector-43-B, Chandigarh - 160022

Tender No. Dir/CJA/2023/212/G Dated:17.01.2023

Tenders are invited via the e-tendering process for the supply, testing, installation and commissioning of 115 IP CCTV Cameras in the Chandigarh Judicial Academy on the tender form available at the website <https://etenders.chd.nic.in/>.

A complete set of requests for proposal documents, including all terms and conditions, is available for download from the Academy's website, [www.cja.gov.in](http://www.cja.gov.in). Offers must be submitted by 11.02.2023 till 04:00 PM.  
Sd/- DIRECTOR (ADMINISTRATION)  
CHANDIGARH JUDICIAL ACADEMY

**ਅੰਮ੍ਰਿਤਸਰ ਵਿਕਾਸ ਅਥਾਰਟੀ**  
ਪੁੱਤਾ ਭਵਨ, ਗਰੀਨ ਐਵੀਨਿਊ, ਅੰਮ੍ਰਿਤਸਰ

**ਦਿਲਚਸਪੀ ਦਾ ਪ੍ਰਗਟਾਵਾ**

ਆਮ ਜਨਤਾ ਨੂੰ ਸੂਚਿਤ ਕੀਤਾ ਜਾਂਦਾ ਹੈ ਕਿ ਅੰਮ੍ਰਿਤਸਰ ਵਿਕਾਸ ਅਥਾਰਟੀ, ਅੰਮ੍ਰਿਤਸਰ ਵੱਲੋਂ ਮਿਤੀ 28.12.2022 ਨੂੰ ਵੱਖ-ਵੱਖ ਅਖਬਾਰਾਂ/ ਨਿਊਜ਼ ਪੇਪਰ ਵਿੱਚ "ਦਿਲਚਸਪੀ ਦਾ ਪ੍ਰਗਟਾਵਾ" ਵਿਸ਼ੇ ਅਧੀਨ ਪਬਲਿਕ ਨੋਟਿਸ ਦਿੱਤਾ ਗਿਆ ਸੀ ਕਿ ਅਥਾਰਟੀ ਦੇ ਅਧਿਕਾਰ ਖੇਤਰ ਅਧੀਨ ਆਉਂਦੇ ਜਿਲ੍ਹਾ ਅੰਮ੍ਰਿਤਸਰ ਅਤੇ ਪਠਾਨਕੋਟ ਵਿੱਚ ਪੰਜਾਬ ਅਥਾਰਟੀਮੈਂਟ ਅਤੇ ਪ੍ਰਾਪਰਟੀ ਰੈਗੂਲੇਸ਼ਨ ਐਕਟ, 1995 (ਅਮੈਂਡਡ) ਦੇ ਤਹਿਤ ਰਿਹਾਇਸ਼ੀ ਪਲਾਨਿੰਗ ਕਨੈਨੀਆਂ/ਅਰਬਨ ਆਰਟੇਟਾਂ ਵਿਕਸਿਤ ਕਰਨ ਦੇ ਮੋਤਵ ਅਧੀਨ ਚਾਰਵਾਨ ਪਾਰਟੀਆਂ/ਲੋਕ, ਜੋ ਅਪਣੀ ਜਮੀਨ Land Pooling Policy, 2013 ਤਹਿਤ ਦੇਣਾ ਚਾਹੁੰਦੇ ਹਨ, ਆਪਣੇ ਪੁਸਤਾਕ ਅੰਮ੍ਰਿਤਸਰ ਵਿਕਾਸ ਅਥਾਰਟੀ, ਅੰਮ੍ਰਿਤਸਰ ਨੂੰ ਨੋਟਿਸ ਜਾਰੀ ਹੋਣ ਤੋਂ 21 ਦਿਨ ਦੇ ਅੰਦਰ ਅੰਦਰ, ਭਾਵ ਕਿ ਮਿਤੀ 17.01.2023 ਤੱਕ, ਮੋਹਰਬੰਦ ਨਿਵਾਸੀ ਵਿੱਚ ਭੇਜ ਸਕਦੇ ਹਨ। ਪਰ ਤਕਨੀਕੀ ਕਾਰਨਾਂ ਕਰਕੇ ਹੁਣ ਚਾਰਵਾਨ ਪਾਰਟੀਆਂ/ਲੋਕ, ਆਪਣੇ ਇਹ ਪੁਸਤਾਕ ਮਿਤੀ 24.01.2023 ਤੱਕ ਨਿਮਨਹਸਤਾਖਰ ਦੇ ਦਫਤਰ ਵਿਖੇ ਮੋਹਰਬੰਦ ਨਿਵਾਸੀ ਵਿੱਚ ਭੇਜ ਸਕਦੇ ਹਨ।  
ਪੁਸਤਾਕ ਭੇਜਣ ਦਾ ਪਤਾ: ਦਫਤਰ ਵਾਈ ਮੁੱਖ ਪ੍ਰਸ਼ਾਸਕ, ਅੰਮ੍ਰਿਤਸਰ ਵਿਕਾਸ ਅਥਾਰਟੀ, ਪੁੱਤਾ ਭਵਨ, ਗਰੀਨ ਐਵੀਨਿਊ, ਅੰਮ੍ਰਿਤਸਰ।  
ਵਾਈ ਮੁੱਖ ਪ੍ਰਸ਼ਾਸਕ, ਏ.ਡੀ.ਏ. ਅੰਮ੍ਰਿਤਸਰ।

**SHIMLA JAL PRABHANDHAN NIGAM LIMITED**  
**NOTICE INVITING QUOTATION**

Short term online quotation is hereby invited by the undersigned for hiring of Two No's Bolero, One Bolero Camper and one Bolero Pick up vehicle with driver for use in SJPNL US CLUB Shimla-1

The fuel cost will be responsibility of service provider. Night halt charges when the vehicle is outside the headquarter/ Station will be paid extra & the vehicles shall be hired for 2500 K.M. per month and no extra kilometer will be permitted.

The quotation should reach in the office of undersigned upto 11.00 a.m. on 31.01.2023 and shall be opened on the same day 11.30 a.m. in the presence of intending bidder or their representative who wish to be present.

**TERM AND CONDITIONS OF THE CONTEXT**

- The quotation should be in sealed cover.
- Earnest money amounting to Rs. 58,000/- in the form of FDR should be pledged in favour of Additional General Manger Sewerage SJPNL US Club Shimla-1, payable at Shimla may please be enclosed with the offer, in a separate envelope
- The rates offered shall be valid for 36 months from the date of award. The contract should be for a period of 36 months. From the award, SJPNL reserves the right to extend the contract in future for a period of 12 months after satisfactory performance.
- After acceptance of rates, the owner shall have to sign an agreement with terms and conditions with regard to hiring of Vehicle/hire charges.
- The vehicle should be fit with basic amenities.
- The vehicle should be in good working order and should be new one model i.e. latest model after 1st April, 2022 and should not have run more than 15000/- KMs. The owner shall have valid permit for plying the vehicle in HP as well as all over India.
- The registration fee, payment of route permit, renewal of route permit. Payment of all taxes and passing of vehicle will be the responsibility of the owner. It will be the responsibility of the owner to obtain the necessary permit to ply the vehicle on restricted/sealed at shimla.
- The owner shall have necessary permit to ply the vehicle. Payment of all taxes including toll tax/entry fee barrier etc. Within HP and interstate will be the responsibility of the owner.
- Normal duty hours will be 11 hours per day i.e. 9:00 a.m. to 8:00 p.m. for & Night halt shall be paid @ Rs. 300/night.
- SJPNL will not pay for lubricants/coolants/grease etc.
- SJPNL shall have the right to deduct taxes/TDS/bank charges etc. at source as applicable as per rules in force from time to time.

**Additional General Manger Sewerage Division SJPNL US Club shimla-171001**  
No. Sew SJPNL-SA-Vehicle NIQ/2020- DPR/HP/730

**PUBLIC NOTICE**

As per the guidelines issued by the Ministry of Environment, Forest and Climate Change, Government of India, the KML file of post monsoon survey of District Jalandhar has been prepared and uploaded on District website [www.jalandhar.nic.in](http://www.jalandhar.nic.in). For any suggestion or objection in this regard, the office of Executive Engineer-Cum-District Mining Officer, Jalandhar, Canal Colony, Jalandhar, Kapurthala Road at Jalandhar can be reached with in one month or Email can be sent to [xenminingjal@gmail.com](mailto:xenminingjal@gmail.com).  
Sd/- Executive Engineer-Cum District Mining Officer, Jalandhar.  
DI-24502

**SHORT TERM TENDER NOTICE HP FOREST DEPARTMENT**  
Tel. No. 0170422397  
e-mail: [dfoponta@gmail.com](mailto:dfoponta@gmail.com)

**INVITATION FOR BIDS (IFB)**

The Divisional Forest Officer, Division Forest office Paonta Sahib, District Sirmour HP on behalf of Governor of HP invites the item rate bids, in electronic tendering system from the eligible class of contractors for the works as detailed as under:-

Sr. Name of work	Estimated Cost	Earnest Money	Tender Form rate
1. Construction of Sirmour Van Vihar, Museum at Sirmour Tall near Sataun, in Paonta Sahib Range, under Division Forest Office Paonta Sahib, HP.	1919986/-	57600/-	1500/-

Starting date for downloading bid : 17.01.2023 (4:30 PM)  
Deadline for submission of Bid : 24.01.2023 (10:00 AM)  
Tender opening date : 24.01.2023 (10:45 AM)

The bidders are advised to note other details of Tender from the HP Government website [www.hptenders.gov.in](http://www.hptenders.gov.in).  
Divisional Forest Officer  
Paonta Forest Division,  
Paonta Sahib, H.P.  
(Phone No. 01704-222397)  
(e-mail:- [dfoponta@gmail.com](mailto:dfoponta@gmail.com))  
DPR/HP/5308

**GOVERNMENT OF HIMACHAL PRADESH H.P. FOREST DEPARTMENT**  
**NOTICE INVITING E-TENDER**

The Divisional Forest Officer, Rohru Forest Division, Distt. Shimla, H.P. invites e-tender on behalf of Governor of Himachal Pradesh from approved eligible contractors for the following work through e-tendering process:-

Sr. No.	Name of Work	Estimated Cost	Earnest Money	Time	Cost of Tender Form
1.	C/o Forest Guard Hut at Sharontha	22,06,782/-	44,200/-	Two Months	500/-

Tender document and other instructions can be downloaded or viewed online from the portal <https://hptenders.gov.in> by the firms/individuals registered on the website, which is free of cost.  
Key Dates:-

Sr. No.	Particulars	Date and Time
1.	Date of online publication	18.01.2023
2.	Document download Start Date	18.01.2023
3.	Document downloads End Date	27.01.2023, 11:00 a.m.
4.	Bid Submission Start Date	18.01.2023
5.	Bid Submission End Date	27.01.2023, 11:00 a.m.
6.	Physical Submission of Earnest Money Cost of tender document and other documents End Date and Time	27.01.2023, 11:00 a.m.
7.	Date of Technical bid opening and evaluation	27.01.2023, 02:00 p.m.
8.	Date of Financial bid opening and evaluation	27.01.2023, 02:30 p.m.

Tender Notice/ DPR/HP/5300 Sd/- Divisional Forest Officer Rohru, Forest Division Rohru.

**HARYANA AGRO INDUSTRIES CORPORATION LIMITED**  
(A Haryana State Undertaking)

CIN No. U51219HR1967SGC041080 Registered Office: Bays No. 15-20, Sector-4, Panchkula  
Telephone: 0172-2561317, 2560920, 2561305  
Website: [haic.co.in](http://haic.co.in) Email: [haicpk@gmail.com](mailto:haicpk@gmail.com)

**Walk-in Interview**

Haryana Agro Industries Corporation Limited (HAICL), a Public Sector undertaking (PSU) under Govt. of Haryana is looking for highly motivated and result oriented individuals for the below mentioned posts to steer the new venture and successful implementation of network of retail chain stores - HAR-HITH. The details of vacancies are as under:

Sr. No.	Name of Post	Qualification	Experience (Only similar to Har-Hith Project)
1.	Manager Operations - 02 Posts	Essential: MBA in Business Administration/ Marketing or equivalent / Post - Graduation / Graduation in Supply Chain / Logistics, Food Processing, Plant Operations, relevant field.	6-10 years' experience having worked as Operation Head / Project Head in reputed organizations. Experience in the field of ERP/WMS in a reputed Organization, preferably in FMCG's Sector.

Emoluments (in Rupees): 6-15 Lacs per Annum

Note : Apart from the above qualification and experience the candidates should visit the [www.harhith.com](http://www.harhith.com) and may apply if experience is similar to Har-Hith Project and as mentioned above.

Interested candidates possessing the required qualification and experience may submit their applications/bio-data along with self-attested copies of all relevant documents to the Managing Director, Haryana Agro Industries Corporation Limited, Bays No. 15-20, Sector-4, Panchkula latest by 25.01.2023 or through e-mail at [haicpk@gmail.com](mailto:haicpk@gmail.com)

Applications will be scrutinized and then eligible candidates will be called for Walk-in Interview on 2nd February, 2023 at HAICL office i.e. Bays No. 15-20, Sector-4, Panchkula.  
Note : No TA/DA shall be paid for attending interview.  
Phone: EPBX:- 0172- 2561305, (Extn. No. 215), 0172- 2560920, 2561317 E-mail: [haicpk@gmail.com](mailto:haicpk@gmail.com)  
Website: [www.haic.co.in](http://www.haic.co.in)  
for MANAGING DIRECTOR, HAICL PANCHKULA  
PRDH-1005/11/29/2023/15077/31/4

**भारतीय वायु सेना / INDIAN AIR FORCE**  
**AIR FORCE SPORTS CONTROL BOARD**  
C/O AIR FORCE STATION NEW DELHI, RACE COURSE, NEW DELHI — 110003

- Enrolment rally for induction of sports cadets into Air Force Boys Sports Squadron (Jalahlali, Bengaluru) is being conducted from 20 - 24 Feb 23.
- Age: 12 -15 years as on 01 Apr 23 (Born between 01 Apr 08 to 31 Mar 11).
- Education: Class 7th to 9th.
- Sports Disciplines Applicable only for admission in Sports disciplines of Boxing and Wrestling (Sportsmen achieving first three positions in the State/National in Junior/Sub Junior tournaments). The boys of only following Age, Height, Weight category will be considered for selection.

Sports Discipline	Age	Minimum Height	Weight	Category	
BOXING	13-15 Years	154 CM	44-46 Kg	—	
	13-15 Years	154 CM	46-48 Kg	—	
	13-15 Years	154 CM	60-63 Ka	—	
	13-15 Years	154 CM	63-66 Ka	—	
	13-15 Years	154 CM	66-70 Kg	—	
	13-15 Years	154 CM	70-75 Kg	—	
	13-15 Years	154 CM	75-80 Kg	—	
	13-15 Years	154 CM	80-92 Kg	—	
	WRESTLING	12-15 Years	152 CM	44-48 Kg	Free Style
		12-15 Years	152 CM	52-57 Kg	Free Style
		12-15 Years	152 CM	68-75 Kg	Free Style
		12-15 Years	152 CM	75-85 Kg	Free Style
12-15 Years		152 CM	68-75 Kg	Greco Roman	
12-15 Years		152 CM	70-80 Kg	Greco Roman	

Note: (a) Depending on the skill level and representation, the Competent Authority can select the boys within the prescribed age category irrespective of weight category.  
(b) Selection of boys will be done purely on merit and it is not mandatory to select the boys in each weight category if suitable candidate is not found.

- Venue: Exit Gate, Air Force Station New Delhi, Race Course, New Delhi — 110003
- Induction Rally Schedule

Reporting Time (Boxing)	: 0830 hrs on 20 Feb 23
Screening of documents (Boxing) Trials (Boxing)	: 0830 - 1100 hrs on 20 Feb 23 : 1100 - 1730 hrs on 20 Feb 23 : 0830 - 1330 hrs on 21 Feb 23
Reporting Time (Wrestling)	: 0830 hrs on 22 Feb 23
Screening of documents (Wrestling) Trials (Wrestling)	: 0830 -1100 hrs on 22 Feb 23 : 1100- 1730 hrs on 22 Feb 23 : 0830 - 1330 hrs on 23 Feb 23
Reserve Day	: 24 Feb 23
Documents required	: Original Birth Certificate, Aadhaar Card, Academics and Sports Certificates & 4 Passport size Colour photographs
Travelling/Boarding/Lodging	: At your own arrangements (during induction rally).
For Queries Contact	011-23014160 between 0900 hrs to 1730 hrs or E-mail: <a href="mailto:bluesport3@gov.in">bluesport3@gov.in</a>

Note: Please be aware of touts/agents. Selections are based on merit only.  
CBC 10802/11/0032/2223  
283

**Annexure K**  
**(Demand & Supply)**



## A REPORT ON DEMAND AND SUPPLY IN DISTRICT RUPNAGAR (ROPAR)

In compliance with the Supreme Court orders dated 10.11.2021, District Survey Reports (DSR) are being prepared by Sub-Divisional Committees in various Districts in State of Punjab as per Enforcement & Monitoring Sand Mining Guidelines-2020 issued by the Government of India. According to the EMSMG-2020 guidelines, demand, and supply of the riverbed materials through market survey needs to be carried out. In addition to this, riverbed materials demand for the next 5 years needed to be considered.

To evaluate the Demand and Supply of Riverbed Material in the State of Punjab, one Three-member committee has been constituted by office of Superintending Engineer, Patiala Drainage Circle Water Resources Department Punjab vide office letter no. 1558 dated 05.11.2022 as below;

1. Dr. Rajinder Ghai, Executive Engineer
2. Sh. Shyam Verma, Sub Divisional Officer
3. Sh. Navneet Singh, Asst. Design Engineer

The Supply aspects of study shall be catered by District Survey Report as Quantity/Reserves will be there under potential mining sites (proposed) for auctioning/leasing out. Therefore, a separate study of supply of material shall not be required. The supply aspect can be controlled or managed at the level of Water Resources Department (Mines and Geology) Punjab.

For studying demands of materials, various consumers like Roads, Industries, Buildings, Construction related Departments and private individuals are involved. Therefore, a comprehensive study has been done to get reliable /trustworthy data in this regard.

Firstly, the committee decided to adopt Cement Consumption Methodology out of two available methodologies (other being RBE Index Base



Shree

Shree

Shree

285

Methodology) in Sand Mining Framework March-2018 to calculate minerals demands in the state of Punjab.

The committee visited various offices like GST Department Punjab Patiala and Director Census, Punjab and hold meeting at Head Office Level on dated 2.12.2022 with various concern Departments in this regard. The cement consumption in State of Punjab has been taken from the information provided by GST Department Punjab vide letter No. FileNo.ET-GST1017/253/2022-PAT-ETC-GST-1 dated 08.12.2022

**TABLE 1: CEMENT CONSUMPTION**

Sr. No	Year	Quantity of Cement (MT)	Rate of Growth (%age)
(1)	(2)	(3)	(6)
1	2017-18	60,03,928	--
2	2018-19	75,30,208	25.42 %
3	2019-20	75,92,704	0.83 %
4	2020-21	72,52,730	(-) 4.48 %
5	2021-22	1,04,47,711	44.05 %

Source : Office of Taxation Commissioner Punjab Patiala

At Sr. No 4, Growth Rate is (-) 4.48% due to COVID-19 pandemic is ignored, and average growth rate of cement consumption is calculated as 23.43%. In addition to this, a 5% incremental growth is there to this for development of various smart cities projects and rapid urbanisation due to liberal policies in state. Therefore, the committee has taken 28.43% annual growth in cement consumption



Shya

Shya

Shya

286

**TABLE 2: PROJECTED DEMAND OF SAND**

Sr. No	Year	Projected Qty. of Cement (MT)	Conversion Factor	Projected Demand of Sand Qty. (MT)
(1)	(2)	(3)	(4)	(5)
1	2021-22	1,04,47,711	--	2,61,19,277
2	2022-23	1,34,18,462	2.5	3,35,46,155
3	2023-24	1,72,33,929	2.5	4,30,84,823
4	2024-25	2,21,34,305	2.5	5,53,35,762
5	2025-26	2,84,28,076	2.5	7,10,70,190
6	2026-27	3,65,11,447	2.5	9,12,78,618
7	2027-28	4,68,93,282	2.5	11,72,33,204

As in para 5.1.1.3 of *Sand Mining Framework March-2018*, 65% out of total cement consumed across the country is used in Housing Sector, whereas cement consumption is 20% and 15% in Infrastructure and Commercial & Industries Sectors respectively. In the housing sector sand is mostly used with cement and usage of gravel with cement and sand is negligible and hence neglected in calculations. Hence, 35% of total cement used in country is used with Sand and Gravel. Also, Gravel is approximately twice the Quantity of Sand (by weight) used with cement in Infrastructure Sector and Commercial & Industries Sector.

*Conversion Factor for Gravel (from Sand)*

Proportions of Infrastructure and Commercial & Industries Sectors

$$= 20\% + 15\% = 35\%$$

Factor for Converting Sand into Gravel

$$= 2.0$$

Or  $\frac{35 \times 2.0}{100} = 0.70$



Handwritten signatures and the number 287 at the bottom of the page.

**TABLE 3: PROJECTED DEMAND OF SAND AND GRAVEL**

Sr. No	Year	Projected Demand of Sand Qty. (MT)	Conversion Factor ( x 0.7)	Projected Demand of Gravel Qty. (MT)
(1)	(2)	(3)	(4)	(5)
1	2022-23	3,35,46,155	0.70	2,34,82,309
2	2023-24	4,30,84,823	0.70	3,01,59,376
3	2024-25	5,53,35,762	0.70	3,87,35,033
4	2025-26	7,10,70,190	0.70	4,97,49,133
5	2026-27	9,12,78,618	0.70	6,38,95,033
6	2027-28	11,72,33,204	0.70	8,20,63,243

Also, Committee has observed that there have been construction or Infrastructure activities where riverbed materials are required without cement consumption. The committee further explored more sources of Demand where Riverbed Materials is consumed, and cement is not consumed. In recent years, National Highway or Expressways projects across State of Punjab have been undertaken by MORTH under Bharatmala Pariyojana.

To assess approximate overall riverbed materials demand, inclusion of demands from such big projects was required. The information of proposed/yet to be constructed National Highway or Expressways Project in State of Punjab is as shown below;



*[Handwritten signatures and initials at the bottom of the page]*

S.NO.	DESCRIPTION	LANES (NOS.)	LENGTH (IN KM)
<b>NATIONAL EXPRESSWAY 5 (NE-5)</b>			
1	Ghagga (Patiala)-Bhawanigarh (Sangrur)	4	30.90
2	Bhawanigarh (Sangrur)-Bhogiwal (Malerkotla)	4	36.90
3	Bhogiwal (Malerkotla)-Mullanpur Dakha (Ludhiana)	4	35.00
4	Mullanpur Dakha-Nakodar-Kang Sahbu	4	34.00
5	Kang Sahbu (Jalandhar)-Khojewal (Kapurthala)	4	15.50
6	Khojewal (Kapurthala)-Sri Hargobindpur	4	43.00
7	Sri Hargobindpur-Gurdaspur	4	35.30
8	Details awaited (Gursaspur-Balsua)	4	25.80
9	Balsua (Gurdaspur)-Gurah Baildaran (Kathua)	4	44.60
<b>NATIONAL EXPRESSWAY 5A (NE-5A)</b>			
10	Nakodar (Jalandhar)-Dhunda (Tarn Taran)	4	41.00
11	Dhunda (Tarn Taran)-Manawala Khurd (Tarn Taran)	4	30.00
12	Manawala Khurd (Tarn Taran)-Harsha Chhina (Amritsar)	4	28.00
<b>NATIONAL HIGHWAY (NH754 A TO NEE-5A)</b>			
13	Tibba (Kapurthala)-Sangat Kalan (Bathinda)	6	155.00
14	Sangat Kalan (Bathinda)-Lohgarh/ Chautala (Sirsa)	4	30.00
Total Length (KMs)			585

2614 cum per KM per Lane of Riverbed Material is consumed approximately in the above proposed National Highway/ Expressways. The total of 96,97,940 MT of Riverbed Material is required in Two years and 48,48,970 MT is demand annually

As per information provided by Punjab Mandi Board, periodic repair work of Road is undertaken by the Departments in the State . Hence, it can be assumed that at least one time repair work (only bituminous layer) of whole length of Road is done in five years of span by Mandi Board Punjab and PWD B&R Punjab. The demand for such repair work has been calculated accordingly and shown in Table 5 below.

*Shim* *Abd* *ma* *Han* 289

**TABLE 5 : PROJECTED DEMAND OF GRAVEL IN REPAIR WORK OF EXISTED ROADS**

SR. NO	YEAR	LANE (NOS.)	LENGT H (KM)	GRAVEL QTY. PER KM PER LANE (CUM)	PROJECTED DEMAND OF GRAVEL QTY. (MT)
(1)	(2)	(3)	(4)	(5)	(6)
1	Length of Existing NH/NE in State of Punjab	4	3501	573	1,12,34,522
2	Length of Existing SH in State of Punjab	4	859	573	27,55,429
3	Length of Existing MDR in State of Punjab	2	1697	573	27,22,667
4	Length of Existing Other Roads in State of Punjab	1.5	4624	573	55,64,420
5	Length of Link Roads under 80 Market Committees fall under the jurisdiction of PWD (B&R) department	1	32890	291	1,33,98,465
6	Length of Link Roads under 74 Market Committees fall under the jurisdiction of Punjab Mandi Board	1	31988	291	1,30,31,016
<b>TOTAL PROJECTED DEMAND (MT)</b>					<b>4,87,06,518</b>

Demand of Riverbed Material (Gravel) as Repair Work is done once in 5 years = 97,41,304 MT

The total Projected Demand of Riverbed Material in Roads becomes,  
 = 97,41,304 MT + 48,48,970 MT  
 = 145,90,240 MT

Hence, annual Demand of Riverbed Material for Roads (where cement is not used or negligible used) becomes 1,45,90,240 MT per Year




*Shiv - Anil - Arif - Raju*



**TABLE 6: PROJECTED GROSS DEMAND OF GRAVEL**

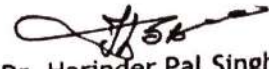
SR. NO	YEAR	PROJECTED DEMAND OF SAND QTY. (MT)	PROJECTED DEMAND OF GRAVEL QTY. (MT) AS PER TABLE 3 & TABLE 5		
			WITH CEMENT	WITHOUT CEMENT	TOTAL
(1)	(2)	(3)	(4)	(5)	(6)
1	2022-23	3,35,46,155	2,34,82,309	1,45,90,240	7,16,18,704
2	2023-24	4,30,84,823	3,01,59,376	1,45,90,240	8,78,34,439
3	2024-25	5,53,35,762	3,87,35,033	1,45,90,240	10,86,61,035
4	2025-26	7,10,70,190	4,97,49,133	1,45,90,240	13,54,09,563
5	2026-27	9,12,78,618	6,38,95,033	1,45,90,240	16,97,63,891
6	2027-28	11,72,33,204	8,20,63,243	1,45,90,240	21,38,86,687

The above report has been submitted with recommendation for requirement of evaluate the Demand and Supply of Riverbed Material for the purpose of preparation of District Survey Reports in the State of Punjab as per the Enforcement and Monitoring Guidelines for Sand Mining, 2022.

  
 Er. Shyam Verma)  
 Sub Divisional Officer  
 Morinda, Ropar Division

  
 (Er. Navneet Singh)  
 Assistant Design Engineer  
 Mining Head Office

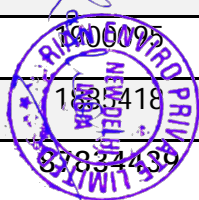
  
 (Dr. Rajinder Ghai)  
 Executive Engineer-cum-  
 District Mining Officer,  
 Mohali

  
 (Dr. Harinder Pal Singh Bedi)  
 Superintending Engineer  
 Drainage Circle, Patiala



**Projected Demand of Gravel (in MT) District wise**

Sr.No.	District Name	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Ludhiana	9031904	11076885	13703347	17076630	21409087	26973456
2	Amritsar	6429564	7885330	9755036	12156383	15240540	19201661
3	Gurdaspur	5933061	7276410	9001734	11217645	14063638	17718873
4	Jalandhar	5662695	6944829	8591531	10706464	13422767	16911436
5	Ferozpur	5238002	6423977	7947179	9903496	12416080	15643104
6	Patiala	4893664	6001676	7424745	9252456	11599867	14614752
7	Sangrur	4272776	5240207	6482723	8078542	10128123	12760491
8	Hoshiarpur	4095831	5023199	6214260	7743992	9708696	12232052
9	Bathinda	3584441	4396022	5438371	6777107	8496505	10704805
10	Tarn Taran	2890288	3544700	4385191	5464671	6851095	8631741
11	Moga	2570492	3152497	3899992	4860033	6093056	7676683
12	Sahibzada Ajit Singh Nagar	2567606	3148958	3895613	4854576	6086215	7668064
13	Muktsar	2328221	2855371	3532414	4401970	5518780	6953148
14	Kapurthala	2104335	2580793	3192730	3978668	4988084	6284521
15	Mansa	1987092	2437005	3014848	3756997	4710173	5934379
16	Rupnagar	1767347	2167505	2681447	3341524	4189292	5278118
17	Faridkot	1594081	1955009	2418565	3013930	3778585	4760665
18	Shahid Bhagat Singh Nagar	1580662	1938552	2398206	2988560	3746778	4720591
19	Fatehgarh Sahib	1549305	1906095	2350630	2929273	3672449	4626944
20	Barnala	1537337	1885418	2332473	2906646	3644081	4591203
	<b>Total</b>	<b>71618704</b>	<b>87834439</b>	<b>108661035</b>	<b>135409563</b>	<b>169763891</b>	<b>213886687</b>



**Projected Demand of Sand (in MT) District wise**

Sr.No.	District Name	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
1	Ludhiana	4230538	5433468	6978446	8962730	11511234	14784392
2	Amritsar	3011603	3867937	4967764	6380321	8194531	10524602
3	Gurdaspur	2779042	3569247	4584144	5887621	7561734	9711873
4	Jalandhar	2652403	3406599	4375248	5619326	7217151	9269309
5	Firozpur	2453477	3151109	4047111	5197885	6675876	8574125
6	Patiala	2292189	2943961	3781060	4856184	6237014	8010476
7	Sangrur	2001365	2570443	3301334	4240051	5445687	6994139
8	Hoshiarpur	1918485	2463995	3164619	4064462	5220170	6704497
9	Bathinda	1678950	2156350	2769497	3556989	4568399	5867399
10	Tarn Taran	1353809	1738757	2233164	2868152	3683695	4731134
11	Moga	1204017	1546373	1986075	2550805	3276113	4207659
12	Sahibzada Ajit Singh Nagar	1202665	1544636	1983846	2547941	3272435	4202934
13	Muktsar	1090537	1400626	1798886	2310390	2967337	3811083
14	Kapurthala	985669	1265939	1625902	2088218	2681992	3444602
15	Mansa	930753	1195407	1535315	1971873	2532565	3252686
16	Rupnagar	827824	1063211	1365530	1753811	2252498	2892983
17	Faridkot	746666	958977	1231657	1581872	2031669	2609363
18	Shahid Bhagat Singh Nagar	740381	950905	1221289	1568556	2014567	2587398
19	Fatehgarh Sahib	725694	932041	1197061	1537439	1974602	2536069
20	Barnala	720088	924841	1187815	1525563	1959349	2516479
	<b>Total</b>	<b>33546154</b>	<b>43084823</b>	<b>55335762</b>	<b>71070190</b>	<b>91278618</b>	<b>117233204</b>



**Annexure L**  
**(Executive Summary)**



# **DISTRICT SURVEY REPORT OF JALANDHAR DISTRICT, PUNJAB**

## **Executive Summary**

The purpose of District Survey Report (DSR) is to identify the mining potential areas where mining can be allowed; and to distinguish areas where mining will not be allowed due to proximity to infrastructural structures and installations, areas of erosion, areas of environmental sensitivities etc. The DSR would also help to estimate the annual rate of replenishment wherever applicable.

The district survey report of Jalandhar district is prepared by **SUBDIVISIONAL LEVEL COMMITTEES OF JALANDHAR DISTRICT** and assisted by RIAN ENVIRO PRIVATE LIMITED, Sheikhpura, Patna, Bihar.

### **Methodology for the preparation of DSR:**

For the preparation of DSR, there are two types of data is being used – Field Data and Secondary data.

Secondary data was collected from the different district departments like District Administration, Forest department, Irrigation department, Revenue department, Mining department etc. All the data has been reviewed, selected, and collated to prepare an authentic and reliable District Survey Report. Besides this, procedure as defined in the MoEF & CC Notification dated 25.07.2018 and as per the model DSR has been followed for preparing the various chapters of this District Survey Report.

Field data was collected two times during pre-monsoon and post-monsoon for determining the replenishment rate and identification of minor mineral potential sites.

### **Chapters included in District Survey Report, Jalandhar:**

The district survey report of Jalandhar district includes Introduction, Overview of Mining activities in the District, Process of Deposition of Sediments in the rivers of the District, General Profile of the district, Physiography of the District, Geology and Mineral Wealth, Estimation of deposits and Replenishment Studies, Transport, Remedial measure to mitigate the impact of mining etc. The main objective of DSR is to find minor mineral potential zones which helps in increasing district's revenue while taking into consideration the environmental sustainability of sites.

The DSR of Jalandhar includes minor mineral riverbed potential zones in table no 7.6 (Page no. 57) and include a localized replenishment study which is discussed in chapter 7 (Page no. 42 to 58). The consolidated detail of riverbed/desilting/agriculture sites is attached at **Annexure - A**.

### **General Information of the district:**

Jalandhar is located on the intensively irrigated plain between Beas and Sutlej rivers. The city, with has major road and rail connections, is a market for agricultural products. Manufacturing units include textiles, leather goods, wood products, and sporting goods. Jalandhar was the capital of Punjab from India's independence (1947) until Chandigarh was built in 1953. Jalandhar is situated at 71° 31' East and 30° 33' North at a distance of 146 kms from state capital Chandigarh. It is at a distance of 350 Kms from Delhi on Delhi-Amritsar Highway. It is surrounded by Ludhiana district in East, Kapurthala in West, Hoshiarpur in North and Ferozpur in South. It is well connected by road and train.

The Deputy Commissioner has overall charge of the district, and is the hub of the district administration. For administrative purposes, the Deputy Commissioner, Jalandhar, has to play triple role as Deputy Commissioner, as District Collector and as District Magistrate. In his/her multifarious duties, the Deputy Commissioner is assisted by the following officers for carrying out day to day work in various fields: -

**PREPARED BY: SUB-DIVISIONAL COMMITTEE OF JALANDHAR DISTRICT**  
**ASSISTED BY: RIAN ENVIRO PRIVATE LIMITED**

## **DISTRICT SURVEY REPORT OF JALANDHAR DISTRICT, PUNJAB**

1. Additional Deputy Commissioner
2. Assistant Commissioner (General)
3. Assistant Commissioner (Grievances)
4. Executive Magistrate
5. District Revenue Officer
6. District Development and Panchayat Officer
7. Sub Divisional Magistrates
8. Civil Defense Officer
9. Urban Ceiling Officer

The Deputy Commissioner is the Chief Revenue Officer as District Collector and is responsible for collection of Revenue and other Govt. dues recoverable as arrears of Land Revenue. He/She deals with the Natural Calamities like draught, unseasonal rains, hailstorms, floods and fire etc.

The Jalandhar District consists of 5 Sub- Division. Jalandhar-I, 2. Jalandhar II, 3. Nakodar 4. Phillaur and 5. Shahkot , further sub-divided into 10 development blocks, as Jalandhar East, Jalandhar West, Bhogpur, Adampur, Nakodar, Shahkot, Phillaur, Nurmahal, Lohian and RurkaKalan. According to District Statistical Office, the district has 956 inhabited villages.

The following Sub-Division Level Committees have been constituted in district Jalandhar for the preparation of DSR.

<b>Jalandhar -1 Sub-Division</b>	<b>Jalandhar -2 Sub-Division</b>	<b>Nakodar Sub-Division</b>	<b>Shahkot Sub-Division</b>	<b>Phillaur Sub-Division</b>
Sub- Division Magistrate Jalandhar -1- Chairperson	Sub- Division Magistrate Jalandhar -2- Chairperson	Sub- Division Magistrate Nakodar- Chairperson	Sub- Division Magistrate Shahkot - Chairperson	Sub- Division Magistrate Phillaur - Chairperson
Environment Engineer PPCB, Jalandhar- Member	Environment Engineer PPCB, Jalandhar- Member	Environment Engineer PPCB, Jalandhar- Member	Environment Engineer PPCB, Jalandhar- Member	Environment Engineer PPCB, Jalandhar- Member
Executive Engineer, Irrigation (Bist. doab Canal), Jalandhar- Member	Executive Engineer, Irrigation (Bist. doab Canal), Jalandhar- Member	Executive Engineer, Irrigation (Bist. doab Canal), Jalandhar- Member	Executive Engineer, Irrigation (Bist. doab Canal), Jalandhar- Member	Executive Engineer, Irrigation (Bist. doab Canal), Jalandhar- Member
Executive Engineer, Building and Roads, Jalandhar- Member	Executive Engineer, Building and Roads, Jalandhar- Member	Executive Engineer, Building and Roads, Jalandhar- Member	Executive Engineer, Building and Roads, Jalandhar- Member	Executive Engineer, Building and Roads, Jalandhar- Member



**PREPARED BY: SUB-DIVISIONAL COMMITTEE OF JALANDHAR DISTRICT  
ASSISTED BY: RIAN ENVIRO PRIVATE LIMITED**

**DISTRICT SURVEY REPORT OF JALANDHAR DISTRICT, PUNJAB**

<b>Jalandhar -1 Sub-Division</b>	<b>Jalandhar -2 Sub-Division</b>	<b>Nakodar Sub-Division</b>	<b>Shahkot Sub-Division</b>	<b>Phillaur Sub-Division</b>
Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member	Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member	Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member	Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member	Executive Engineer, Drainage Division, Jalandhar and Phagwara- Member
Divisional Forest Officer, Jalandhar- Member	Divisional Forest Officer, Jalandhar- Member	Divisional Forest Officer, Jalandhar- Member	Divisional Forest Officer, Jalandhar- Member	Divisional Forest Officer, Jalandhar- Member
Chief Agriculture Officer, Jalandhar- Member	Chief Agriculture Officer, Jalandhar- Member	Chief Agriculture Officer, Jalandhar- Member	Chief Agriculture Officer, Jalandhar- Member	Chief Agriculture Officer, Jalandhar- Member
All Block Development and Panchayat Officer, Jalandhar- Member	All Block Development and Panchayat Officer, Jalandhar- Member	All Block Development and Panchayat Officer, Jalandhar- Member	All Block Development and Panchayat Officer, Jalandhar- Member	All Block Development and Panchayat Officer, Jalandhar- Member
District Mining Officer, Jalandhar- Member Secretary	District Mining Officer, Jalandhar- Member Secretary	District Mining Officer, Jalandhar- Member Secretary	District Mining Officer, Jalandhar- Member Secretary	District Mining Officer, Jalandhar- Member Secretary

**Methodology used to identify potential riverbed:**

- With the help of recent satellite imagery (United State Geographical Survey, Landsat 8-9– 2 Satellite Image, Resolution – 30 m, Date – Oct 2022), river stretch and potential sand zones for the district were identified.
- Field survey along with DGPS was conducted to identify the riverbed potential zone coordinate and depth of deposition during pre- and post-monsoon.
- After that the concerned sub-divisional committee visit was conducted for finalizing the deposition zones/pockets.
- With the comments/remarks, all the finalized zones/pockets/blocks were included in DSR and put on Public Domain for the period of one month on dated 07/12/2022.
- There are no any comments received from public /various stakeholders on Public domain till date regarding the DSR uploaded on public portal.



## DISTRICT SURVEY REPORT OF JALANDHAR DISTRICT, PUNJAB

### Potential riverbed and agriculture mining site for the district:

Altogether **27** riverbed mining sites are finalized for the district Jalandhar and these 27 riverbed sites cover **170.41 Ha**. The total minable mineral quantity for the district is approximately **7186608.46 MT** & Considering 60% as per EMGSM, 2020 is approximately **4311965.076 MT** and the replenishment rate for this year was calculated around 90% as a whole.

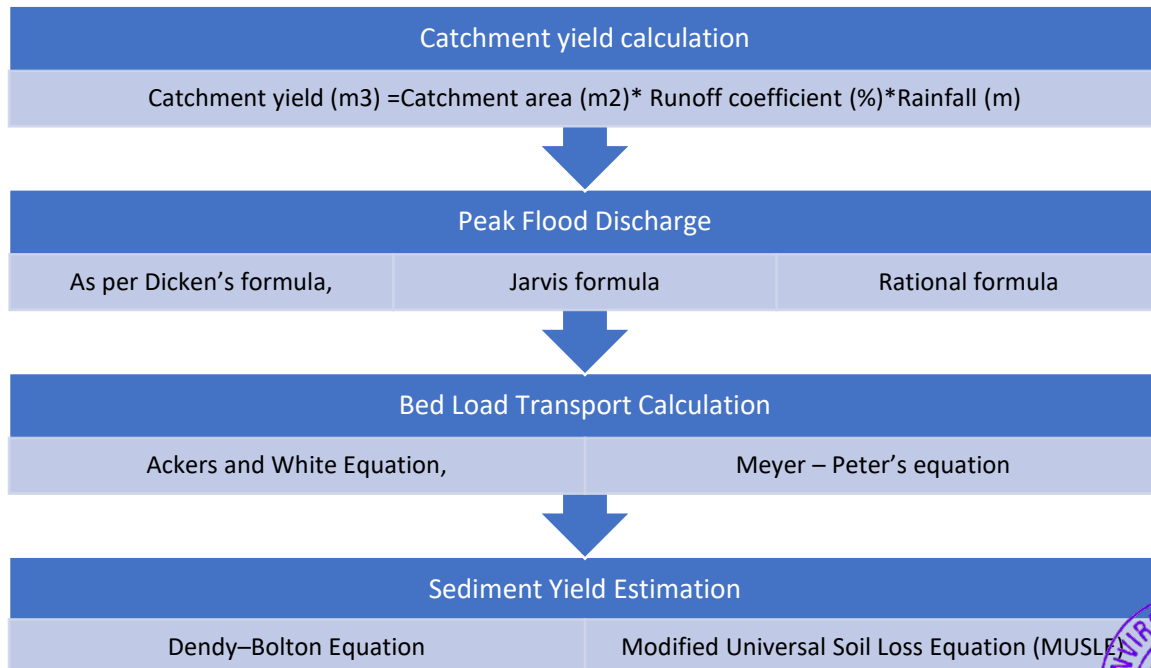
There are all together **02** patta land or agricultural sand mining sites in and around the Jalandhar district, covering an area of **5.88 Ha** with approximately minable quantity **2,68,128 MT** & Considering 60% as per EMGSM, 2020 is approximately **1,60,876.8 MT**.

### Methodology adopted to calculate Replenishment Rate for the District, Jalandhar:

The replenishment rate is the frequency at which river sand is introduced into a river channel that is being studied or having sand extracted from it. This volume is frequently considered as the river's sustainable production. One of the most challenging tasks in sediment budgeting is the estimation of river sand flow via stream bed and its residence period (temporary deposition), as this needs advanced equipment and the deployment of numerous gauging stations. It is obvious that during high flow periods, river sand that is typically carried via siltation (i.e., partially suspended and partially bed load) will be entirely in suspension in the overlying waters.

The replenishment estimation based on a theoretical empirical formula with the estimation of bed-load transport comprising of analytical models to calculate the replenishment estimation. Replenishment study based on satellite imagery involves demarcation of sand bars potential for riverbed mining. Both pre and post monsoon images need to be analyzed to established potential sand bars.

The process of calculation of replenishment rate along with deposition is calculated based on below mentioned attributes:





## **DISTRICT SURVEY REPORT OF JALANDHAR DISTRICT, PUNJAB**

The district Jalandhar has mainly one rivers i.e. Sutlej and the calculation of total mineable mineral potential is shown below:

- a. Sediment load comparison between Pre and Post Monsoon period for rivers of Jalandhar district

<b>River Name</b>	<b>Pre-Monsoon no of ghats</b>	<b>Post-Monsoon no of ghats</b>	<b>Pre-Monsoon Sediment Load (Mcum)</b>	<b>Post Monsoon Sediment Load (Mcum)</b>	<b>Variance (Mcum)</b>
Sutlej	59	54	10.52	9.93	- 0.59

- b. Replenishment rate estimation as per empirical formula

<b>Location</b>	<b>River Name</b>	<b>Lease Area</b>	<b>Surface RL Before mining</b>	<b>Mine out Thickness</b>	<b>Mine out Volume</b>	<b>Annual Rainfall-2020</b>	<b>Estimated Replenished Volume as per Dandy-Bolton</b>
		<b>m2</b>	<b>m</b>	<b>m</b>	<b>cum</b>	<b>m</b>	<b>cum</b>
Kaimwala	Sutlej	24200	228.00	2.00	48400.00	3.80	36300.00

- c. Total mineable mineral potential

<b>Sl. No.</b>	<b>River or Stream</b>	<b>Potential area (sq.m)</b>	<b>Potential area(Ha.)</b>	<b>Average Mining Thickness</b>	<b>Volume in MCum</b>	<b>60% of Volume in MCum</b>	<b>Bulk Density g/cc</b>	<b>Mineable Mineral Potential (Million MT)</b>
1	Sutlej	3059312	305.93	2.37	7.25	4.35	1.56	6.79

**Note: The potential area has been mentioned for every potential site in Ha in plate II (pages 78-92). The average mining thickness is mean of data of thickness as mentioned in table 7.2.**

All the above-mentioned hypothetical formulas have some limitations. Dandy - Bolton may provide a quick, rough approximation of mean sediment yields on a regional basis for preliminary watershed planning but it does not differentiate in basin wide smaller streams and their characteristics. MUSLE includes only one type of sediment yield (sheet and rill Erosion).

‘It is very clear that after the excavation from the riverbed, the area is act as a riverbed depositional site during rainy season. So, for the actual estimation of sediment deposition, a replenishment pit (3mx3mx3m) shall be dug at three points viz. upstream, middle stream and downstream along the length of river. Initial levels shall be taken with DGPS before the rainy season. After the rainy season, levels were taken again. The difference shall give the depth replenishment of sand. The depth

## **DISTRICT SURVEY REPORT OF JALANDHAR DISTRICT, PUNJAB**

multiplying with influence area will give the total replenishment volume of sand in the lease area of river.

It is observed that the replenishment or sediment deposition study can be done with theoretical and analytical models of bed load transport. However, these models present a more of a generic picture, while actual replenishment is characteristic for each river uniquely. Thus, direct field study is required to get a clear picture about actual replenishment in the river. For this replenishment and sediment yields will be studied for the coming years preferably both pre and post monsoon periods i.e. during months of May-June and October-November. Data derived from this study will be analyzed and regression or correlation will be developed with theoretical models so that a 'river specific' relation can be established using both analytical approach and actual field data.

This will ensure that the effect of influencing variables like climate, drainage pattern, soil geology, topography, vegetation, land use, geographic location etc. are well accounted for'.



**DISTRICT SURVEY REPORT OF JALANDHAR DISTRICT, PUNJAB**

**ANNEXURE – A**

Source	No. of sites	Area (Ha)	Total excavation in Tonnes	Total excavation in Tonnes (Considering 60% as per EMGSM, 2020)
<b>River bed (Proposed)</b>	27	170.41	7186608.46	4311965.076
<b>River bed (Existing)</b>	20	222.46	6219010	NA
<b>Agriculture land, pattas etc.(Proposed)</b>	02	5.88	2,68,128	1,60,876.8
<b>Agriculture land, pattas etc. (Existing)</b>	NA	NA	NA	NA
<b>Desilting sites (ponds, lakes, dams etc.) (Proposed)</b>	NA	NA	NA	NA
<b>Desilting sites (ponds, lakes, dams etc.) Existing Site</b>	4	71.49	-	-
<b>M-sand (Proposed)</b>	NA	NA	NA	NA
<b>M-sand (Existing)</b>	NA	NA	NA	NA
<b>Total(Proposed)</b>	<b>29</b>	<b>176.29</b>	<b>7454736.46</b>	<b>4472841.876</b>
<b>Clusters(Proposed)</b>	6	142.01	5851948.57	3511169.164

