

Environmental Management Plan

For

Bridges in Baramulla District



Construction of 1x 25.2m span double lane plate Girder Bridge at Wahidina Bandi Payeen Baramulla over Khrus Nallah

Construction of 1x 50.00m span Double Lane Through Type Truss Girder Bridge at Wagilla Wagoora over Ningli Nallah.

Construction of 1 x 19.2m span Double Lane Plate Girder Bridge at GogjiDaji Tarzoo Baramulla over Ningli Nallah

Construction of 1x 50.00m span Double Lane Through Type Truss Girder Bridge at Waza Mohalla Kreeri Baramulla over Frestahar Nallah

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J&K Project Construction Corporation Limited

Introduction

Background

1. In September 2014, J&K experienced torrential monsoon rains in the region causing major flooding and landslides. The continuous rains from 2-6, September 2014, caused Jhelum and Chenab Rivers as well as many other streams/tributaries to flow above the danger mark. The Jhelum River also breached its banks flooding many low-lying areas in Kashmir, including the capital. Post 2014 floods, the High Flood Level (HFL) of the city got raised by 8 to 10 feet at most of the locations. The unprecedented floods of 2014, in the context of the climate change and failure of an efficient warning system in Jammu & Kashmir, coupled with the poor infrastructure and deficit of disaster management facilities, resulted in huge losses of life and property. Due to heavy rainfall the catchment areas particularly the low lying areas were flooded for more than two weeks. Some areas in urban Srinagar stayed flooded for 28 days. Water levels were as high as 27 feet in many parts of Srinagar. The areas from the main tributaries of river Jhelum vis-à-vis Brenginallah, Vishavnallah, Liddernallah and Sandrannallah started overflowing due to the heavy rainfall causing water levels in Jhelum river to rise to unprecedented levels. Impact of floods resulted in catastrophic devastation in most districts of the J&K state. The lack or unavailability of proper evacuation and escape routes complicated the problem and people suffered heavy losses and hardships. Considering the damages caused by the floods of 2014, efforts have been initiated to strengthen capacity and infrastructure, so as to avoid and minimize such damages in the future.
2. The Government has decided to strengthen the existing infrastructure to avoid such occurrences in future and to minimize damages. Among others one such endeavour in this direction is the “Jhelum-Tawi Flood Recovery Project”-World Bank with various components. The objective of this component is to restore and improve the connectivity disrupted due to the disaster through the reconstruction of damaged roads and bridges. The infrastructure will be designed to withstand earthquake and flood forces as per the latest official design guidelines. The affected areas will benefit by the restored access to markets thereby increasing the economic growth in these areas and timely access to health and education services. Restoration of bridges will also serve as supply/rescue lines in the event of a disaster. The component will cater to the reconstruction of damaged bridges and associated drainage and slope stabilization works, retaining walls, breast walls and other structures to increase resilience. Six bridges are being re-constructed in District Baramulla which are detailed as under:

Wahidina Bandi Payeen Bridge

3. The bridge is a major/vital connecting link between vast areas of Wahidina Bandi Payeen road connects vast areas of Sangrama Baramulla and connects tens of villages like wahidina, Bandipayeen, Kuchwa, Muqam, Chandoosa, Sherpora etc. The area is presently cut off due to the damaged Wahidina bridge which has been washed away due to flash floods of September 2014 and the locals especially school going children's are facing severe hardships. The bridge thus serves as an important link between these villages having approximate population of 20,000. The bridge will also serve indirectly thousands of other souls of the other adjoining areas as it is links these areas with National Highway and Baramulla Districts headquarter. Moreover, the area being rich in Horticulture products like apples, wall nuts and it involves lot of labour in carrying the products up to road sides first and then to market places in absence of a motorable bridge.
4. To provide all weather connectivity and to connect the unconnected areas, the bridge has been identified for construction at Wahidina Bandi Payeen Baramulla over Khrus Nallah in District Baramulla of Jammu and Kashmir State by J&K Projects Construction Corporation Ltd., under Jhelum and Tawi Flood Recovery Project (JTFRP) assisted by the World Bank.
5. The proposal for Wahidina Bandi Payeen Bridge has two lane carriage way of 1x 25.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. The location of the proposed bridge on GIS map and Google map are shown in Figure1.3 and 1.4, respectively.

Wagoora Wagila Bridge

6. The bridge is a major/vital connecting link between vast areas of the WagooraWagila road connects vast areas of Wagoora and connects tens of villages like Wagoora, Chandoosa, Kalantra, Wagila, Puthkha etc. The area is presently cut off due to the damaged Wagoora Wagila bridge which has been washed away due to flash floods of September 2014 and the locals especially school going children's are facing severe hard ships. The bridge thus serves as an important link between these villages having approximate population of 29,000. The bridge will also serve indirectly thousands of other souls of the other adjoining areas as it is links these areas with National Highway and Baramulla Districts headquarter. Moreover, the area being rich in Horticulture products like apples, wall nuts and it involves lot of labour in carrying the products up to road sides first and then to market places in absence of a motorable bridge.

7. To provide all weather connectivity and to connect the unconnected areas, the bridge has been identified for construction at Wagilla Wagoora over Ningli Nallah in District Baramulla of Jammu and Kashmir State by J&K Projects Construction Corporation Ltd., under Jhelum and Tawi Flood Recovery Project (JTFRP) assisted by the World Bank.
8. The proposal for Wagoora Wagila Bridge has two lane carriageway of 1x 50.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. The location of the proposed bridge on GIS map and Google map are shown in Figure1.5 and1.6, respectively.

Gogjidaji Tarzoo Bridge

9. The bridge is a major/vital connecting link between various villages like Tarzoo, Gogji Daji, Dug Mohalla etc. The bridge thus serves as an important link between these villages having approximate population of 20,000. The bridge will also serve indirectly thousands of other souls of the other adjoining areas as it is links these areas with National Highway and Baramulla Districts headquarter.
10. To provide all weather connectivity and to connect the unconnected areas, the bridge has been identified for construction at GogjiDaji Tarzoo Baramulla over Ningli Nallah in District Baramulla of Jammu and Kashmir State by J&K Projects Construction Corporation Ltd., under Jhelum and Tawi Flood Recovery Project (JTFRP) assisted by the World Bank. The proposal for Gogjidaji Tarzoo Baramulla Bridge over Ningli Nallah has two lane carriageway of 1x 25.00meters overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. The location of the proposed bridge on GIS map and Google map are shown in Figure1.9 and1.10, respectively.

Wazmohalla Kreeri Bridge

11. The bridge is a major/vital connecting link between vast areas of pattan Baramulla and connects tens of villages like Wazmohalla, Kreeri, Suchipora, Freshtahar, Waripora, Tilgam, Hyderbeigh Pattan, Wanigam etc. The area is presently cut off due to the damaged Wazamohalla Bridge which has been washed away due to flash floods of September 2014 and the locals especially school going children's are facing severe hard ships. The bridge thus serves as an important link between these villages having approximate population of 25,000. The bridge will also serve indirectly thousands of other souls of the other adjoining areas as it is links these areas with National Highway and Baramulla Districts headquarter.

12. To provide all weather connectivity and to connect the unconnected areas, the bridge has been identified for construction at Wazmohalla Krreeri Bridge over Freshtahar Nallah in District Baramulla of Jammu and Kashmir State by J&K Projects Construction Corporation Ltd., under Jhelum and Tawi Flood Recovery Project (JTFRP) assisted by the World Bank. The proposal for Wazmohalla Krreeri Bridge has two lane carriageways of 1x 50.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. The location of the proposed bridge on GIS map and Google map are shown in Figure1.9 and1.10, respectively.

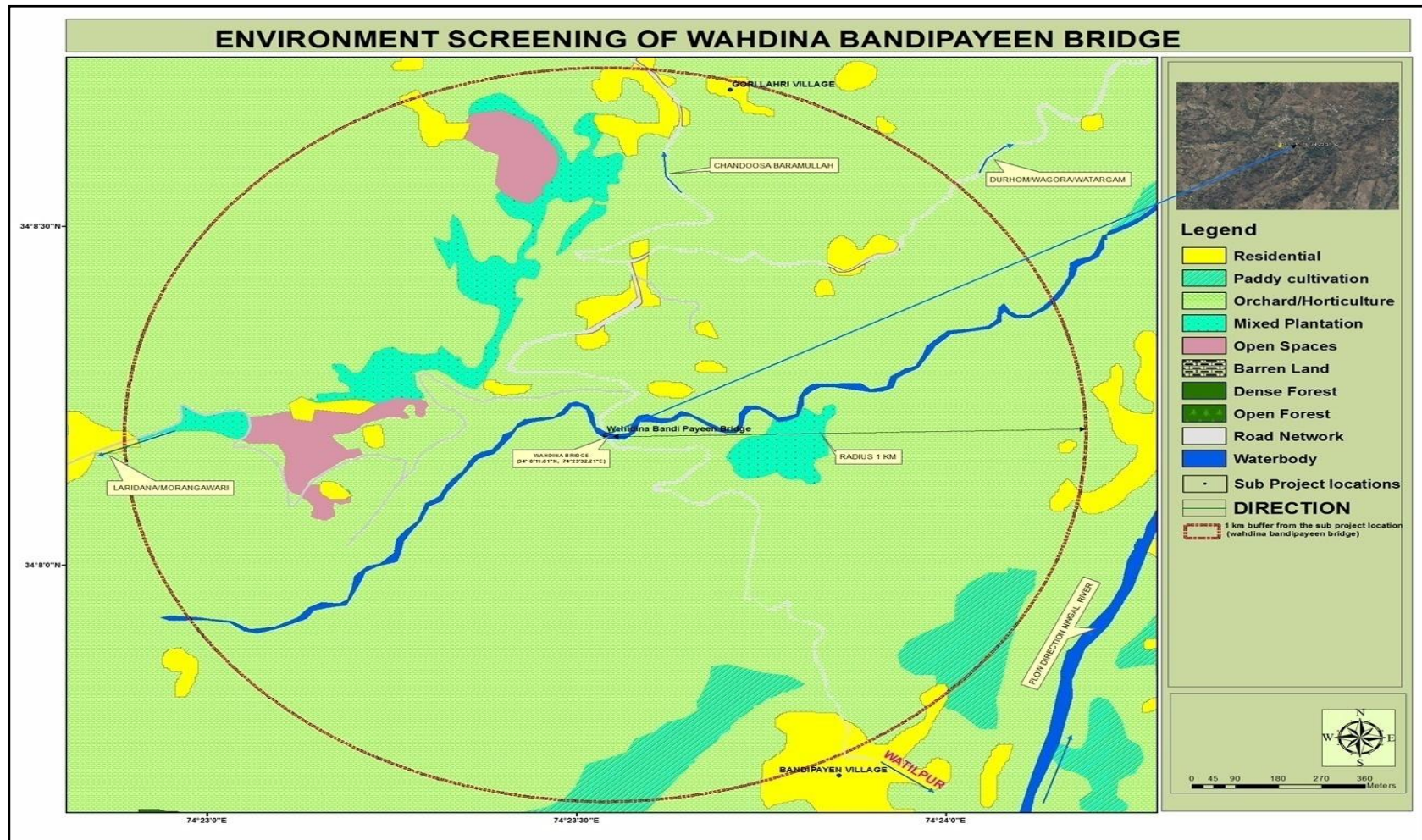


Figure 1.1: Location of Proposed Wahidina Bandi Payeen Bridge Site on the GIS Map

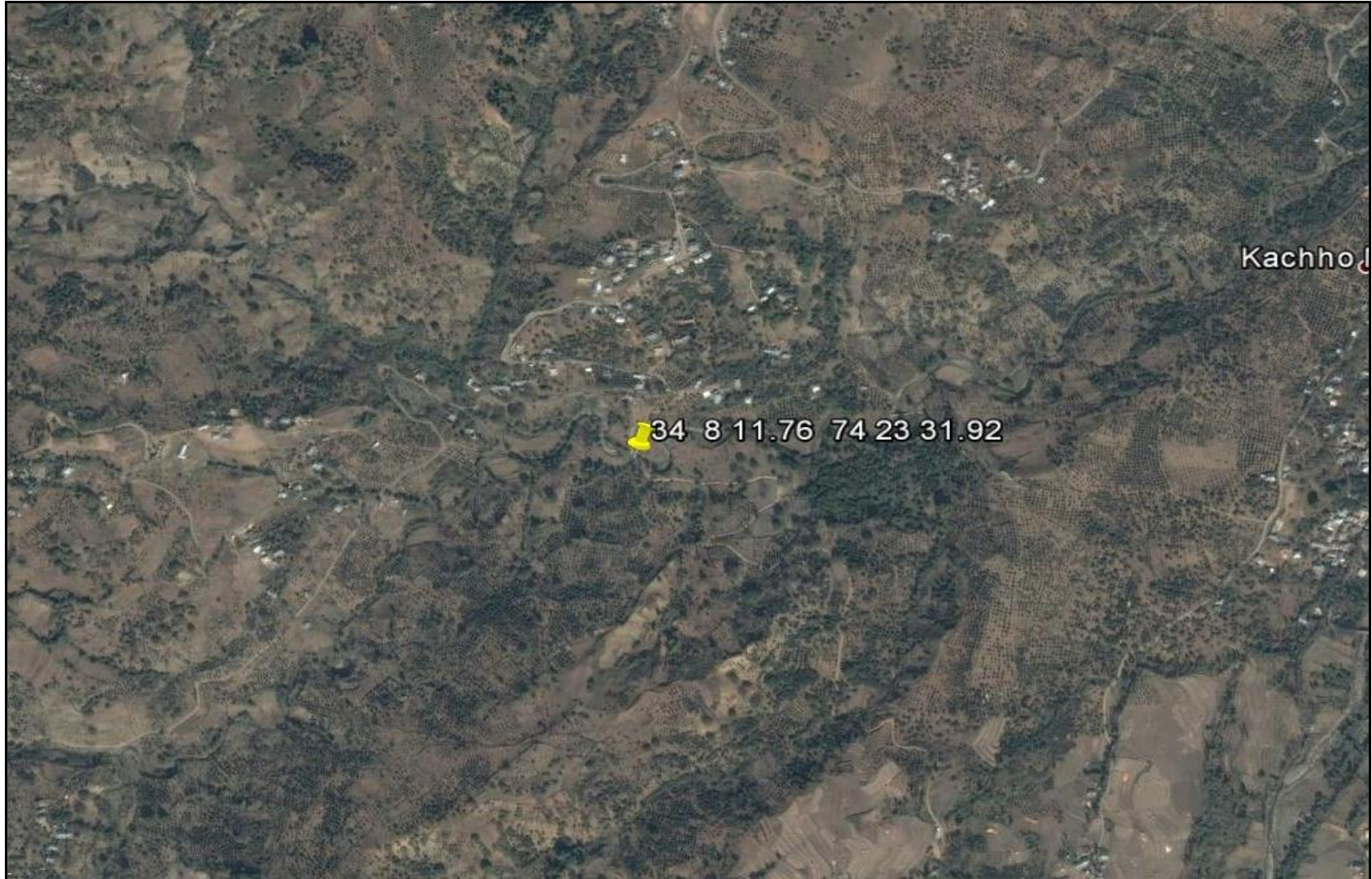


Figure 1.2: Location of Proposed Bridge Site on the Google Map

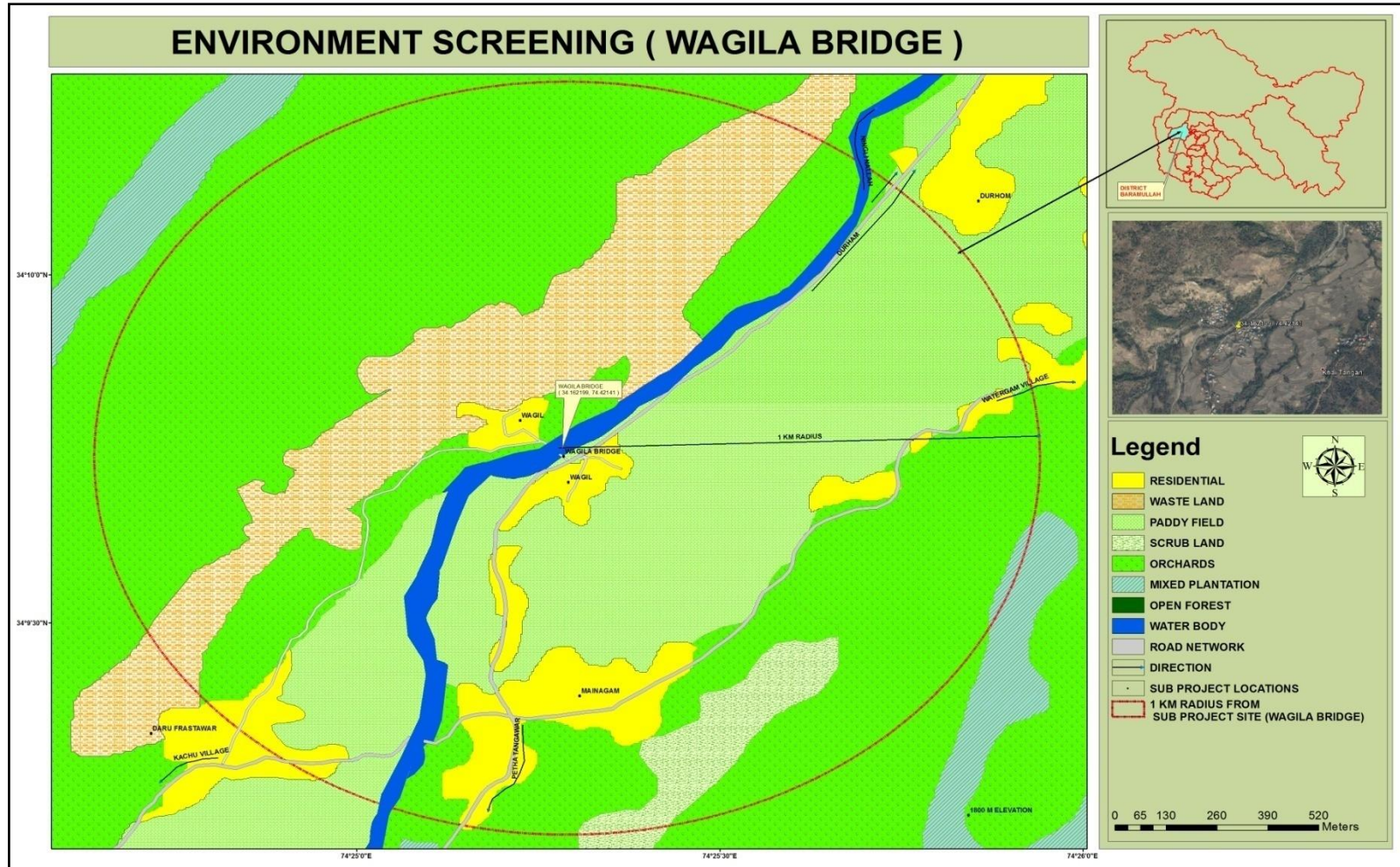


Figure 1.3: Location of Proposed Wagila Wagoora Bridge Site on the GIS Map



Figure 1.4: Location of Proposed Bridge Site on the Google Map

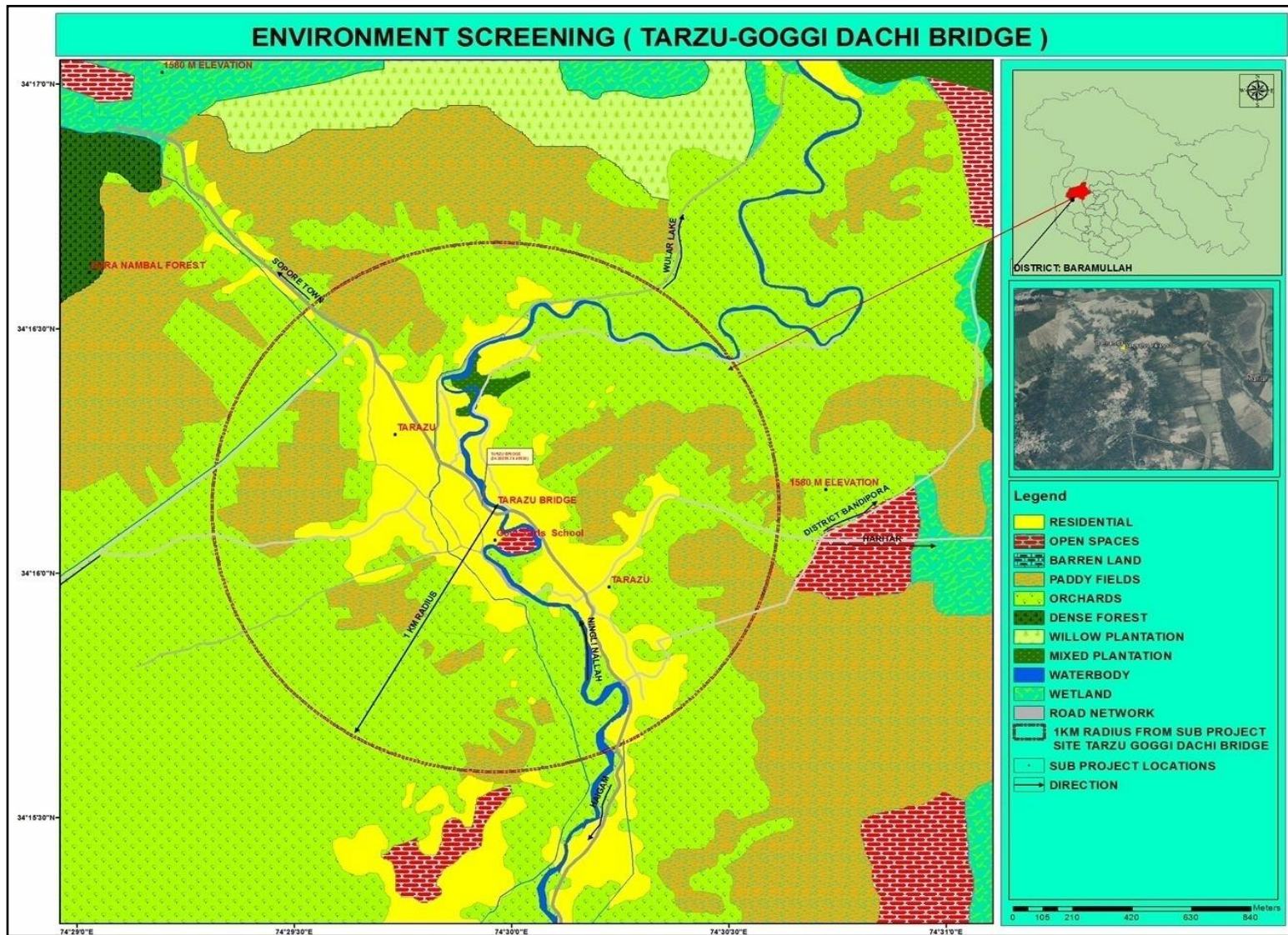


Figure 1.5: Location of Proposed Gogjidaji Tarzoo Bridge Site on the GIS Map

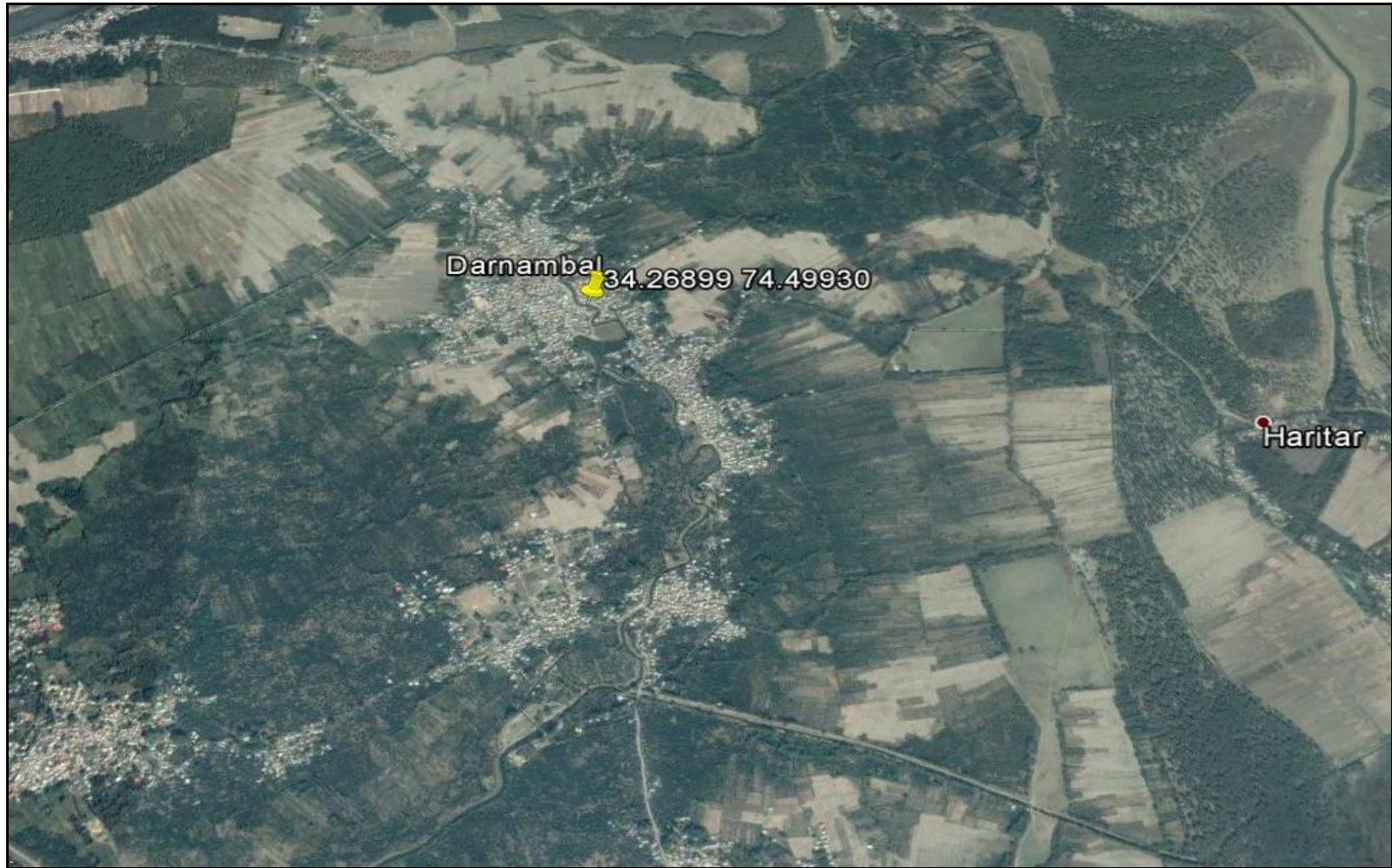


Figure 1.6: Location of Proposed Bridge Site on the Google Map

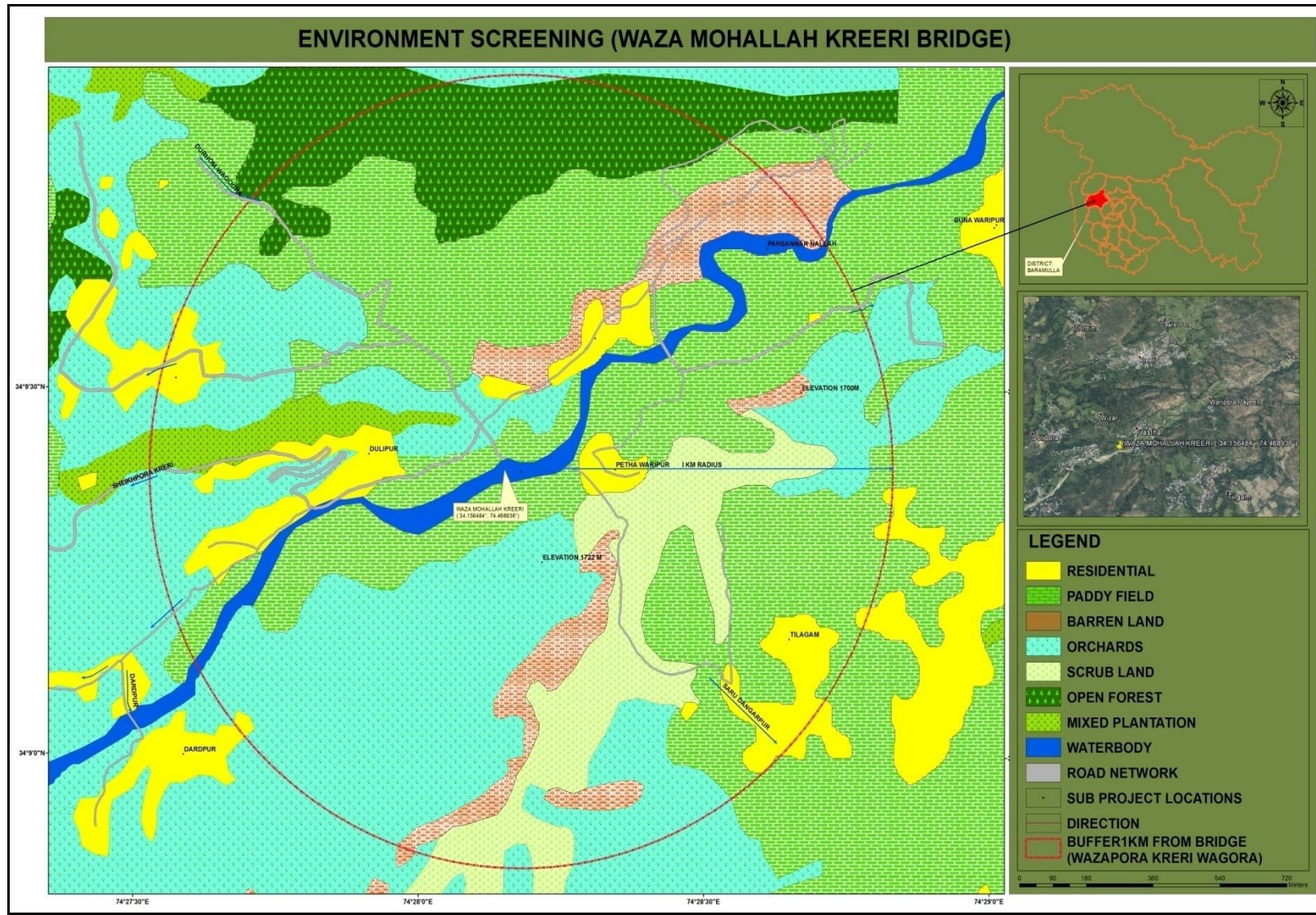


Figure 1.7: Location of Proposed Wazmohalla Kreeri Bridge Site on the GIS Map

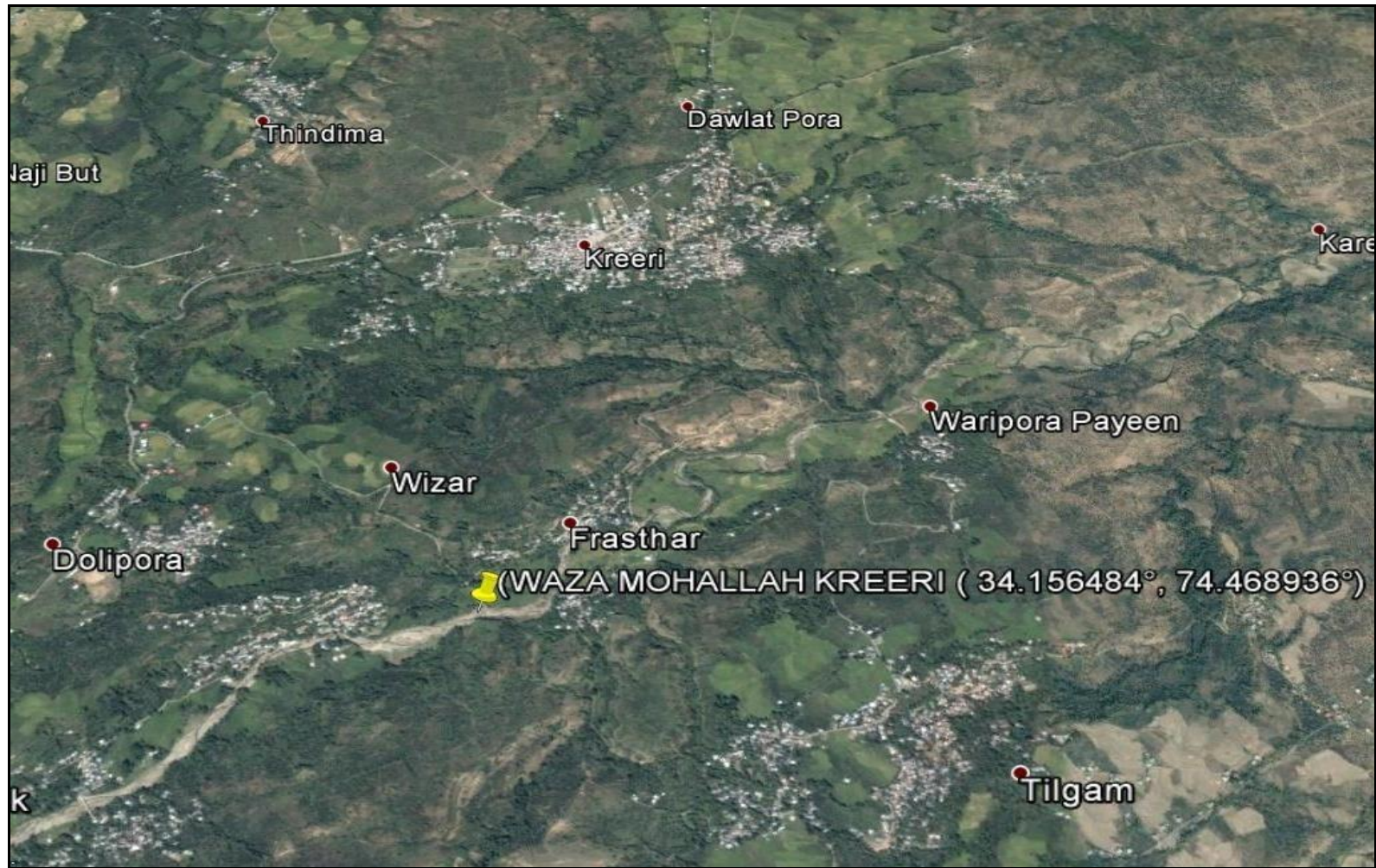


Figure 1.8: Location of Proposed Bridge Site on the Google Map

Environmental Permission Required for the Proposed Bridge

13. The proposed bridges are not scheduled activity under the EIA Notification 2006. Therefore, environmental clearance is not required for proposed bridges. As tree cutting and forest land are also not involved in the construction proposed bridges, therefore, tree cutting permission and forest clearance are also not required. For installation and operation of batching plant, Consent to Establish (CTE) and Consent to Operate (CTO) will be obtained by the contractor from J&K State Pollution Control Board (JKSPCB). During construction phase, labour's safety, health and welfare measures will need to be taken by the contractor as per Building & other construction workers (Regulation of Employment and condition of service) Act 1996. The list of environmental regulations applicable to the proposed bridges is as given in **Table 1.1**:

Table 1.1. List of Environmental Regulations Applicable to Proposed Bridge

Sl. No	Type of Clearance	Applicability	Project Stage	Responsibility
1.	EIA Notification, 2006 under the Environment (Protection) Act, 1986	Not Applicable	Not Applicable	Not Applicable
2.	Jammu and Kashmir Preservation of Specified Trees Act of 1969 and Rules of 1969. Tree felling permission	Not required as no tree cutting is required.	Not required	Not required
3.	Forest Clearance	Not required as no forest land is involved.	Not required	Not required
4.	The Wildlife Conservation Act, 1972, as amended, J&K Wildlife (protection) Act 1978, as amended provide for protection	Not applicable as no wildlife issue is involved.	Not Applicable	Not Applicable

Sl. No	Type of Clearance	Applicability	Project Stage	Responsibility
	& management of Protected Areas Wildlife Clearance			
5.	The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the rules, 1959 provide guidance for carrying out activities, including conservation, construction and reuse in and around the protected monuments.	Not required as the area does not fall within or is situated close to any such site of archaeological importance	Not Applicable	Not Applicable
6.	Water (Prevention and control of pollution) Act, 1974 as amended Air (prevention and control of pollution) Act, 1981, as amended	Applicable for hot Batching Plant to be obtained from J&K State Pollution Control Board	Construction (Prior to work initiation)	Contractor
6.	Hazardous Waste Authorization for disposal of hazardous waste like used oil, paint wastes, etc	Applicable and to be obtained from J&K State Pollution Control Board	Construction (Prior to work initiation)	Contractor
7.	NOC for crusher, if crusher is installed for aggregate	Applicable and to be obtained from J&K State Pollution Control Board	(Prior to work initiation)	Contractor
8.	Environmental Clearance for stone	Applicable and to be obtained from	(Prior to operation)	Contractor

Sl. No	Type of Clearance	Applicability	Project Stage	Responsibility
	quarry (if new quarry is opened by the contractor for boulders/stone	State Environmental Impact Assessment Authority/ District Level Environmental Impact Assessment Authority.	quarry)	
9.	Building and Other Construction Workers (Regulation of Employment and Conditions of service) Act of 1996 and Rules 1998 provide for regulation of employment and conditions of service of the building and other construction workers as also their safety, health and welfare measures in every establishment which employs ten or more workers.	Applicable for Labour's Safety, health and Welfare. Registration of each establishment within a period of sixty days from the commencement of work and registration of building workers as beneficiaries under this Act. Compliance to provisions of health and safety measures for the construction workers in conformity with ILO convention No.167 concerning safety and health in construction	Construction Phase	Contractor
10.	Certificate of	Applicable for	Construction	Contractor

Sl. No	Type of Clearance	Applicability	Project Stage	Responsibility
	Pollution Under Control for Vehicles	vehicle engaged in construction activities	Phase	

Project Description

Proposed Bridges Details

Wahidina Bandi Payeen Bridge

14. The proposal for two lane bridge of 1x 25.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. General arrangement drawing (GAD) for the proposed bridge at Wahidina Bandi is shown in **Figure 2.1**

Wagila Wagoora Bridge

15. The proposal for two lane bridge of 1x 50.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. General arrangement drawing (GAD) for the proposed bridge at Wagila Wagoora is shown in **Figure 2.2**

Gogjidaji Tarzoo Bridge

16. The proposal for two lane bridge of 1x 25.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. General arrangement drawing (GAD) for the proposed bridge at Gogjidaji Tarzoo Bridge is shown in **Figure 2.3**

Wazmohalla Kreeri Bridge

17. The proposal for two lane bridge of 1x 50.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation. General arrangement drawing (GAD) for the proposed bridge at Wazmohalla Kreeri is shown in **Figure 2.4**

Hydrology

18. Hydrological details of **Khrus Nallah** are given below:

- I. Discharge = 223 Cumes
- II. Highest Flood level (HFL) = 77.469 M with respect to local bench mark

- III. Corresponding Guage = 3.87 M at Wahidina
- IV. Scour Depth = 2.54 M

19. Hydrological details of **Ningli Nallah** are given below:

- I. Discharge = 223 Cumes
- II. Highest Flood level (HFL) = 98.616 M with respect to local bench mark
- III. Corresponding Guage = 3.87 M at Wagila
- IV. Scour Depth = 2.616 M

20. Hydrological details of **Ningli Nallah** are given below:

- I. Discharge = 25 Cumes
- II. Highest Flood level (HFL) = 97.79 M with respect to local bench mark
- III. Corresponding Guage = 2.5 M at Gogjidaji
- IV. Scour Depth = 4.5 M

21. Hydrological details of **Frestahar Nallah** are given below:

- I. Discharge = 220Cumes
- II. Highest Flood level (HFL) = 1649 M with respect to local bench mark
- III. Corresponding Guage = 3.89 M at Wazmohalla
- IV. Scour Depth = 3.25M

Geotechnical Details of Bridges

Wahidina Bandi Payeen Bridge

22. Subsoil Investigations have been carried out by M/s Superb consultant & Engineers Pvt. Ltd. The composition for 4.5 M depth examined for 2 nos. borehole/trial pits comprise of silty sand and silty clay beyond 4.5 mtrs is observed. As per IS classifications subsoil is silty sand silty clay of noe to low plasticity in nature encountered at varying depths. The soil report recommends 26T/sqm bearing Capacity below 4.5 M from NSL. Based on the Bearing capacity of soil, shallow foundation such as isolated/raft footing has been recommended.

Wagila Wagoora Bridge

23. Subsoil Investigations have been carried out by M/s Superb consultant & Engineers Pvt. Ltd. The composition for 3M depth examined for 2nos. trial pits comprise of Gravelly sand up to 1.5 Mtrs beyond 1.5Mtrs Silty Clay with fine sand is observed. As per IS classifications subsoil is clayey silt of low plasticity and /or silty-clays of medium plasticity (ML/CI) with little and varying proportions of fine sand encountered at varying depths. The soil report recommends 26T/sqm bearing Capacity at 94 RL.

Gogjidaji Tarzoo Bridge

24. Subsoil Investigations have been carried out by M/s Superb consultant & Engineers Pvt. Ltd. The composition for 15 M depth examined for 2 nos. borehole/trial pits comprise of silty sand and silty clay of low to medium plasticity is observed. As per IS classifications subsoil is silty sand and silty clay encountered at varying depths. The soil report recommends 4T/sqm bearing Capacity at 3M depth from NSL.

Wazmohalla Kreeri Bridge

25. Subsoil Investigations have been carried out by M/s Superb consultant & Engineers Pvt. Ltd. The composition for 5.9 and 6.5 M depth examined for 2 nos. borehole/trial pits comprise of Boulder, sandy Gravel of light green color up to 5.9 Mtrs and 6.5 meters is observed. As per IS classifications subsoil is poorly graded sand mixture along with boulders of varying sizes encountered at varying depths. The soil report recommends 26T/sqm bearing Capacity 1643.75 RL. Based on the Bearing capacity of soil, shallow foundation such as isolated/raft footing has been recommended.

26. Project Cost of Bridges

Wahidina Bandi Payeen Bridge

The total cost of the proposed bridge works out to be **Rs.578.00** Lakhs..

Wagila Wagoora Bridge

The total cost of the proposed bridge works out to be **Rs.793.00** Lakhs..

Gogjidaji Tarzoo Bridge

The total cost of the proposed bridge works out to be **Rs.525.00** Lakhs..

Waza Mohalla Bridge

The total cost of the proposed bridge works out to be **Rs. 763.00** Lakhs

Time of Schedule for Completion

The proposed bridges will be completed in three working seasons.

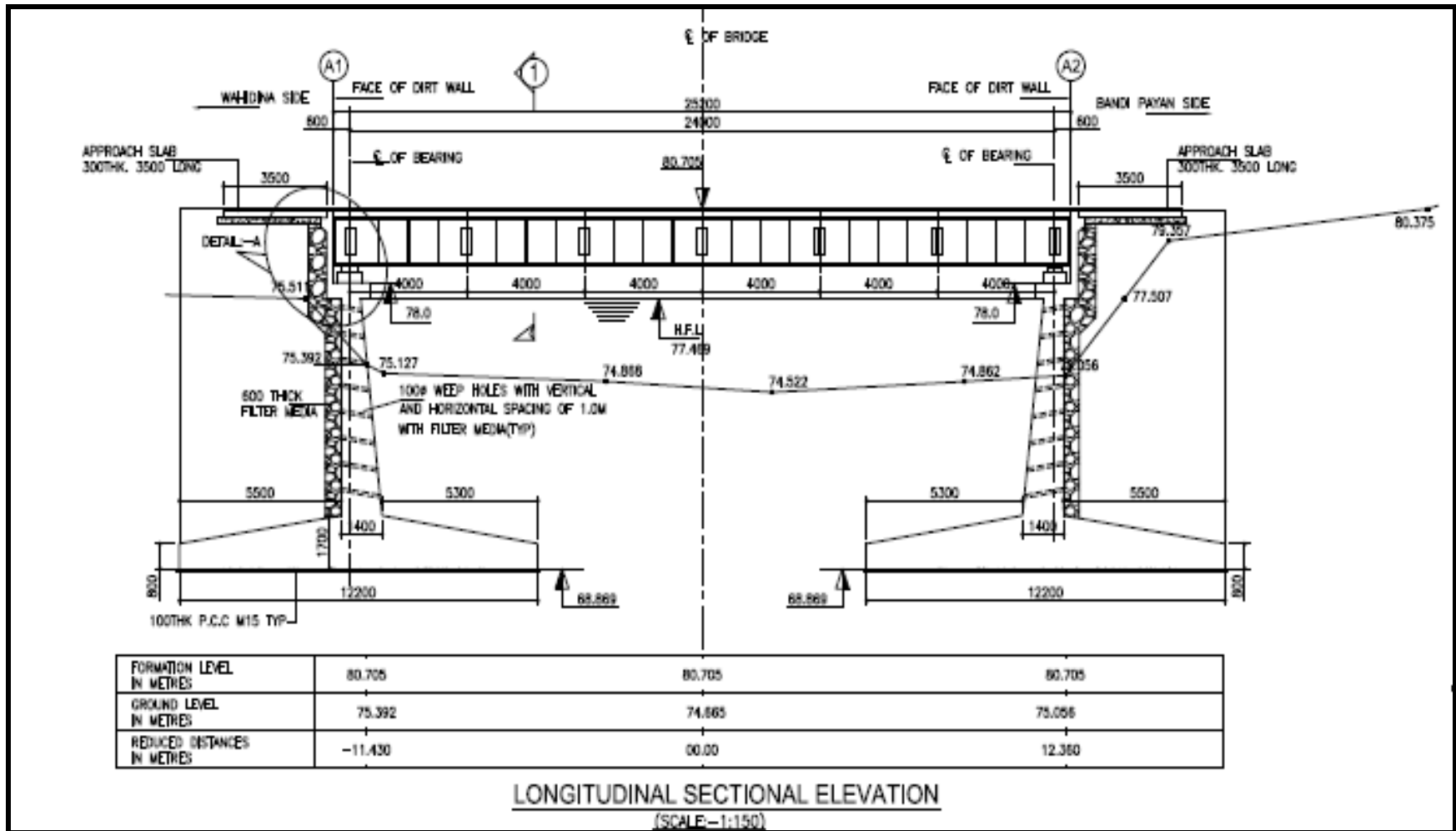


Figure 2.1: General Arrangement Drawing (GAD) for Proposed Bridge at Wahidina

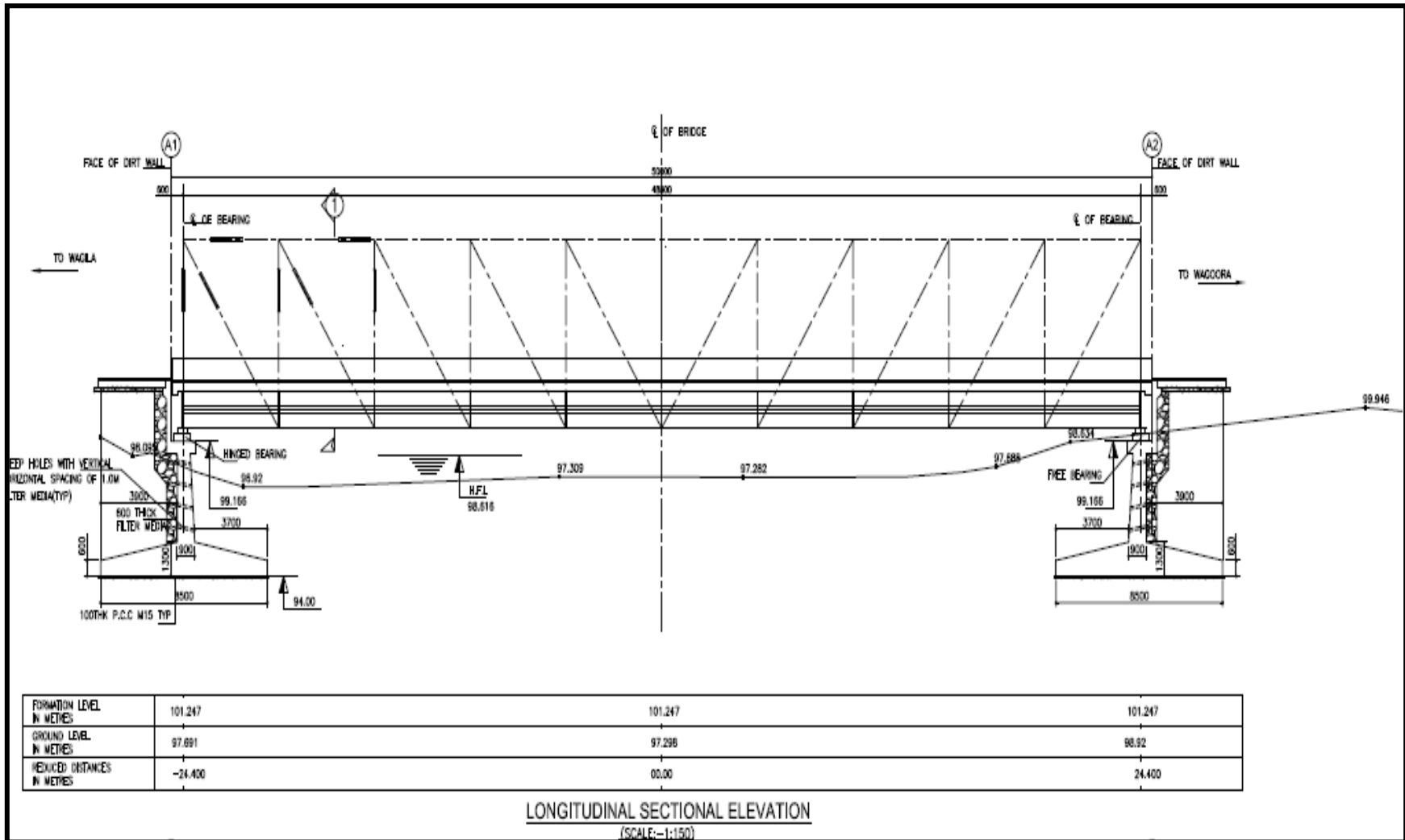


Figure 2.2: General Arrangement Drawing (GAD) for Proposed Bridge at Wagila Wagoora

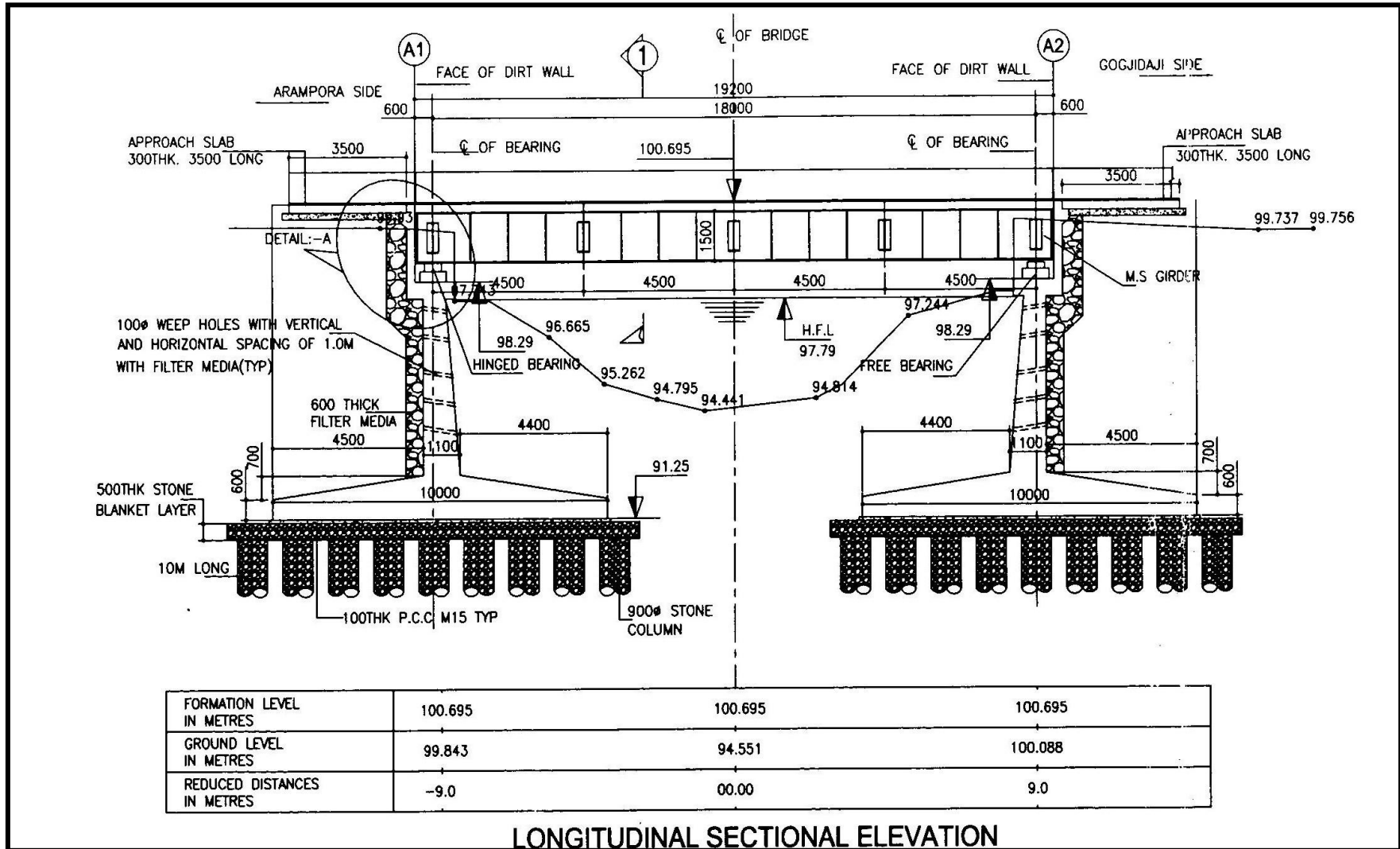


Figure 2.3: General Arrangement Drawing (GAD) for Proposed Bridge at Gogjidadhaji Tarzoo

Description of Environment

27. The collection of baseline information on bio-physical and social aspects of the project areas is the most important reference for environmental screening and conducting Environmental Assessment (EIA) study. Based on the existing environmental scenario, potential environmental impacts of the proposed bridge will be identified and accordingly environmental management plan will be prepared. The existing environmental conditions at and around the proposed bridge site, have been obtained by the site visits and secondary data collection from published source and various government agencies.
28. The environmental screening for the proposed bridge is given in **Annexure 1**. The baseline environmental conditions of the area are as given below:

Topography and Physiography of Bridges

29. Topography around the proposed bridges at Wahidina Bandipayeen, Wagila Wagoora, Gogjidaji and Wazmohalla are mostly plain valley with mild undulating located in Baramulla district. Agriculture and orchids are observed in the area around the proposed bridges. The area is flood prone and in September 2014 unprecedented flood was experienced in Khrus Nallah, Frestahar Nallah and Ningli Nallah over which bridges are proposed to be constructing. The photographs of topography and physiography of the proposed bridge sites are given in **Figure (3.1.1 -3.1.4)**.



Figure 3.1.1: Glimpse of Topography & Physiography of the proposed bridge at Wazmohalla in district Baramulla.



Figure 3.1.2: Glimpse of Photographs of Topography & Physiography of the proposed bridge at Wagila Wagoora in Baramulla District.



Figure 3.1.3: Glimpse of Photographs of Topography & Physiography of the proposed bridge at Wahidina BandiPayeen in Baramulla District.





Figure 3.1.4: Glimpse of Photographs of Topography & Physiography of the proposed bridge at Gogjidaji Tarzoo in Baramulla District.

Geology

- 30. To the North of the Kashmir valley there are karewa formations which are lake-laid clays and shales. These are lacustrine deposits and appear like flat mounds on the margin of high mountains. Below these karewas is spread the alluvium of the Jhelum. The highest karewa is near the Pir Panjal. It is 3800 meters above sea level and more than 2100 metres above the level of the Jhelum. There are many layers of sedimentary rocks which are found in Baramulla district
- 31. The brief generalized geological succession of the district is given below:

Stratigraphic Unit	Lithology	Thickness (m)	App. Age
Alluvium	Clay, Silt and sand	15	Recent
Upper Karewas	Alternate greenish sandy and grey clay bed layers with calcareous Laminae	750	Plio-Pleistocene
	<i>Second fluvio-glacial boulder</i>	130	
Lower Karewa	Clay (bluish grey) & Conglomerates with coarse to fine sand (greenish in colour) alternate with grey sandy clays. <i>Lignite and peat material</i>	2000	<i>Plio-Pleistocene</i>
	<i>First fluvio-glacial Boulder bed</i>	200	
Panjal Trap	Agglomeraticslates, grit and effusive rocks		Permo Carbonif
Zewan beds	Shale, slates with quartzite and limestone		Cam bro-

- 32. Zewan beds, Panjal traps forming hilly and mountainous terrain of the district with hard formations of igneous and metamorphic rocks. The Karewas and alluvium of Quaternary and Tertiary age (Plio-Pleistocene) underlie the valley area and consists of alternate bands of sand, silt, gravel & clay, interspersed at

two to three levels locally by glacial boulder beds. This formation is important from ground water point of view and sustains the water supply system in the area.

Seismicity of the Area

33. The project area is located the highest earthquake prone seismic zone V. Among the most notable are the Northwest Kashmir earthquake of 2005 (Mw 7.6) & 2002 (Mw 6.4), Pattan earthquake of 1974 (Mw 7.4), Kangra earthquake of 1905 (Mw 7.8) & in 1885 (Mw 7.5). According to the seismic zonation map for India, the region falls in seismic zone V. Most of the earthquakes are generated by the fault movements and in Jammu & Kashmir region, there are parallel faults trending northwest to south east. Seismic hazard map for Jammu & Kashmir State is shown in Figure 3.2

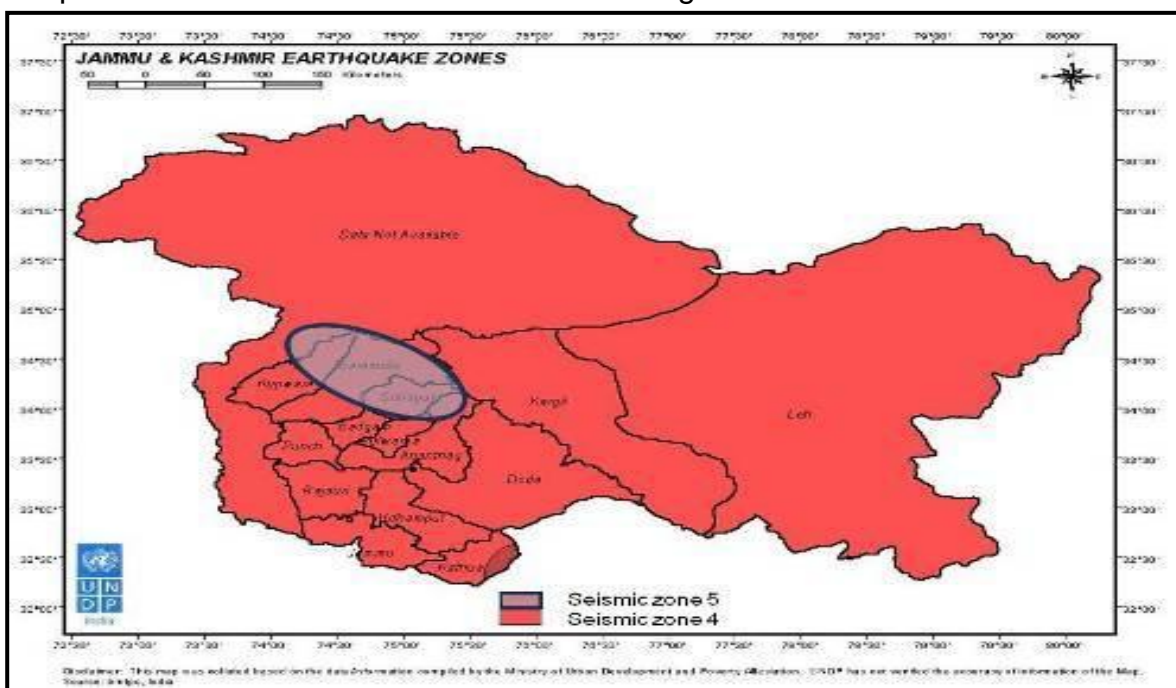


Figure 3.2: Seismic Hazard Map of Jammu & Kashmir Soil

34. District Baramulla is a hilly and mountainous with broad intermountain valley. The altitude of the hill ranges upto 3700 m amsl. The valley area in the central part of the district has flat to mildly undulating topography with its elevation more than 1600 m amsl. The master slope in the area is towards north-west. The district forms part of the Jhelum sub basin of Indus basin. River Jhelum is the major rivers with its tributaries draining the area. Three major tributaries of River Jhelum viz., Ferozpora Nallah, Frestahar Nallah, Ningli Nallah and Khrus Nallah drains and have wide channels.

35. Soil found on plains is clay loam in nature and are dark brown in colour with moderate to high crop supporting fertility.

36. Hydrology

Khrus Nallah

37. The proposed bridge will be constructed over Khrus Nallah near Wahidina Bandipayeen . The hydrological details of Khrus Nallah are given below:

Water Discharge	=	223 Cumes
Highest Flood level (HFL)	=	77.469 m
Corresponding Gauge	=	3.87 m at Wahidina
Scour Depth	=	2.54 m

Ningli Nallah

38. The proposed bridge will be constructed over Ningli Nallah near Wagila wagoora. The hydrological details of Ningli Nallah are given below:

Water Discharge	=	223 Cumes
Highest Flood level (HFL)	=	98.616 m
Corresponding Gauge	=	3.87 m at Waqila
Scour Depth	=	2.616 m

Ningli Nallah

39. The proposed bridge will be constructed over Ningli Nallah near Gogjidaji Tarzoo . The hydrological details of Ningli Nallah at Gogjidaji Tarzoo are given below:

Water Discharge	=	25 Cumes
Highest Flood level (HFL)	=	97.79m
Corresponding Gauge	=	2.5 m at Gogjidaji
Scour Depth	=	4.5m

Frestahar Nallah

40. The proposed bridge will be constructed over Frestahar Nallah near Wazmohalla Kreeri . The hydrological details of Frestahar Nallah at Wazmohalla Kreeri are given below:

Water Discharge	=	220 Cumes
Highest Flood level (HFL)	=	1649m (AMSL)
Corresponding Gauge	=	3.87 m at Wazmohalla
Scour Depth	=	2.25m

Climate & Rainfall

41. The climate of the area is Temperate cum Mediterranean type. In the higher reaches temperature remains cold throughout the year. Average minimum and maximum temperature varies from -5°C to 32°C . The winter season starts from the middle of the November and severe winter conditions continues till

the middle of March. The area receives an average annual precipitation of about 557 mm in the form of rain and snow for about 60 days.

Air Quality

42. The Baramulla bridge sites are located at near or within the main villages. As there is no residential, commercial, and industrial activity near the construction of proposed bridge sites, therefore is no significant source of air pollution. Ambient air quality at the proposed bridges construction sites appears reasonably good.

Noise Levels

43. As there is no residential, commercial and industrial activity near the proposed bridges construction sites, noise levels at the proposed bridges construction sites are reasonably low.

Ecology

44. There is no Scheduled tree or shrubs in the alignment of the proposed bridges. Therefore, cutting of tree will not be required for construction of the proposed bridge. However, 10 No.s of local trees i.e., Populous and more than 15 No.s of *Salix* tree sp. required to be cut at the time of construction of proposed bridges in district Baramulla at Trikolbal and at Wazmohalla. In the area around the proposed bridges, the commonly observed trees species *Abies pindrow*, *Celtis australis*, *Crataegus songaric*, *Euonymus hamitonianus*, *Euonymus fimbriatus*, *Fraxinus hookeri*, *Juglans regia*, *Morus alba*, *Parrotiopsis jacquimontiana*, *Pinus excelsa*, *Platanus orientalis*, *Populus caspica*, *Prunus cerasifera*, *Prunus cornuta*, *Pyrus malus*, *Quercus robber*, *Rubinia psedoacacia*, *Salix alba*, *Salix babylonica*, *Salix wallichiana*, *Taxus wallichiana*, *Ulmus lavigata*, *Ulmus wallichiana planchon*, etc.

45. There is no ecological sensitive location like wildlife sanctuary, national park or bio reserve within 10 km distance from the proposed bridge construction site.

Socio-economic Conditions

46. The district has a population density of 305 inhabitants per square kilometer (790/sq mi). Its population growth rate over the decade 2001-2011 was 20.34%. Baramulla has a literacy rate of 66.93% with male literacy 77.35% and female literacy 55.01%. Total literate in Baramulla district were 571,348 of which males and females were 352,289 and 219,059 respectively. Baramulla town is the largest town in the district and the fourth most-populous town in the state, with a population of 167,986 as per 2011 census.

Anticipated Environmental Impacts

47. The anticipated environmental impacts due to the proposed bridges can be direct as well as indirect. The direct area of influence includes quarry, crusher, camp, batching plant and construction site for the proposed bridges. The anticipated impacts on various environmental components can occur during design, pre-construction, construction and operation stages.
48. The description and magnitude of anticipated environmental impacts due to proposed bridges on the various environmental components are presented in the following sub- sections

Consideration of Environmental Impacts during Design of Proposed Bridges

49. The important environmental impacts for consideration during design of the proposed bridges are given blow:

Hydrological Study

50. The existing bridges have observed devastating floods in September 2014 and got damaged completely. Therefore, hydrological study and runoff calculations for extreme flood/rains under the climate change scenarios must be carried out and considered for designing of the proposed bridges with excess runoff flow/flood safeguard.

Erosion at Bridges Abutments during Floods/Rains

51. Frestahar Nallah, Ningli Nallah and Khrus Nallah experiences flooding conditions frequently. To withstand extreme flooding conditions at Frestahar Nallah, Ningli Nallah and Khrus Nallah, protection around both sides of bridges abutments walls required to be designed using appropriate protection techniques, which can withstand devastating floods. For bridges protection, simple stone pitching may not be durable and may result in deformation and collapse during heavy rains and flood.

Sliding of Backfilling with Abutments

52. Backfilling with abutments of the proposed bridges may slide due to uplift pressure of percolated rain water. Therefore, while designing of abutments, weep holes (80 mm to 100 mm dia) with minimum 600 mm filter media for draining of rain water may be considered to prevent sliding of backfilling and uplift pressure at abutments.

Seismic Factor in Design Bridges

53. The proposed bridge sites over Frestahar Nallah, Ningli Nallah and Khrus Nallah in district Baramulla is located in Seismic zone V and prone to high intensity

earthquakes. While designing of bridges components, suitable seismic load factor must be taken into consideration. Anti dislocation device for slabs/spans should also be considered in bridges design/construction to withstand horizontal force during high intensity earthquakes.

Snow fall on Proposed Bridge Sites

54. At the proposed bridge site over Frestahar Nallah, Ningli Nallah and Khrus Nallah in district Baramulla, snowfall occurs during extreme winter. Therefore, while designing the proposed bridges, snowfall load over bridges should be taken into consideration.

Anticipated Impacts During Construction and Operation Phases

55. Anticipated impacts on various environmental components during construction and operation phases of the proposed bridges are described below:

Impact on Physiography and Topography

56. Since the proposed bridges will be constructed in place of existing bridges without any land acquisition, impact on the topography and physiography of the area would be negligible during construction and operation phases of the proposed bridges.

Impact on Soil

57. Soil is one of the most important components of the physical environment. During construction of the proposed bridges, the potential impacts on soil are discussed as given below:

Construction Phase

58. During construction of the proposed bridges, the contamination of the soil is anticipated due to improper disposal of oily wastes, pile slurry water, solid wastes, spillage of fuel oil at camps sites, open defecation by construction workers, raw sewage disposal from camp sites, etc. Improper disposal of used oil generated from maintenance of vehicles, construction equipment and DG sets at the camp sites/batching plants may also result in soil contamination.

Operation Phase

59. No impact is anticipated on soil during the operation phase of the proposed bridges.

Impact on Water Resources

Construction Phase

60. The proposed span bridges will be constructed on the Frestahar Nallah, Ningli Nallah and Khrus Nallah. Existing damaged bridges lying on the course of the Nallahs. Demolition wastes of existing bridges may also affect flow pattern and surface water hydrology of all Nallah, if not collected from the course and disposed properly. The pier foundation excavation debris/slurry water and construction wastes on course of streams may also affect surface water hydrology and flow. However, extent of such impact will be minor as course of streams are wide.

Operation Phase

61. During the operation phase, drainage pattern or hydrology of the Nallahs will not be affected. Therefore, no impact is anticipated during operation phase.

Degradation of Water Quality

Construction Phase

62. The surface and ground water quality due to the proposed bridges may be degraded mainly in following ways:
- a. by improper disposal of solid wastes, pile slurry water, oily wastes, used oil waste, etc.
 - b. By raw sewage generated from camps, batching plants and bridge construction sites,
 - c. Open defecation by workers on the course of Frestahar Nallah, Ningli Nallah and Khrus Nallah.

63. During construction phase, debris and construction wastes, if not cleared, may deteriorate surface water quality of Frestahar Nallah, Ningli Nallah and Khrus Nallah.

Operation Stage

64. During the operation stage, there is no probability of degradation of water quality during normal operations of the proposed bridges.

Impact on Ambient Air Quality

Construction Phase

65. During construction phase, there will be two main sources of air emissions *i.e.*

mobile sources and fixed sources. Mobile sources are mostly vehicles involve in construction activities of the proposed bridges while emissions from fixed sources include diesel generator set, construction equipment and excavation activities, those produce dust emissions.

66. Certain amount of dust and gaseous emissions will also be generated during the construction phase from the batching plants. The pollutants of primary concern include Fine Particulate Matter (PM_{2.5}) and Respirable Particulate Matter (PM₁₀). However, suspended dust particles may be coarse and will be settled within a short distance of the construction sites. Therefore, impact on ambient air quality will be temporary and restricted within the closed vicinity of the construction activities for the proposed bridges and batching plants.
67. Considerable amount of exhaust emissions of carbon monoxide (CO), unburned hydrocarbon, sulphur di-oxide, particulate matter, nitrogen dioxide (NO₂), etc, will be generated from the DG set, construction equipments and batching plants. Batching plants should be located away from the populated areas and be fitted with the air pollution control equipment and emission shall meet National Emissions Standards/J&K State Pollution Control Board standards. Further, the batching plants must be sited at least 250 m in the downwind direction from the nearest human settlement.
68. Ambient air quality monitoring should be carried out during construction phase. If monitored parameters are above the prescribed limited, suitable control measures must be taken.

Operation Phase

69. No adverse impact is anticipated on ambient air quality during operation phase. Traffic movement on the bridges will result in vehicular emissions, which will be mingled with the ambient air within 500 m from every bridge sites.

Impact on Noise

Construction Phase

70. The proposed bridges construction will be confined to the Frestahar Nallah, Ningli Nallah and Khrus Nallah. During the construction phase, noise will be generated from the batching plants, operation of construction equipments at bridge construction sites, operation of DG sets and vehicles transporting construction materials. During the construction phase, the noise levels are expected to be increased between 10-20 %. However, these noise levels will be temporary and intermittent in nature mostly during day time only.

Operation Phase

71. During the operation phase, noise will be generated through the vehicles movement on the bridges.

Management of Spills and Wastes

72. During the construction of the proposed bridges, demolition wastes, excavated earth from foundation, construction debris, used oil from maintenance of DG set and construction equipment, lube oil containers, solid waste, etc will be generated. Such wastes may cause deterioration of soil quality and surface water/runoff flow in Frestahar Nallah, Ningli Nallah and Khrus Nallah. These wastes must be collected and disposed off appropriately.

Impact on Flora, Fauna and Ecosystem

73. During the construction and operation phases of the proposed bridges, no adverse impact is anticipated on the flora and fauna of the area as no cutting of trees and clearing of vegetation is required.

Impact on Socio-economic Environment

74. The construction and operation phases of the proposed bridges will have some beneficial impact on social environment. Some increase in income of local people is expected as some local unskilled, semiskilled and skilled persons may gain direct or indirect employment during construction phase of the proposed bridges. Since the immigration of work force during construction phase is likely to be very small, the social impacts on literacy, health care, transport facilities and cultural aspect are expected to be insignificant.

Construction stage

75. Although the construction contractor are likely to use unskilled labour drawn from local communities, use of specialized construction equipment will require trained personnel not likely to be found locally. It is anticipated that the construction labour inputs for the construction works will be in the order of about 30 persons per day. However, this number will fluctuate, and the number on any particular day may be higher or lower.

Operation Stage

76. During operation phase, proposed bridges will provide safe movement of traffic and reduce the travel time. The proposed bridges will also facilitate shortest road for the people of Baramulla and Kupwara to reach different areas. In addition proposed bridges are more essential as the roads are vital in reaching to agriculture fields, orchids and are also nearest connectivity with the National Highway. Therefore, positive impact is anticipated on the socio-economic environment during operation phase.

Public Consultation

77. Public's consultations and participation have been viewed as a continuous two way process, involving, promoting of public understanding of the processes and mechanisms through which developmental problems and needs

are investigated and solved. The public consultation, as an integral part of environmental screening and assessment process throughout the project preparation stage not only minimizes the risks and unwanted political propaganda against the project but also abridges the gap between the community and the project formulators, which leads to timely completion of the project and making the project people friendly.

78. During environmental screening and impact assessment, public consultations were carried and issues related proposed bridges were raised during project specific consultations. During the consultation on **05-11-2016 to 07-11-2016** at Wahidina bandipayeen, Wagilla Wagoora, and Gogjidaji in Baramulla, the following issues were discussed. Photographs of public consultation are given in **Figure 5.1**. The signatures of participants, who participated in the public consultation, are documented in **Annexure 2**.

Issues Discussed During Public Consultation

79. The issues discussed during public consultation for the proposed bridges are given below:

- About proposed project, source of assistance and its implementation/ execution etc.
- Information on perceived benefits from the proposed bridges including travel time, fuel cost, noise and air pollution.
- Information of the impacts from the proposed bridges during construction stage in terms of inconvenience to public, air and noise pollution, etc.
- Occurrence of disaster like floods and cloud burst in past. Whether construction activities will cause any type of health hazard or not?, then and mitigation measures.
- Discussions among public for sharing of information related to the proposed bridges, environment policy of World Bank, direct and indirect impacts of improvement/construction work on environment.
- Any loss of land/structure/business or other community property due to proposed bridges?
- Any damage to historical or cultural monuments due to the proposed bridges?
- Any impact on trees and measures to be taken for saving scheduled trees (Chinar, Mulberry, Walnut) in close vicinity of the proposed bridge sites.
- Any possible problem to be faced by the local people in their daily activities due to the proposed bridges construction work.

Feedback Received During Public Consultation

80. The feedback received from local people during public consultation for the proposed bridges are given below:

1. During consultation regarding the proposed bridges, people have shown keen interest.
2. Some of the local people are aware about the upcoming bridge works.
3. People in general were very enthusiastic about the benefits of the proposed bridges in terms of reduction in travel time, fuel consumption and also an improvement in the air quality and a reduction in the noise levels.
4. The major problems faced by people are related to non availability of traffic due to absence of bridges.
5. People are ready to extend all types of support during execution of the bridges as their major difficulties will overcome after completion of the proposed bridges.
6. JKPCC ensured that the requisite environmental management measures shall be incorporated in EMP and public consultation shall be a regular process during all stages of the sub-project to solve any issues arising out of the proposed bridge works.



Wahidina Bandi Payeen



Wagila Wagoora



Gogjidaji Tarzoo



Wazmohalla

Figure 5.1: Photographs of Public Consultation at Bridge Sites in Baramulla

Environmental Management Plan

Introduction

81. Jammu & Kashmir Projects Construction Corporation Ltd has planned for construction of proposed bridges in Baramulla, their location and other specifications are given below:
82. Wahidina Bandi Payeen Bridge with two lane of 1x 25.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation.
83. Wagoora Wagila Bridge with two lane of 1x 50.00meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation.
84. Gogjidaji Tarzoo Baramulla Bridge over Ningli Nallah has two lane of 1x 25.00meters overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation
85. Wazmohalla Kreeri Bridge over Frestahar Nallah has two lane of 1x 50.00 meters of overall length and width 15 meters carriage way of 7.5 meters & 1.5 meter footpath on either side is being adapted. The Bridge is of single span and will rest on side abutments of open trench foundation.
86. The proposed bridges may result as adverse environmental impacts specifically during design, pre-construction, construction and demobilization stages due to various project activities. To mitigate such anticipated environmental impacts, environmental management plan (EMP) has been prepared for design, pre-construction, construction and demobilization. The EMP will be integral part of bid document and contract agreement.
87. Environmental Management Plan (EMP) deals with the implementation of the mitigation measures recommended to avoid, minimize and mitigate environmental impacts due to the proposed bridge.

Objectives of Environmental Management Plan (EMP)

88. The objectives of the Environmental Management Plan (EMP) for the proposed bridges are to:
 - Identify a range of mitigation measures which could reduce and mitigate the potential environmental impacts to minimal or insignificant levels.
 - To identify measures that could optimize beneficial impacts.
 - To create management structures that addresses the concerns and complaints of all the stakeholders with regards to the development.

 - To establish a method of monitoring and auditing environmental management practices during construction and operation phases.

- Describe the practical mitigation measures that should be implemented on bridge construction works to prevent or mitigate any negative environmental impacts and to enhance the positive issues.
- Detail of specific actions deemed necessary to assist in mitigating the environmental impact of the project.
- Ensure that the environment and safety measures are complied with.
- Propose mechanisms for monitoring compliance with the EMP and reporting thereon.
- Establish the roles and responsibilities of Contractor and PIU in the implementation of environmental measures.

Environmental Management Measures for Design stage

Hydrological Study for Design of Proposed Bridge

89. During devastating floods in September 2014, the existing bridges on Khrus, Frestahar and Ningli Nallah at Trikolbal Pattan, Wahidina bandi payeen, Wagilla Wagoora, and Gogjidaji respectively, got fully damaged and could not withstand high flood. Therefore, it is essential that hydrological study should be carried out for designing of the proposed bridges with excess runoff flow/flood safeguard.

Erosion at Bridges Abutments during Flood

90. The existing bridges experienced devastating floods in past. Therefore, protection around both sides of abutment walls of the bridges needs to be provided using appropriate protection techniques, which can withstand devastating floods. Suitable slopes and combination of gabion baskets and/or mattresses may be good for bridge protection. Simple stone pitching for bridges protection may not be sufficient for long time as stone pitching may deform and collapse during heavy rains and floods.

Sliding of Backfilling and Prevent Uplift Pressure at Abutments

91. In both abutments of the proposed bridges, weep holes (80 mm to 100 mm dia) should be provided with minimum 600 mm this filter media for draining of rain water to prevent sliding of backfilling and to avoid any uplift pressure.

Seismic Factor in Design Bridge

92. The proposed bridges are located in Seismic zone V and prone to high intensity earthquakes. Therefore, it is imperative that seismic load factor must be taken into consideration while designing of bridges components. As bridges are located in highest seismic risks zone, therefore, seismic arresters should be provided in the bridge as anti dislocation device for slabs/spans to withstand horizontal force during earthquake.

Snow Accumulation on the Proposed Bridges

93. The proposed bridge sites observe snow fall during extreme winter. Accumulation of snow on the bridges may put additional load on the proposed bridges. Therefore, snow fall load should be considered while designing the proposed bridges.

Approaches for Bridges

94. The approach/approach slab provides a transition between road pavement and the bridge. The approach/approach slab acts as an intermediate bridge to span the portion of embankment directly behind the abutment which was excavated to construct the abutment. Therefore, approach slab as per IRC guidelines and well designed approaches to connect bridge with the existing road should be ensured during the design of bridges.

Safety Signage for Bridges

95. For safety of road users and bridges, necessary road safety signage, hazard signage and warning signage with reflective tapes need to be provided before and at the proposed bridges as per IRC guidelines.

Environmental Management Plan

96. The Environmental Management Plan (EMP) for the proposed bridges at Wahidina bandipayeen, Wagilla Wagoora, and Gogjidaji has been prepared in tabular form for design, pre-construction, construction and demobilisation phases of the proposed bridges. In proposed bridges, trees cutting, utility shifting or relocation of religious and cultural properties etc are not required.

97. The details of various environmental mitigation measures are presented in **Table 6.1:**

98. Table 6.1: Environmental Management Plan For Proposed Bridges in district Baramulla

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
A. Design Stage			
A.1 Hydrological Study for designing of Bridges	Existing bridges could not with stand high floods in past. Therefore, it is essential that hydrological study should be carried out for designing of the proposed bridges with flood safeguard.	Design Team	PIU
A.2 Erosion at bridge abutments during flood	Bridge protection works around both sides of abutment walls will be provided with proper slopes and may use a combination of gabion baskets and/or mattresses for slope protection. Simple stone pitching for bridge protection may not be durable for long time. Stone pitching may deform and collapse during heavy rains and flood.	Design Team	PIU
A.3 Sliding of backfilling and uplift pressure at Abutments	In both abutments of the proposed bridges weep holes (80 mm to 100 mm dia) will be provided with minimum 600 mm filter Media for draining of water to prevent sliding of backfilling and to avoid any uplift pressure.	Design Team	PIU
A.4 Impact of earth quake on bridges	The proposed bridges are located in Seismic zone V and prone to high intensity earthquake. Therefore, it is imperative that seismic load factor must be taken into consideration while designing of bridge components.	Design Team	PIU
A.5 Dislocation of span of during earth quake	As bridges are located in high seismic risks zone. Therefore, seismic arresters should be provided to withstand horizontal force during earthquake and as anti dislocation device for slabs/spans.	Design Team	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
A.6 Snow Accumulation on the proposed bridges	The project is located in snow fall area. Accumulation of snow on the bridges may affect integrity of the proposed bridges. Snow load should be considered while designing of the proposed bridges.	Design Team	PIU
A.7 Approaches for Bridges	Approach slab as per IRC guidelines and well designed approaches to connect bridge with the existing road both sides should be ensured during the design of the proposed bridges.	Design Team	PIU
A.8 Safety of proposed Bridges and its users	For safety of road users and bridges, necessary road safety signage, hazard signage and warning signage with reflective tapes need to be provided before and at the proposed bridges as per IRC guidelines.	Design Team	PIU
B. Pre-Construction Stage			
i. Pre-construction Activities By the Contractor			
B.1 Dismantling of existing damaged bridges	Existing damaged bridges, will be demolished completely. Demolition wastes will be collected and disposed as per provision of Construction and Demolition Waste Rule 2016.	Contractor	PIU
B.2 Appointment of Environment & Safety Officer	The contractor will appoint qualified and experienced Environment & Safety Officer (ESO), who will dedicatedly work and ensure implementation of EMP including Occupational health and safety of workers issues at the camp, watching plant and bridge construction work site.	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
B.3 Arrangements for temporary land requirement for camp and batch mix plant	The contractor as per prevalent rules will carry out negotiations with the landowner for obtaining their consent for temporary use of land for construction camp etc.	Contractor	PIU
B.4 Location of Batching Plant	<ul style="list-style-type: none"> • Batching plant will be sited sufficiently away from settlements. Such plant will be located at least 250 m away from the nearest settlement preferably in the downwind direction. • Consent to Establish and Consent to Operate will be obtained from J&K State Pollution Control Board (as required) before establishment and operation of batching plant. 	Contractor	PIU
B.5 Other Construction Vehicles, Equipment and Machinery	<ul style="list-style-type: none"> • All vehicles, equipment and machinery to be procured for construction of bridges will conform to the relevant Bureau of Indian Standard (BIS) norms/Central Pollution Control Board (CPCB) standards. The discharge standards promulgated under the Environment Protection Act, 1986 and Motor Vehicles Act, 1988 will be strictly adhered to. • The silent/quiet equipment like DG set as per regulations will be used at the bridge construction site. • The contractor will maintain records of Pollution under Control (PUC) certificates for all vehicles used during the contract period, which will be produced to PIU for verification whenever required. 	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
B.6 Procurement of aggregate	<p>The contractor will finalize the approved quarry/crusher for procurement of aggregate for the proposed bridges</p> <ul style="list-style-type: none"> • construction after assessment of the availability of sufficient materials, quality and other logistic arrangements. • The Contractor will also work-out road network and report to PIU, which will be inspected before approval. 	Contractor	PIU
B.7 Labour Requirement	The contractor preferably will use unskilled/semiskilled labour from local area to give the maximum benefit to the local community.	Contractor	PIU
ii. Pre-construction Activities By the PIU			
B.8 Trees Cutting	During construction, prior permission for cutting of scheduled tree shall be obtained,if any	PIU	PIU
C. Construction Stage			
Water Pollution			

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C1. Impact on Water Resource during construction of bridgeS	<p>The following mitigation measures are suggested during construction of the proposed bridges at Wahidina bandipayeen, Wagilla Wagoora, and Gogjidaji:</p> <ul style="list-style-type: none"> • Construction of bridges should be done during least flow or no flow area. • Curtain should be provided over the flowing water to avoid the falling of construction material in water. • Construction wastes should be collected and disposed in environmentally sound manner as soon as construction is over. • The construction of bridges should not affect existing flow pattern and drainage system around the proposed bridges. • Flowing water will be diverted with guide bunds and coffer dams at pier locations • 	Contractor	PIU
C.2 Water Pollution from Wastes	<p>The contractor will take all precautionary measures to</p> <ul style="list-style-type: none"> • collect and dispose construction wastes generated from the proposed bridges construction sites (if any). <p>No solid or hazardous wastes (oil contaminated waste) from camp site will be dumped on nearby fresh water bodies or other water bodies, or in open areas. Such wastes will be collected and disposed in environmentally sound manner as per environmental regulations</p>	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C.3 Waste Water from Labour Camp	<ul style="list-style-type: none"> Waste water generated from the sanitary facilities of labour camp will be treated in septic tank followed by soak pit. Workers will not be allowed for open defecation. Proper toilets fitted with septic tank will be provided at camp, batching plant and construction sites. 	Contractor	PIU
Air Pollution			
C.4 Dust and Gaseous Pollution	<ul style="list-style-type: none"> The contractor will take every precaution to reduce the level of dust and gaseous pollution from batching plant and bridges construction sites. The contractor will procure the batching plant and construction machinery, which will conform to the pollution control norms specified by the MoEF&CC/CPCB/J&KSPCB. The excavated materials at the construction sites will be collected and disposed properly so that it does not generate fugitive dust emissions. Regular maintenance of machinery and equipment will be carried and vehicular pollution check will be made mandatory. LPG shall be used as fuel for cooking of food at construction labour camp instead of fuel wood. Personal Protective equipment (PPE) should be provided as a mandatory effort to the construction workers at the batching plant. 	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C.5 Emissions from Construction Vehicles, Equipment & Machineries (like DG set)	<ul style="list-style-type: none"> The contractor will ensure that all vehicles, equipment and machinery used for construction works are regularly maintained and confirm that pollution emission levels comply with the relevant requirements of CPCB and/Motor Vehicles Rules. The contractor will submit PUC certificates for all vehicles/ equipment/machinery used for the construction of bridge. DG set will be provided with chimney of appropriate height as per CPCB guidelines (Height of stack in meter = Height of the building + 0.2 $\sqrt{\text{KVA}}$). 	Contractor	PIU
Noise Pollution			
C.6 Noise Pollution: Noise Levels from Vehicles, Plant and Equipments	<p>The contractor will confirm the following:</p> <ul style="list-style-type: none"> All construction plant and equipment used for construction will strictly confirm to the MoEF&CC/CPCB noise standards. All vehicles and equipment used in construction works will be fitted with exhaust silencers/mufflers. Maintenance and servicing of all construction vehicles and machineries will be done regularly. Only acoustic enclosures fitted DG set will be allowed at the bridge construction site and batching plant/camp site. 	Contractor	PIU
Personal Safety			

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C.7 Personal Safety Measures for Labours and Staff	The contractor will take necessary measures for personal safety during the construction of bridges:	Contractor	PIU
	<ul style="list-style-type: none"> • Protective footwear, protective goggles and nose masks (as required) will be provided to the workers employed in batching plant and concrete works at bridge construction site, painting etc. • Welder’s protective eye-shields will be provided to workers who are engaged in welding works (as required). • Earplugs will be provided to the workers exposed to high noise levels. • Safety vests will be used by workers when on bridge site. • The contractor will comply with all the precautions as required for ensuring the safety of the workmen. 	Contractor	PIU
	<ul style="list-style-type: none"> • The Contractor will make sure that during the construction work all relevant provisions of the Building and other Construction Workers (regulation of Employment and Conditions of Services) Act, 1996 are adhered to. • The Contractor will not employ any person below the age of 14 years for any work. 	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C.8 Emergency Management	<ul style="list-style-type: none"> • Emergency numbers will be displayed at the camp, batching plant and bridge construction site, • First boxes will be made available at camp, batching plant and construction site, • Designated vehicles, which can be used as ambulance, will be available at camp site as per requirement. 	Contractor	PIU
C.9 Risk Force Measure	<ul style="list-style-type: none"> • The contractor will make required arrangements so that in case of any mishap on the bridge construction site, all necessary steps can be taken for prompt first aid treatment. • Construction Safety Plan prepared by the Contractor will identify necessary actions in the event of an emergency. 	Contractor	PIU
C.10 First Aid	<p>The contractor will arrange for :</p> <ul style="list-style-type: none"> • A readily available first aid unit including an adequate supply of sterilized dressing materials and appliances as per the Factories Rules in construction work zone. • Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital. 	Contractor	PIU
Labour Camp Management			

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C.11 Accommodation for workers	<ul style="list-style-type: none"> • Contractor will follow all relevant provisions of the Building and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 for construction and maintenance of labour camp. • The location, layout and basic facility provision of labour camp will be submitted to PIU prior to their construction. • The Contractor will maintain necessary living accommodation and ancillary facilities in functional and hygienic manner. • Proper ventilation will provided in labour accommodation rooms. • Regular cleaning and sweeping will be ensured at the labour camp site. 	Contractor	PIU
	<ul style="list-style-type: none"> • Fuel wood will not be allowed for cooking at labour camps. LPG cylinders will be provided at labour camp by the contractor. 	Contractor	PIU
C.12 HIV/AIDS Prevention Measures	<ul style="list-style-type: none"> • Necessary HIV/AIDS prevention measures will be taken at construction & labour camp • HIV/AIDS awareness programme will be organized by the contractor's Environment & Safety officer. 	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C.13 Potable Water for Workers	<p>The contractor will construct and maintain labour accommodation in such a fashion that uncontaminated clean water is available for drinking, cooking, bathing and washing. The Contractor will also provide potable water facilities at bridge construction site in an accessible place, as per the Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996.</p> <p>Environmental Expert of PIU will be required to inspect the labour camp once in a week to ensure the compliance of the EMP.</p>	Contractor	PIU
C.15 Sanitation and Sewage System at Labour Camp	<p>The contractor will ensure that :</p> <ul style="list-style-type: none"> • The sewage disposal system for the camp will be designed, built and operated in such a fashion that no health hazard occurs and no pollution to the air, surface & ground water or adjacent water courses take place, • Separate toilets/bathrooms, required, will be provided for men and women (if deployed), marked in vernacular language, • Toilets will be provided with septic tank followed by soak pit. 	Contractor	PIU
	<ul style="list-style-type: none"> • Adequate water supply is to be provided in all toilets and urinals, 	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
C.16 Wastes Disposal	<ul style="list-style-type: none"> The contractor will provide garbage bins in the camp, batching plant and construction sites and it will be ensured that these are regularly emptied and disposed off in a hygienic manner as per Solid Waste Management Rule, 2016.. Burning of wastes will not be allowed. Solid waste generated at the construction sites, batching plant & camp site, will be collected in covered waste bins and segregated as biodegradable (food waste, paper, etc) and non-biodegradable (plastic, polyethylene bag, etc) wastes. Polyethylene/plastic wastes will be stored in empty cement bags and to be sent for recycling through scrap dealer. Biodegradable (food waste, paper, etc) solid waste will be disposed in compost pit. Construction wastes generated from bridge construction site will be collected and disposed as per Construction & Demolition Wastes Rule 2016. Used oil generated from the maintenance of DG set and construction equipment will stored in containers and handed over to authorize used oil recyclers. 	Contractor	PIU
D. Contractor's Demobilization			
D.1 Clean-up, Restoration and Rehabilitation	On completion of construction of bridges, the contractor will prepare site restoration and demobilization plan, which will be approved by the Environmental Expert of PIU. The clean-up and restoration operation are to be implemented by the contractor prior to demobilization.	Contractor	PIU

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
	<ul style="list-style-type: none"> • The Contractor will clear all temporary structures; dispose all garbage, night soils and POL (Petroleum, Oil and Lubricants) wastes in environmental sound manner. • Disposal pits or trenches will be filled in and effectively sealed off. • Construction area including camp, and any other area used/affected due to the bridge construction work will be left clean and tidy at the contractor's expense to the entire satisfaction to the land owner/Environmental Expert of PIU. 	Contractor	PIU
E. Operation State			
E.1 Activities to be Carried Out by the J&KPCC			
Monitoring of Bridge Protection Work	During rains regular monitoring will be carried for bridge protection work and scour protection work. In case any indication of erosion, deformation and collapse of protection, necessary measures will be taken to control such issues.	JKPCC	JKPCC

Environmental Monitoring Plan

99. The environmental monitoring plan for the proposed bridge has been prepared based on the environmental monitoring indicators as shown in **Table 6.2**.

Table 6.2: Environmental Monitoring Indicators

Sr. No	Indicator	Details	Frequency	Responsibility
I. Construction Phase				
1.	Ambient Air Quality	24 hourly Ambient Air Quality monitoring for PM _{2.5} , PM ₁₀ , SO ₂ and NO ₂ and CO at Batching Plant	Once in six months	Contractor by engaging approved/ reputed Environmental Laboratory
2.	Noise Levels	Noise levels (dB) and 24 hourly Leq (dB) at Batching Plant and Bridge construction site	Once in six months	Contractor by engaging approved/ reputed Environmental Laboratory
3.	Occupational Health & Safety	Occupational health & Safety of workers engaged in construction activities	Daily	Environment & Safety Officer of the Contractor
II. Operation Phase				
4.	Bridge Protection Work and Scour Protection	Monitoring of Bridge Protection and Scour Protection	During rains	Concern Engineer from JKPCC

Institutional Arrangements for Implementation of EMP

100. During implementation of the proposed bridges, PIU (R&B) and Contractor will be responsible for ensuring that the environmental management measures as given EMP are implemented and regulatory requirements are met. The bridge construction contractor will undertake implantation of EMP, which will be part of bid and contract agreement. The institutional arrangement mechanism for the proposed bridge construction is presented in **Table 6.3**.

101. Table 6.3: Institutional Arrangement for Proposed Bridge

Implementing/ Monitoring Agency	Designation	Responsibilities
Project Implementation Unit	Project Director	<ul style="list-style-type: none"> ● Overall responsible for EMP implementation ● Reporting to various stakeholders (World Bank) on status of EMP implementation Review of the progress made by contractors Conducting periodic field inspection to insure EMP implementation ● Maintaining progress reports on EMP implementation
	Environmental Expert of PIU	<ul style="list-style-type: none"> ● Assist the PIU in the implementation of the EMP provisions Provide guidance to the PIU/contractor on implementation of EMP provisions ● Carry out periodic field visits and ensure compliance with the EMP provisions ● Assist the PIU in the compilation of the monitoring reports and progress reports on EMP implementation
Contractor	Environment & Safety Officer	<ul style="list-style-type: none"> ● Responsible for ensuring the implementation of mitigation measures as per provision in the EMP document. ● Obtaining consents and permission for Batching Plant, etc. Monthly reporting to PIU. ● Discussing various environmental & safety issues and environmental mitigation and monitoring actions with all concerned directly or indirectly. Conducting periodic environmental and safety training for contractor's supervisors and workers along with sensitization on environmental & safety issues that may be arising during the construction stage of the bridge. ● To carry out environmental monitoring and control activities including pollution monitoring.

Implementing/ Monitoring Agency	Designation	Responsibilities
		Conducting awareness campaign for all • construction personnel (including labourers, supervisors and engineers) about HIV/AIDS in the construction and labour camps. • Preparing and submitting monthly reports to PIU on status of implementation safeguard measures

Reporting System

102. The contractor will follow the reporting system for environmental management measures and environmental management indicators as given in **Table 6.4**. The Contractor will report to the PIU on the progress and status of the implementation of environmental management measures as per the EMP. EMP implementation report will comprise photographic evidences (with date, time and geo reference) for implemented mitigation measures, monitoring reports, etc .

Table 6.4: Reporting System

S.No	Item	Stage	Contractor	PIU
			Implementation & Reporting to PIU	Supervise /Field Compliance Monitoring
1.	Identification of disposal location for demolition wastes from existing bridge	Construction	One Time	One Time
2.	Monthly EMP Implementation Report	Construction	Monthly	Monthly
3.	Pollution Monitoring	Construction	Six Monthly	Six Monthly
4.	Cleaning and Restoration	On completion of construction of bridge	One Time	One Time

103. The contractor will take all reasonable steps to protect the environment on and off the construction of bridges and to avoid damage or nuisance to

person or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

Clause for Nonconformity to EMP - Protection of the Environment

104. The Contractor shall implement necessary mitigation measures as given EMP for which responsibility is assigned to him as stipulated in the EMP. Any lapse in implementing the same will attract the damage clause as detailed below:

- Any complaints of public, within the scope of the Contractor, formally registered with the PIU and communicated to the Contractor, which is not properly addressed within the time period intimated by the PIU shall be treated as a major lapse.
- Non-conformity to any of the mitigation measures stipulated in the EMP Report (other than stated above) shall be considered as a minor lapse.
- On observing any lapses, PIU shall issue a notice to the Contractor, to rectify the same.
- Any minor lapse for which notice was issued and not rectified, first and second reminders shall be given after ten days from the original notice date and first reminder date respectively. Any minor lapse, which is not rectified, shall be treated as a major lapse from the date of issuing the second reminder.
- If a major lapse is not rectified upon receiving the notice PIU shall invoke reduction, in the subsequent interim payment certificate.
- For major lapses, 10% of the interim payment certificate will be withheld, subject to a maximum limit of about 0.5% of the contract value.
- If the lapse is not rectified within one month after withholding the payment, the amount withheld shall be forfeited.

Budgetary Provisions for Implementation of EMP

105. The EMP shall be integrated part of the bid/construction contract in the form of technical specifications and environmental performance requirements. The costs to be incurred on implementation of EMP, shall be incidental to the civil works and therefore, no separate environment budget will be provided to the contractor. The contractor will ensure effective implementation of EMP during pre-construction, construction and demobilization phases.

Budget for EMP Implementation

106. The environmental budget for the various environmental management measures anticipated for pre construction, construction and operation of the proposed bridges is detailed in Table 6.5. There are several other environmental issues that have been addressed as part of good engineering practices, the costs for which have been accounted for in the engineering cost. The budget for EMP is given in **Table 6.5**.

107. **Table 6.5 - Budget for Implementation of Environmental Management Plan per construction site**

Component	Stage	Items	Unit	Unit Cost	Quantity	Total Cost
Demolition of devastated bridge	Construction Phase	Demolition of devastated bridge and disposal of demolition wastes	Lumpsum	-	-	400000
Erosion at Bridge	Construction Phase	Bridge Protection Work at both Abutments	Cost to be included in DPR			0
Safety of Bridge	Operation Phase	Safety Signage at and before bridge as per IRC Guidelines	Cost to be included in DPR			0
Horizontal Seismic Force	Construction Phase	Seismic arrester to be provided to prevent dislocation of spans/slabs of bridge	Cost to be included in DPR			0
Approaches	Construction Phase	Approaches to connect Bridge with existing road	Cost to be included in DPR			0
Air	Construction	Tarpaulin Covers for vehicles transporting, construction material to bridge construction site	Lumpsum	30000/-	-	30000
Water	Construction	Oil Interceptors at workshop at camp site	Nos	60000/-	1	60000
		Sanitary facilities at construction camp	Nos	40000/-	6	240000
		Diversion of flowing water with guide bunds and coffer dams at pier locations	Cost included in DPR/BOQ			0
Personal Protective Equipment	Construction	Personal Protective Equipment like vest, helmet, safety shoe, hand gloves, gumboots, earplug, etc	Lumpsum	-	-	100000

Component	Stage	Items	Unit	Unit Cost	Quantity	Total Cost
Solid Waste Management	Construction Phase	Solid Wastes collection, segregation and disposal from road construction site and camp	Lumpsum	-	-	60000
Hazardous Waste Disposal	Construction Phase	Collection and disposal of used oil from maintenance of DG set and construction equipment	Nos	20000/-	2	40000
First Aid Boxes	Construction Phase	First Aide boxes at the construction site, camp and batching plant	Lumpsum	2000/-	6	12000
Monitoring	Construction Phase	Monitoring of air quality and noise level, water quality	Lumpsum	-	-	200000
		Total				45,68,000
Total amount for all Bridge sites (11,42000x4)			45,68,000			

Annexure (E&SSR)

Annexure 1

Environment and Social Screening

Wahidina Bandi Payeen Bridge

1. Name of the sub-project	Construction of 1x 25.2m span double lane plate Girder Bridge at Wahidina Bandi Payeen Baramulla over Khrus Nallah	
2. Type of proposed activity (tick the applicable option and provide details)		
▪ Road		-
▪ Bridge		√
▪ Fire Station		-
▪ Hospital/Health Facility		-
▪ Educational Institute		-
▪ Building for Livelihoods		-
▪ Flood Infrastructure Related		-
▪ Other Public Building		-
▪ Any Other (Please Specify)		-
3. Location of the proposed sub-project		
▪ Name of the Region	Kashmir (J&K State)	
▪ Name of the District	Baramulla	
▪ Name of the Block	Wagoora	
▪ Name of the Settlement	Waza mohalla Bandi payeen	
▪ Latitude	349 23.759	
▪ Longitude	74 28 8.759	
4a. Proposed Nature of Work (tick the applicable options)		

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▪ Minor Repairs	-
▪ Major Repairs/Rehabilitation	-
▪ Upgrading/Major Improvement	-
▪ Expansion of the facility	-
▪ New Construction	√
▪ Any Other	-
4b. Size of the sub-project (approx. area in sq. mt/hac or length in mt/km. as relevant)	1x 25.2m span double lane plate Girder Bridge
5. Land Requirement (in hac./sq.mt.)	
▪ Total Requirement	Nil
▪ Private Land	Nil
▪ Govt. Land	Nil
▪ Forest Land	Nil
6. Implementing Agency Details (sub-project level)	
▪ Name of the Department/Agency	J&K Projects Construction Corporation Ltd. (JKPCC)
▪ Name of the contact person	Er. Ishtiyah Ahmad
▪ Designation	Deputy General Manager (DGM)
▪ Contact Number	+91-9419010315
▪ E-mail Id	ishtiaq.malik2010@gmail.com
7. Screening Exercise Details	
▪ Date on which it was carried out	07/11/2016
▪ Name of the Person	SakibQadri
▪ Contact Number	+91 94 69 240260
▪ E-mail Id	sakibqadri@gmail.com

Part B (1): Environment Screening

Question	Yes	No	Details
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1. Is the sub-project located in whole or part within 1 km of the following environmentally sensitive areas?			
Biosphere Reserve		No	
National Park		No	
Wildlife/Bird Sanctuary		No	
Wildlife/Bird Reserve		No	
Important Bird Areas (IBAs)		No	
Habitat of migratory birds (outside protected areas)		No	
Breeding/Foraging/Migratory route of Wild Animals (outside protected areas)		No	
Area with threatened/rare/ endangered fauna (outside protected areas)		No	
Area with threatened/rare/ endangered flora (outside protected areas)		No	
Reserved/Protected Forest		No	
Other category of Forest		No	
Wetland		No	
Natural Lakes		No	
Rivers/Streams	Yes		Bridge is proposed to be constructed over Khrus Nallah
Question	Yes	No	Details
Swamps/Mudflats		No	

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Zoological Park		No	
Botanical Garden		No	
4. Is the sub-project located in whole or part within 500 mts. of any of the following sensitive features?			
World Heritage Sites		No	
Archaeological monuments/sites (under ASI's central/state list)		No	
Historic Places/Monuments/Buildings/Other Assets (not listed under ASI list but considered locally important or carry a sentimental value)		No	
Religious Places (regionally or locally important)		No	
Reservoirs/Dams		No	
Canals		No	
Public Water Supply Areas from Rivers/Surface Water Bodies/Ground Water Sources		No	
4. What is the High Flood Level in the sub-project area?	97.79m with respect to local bench mark		
5. Is any scheduled/protected tree like Chinar, Mulberry or Deodar likely to be affected/cut due to the project?		No	
6. Is the sub-project located in a landslide/heavy erosion prone area or affected by such a problem?		No	

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

7. Is sub-project located in an area that faces water paucity or water quality issues?		No	
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Part B (2) : Result/Outcome of Environmental Screening Exercise

1.	Environment Impact Assessment Required	No
2.	Environment Clearance Required	No
3.	Forest land Clearance/Diversion Required	No
4.	Tree Cutting Permission Required	No
5.	ASI (Centre/State) Permission Required	No
6.	Permission from ULB/Local Body/Department Required	No
7	Any other clearance/permission required	Necessary prior statutory clearance from <i>DEIAA</i> and Consents from J&KSPCB will be required, if contractor will open quarry for aggregate/boulders, establish stone crushers or batching plant for the construction of the proposed bridge

Part C (1): Social Screening

1. Does the sub-project activity require acquisition of land?			
Yes		No	✓
Give the following details:	Private Land (sqmts/hac.)		-
	Govt. Land (sqmts/hac.)		-
	Forest Land (sqmts/hac.)		-
2. Does the proposed sub-project activity result in demolition/removal of existing structures?			
Yes	✓	No	

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If so, give the following details:			
Number of public structures/buildings	-		
Number of common property resources (such as religious/cultural/drinking water/wells/etc.)	-		
Number of private structures (located on private or public land)	-		
3. Does the proposed project activity result in loss of crops/trees?			
Yes		No	✓
4. Does the proposed project activity result in loss of direct livelihood/employment?			
Yes		No	
5. Does the proposed activity result in loss of community forest/pastures on which nearby residents/local population are dependent?			
Yes		No	✓
If yes, give the details of the extent of area to be lost (in acres/hac)			
6. Does the proposed project activity affect scheduled tribe/caste communities?			
Yes		No	✓

Part C (2): Result/Outcome of Social Screening Exercise

S. No.	Result/Outcome	Outcome
1.	Answer to all the questions is 'No' and only forest land is being acquired	No SIA/RAP required
2.		Abbreviated RAP is

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	Answer to any question is 'Yes' and the sub-project does not affect more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	required
3.	Answer to any question is 'Yes' and the sub-project affects more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	No SIA/RAP required

Wagilla Wagoora Bridge

1. Name of the sub-project	Construction of 1x 50.00m span Double Lane Through Type Truss Girder Bridge at Wagilla Wagoora over Ningli Nallah	
2. Type of proposed activity (tick the applicable option and provide details)		
▪ Road		-
▪ Bridge		√
▪ Fire Station		-
▪ Hospital/Health Facility		-
▪ Educational Institute		-
▪ Building for Livelihoods		-
▪ Flood Infrastructure Related		-
▪ Other Public Building		-.
▪ Any Other (Please Specify)		-
3. Location of the proposed sub-project		
▪ Name of the Region	Kashmir (J&K State)	
▪ Name of the District	Baramulla	

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▪ Name of the Block	Wagoora
▪ Name of the Settlement	Wagila Wagoora
▪ Latitude	34 8 11.76
▪ Longitude	74 25 17.04
4a. Proposed Nature of Work (tick the applicable options)	
▪ Minor Repairs	-
▪ Major Repairs/Rehabilitation	-
▪ Upgrading/Major Improvement	-
▪ Expansion of the facility	-
▪ New Construction	√
▪ Any Other	-
4b. Size of the sub-project (approx. area in sq. mt/hac or length in mt/km, as relevant)	1x 50.00m span Double Lane Through Type Truss Girder Bridge
5. Land Requirement (in hac./sq.mt.)	
▪ Total Requirement	Nil
▪ Private Land	Nil
▪ Govt. Land	1550 sq. mts
▪ Forest Land	Nil
6. Implementing Agency Details (sub-project level)	
▪ Name of the Department/Agency	J&K Projects Construction Corporation Ltd. (JKPCC)
▪ Name of the contact person	Er. Ishtiyah Ahmad
▪ Designation	Deputy General Manager (DGM)
▪ Contact Number	+91-9419010315
▪ E-mail Id	ishtiaq.malik2010@gmail.com
7. Screening Exercise Details	
▪ Date on which it was carried out	07/11/2016

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

▪ Name of the Person	SakibQadri
▪ Contact Number	+91 94 69 240260
▪ E-mail Id	sakibqadri@gmail.com

Part B (1): Environment Screening

Question	Yes	No	Details
2. Is the sub-project located in whole or part within 1 km of the following environmentally sensitive areas?			
Biosphere Reserve		No	
National Park		No	
Wildlife/Bird Sanctuary		No	
Wildlife/Bird Reserve		No	
Important Bird Areas (IBAs)		No	
Habitat of migratory birds (outside protected areas)		No	
Breeding/Foraging/Migratory route of Wild Animals (outside protected areas)		No	
Area with threatened/rare/ endangered fauna (outside protected areas)		No	
Area with threatened/rare/ endangered flora (outside protected areas)		No	
Reserved/Protected Forest		No	
Other category of Forest		No	
Wetland		No	
Natural Lakes		No	

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

Rivers/Streams	Yes		Bridge is proposed to be constructed over Ningli Nallah
Question	Yes	No	Details
Swamps/Mudflats		No	
Zoological Park		No	
Botanical Garden		No	
4. Is the sub-project located in whole or part within 500 mts. of any of the following sensitive features?			
World Heritage Sites		No	
Archaeological monuments/sites (under ASI's central/state list)		No	
Historic Places/Monuments/Buildings/Other Assets (not listed under ASI list but considered locally important or carry a sentimental value)		No	
Religious Places (regionally or locally important)		No	
Reservoirs/Dams		No	
Canals		No	
Public Water Supply Areas from Rivers/Surface Water Bodies/Ground Water Sources		No	
4. What is the High Flood Level in the sub-project area?	98.616m with respect to local bench mark		

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

5. Is any scheduled/protected tree like Chinar, Mulberry or Deodar likely to be affected/ cut due to the project?		No	
6. Is the sub-project located in a landslide/heavy erosion prone area or affected by such a problem?		No	
7. Is sub-project located in an area that faces water paucity or water quality issues?		No	

Part B (2) : Result/Outcome of Environmental Screening Exercise

7.	Environment Impact Assessment Required	No
8.	Environment Clearance Required	No
9.	Forest land Clearance/Diversion Required	No
10.	Tree Cutting Permission Required	No
11.	ASI (Centre/State) Permission Required	No
12.	Permission from ULB/Local Body/Department Required	No
		-
19	Any other clearance/permission required	Necessary prior statutory clearance from DEIAA and Consents from J&KSPCB will be required, if contractor will open quarry for aggregate/boulders, establish stone crushers or batching plant for the construction of the proposed bridge

Part C (1): Social Screening

7. Does the sub-project activity require acquisition of land?			
Yes	✓	No	
Give the following details:	Private Land (sqmts/hac.)		-
	Govt. Land (sqmts/hac.)		1550 sqmts
	Forest Land (sqmts/hac.)		-

8. Does the proposed sub-project activity result in demolition/removal of existing structures?			
Yes		No	✓
If so, give the following details:			
Number of public structures/buildings	-		
Number of common property resources (such as religious/cultural/drinking water/wells/etc.)	-		
Number of private structures (located on private or public land)	-		
9. Does the proposed project activity result in loss of crops/trees?			
Yes		No	✓
10. Does the proposed project activity result in loss of direct livelihood/employment?			
Yes		No	✓
11. Does the proposed activity result in loss of community forest/pastures on which nearby residents/local population are dependent?			
Yes		No	✓
If yes, give the details of the extent of area to be lost (in acres/hac)			
12. Does the proposed project activity affect scheduled tribe/caste communities?			
Yes		No	✓

Part C (2): Result/Outcome of Social Screening Exercise

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

S. No.	Result/Outcome	Outcome
1.	Answer to all the questions is 'No' and only forest land is being acquired	No SIA/RAP required
2.	Answer to any question is 'Yes' and the sub-project does not affect more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	No Abbreviated RAP is required
3.	Answer to any question is 'Yes' and the sub-project affects more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	No SIA/RAP required

Outcome: No Environment Assessment/Social Assessments are required. However, Environmental Management Plan will be prepared for the proposed bridge.

GogjiDaji Tarzoo Bridge

1. Name of the sub-project	Construction of 1 x 19.2m span Double Lane Plate Girder Bridge at GogjiDaji Tarzoo Baramulla over Ningli Nallah	
2. Type of proposed activity (tick the applicable option and provide details)		
▪ Road		-
▪ Bridge	√	
▪ Fire Station		-
▪ Hospital/Health Facility		-
▪ Educational Institute		-
▪ Building for Livelihoods		-
▪ Flood Infrastructure Related		-
▪ Other Public Building		-.
▪ Any Other (Please Specify)		-
3. Location of the proposed sub-project		
▪ Name of the Region	Kashmir (J&K State)	
▪ Name of the District	Baramulla	
▪ Name of the Block	Sopore	
▪ Name of the Settlement	GojiDaji, Tarzoo	
▪ Latitude	34 ⁰ 16'8.399"	
▪ Longitude	74 ⁰ 29'57.48"	
4a. Proposed Nature of Work (tick the applicable options)		
▪ Minor Repairs	-	

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

▪ Major Repairs/Rehabilitation	-
▪ Upgrading/Major Improvement	-
▪ Expansion of the facility	-
▪ New Construction	√
▪ Any Other	-
4b. Size of the sub-project (approx. area in sq. mt/hac or length in mt/km, as relevant)	1 x 19.2m span Double Lane Plate Girder Bridge
5. Land Requirement (in hac./sq.mt.)	
▪ Total Requirement	200 sq. mt
▪ Private Land	200 sq. mt
▪ Govt. Land	Nil
▪ Forest Land	Nil
6. Implementing Agency Details (sub-project level)	
▪ Name of the Department/Agency	J&K Projects Construction Corporation Ltd. (JKPCC)
▪ Name of the contact person	Er. Ishtiyah Ahmad
▪ Designation	Deputy General Manager (DGM)
▪ Contact Number	+91-9419010315
▪ E-mail Id	
7. Screening Exercise Details	
▪ Date on which it was carried out	05/11/2016
▪ Name of the Person	SakibQadri
▪ Contact Number	+91 94 69 240260
▪ E-mail Id	sakibqadri@gmail.com

Part B (1): Environment Screening

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

Question	Yes	No	Details
3. Is the sub-project located in whole or part within 1 km of the following environmentally sensitive areas?			
Biosphere Reserve		No	
National Park		No	
Wildlife/Bird Sanctuary		No	
Wildlife/Bird Reserve		No	
Important Bird Areas (IBAs)		No	
Habitat of migratory birds (outside protected areas)		No	
Breeding/Foraging/Migratory route of Wild Animals (outside protected areas)		No	
Area with threatened/rare/ endangered fauna (outside protected areas)		No	
Area with threatened/rare/ endangered flora (outside protected areas)		No	
Reserved/Protected Forest		No	
Other category of Forest		No	
Wetland		No	
Natural Lakes		No	
Rivers/Streams	Yes		Bridge is proposed to be constructed over Ningli Nallah
Question	Yes	No	Details
Swamps/Mudflats		No	

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Zoological Park		No	
Botanical Garden		No	
4. Is the sub-project located in whole or part within 500 mts. of any of the following sensitive features?			
a. World Heritage Sites		No	
b. Archaeological monuments/ sites (under ASI's central/state list)		No	
c. Historic Places/Monuments/ Buildings/Other Assets (not listed under ASI list but considered locally important or carry a sentimental value)		No	
d. Religious Places (regionally or locally important)		No	
e. Reservoirs/Dams		No	
f. Canals		No	
g. Public Water Supply Areas from Rivers/Surface Water Bodies/Ground Water Sources		No	
4. What is the High Flood Level in the sub-project area?	97.79m with respect to local bench mark		
5. Is any scheduled/protected tree like Chinar, Mulberry or Deodar likely to be affected/ cut due to the project?		No	
6. Is the sub-project located in a landslide/heavy erosion prone area or affected by such a problem?		No	

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

7. Is sub-project located in an area that faces water paucity or water quality issues?		No	
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Part B (2) : Result/Outcome of Environmental Screening Exercise

1.	Environment Impact Assessment Required	No
2.	Environment Clearance Required	No
3.	Forest land Clearance/Diversion Required	No
4.	Tree Cutting Permission Required	No
5.	ASI (Centre/State) Permission Required	No
6.	Permission from ULB/Local Body/Department Required	No
		-
7	Any other clearance/permission required	Necessary prior statutory clearance from <i>DEIAA</i> and Consents from J&KSPCB will be required, if contractor will open quarry for aggregate/boulders, establish stone crushers or batching plant for the construction of the proposed bridge

Part C (1): Social Screening

13. Does the sub-project activity require acquisition of land?			
Yes	✓	No	
Give the following details:	Private Land (sqmts/hac.)		200 sqmts
	Govt. Land (sqmts/hac.)		-
	Forest Land (sqmts/hac.)		-
14. Does the proposed sub-project activity result in demolition/removal of existing structures?			
Yes	✓	No	
If so, give the following details:			

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

Number of public structures/buildings	Nil		
Number of common property resources (such as religious/cultural/drinking water/wells/etc.)	Nil		
Number of private structures (located on private or public land)	01 (frontage only) Compound Wall		
15. Does the proposed project activity result in loss of crops/trees?			
Yes		No	✓
16. Does the proposed project activity result in loss of direct livelihood/employment?			
Yes		No	✓
17. Does the proposed activity result in loss of community forest/pastures on which nearby residents/local population are dependent?			
Yes		No	✓
If yes, give the details of the extent of area to be lost (in acres/hac)			
18. Does the proposed project activity affect scheduled tribe/caste communities?			
Yes		No	✓

Part C (2): Result/Outcome of Social Screening Exercise

S. No.	Result/Outcome	Outcome
1.	Answer to all the questions is 'No' and only forest land is being acquired	No SIA/RAP required
2.	Answer to any question is 'Yes' and the sub-project does not affect more than 200 people	No Abbreviated RAP is required

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

	(i.e. either complete or partial loss of assets and/or livelihood)	
3.	Answer to any question is 'Yes' and the sub-project affects more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	No SIA/RAP required

Outcome: No Environment Assessment/Social Assessments are required. However, Environmental Management Plan will be prepared for the proposed bridge.

Waza mohalla Kreeri Bridge

1. Name of the sub-project	Construction of 1x 50.00m span Double Lane Through Type Truss Girder Bridge at Waza mohalla Kreeri Baramulla over Frestahar Nallah.	
2. Type of proposed activity (tick the applicable option and provide details)		
▪ Road		-
▪ Bridge	√	
▪ Fire Station		-
▪ Hospital/Health Facility		-
▪ Educational Institute		-
▪ Building for Livelihoods		-
▪ Flood Infrastructure Related		-
▪ Other Public Building		-.
▪ Any Other (Please Specify)		-
3. Location of the proposed sub-project		
▪ Name of the Region	Kashmir (J&K State)	
▪ Name of the District	Baramulla	

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

▪ Name of the Block	Sopore
▪ Name of the Settlement	Waza Mohalla
▪ Latitude	34 ⁰ 9'23.759"
▪ Longitude	74 ⁰ 28'8.759"

4a. Proposed Nature of Work (tick the applicable options)	
▪ Minor Repairs	-
▪ Major Repairs/Rehabilitation	-
▪ Upgrading/Major Improvement	-
▪ Expansion of the facility	-
▪ New Construction	√
▪ Any Other	-
4b. Size of the sub-project (approx. area in sq. mt/hac or length in mt/km, as relevant)	1x 50.00m span Double Lane Through Type Truss Girder Bridge
5. Land Requirement (in hac./sq.mt.)	
▪ Total Requirement	10600 sq. mts
▪ Private Land	Nil
▪ Govt. Land	10600 sq. mts
▪ Forest Land	Nil
6. Implementing Agency Details (sub-project level)	
▪ Name of the Department/Agency	J&K Projects Construction Corporation Ltd. (JKPCC)
▪ Name of the contact person	Er. Ishtiyah Ahmad
▪ Designation	Deputy General Manager (DGM)
▪ Contact Number	+91-9419010315
▪ E-mail Id	ishtiaq.malik2010@gmail.com
7. Screening Exercise Details	
▪ Date on which it was carried out	07/11/2016

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

▪ Name of the Person	Sakib Qadri
▪ Contact Number	+91 94 69 240260
▪ E-mail Id	<u>sakibqadri@gmail.com</u>

Part B (1): Environment Screening

Question	Yes	No	Details
4. Is the sub-project located in whole or part within 1 km of the following environmentally sensitive areas?			
a. Biosphere Reserve		No	
b. National Park		No	
c. Wildlife/Bird Sanctuary		No	
d. Wildlife/Bird Reserve		No	
e. Important Bird Areas (IBAs)		No	
f. Habitat of migratory birds (outside protected areas)		No	
g. Breeding/Foraging/Migratory route of Wild Animals (outside protected areas)		No	
h. Area with threatened/rare/ endangered fauna (outside protected areas)		No	
i. Area with threatened/rare/ endangered flora (outside protected areas)		No	
j. Reserved/Protected Forest		No	
k. Other category of Forest		No	
l. Wetland		No	

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

m. Natural Lakes		No	
n. Rivers/Streams	Yes		Bridge is proposed to be constructed over Frestahar Nallah
Question	Yes	No	Details
o. Swamps/Mudflats		No	
p. Zoological Park		No	
q. Botanical Garden		No	
4. Is the sub-project located in whole or part within 500 mts. of any of the following sensitive features?			
h. World Heritage Sites		No	
i. Archaeological monuments/sites (under ASI's central/state list)		No	
j. Historic Places/Monuments/Buildings/Other Assets (not listed under ASI list but considered locally important or carry a sentimental value)		No	
k. Religious Places (regionally or locally important)		No	
l. Reservoirs/Dams		No	
m. Canals		No	
n. Public Water Supply Areas from Rivers/Surface Water Bodies/Ground Water Sources		No	
4. What is the High Flood Level in the sub-project area?	97.79m with respect to local bench mark		

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

5. Is any scheduled/protected tree like Chinar, Mulberry or Deodar likely to be affected/ cut due to the project?		No	
6. Is the sub-project located in a landslide/heavy erosion prone area or affected by such a problem?		No	
5. Is sub-project located in an area that faces water paucity or water quality issues?		No	

Part B (2) : Result/Outcome of Environmental Screening Exercise

7.	Environment Impact Assessment Required	No
8.	Environment Clearance Required	No
9.	Forest land Clearance/Diversion Required	No
10.	Tree Cutting Permission Required	No
11.	ASI (Centre/State) Permission Required	No
12.	Permission from ULB/Local Body/Department Required	No
7	Any other clearance/permission required	Necessary prior statutory clearance from <i>DEIAA</i> and Consents from J&KSPCB will be required, if contractor will open quarry for aggregate/boulders, establish stone crushers or batching plant for the construction of the proposed bridge

Part C (1): Social Screening

19. Does the sub-project activity require acquisition of land?			
Yes	✓	No	
Give the following details:	Private Land (sqmts/hac.)		Nil
	Govt. Land (sqmts/hac.)		10600 sq. mts
	Forest Land (sqmts/hac.)		Nil
20. Does the proposed sub-project activity result in demolition/removal of existing structures?			
Yes		No	✓
If so, give the following details:			
Number of public structures/buildings	-		
Number of common property resources (such as religious/cultural/drinking water/wells/etc.)	-		
Number of private structures (located on private or public land)	-		
21. Does the proposed project activity result in loss of crops/trees?			
Yes		No	✓
22. Does the proposed project activity result in loss of direct livelihood/employment?			
Yes		No	✓
23. Does the proposed activity result in loss of community forest/pastures on which nearby residents/local population are dependent?			

Environmental Management Plan (EMP) for Bridges in District Baramulla (J&K)

Yes		No	✓
If yes, give the details of the extent of area to be lost (in acres/hac)			
24. Does the proposed project activity affect scheduled tribe/caste communities?			
Yes		No	✓

Part C (2): Result/Outcome of Social Screening Exercise

S. No.	Result/Outcome	Outcome
1.	Answer to all the questions is 'No' and only forest land is being acquired	No SIA/RAP required
2.	Answer to any question is 'Yes' and the sub-project does not affect more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	No Abbreviated RAP is required
3.	Answer to any question is 'Yes' and the sub-project affects more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	No SIA/RAP required

Outcome: No Environment Assessment/Social Assessments are required. However, Environmental Management Plan will be prepared for the proposed bridge.

wahidana-shirpura - wahidana Bandi payeen
 Bridge

07/11/2016

Public Consultation Record

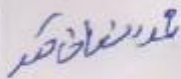


01	mehtajuddin Tantsay Sh. Abdul Aziz Sh. murrain	Student	Mehrajuddin	880366047
02	Imraam Khan Sh. Ghulam Hassan Khan Sh. Wahidin murrain Baramulla	Student		" "
03	Khalid Hassan Khan Sh. Ghulam Hassan Khan	Student		9797802094
04	Mans Afzal Baig Sh. Shair Ali Baig Sh. Wahidina	Labour	AFZAL- BAIG	0203205955

05	Hazan Zuffar Beigh	Student	Platoon	8493910925
	Sh. Mohd Zaffar Beigh			
	Sh. Wubdunar			
06.	Fazal mehmood Beigh Sh. Ghulam mustafa Wubdunar	Business Uncle of MP Muzaafar Hussain Beigh.	R. M. Saig	9797263296

wagila- BSidee

7/11/2016

Public Consultation Record

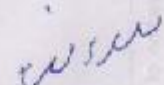
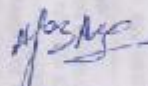
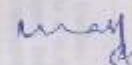

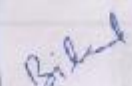
S. No	Name & Address	Occupation	Signature	Phone details
1	Mohammad Kamran malik S/o Late Ghulam mohd malik R/o Syed Abad Wagila Baramulla	Mason		8491939307
2	Shabir Hussain S/o Abdul Shahid malik R/o amir doom mohalla Wagila	Tourism Employee		910740461
3	Mohd Ashraf S/o Ali mohd R/o Hafiz abdul	farmer	MAM	9906282817
4	Azad. Ahmad S/o Ali mohd R/o Hafiz abdul	Student		8803957921

5. Mohd Nazrool malik R/o paltan	farmer	malik	9896036720
6. Nazir Ahmed wami	Business	NAW	9896097840
7. Junaid Ahmed malik	Student	Junaid	
8. Jchangir R/o Nazir Ahmed malik	Student	Jchangir	

Public Consultation Record: Gogjidaji Tarzoo

Dated: 05.11.2016

Amberpora - Havitara - Akhacopora
Gogjidaji - Bridge

SN	Name & Address	Occupation	Signature	Phone details
1.	Abdul Gani Safi S/o. Late Abdul Khalid Safi R/o (Tarzoo)	Business		9906420616
2.	Ajay Ahmad Bair S/o. Late Khagir Ahmad Bair (Tarzoo)	Business		9419506285
3.	Umer Shams Bhal S/o Shams-ul- Bhal (Tarzoo)	Fruit Business		9858197856
4.	Shams-ul- Bhal R/o (Tarzoo)	Govt. Service		9896596498
5.	Bilal H. Bhal S/o. Gh. Nabi Bhal R/o (Tarzoo)	Student		9797077020

Public Consultation Record :Wazmohalla

Dated: 07.11.2016

- waza mohalla Kreeni - B.S. bridge -

07/11/2016 ^①

Public Consultation Record

	name and address	occupation	Signature	Phone numbers
01	Abdul Hamid waza S/O Mohd Ramzan waza R/o Foresthar Kreeni Baramulla	Fruit Business	Abul Hamid.	9906837103
02	Abdul Jabbar waza S/O Late Gh. Ahmad waza R/o wazafora Kreeni Baramulla	farmer	Ab. Jab	9697294996
03	Hafiz Ahmad waza S/O Habibullah waza R/o waza mohalla Kreeni Baramulla	Fruit Business	Hafiz Ahmad	9298300963
04	Khadija W/O Late munawar waza R/o Foresthar	House wife.		

