Environmental Management Plan

For

3 x 50 m Span Double Lane Trussed Girder Bridge at Rahmoo over Roomshi Nallah in Pulwama District (J&K)

Prepared and Submitted by:

J&K Projects Construction Corporation Ltd. (Jhelum and Tawi Flood Recovery Project) (JTFRP)

Table of Contents

List of Tables

List of Figure

1.0 Introduction

1.1 Background

The Proposed Bridge is situated at Rahmoo over Roomshi Nallah in District Pulwama of J&K State. Rahmoo to Pulwama road is one of the main road which connect Rohmoo Pakherpora and other for flung villages of this area with District Headquarter Pulwama. This is also the shortest road for the people of District Shopian, Anantnag, Kulgam and Pulwama to reach the tourist destination Yousmarg and famous Shrine Char-i-shareef. In addition to this the construction of the bridge is more essential as the road is vital in reaching to agriculture fields, orchids and is also nearest connectivity with the National Highway. During devastating floods in September 2014, the entire bridge on this road at Rahmoo got fully damaged, there by disconnecting these villages with district head quarter Pulwama.

Keeping in view the importance of this road and hardships of local people especially school going children, construction of this bridge becomes very essential. Therefore, the bridge has been identified for construction by J&K Projects Construction Corporation Ltd., under Jhelum and Tawi Flood Recovery Project (JTFRP) assisted by the World Bank.

The bridge has been designed for seismic Zone V with an importance factor of 1.50 in accordance with recommendations of IS -1983/IRC 6-2000. The proposal for two lane carriageway of 3x50m of overall length and width 10.50 m carriage way of 7.5 meters & 1.5 m footpath on either side has been adapted. The proposed bridge is of 3 spans and will rest on side abutments of open trench foundation and at centre on open trench foundation.

The location of the proposed bridge on satellite image map and Google map are shown in **Figure 1.1** and **1.2**, respectively.

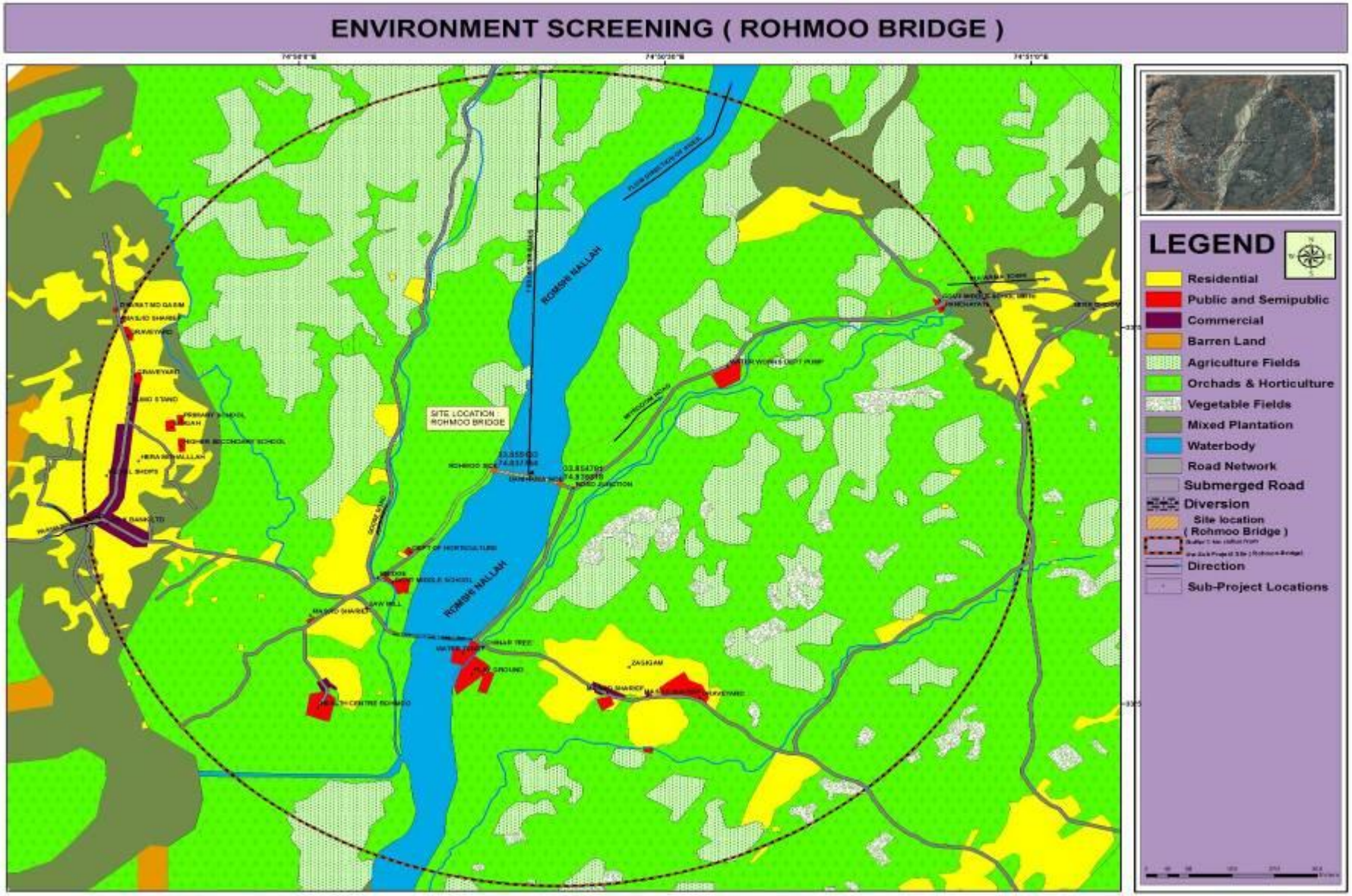

Figure 1.1:Location of Proposed Bridge site on the Satellite Image

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

1.2 Environmental Permission Required for the Proposed Bridge

The proposed bridge is not scheduled activity under the EIA Notification 2006. Therefore, environmental clearance is not required for proposed bridge. As tree cutting and forest land are also not involved in the proposed bridge, 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. 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 bridge 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.	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.	Wildlife Clearance	Not applicable as no wild life issue is involved.	Not Applicable	Not Applicable
5.	Consent to Establish (CTE) and Consent to Operate (CTO) under the Air (Prevention & Control of Pollution) Act, 1981 and The Water (Prevention & Control of Pollution) Act, 1974.	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	Applicable and to be obtained from	Construction (Prior to work	Contractor

Sl. No	Type of Clearance	Applicability	Project Stage	Responsibility
	disposal of hazardous waste like used oil, paint wastes, etc	J&K State Pollution Control Board	initiation)	
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 quarry (if new quarry is opened by the contractor for boulders/stone	Applicable and to be obtained from State Environmental Impact Assessment Authority/ District Level Environmental Impact Assessment Authority.	(Prior to operation quarry)	Contractor
9.	Provision of Building & Other Construction Workers (Regulation of Employment and Condition of Service) Act 1996	Applicable for Labour's Safety, health and Welfare	Construction Phase	Contractor
10.	Certificate of Pollution Under Control for Vehicles	Applicable for vehicle engaged in construction activities	Construction Phase	Contractor

2.0 Project Description

2.1 Proposed Bridge Details

The proposal for proposed bridge for two lane carriageway of 3 x 50 m of overall length 150 m and width 13.600 m carriage way of 7.5 m & 1.5 m footpath on either side has been adapted. The proposed bridge will be of 3 spans and will rest on side abutments of open trench foundation and at the centre on piers of open trench foundation. General arrangement drawing (GAD) for the proposed bridge at Romhoo is shown in **Figure 2.1.**

2.2 Hydrology at Roomshi Nallah

Hydrological details of Roomshi Nallah are given below:

Discharge	=	5000 Cumes
Highest Flood level (HFL)	=	95.551 m
Bed Slope	=	1.47
Scour Depth	=	3.95 m

2.3 Geotechnical Details

Subsoil investigations have been carried out by Quality Control Lab at Pampore. The composition for 3m depth examined for 3 nos. trial pits comprise of Boulder, Gravel & Coarse Sand up to 2 m beyond 2m Silty sand with fine sand is observed. As per IS classifications subsoil is granular non-plastic in nature. The soil report recommends 10.5 T/sqm bearing Capacity 1.0 m below NSL. As proposed foundation are deeper than the above for the design of foundations for Piers SBC of 30 T/sqm and for abutment SBC of 25 T/sqm is adopted.

2.4 Right of Way for Bridge at Rohmoo

The right of way for the proposed bridge at Rohmoo is given in **Table 2.1.**

Table 2.1: Right of Way for the Bridge at Rohmoo

S. No.	Chainage (Km)	Government Land from Centre Line of Road (m)		Proposed Road Base Width/ Bridge Width (m)		Additional Land Requirement (m)	
		Left	Right	Left	Right	Left	Right
1.	0.000	6.80	6.80	6.80	6.80	Nil	Nil
2.	0.100	6.80	6.80	6.80	6.80	Nil	Nil
3.	0.200	6.80	6.80	6.80	6.80	Nil	Nil
4.	0.300	6.80	6.80	6.80	6.80	Nil	Nil
5.	0.400	6.80	6.80	6.80	6.80	Nil	Nil

2.5 Project Cost

The total cost of the proposed bridge works out to be Rs.1913 Lakhs.

2.6 Time of Schedule for Completion

The proposed bridge will be completed in three working seasons.

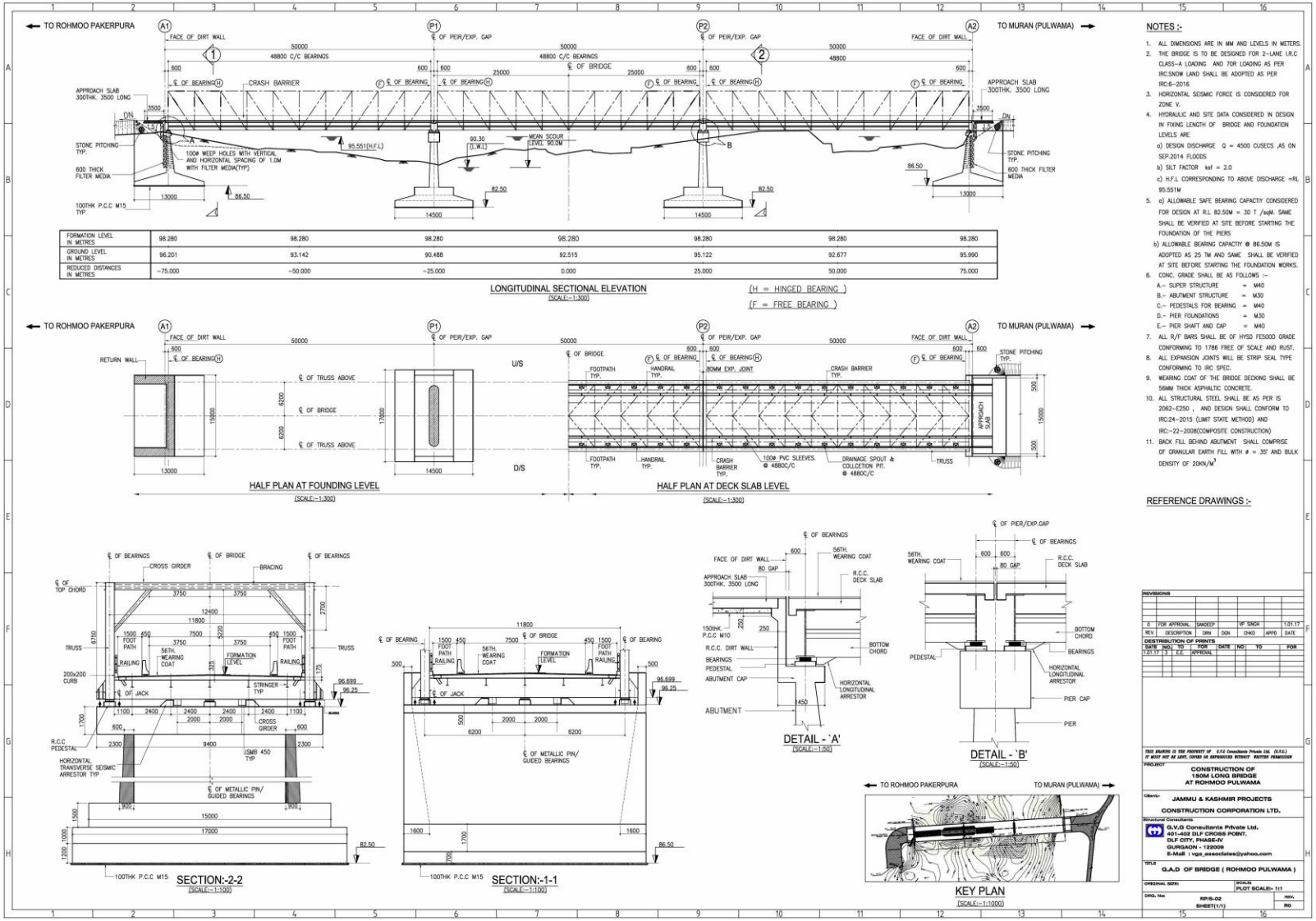

Figure 2.1: General Arrangement Drawing (GAD) for Proposed Bridge at Rohmoo

3.0 Description of Environment

The collection of baseline information on bio-physical and social aspects of the project area 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.

The environmental screening for the proposed bridge is given in **Annexure 1**. The baseline environmental conditions of the area are as given below:

3.1 Topography and Physiography

Topography around the proposed bridge over Roomshi Nallah at Rohmoo is mostly plain valley with mild undulating. The site is located in Pulwama district. Agriculture and orchids are observed in the area around the proposed bridge. The elevation at the bridge construction site is 1733 m above mean sea level. The area is flood prone and in September 2014 divested flood was experienced in the Roomshi Nallah. The photographs of topography and physiography of the site are given in **Figure 2.1.**

Figure 3.1: Photographs of Topography & Physiography of the Site

3.2 Geology

The rock formations in Pulwama District range from Cambrian to Quaternary. 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-Pliestocene
	Second fluvio-glacial boulder bed	130	
Lower Karewa	Clay (bluish grey) & Conglomerates with coarse to fine sand (greenish in colour) alternate with grey sandy clays. *Lignite and peat material*	2000	*Plio-Pleistocene*
	First fluvio-glacial Boulder bed	200	
Panjal Trap	Agglomeratic slates, grits and effusive rocks		Permo Carboniferous
Zewan beds	Shale, slates with quartzite and limestone		Cambro-Silurian

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. This formation of Plio-Pleistocene age lies disconformably over the older rocks ranging in age from Cambrian to Triassic.

3.3 Seismicity of the Area

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 3.1**

3.4 Soil

Pulwama district is hilly and mountainous towards the northeast and southwest 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 about 1600 m amsl. The master slope in the area is towards north-west.

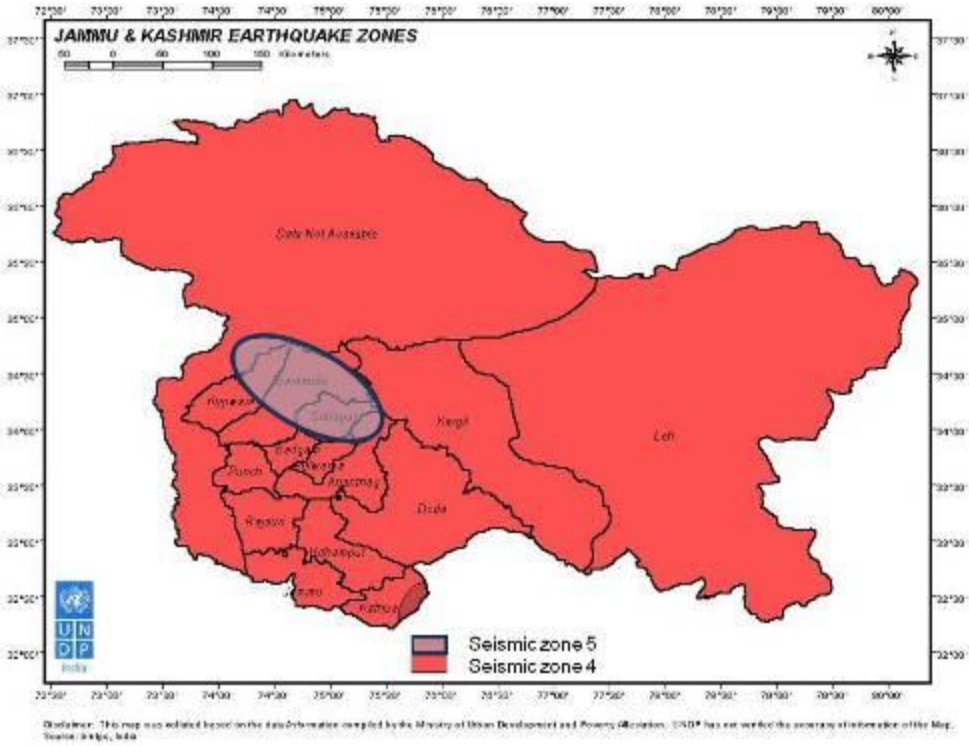

Figure 3.1: Seismic Hazard Map of Jammu & Kashmir

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.,* Sasara, Rembaira and Roomshi rivers drains the sloping land in the southwest and have wide channels.

Soil found on plains is clay loam in nature and are dark brown in colour with good fertility.

3.5 Hydrology of Roomshi Nallah

The proposed bridge will be constructed over Roomshi Nallah near Rohmoo village. The hydrological details of Roomshi Nallah are given below:

Water Discharge	=	3882 Cumes
Highest Flood level (HFL)	=	95.551 m.
Velocity of Water	=	0.35m/sec
Corresponding Gauge	=	7.10 m at Pahoo
Bed Slope	=	1.47
Scour Depth	=	3.95 m

3.6 Climate & Rainfall

The climate of the area is Temperate cum Mediterranean type. In the higher reaches temperature remains cold through out 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.

3.7 Air Quality

The Rohmoo village is located at distance of about 1 km from bridge construction site. As there is no residential, commercial, and industrial activity near the bridge construction site, therefore is no significant source of air pollution. Ambient air quality at the proposed bridge construction site appears reasonably good.

3.8 Noise Levels

As there is no residential, commercial and industrial activity near the proposed bridge construction site within about 1 km distance, noise levels at the proposed bridge construction site are reasonably low.

3.9 Ecology

There is no tree or shrubs in the alignment of the proposed bridge over Roomshi Nallah. Therefore, cutting of tree will not be required for construction of the proposed bridge. In the area around the proposed bridge 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.*

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

3.10 Socio-economic Conditions

According to the 2011 census, Pulwama district has a population of 570,060. The district has a population density of 598 inhabitants per square kilometre. Its

population growth rate over the decade 2001-2011 was 29.18%. Pulwama has a gender ratio of 913 females for every 1000 males, lower than the national average of 940, and a literacy rate of 65%., slightly higher than the national average of 64.3%.

4.0 Anticipated Environmental Impacts

The anticipated environmental impacts due to the proposed bridge can be direct as well as indirect. The direct area of influence includes quarry, crusher, camp, batching plant and construction site for the proposed bridge. The anticipated impacts on various environmental components can occur during design, pre-construction, construction and operation stages.

The description and magnitude of anticipated environmental impacts due to proposed bridge on the various environmental components are presented in the following sub-sections

4.1 Consideration of Environmental Impacts During Design of Proposed Bridge

The important environmental impacts for consideration during design of the proposed bridge are given blow:

4.1.1 Hydrological Study

The existing bridge has observed devastating floods in September 2014 and damaged bridge 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 bridge with excess runoff flow/flood safeguard.

4.1.2 Erosion at Bridge Abutments during Floods/Rains

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

4.1.3 Sliding of Backfilling with Abutments

Backfilling with abutments of the proposed bridge 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.

4.1.4 Seismic Factor in Design Bridge

The proposed bridge site over Roomshi Nallah at Rohmoo is located in Seismic zone V and prone to high intensity earthquakes. While designing of bridge components, suitable seismic load factor must be taken into consideration. Anti dislocation device for slabs/spans should also be considered in bridge design/construction to withstand horizontal force during high intensity earthquakes.

4.1.5 Snow fall on Proposed Bridge Site

At the proposed bridge site over Roomshi Nallah at Rohmoo, snow fall occurs during extreme winter. Therefore, while designing the proposed bridge, snow fall load over bridge should be taken into consideration.

4.2 Anticipated Impacts During Construction and Operation Phases

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

4.2.1 Impact on Physiography and Topography

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

4.2.2 Impact on Soil

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

Construction Phase

During construction of the proposed bridge, the contamination of the soil is anticipated due to improper disposal of oily wastes, solid wastes, spillage of fuel oil at

camps site, open defecation by construction workers, raw sewage disposal from camp site, etc. Improper disposal of used oil generated from maintenance of vehicles, construction equipment and DG sets at the camp site/batching plant may also result in soil contamination.

Operation Phase

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

4.2.3 Impact on Water Resources

Construction Phase

The proposed 3 spans bridge will be constructed in the length of 150 m on the Roomshi Nallah. Existing damaged bridge is lying on the course of the Nallah. Demolition wastes of existing bridge may also affect flow pattern and surface water hydrology of Nallah, if not collected from the course and disposed properly. The pier foundation excavation debris and construction wastes on course of nallah may also affect surface water hydrology and flow. However, extent of such impact will be minor as course of Nallah is wide.

Operation Phase

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

4.2.4 Degradation of Water Quality

Construction Phase

The surface and ground water quality due to the proposed bridge may be degraded mainly in following ways:

a) by improper disposal of solid wastes, oily wastes, used oil waste, etc.
b) by raw sewage generated from camp, batching plant and bridge construction site,
c) open defecation by workers on the course of Roomshi Nallah.

During construction phase, debris and construction wastes, if not cleared, may deteriorate surface water quality of the Roomshi Nallah.

Operation Stage

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

4.2.5 Impact on Ambient Air Quality

Construction Phase

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 bridge while emissions from fixed sources include diesel generator set, construction equipment and excavation activities, those produce dust emissions.

Certain amount of dust and gaseous emissions will also be generated during the construction phase from the batching plant. The pollutants of primary concern include Fine Particulate Matter ($PM_{2.5}$) and Respirable Particulate Matter (PM_{10}). However, suspended dust particles may be coarse and will be settled within a short distance of the construction site. Therefore, impact on ambient air quality will be temporary and restricted within the closed vicinity of the construction activities for the proposed bridge and batching plant.

Considerable amount of exhaust emissions of carbon monoxide (CO), unburned hydrocarbon, sulphur di-oxide, particulate matters, nitrogen dioxide (NO_2), etc, will be generated from the DG set, construction equipment and batching plant. Batching plant 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 plant must be sited at least 250 m in the downwind direction from the nearest human settlement.

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

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

4.2.6 Impact on Noise

Construction Phase

The proposed bridge construction will be confined to the Roomshi Nallah. During the construction phase, noise will be generated from the batching plant, operation of construction equipment at bridge construction site, 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 works in day time only.

Operation Phase

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

4.2.7 Management of Spills and Wastes

During the construction of the proposed bridge, demolition wastes, excavated earth from foundation, construction derbies, 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 Roomshi Nallah. These wastes must be collected and disposed off appropriately.

4.2.8 Impact on Flora, Fauna and Ecosystem

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

4.2.9 Impact on Socio-economic Environment

There is no land acquisition required for the proposed bridge construction. The construction and operation phases of the proposed bridge 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 bridge. 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

Although the construction contractor is 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

During operation phase, proposed bridge will provide safe movement of traffic and reduce the travel time. The proposed bridge will also facilitate shortest road for the people of District Shopian, Anantnag, Kulgam and Pulwama to reach the tourist destination Yousmarg and famous Shrine Char-i-shareef. In addition proposed bridge is more essential as the road is vital in reaching to agriculture fields, orchids and is also nearest connectivity with the National Highway. Therefore, positive impact is anticipated on the socio-economic environment during operation phase.

5.0 Public Consultation

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.

During environmental screening and impact assessment, public consultations were carried and issues related proposed bridge was raised during project specific consultations. During the consultation on 03/05/2017 at Rohmoo, 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.**

5.1 Issues Discussed During Public Consultation

The issues discussed during public consultation for the proposed bridge are given below:

- About proposed project, source of assistance and its implementation/ execution etc.
- Information on perceived benefits from the proposed bridge including travel time, fuel cost, noise and air pollution.
- Information of the impacts from the proposed bridge 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 bridge, 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 bridge?
- Any damage to historical or cultural monuments due to the proposed bridge?
- Any impact on trees and measures to be taken for saving scheduled trees (Chinar, Mulberry, Walnut) in close vicinity of the proposed bridge site.

- Any possible problem to be faced by the local people in their daily activities due to the proposed bridge construction work.

5.2 Feedback Received During Public Consultation

The feed back received from local people during public consultation for the proposed bridge is given below:

1. During consultation regarding the proposed bridge, people have shown keen interest.
2. Some of the local people are aware about the upcoming bridge work.
3. People in general were very enthusiastic about the benefits of the proposed bridge 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 bridge.
5. People are ready to extend all types of support during execution of the bridge as their major difficulties will overcome after completion of the proposed bridge.
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.

Figure 5.1: Photographs of Public Consultation at Bridge Site

6.0 Environmental Management Plan

6.1 Introduction

Jammu & Kashmir Projects Construction Corporation Ltd has planned for construction of proposed 3 spans bridge at Rohmoo with two lane carriageway of 3 x 50 m of overall length 150 m and width 13.60 m carriage way of 7.5 m & 1.5 m footpath on either side.

The proposed bridge may result as adverse environmental impacts specifically during design, pre-construction, construction and demobilisation 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 demobilisation. The EMP will be integral part of bid document and contract agreement.

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.

6.2 Objectives of Environmental Management Plan (EMP)

The objectives of the Environmental Management Plan (EMP) for the proposed bridge 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.

6.3 Environmental Management Measures for Design stage

6.3.1 Hydrological Study for Design of Proposed Bridge

During devastating floods in September 2014, the existing bridge on Roomshi Nallah at Rahmoo 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 bridge with excess runoff flow/flood safeguard.

6.3.2 Erosion at Bridge Abutments during Flood

The existing bridge experienced devastating floods in past. Therefore, protection around both sides of abutment walls of the bridge 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 bridge protection may not be sufficient for long time as stone pitching may deform and collapse during heavy rains and flood.

6.3.3 Sliding of Backfilling and Prevent Uplift Pressure at Abutments

In both abutments of the proposed bridge, 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.

6.3.4 Seismic Factor in Design Bridge

The proposed bridge is 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 bridge components.

As bridge is 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.

6.3.5 Snow Accumulation on the Proposed Bridge

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

6.3.6 Approaches for Bridge

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 bridge.

6.3.7 Safety Signage for Bridge

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

6.4 Environmental Management Plan

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

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

Table 6.1 : Environmental Management Plan For Proposed Bridge on Roomshi Nallah at Rahmoo

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
A. Design Stage			
A.1 Hydrological Study for designing of Bridge	Existing bridge could not with stand high floods in past. Therefore, it is essential that hydrological study should be carried out for designing of the proposed bridge 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 bridge 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 bridge	The proposed bridge is 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 bridge is 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
A.6 Snow Accumulation on the proposed bridge	The project is located in snow fall area. Accumulation of snow on the bridge may affect integrity of the proposed bridge. Snow load should be considered while designing of the proposed bridge.	Design Team	PIU

Environmental Issue/ Component	**Remedial Measures**	**Institutional Responsibility**	
		Implementation	**Supervision**
A.7 Approaches for Bridge	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 bridge.	Design Team	PIU
A.8 Safety of proposed Bridge and its users	For safety of road users and bridge, necessary road safety signage, hazard signage and warning signage with reflective tapes need to be provided before and at the proposed bridge as per IRC guidelines.	Design Team	PIU
B. Pre-Construction Stage			
i. Pre-construction Activities By the Contractor			
B.1 Dismantling of existing damaged bridge	Existing damaged bridge, 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 contract 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
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

Environmental Issue/ Component	**Remedial Measures**	**Institutional Responsibility**	
		Implementation	**Supervision**
B.4 Location of Batching Plant	• 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	• All vehicles, equipment and machinery to be procured for construction of bridge will confirm 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
B.6 Procurement of aggregate	• The contractor will finalize the approved quarry/crusher for procurement of aggregate for the proposed bridge 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

Environmental Issue/ Component	Remedial Measures	Institutional Responsibility	
		Implementation	Supervision
ii. Pre-construction Activities By the PIU			
B.8 Trees Cutting	As per screening, no tree cutting is required for the proposed construction of bridge and approaches. In case any tree cutting is required during construction, prior permission for cutting of tree will be obtained.	PIU	PIU
C. Construction Stage			
Water Pollution			
C1. Impact on Water Resource during construction of bridge	The following mitigation measures are suggested during construction of the proposed bridge at Rohmoo: • Construction of bridge 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 bridge should not affect existing flow pattern and drainage system around the proposed bridge at Rohmoo. • Flowing water will be diverted with guide bunds and coffer dams at pier locations	Contractor	PIU
C.2 Water Pollution from Wastes	• The contractor will take all precautionary measures to collect and dispose construction wastes generated from the proposed bridge construction site (if any). • No solid or hazardous wastes (oil contaminated waste) from camp site will be dumped on nallah or in open areas. Such wastes will be collected and disposed in environmentally sound manner as per environmental regulations	Contractor	PIU

Environmental Issue/ Component	**Remedial Measures**	**Institutional Responsibility**	
		Implementation	**Supervision**
C.3 Waste Water from Labour Camp	• 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 bridge construction site.	Contractor	PIU
Air Pollution			
C.4 Dust and Gaseous Pollution	• The contractor will take every precaution to reduce the level of dust and gaseous pollution from batching plant and bridge construction site. • 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&KPCB. • The excavated materials at the bridge construction site 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)	• 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 √KVA).	Contractor	PIU
Noise Pollution			
C.6 Noise Pollution: Noise Levels from Vehicles, Plant and Equipments	The contractor will confirm the following: • 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			
C.7 Personal Safety Measures for Labours and Staff	The contractor will take necessary measures for personal safety during the bridge construction:	Contractor	PIU

Environmental Issue/ Component	**Remedial Measures**	**Institutional Responsibility**	
		Implementation	**Supervision**
	• 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
	• 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
C.8 Emergency Management	• Emergency numbers will be displayed at the camp, batching plant and bridge construction site, • First boxes will me 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

Environmental Issue/ Component	**Remedial Measures**	**Institutional Responsibility**	
		Implementation	**Supervision**
C.9 Risk Force Measure	• 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	The contractor will arrange for : • 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			
C.11 Accommodation for workers	• 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

Environmental Issue/ Component	**Remedial Measures**	**Institutional Responsibility**	
		Implementation	**Supervision**
	• 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	• 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
C.13 Potable Water for Workers	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. Environmental Expert of PIU will be required to inspect the labour camp once in a week to ensure the compliance of the EMP.	Contractor	PIU
C.15 Sanitation and Sewage System at Labour Camp	The contractor will ensure that : • 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

Environmental Issue/ Component	**Remedial Measures**	**Institutional Responsibility**	
		Implementation	**Supervision**
	• Adequate water supply is to be provided in all toilets and urinals,	Contractor	PIU
C.16 Wastes Disposal	• The contractor will provide garbage bins in the camp, batching plant and bridge construction site and it will be ensured that these are regularly emptied and disposed off in a hygienic manner as per Solid Waste Rule 2016. • Burning of wastes will not be allowed. • Solid waste generated at the bridge construction site, 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 J&/MoEF&CC KSPCB authorised used oil recyclers.	Contractor	PIU
D. Contractor's Demobilization			
D.1 Clean-up, Restoration and Rehabilitation	• On completion of construction of bridge, 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**
	• 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

6.5 Environmental Monitoring Plan

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 NABL approved 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 NABL approved 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

6.6 Institutional Arrangements for Implementation of EMP

During implementation of the proposed bridge, 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**.

Table 6.3: Institutional Arrangement for Proposed Bridge

Implementing/ Monitoring Agency	**Designation**	**Responsibilities**
Project Implementation Unit	Project Director	• 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	• 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	• 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. • Conducting awareness campaign for all construction personnel (including labourers,

Implementing/ Monitoring Agency	Designation	Responsibilities
		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

6.7 Reporting System

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

Sn	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

The contractor will take all reasonable steps to protect the environment on and off the bridge construction site 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.

6.8 Clause for Nonconformity to EMP - Protection of the Environment

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.

6.9 Budgetary Provisions for Implementation of EMP

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.

6.9.1 Budget for EMP Implementation

The environmental budget for the various environmental management measures anticipated for pre construction, construction and operation of the proposed bridge 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.**

Table 6.5 - Budget for Implementation of Environmental Management Plan

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	25000/-	-	25000
Water	Construction	Oil Interceptors at workshop at camp site	Nos	50000/-	1	50000
		Sanitary facilities at construction camp	Nos	40000/-	5	200000
		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
Solid Waste Management	Construction Phase	Solid Wastes collection, segregation and disposal from road construction site and camp	Lumpsum	-	-	40000

Component	**Stage**	**Items**	**Unit**	**Unit Cost**	**Quantity**	**Total Cost**
Hazardous Waste Disposal	Construction Phase	Collection and disposal of used oil from maintenance of DG set and construction equipment	Nos	10000/-	2	20000
First Aid Boxes	Construction Phase	First Aide boxes at the construction site, camp and batching plant	Lumpsum	2000/-	5	10000
Monitoring	Construction Phase	Monitoring of air quality and noise level, water quality	Lumpsum	-	-	200000
		Total				**1045000**

Annexure 1

Environment and Social Screening Checklist

Part A: General Information

1. Name of the sub-project	Construction of Double Lane Trussed Girder Bridge at Rohmoo (150 m)	
2. Type of proposed activity (tick the applicable option and provide details)		
▪ Road		-
▪ Bridge	√	Double Lane Trussed Girder
▪ 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	Pulwama	
▪ Name of the Block	Shadimarg	
▪ Name of the Settlement	Rahmoo	
▪ Latitude	$33^0$51’17.885” (Start Point) $33^0$51’18.947” (End Point)	

▪ Longitude	$74^0$50'21.340" (Start Point) $74^0$50'15.714 (End Pint)
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)	150 m
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. Gh. Hussain Dar
▪ Designation	Deputy General Manager (DGM)
▪ Contact Number	+91-9419013160
▪ E-mail Id	erhussain@gmail.com
7. Screening Exercise Details	

▪ Date on which it was carried out	03/05/2017
▪ Name of the Person	Mr. Yadullah Shah
▪ Contact Number	+91-9622672672
▪ E-mail Id	yaadshah@gmail.com

Part B (1): Environment Screening

Question	Yes	No	Details
1. 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	
m. Natural Lakes		No	
n. Rivers/Streams		No	The proposed bridge will be constructed at Roomshi 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?			
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?			95.551 (m)
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		
1.	Environment Impact Assessment Required	No, However, Environmental Management will be required
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	Yes

		Consent to Establish (CTE) and Consent to Operate (CTO) from J&KSPCB will be required for batching plant, stone crushers, PUC's and other fitness certificates of equipments etc as required on site. If contract opens new stone quarry, Environmental Clearance will be required from SEIAA/DEIAA.

Part C (1): Social Screening

1. Does the sub-project activity require acquisition of land?			
Yes		No	√
Give the following details:	Private Land (sq mts/hac.)		-
	Govt. Land (sq mts/hac.)		-
	Forest Land (sq mts/hac.)		-
2. 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)		-	
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.	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)	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)*	SIA/RAP Required

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

Annexure 2

Name of the Sub Project: Construction of double Lane trussed girder bridge (3 Nos 150 M) at Rahmoo Pulwama

Location:

Date: Time:

S.No	Name	Address	Occupation	Signature
1	Bilal Ahmad Dar	Rahmoo	Labour	
2	Ab Rashid Bhat	Rahmoo	Labour	
3	Javaid Ahmad Bhat	Tujjan	Driver	
4	Barkat Ahmad Bhat	Rahmoo	Labour	
5	Abdul Majeed Gani	Rahmoo	Contractor	
6	Mehtab Ahmad Bhat	Mitrigam	Student	
7	Jahangir Ahmad Bhat	Rahmoo	student	
8	Mohd Yaseen	Mitrigam	Student	
9	Mohd Ashraf	Mitrigam	Student	
10	Gh Mohd Mir	Rahmoo	former	
11	Ab Rehman Bhat	Mitrigam	former	
12	Mohd Yaqoob	Ahmad	doctor	
13	Ab Latief Bhat	Mitrigam	Employee	
14	Umer Ahmad Bhat	Mitrigam	student	
15	Shabir	Mitrigam	student	
16	Rashid Anwar	Mitrigam	Retired Hav.	
17	Tariq Ahmad Dar	Rahmoo	former	
18	Nisar Ahmad Lone	Rahmoo	Employee	
19	Ab Gani Mir	Rahmoo	former	
20	Ab Rashid Bhat	Rahmoo	former	
21	Firdous Ahmad	Rahmoo	former	
22	Javaid Ahmad Mir	Rahmoo	Driver	JAVED
23	Gh Hassan Mir	Rahmoo	former	