Initial Environmental Examination (Draft)

August 2013

IND: Rural Connectivity Investment Program – Project II

West Bengal

Prepared by West Bengal State Rural Road Development Agency for the Asian Development Bank.

CURRENCY EQUIVALENTS

as of 16 August 2013

Currency unit	–	Indian rupee (Rs)
Rs 1.00	=	$ .01628
$1.00	=	Rs 61.4250

ABBREVIATIONS

ADB	–	Asian Development Bank
MORD	–	Ministry of Rural Development
MORD	–	Ministry of Rural Development
APO	–	Accident Prevention Officer
B.T.	–	Black Top
BGL	–	Below Ground Level
BIS	–	Bureau of Indian Standards
BOQ	–	Bill of Quantity
C.C.	–	Cement Concrete
CD	–	Cross Drainage
CGWA	–	Central Ground Water Authority
CGWB	–	Central Ground Water Board
Ch.	–	Chainage
COI	–	Corridor Of Impact
CPCB	–	Central Pollution Control Board
CTE	–	Consent to Establish
CTO	–	Consent to Operate
DG	–	Diesel Generating
DPR	–	Detailed Project Report
EARF	–	Environmental Assessment Review Framework
ECOP	–	Environmental Code of Practices
EIA	–	Environmental Impact Assessment
EMOP	–	Environmental Monitoring Plan
EMP	–	Environmental Management Plan
EO	–	Environmental Officer
FEO	–	Field Environmental Officer
GDP	–	Gross Domestic Product
GOI	–	Government of India
GSHAP	–	Global Seismic Hazard Assessment Program
HC	–	Hydrocarbon
HH	–	House Hold
IEE	–	Initial Environmental Assessment
IRC	–	Indian Road Congress
LHS	–	Left Hand Side
MCM	–	Million Cubic Meter
MFF	–	Multi-Tranche Financing Facility
MoEF	–	Ministry of Environment and Forests
MoRD	–	Ministry of Rural Development
MOSRTH	–	Ministry of Road Transport & Highways
NAAQS	–	National Ambient Air Quality Standards
NGO	–	Non-government organization
NOx	–	Nitrogen Oxides
NRRDA	–	National Rural Road Development Agency
NSDP	–	Net State Domestic Product

PIC	–	Project Implementation Consultant
PIU	–	Project Implementation Unit
PLF	–	Plant Load Factor
PM	–	Particulate Matters
PMGSY	–	Pradhan Mantri Gram Sadak Yojna
PPE	–	Personal Protective Equipment's
PPTA	–	Project Preparation Technical Assistance
RCIP	–	Rural Connectivity Investment Program
RHS	–	Right Hand Side
ROW	–	Right of way
RRS I	–	Loan 2018-IND: Rural Roads Sector I Project
RRS II	–	Loan 2248-IND: Rural Roads Sector II Investment Program
RSES	–	ADB's Environmental Safeguard Division
SBD	–	Standard Bidding Documents
SDP	–	State Domestic Product
SO_2	–	Sulphur Dioxide
SPCB	–	State Pollution Control Board
SPS	–	ADB's Safeguard Policy Statement,2009
SRRDA	–	State Rural Road Development Agency
STDs	–	Sexually transmitted diseases
TDS	–	Total Dissolved Solids
TSC	–	Technical Support Consultants
UNESCO	–	United Nations Educational, Scientific and Cultural Organization
WBM	–	Water Bound Macadam
WBSRRDA	–	West Bengal State Rural Road Development Agency

WEIGHTS AND MEASURES

lakh	100 thousand = 100,000
crore	100 lakh = 10,000,000
$\mu g/m^3$	micrograms per cubic meter
km	kilometer
lpd	liters per day
m	meter
mg/l	milligrams per liter
mm	millimeter
ppm	parts per million
million	Million = 10 lakh = 1,000,000

NOTE{S}

In this report, "$" refers to US dollars.

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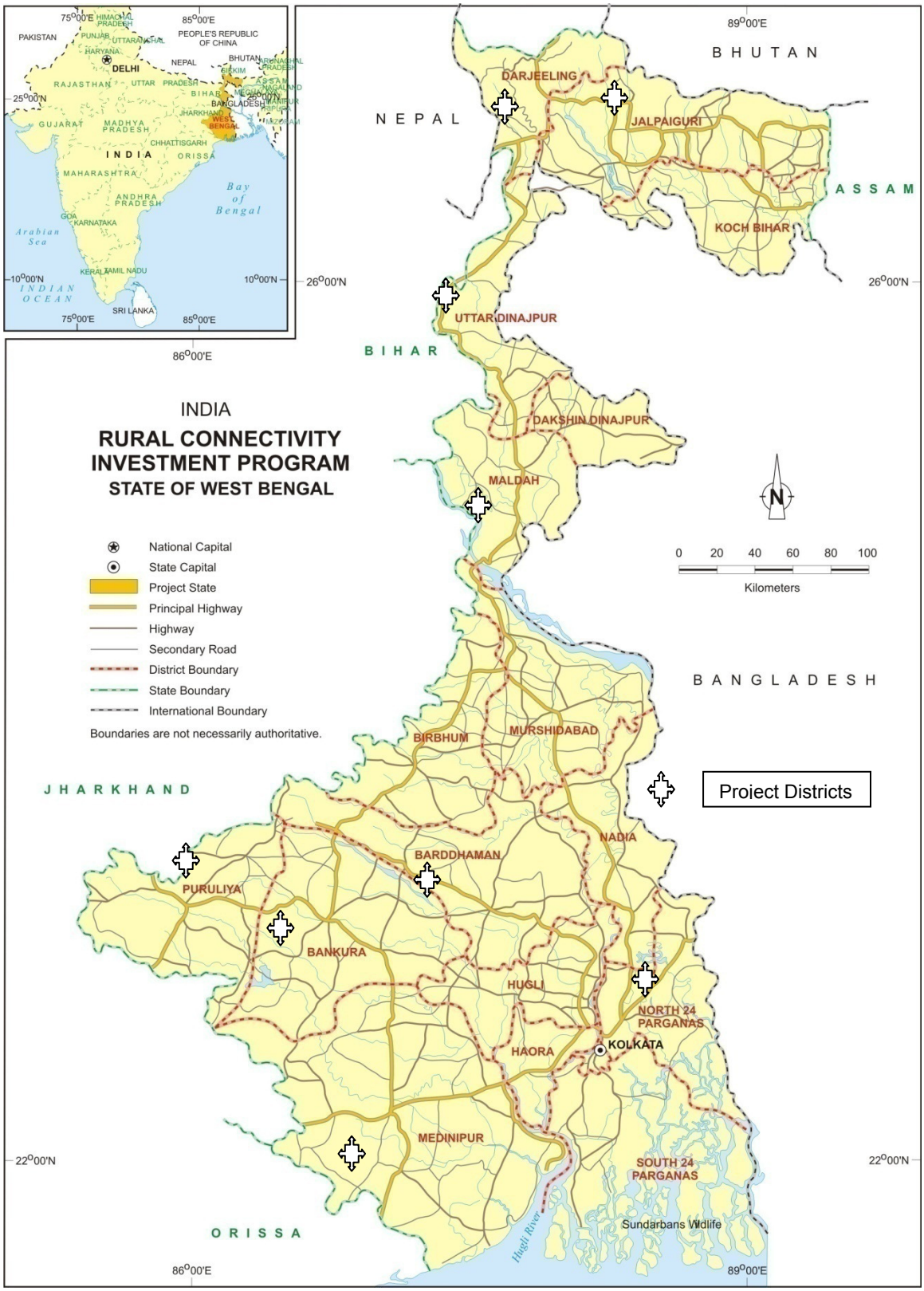


Map 1: State and Project Districts Map of West Bengal

EXECUTIVE SUMMARY

A. Background

1. The Government of India (GOI) has launched a nationwide rural road improvement program in year 2000 namely "The Pradhan Mantri Gram Sadak Yojna (PMGSY)". The objective of PMGSY is to provide all-weather road connectivity to all rural habitations with a population of more than 500 persons in plains and 250 persons in hill states. According to latest survey undertaken by state governments as part of PMGSY, about 0.167 million unconnected habitations are eligible for coverage under this programme. This involves construction of about 0.371 million km of roads for new connectivity and 0.368 million km under up-gradation. This programme is being implemented through National Rural Road Development Authority (NRRDA) under Ministry of Rural Development (MoRD) at central level and through State Rural Road Development Authority (SRRDA) at state level.

2. PMGSY programme is anticipated to be essential for poverty elimination, and accelerating overall development in rural areas. The programme until now has been successful to meet its objective of employment generation, trade improvements and income enhancement.

3. The Rural Connectivity Investment Program (RCIP) is a multitranche financing facility (MFF) that will construct or upgrade to the all-weather standard about 12,000 km of rural roads connecting around 4,000 habitations in the states of Assam, Chhattisgarh, Orissa, Madhya Pradesh, and West Bengal. This report pertains to sample roads in West Bengal State.

4. The WBRRDA has selected about 930 km of rural roads to be taken up under RCIP Tranche II subproject roads in West Bengal. The 930 km of roads comprises 130 different stretches spread over in ten districts of the State. Within each district, the roads are further scattered in several blocks and sub divisions. The minimum and maximum length of the roads ranges between 1.237 km and 26.29 km respectively.

5. Subprojects specific Initial Environmental Assessment (IEE) is carried out as per this ECOP checklist for sample roads. These completed ECOP checklist with annexure on tree, utility and community structures, strip plans and selected photographs for 19 sample roads are enclosed as **Appendix 1.2 and Appendix 1.3 respectively.** The findings of 19 sample subproject specific assessment suggest that similar issues exist amongst the other 109 roads with very few subproject specific issues. Therefore, IEE report has been prepared based on ECOP checklist of selected sample subproject roads (19 roads of 109.58 km) covering atleast 10% of total roads of each district. Impact is assessed for all the 130 roads under.

6. The subproject roads has been selected following PMGSY guidelines for the selection of roads under this programme and satisfy the following environmental safeguards:

i. The selected road shall not disturb any cultural heritage designated by the Government or by international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance.

ii. The selected road shall not pass through any designated wildlife sanctuaries, national parks, notified ecological sensitive areas or area of internationally significance (e.g., protected wetland designated by the Wetland Convention).

iii. The subprojects shall only involve activities that follow Government of India laws and regulations and meets funding agency safeguard policies.

7. The proposal for rural road construction works typically considers a 10-12 m right of way (ROW), which includes side slopes for embankment, side drains on either side of the alignment. The roads consists both Black Top (B.T.) and Cement Concrete (C.C.) as per the ROW availability. The construction proposals are confined to the existing alignment of the paved tracks and mostly upgradation.

8. The project is classified as category B as per ADB Safeguard Policy Statement 2009. These small roads do not require any environmental clearance in accordance to Indian Environmental (Protection) Act and Rules, 1986 amended till date. However, these roads may attract few other legislation such as permission under Forest Conservation Act for diversion of forest land if involved, or tree cutting, Permission Air and Water (Prevention and Control of Pollution) Acts for establishment of temporary workshops, hot/ spot mix plants etc.

B. Description of Project

9. The selected 130 roads are spread over 10 districts namely North 24 Parganas, Bankura. Purulia, Purba Medinipore, Burdwan, Pashim Medinipore, Jalpaiguri, Darjeeling, Malda and Uttar Dinajpur and roads mainly pass through plain terrain and agricultural area, except roads at Darjeeling district. The project roads have several cross drainage structure, common utility strictures (like electric post, telephone post, transformer and hand pumps) and community physical structures (like temple, schools, health centers and religious structures) along the existing alignment. All efforts are made to save these structures while finalizing the alignment but some of these may need to be shifted.

10. The proposed rural road construction work will provide 7.5 m roadway width (this may be reduced to 6 m as per latest guidelines) with 3.75 m carriageway in accordance with the IRC-SP 20: 2002 in plain terrain. The proposal considers a 3.75 m cement concrete pavement with lined storm water drains for stretches passing through built-up areas, waterlogged/water overtopping/ flood prone areas. The pavement design considers a base layer of variable thickness as per the design with granular sub base, 150 mm thick water bound macadam (WBM grade I & II) and finally topped with 20 mm thick bituminous pavement. Adequate cross drainage structures like pipe or slab culverts/bridge structures are considered for drainage channels across the roads. Few minor bridges are also proposed to be constructed.

11. Considering the sub-grade strength, projected traffic and the design life, the pavement design for low volume PMGSY roads are proposed to be carried out as per IRC guidelines IRC: SP: 72 – 2007 or IRC SP:77 “Design of Gravel Road” and IRC SP:62-2004 “Cement Concrete roads”. In built up area for hygienic and safety reasons, C.C pavement is proposed with a hard shoulder and appropriate line drain. A design life of 10 years is considered for the purpose of pavement design of flexible and granular pavements. The embankment height considered as 1m (average) from ground to crust except at the approaches of cross drainage structures. The embankment height will vary in flood prone area as per the HFL. The design speed considered is as per recommended design speed of 50 Km/h.

C. Description of Environment

12. The climate of the West Bengal state, except the Himalayan and sub-Himalayan region in the northern part of the state has a tropical climate. The minimum annual temperature in the

northern districts (Himalayan foot hill region) varies from freezing point to 17°C and over 18°C in other parts of the state. The annual mean maximum temperature ranges from 28°C in the Himalayan region to 33°C in the plains. Normally, May to October months are humid and January to April are dry. The relative humidity (expressed in percentage) is more in northern and southern part of State as compared to western and eastern parts of the state. The maximum relative humidity ranges from 75 to 95% in morning hours and 50 to 65% in the evening hours. As per seismic zonation map, western sections of the northern districts of Jalpaiguri and Coochbehar lie in Zone V (high seismicity). The remaining parts of these two districts, and other districts (Darjeeling, Uttar Dinajpur, Dakshin Dinajpur, Maldah, and South 24 Parganas) lie in Zone IV. The rest of the state including the city of Kolkata lies in Zone III.

13. Most of the project area lies in vast open agricultural land and is largely free from air pollution sources other than traffic and few brick-kilns, small scale industries existing in the area. As such, the ambient air quality (for parameters SO_2, RSPM and NO_X) is expected to be within the limits in most of rural and semi urban areas. The ambient noise levels are also expected to be within the National Ambient Noise Standards due to absence of any high noise sources in proposed road vicinity.

14. The land use within state broadly comprises of cultivable land, uncultivable land, forest land, waste land, urban area and industrial area. Land use pattern along the project road is mixed type dominated by agriculture, barren land, and residential areas.

15. West Bengal State has three major river basins, namely Ganga, Brahmaputra and Subarnarekha. Among these, Ganga is the largest and covers almost 80% of the state, whereas the Brahmaputra basin covers about 15% of the area and Subarnarekha basin covers about 5% of the geographical area of the State. The rural road construction proposals are normally cross small drainage channels, which eventually join the major channels/rivulets. All of these channels generally remain dry for most part of the year and drain the storm water for few weeks only during or after the monsoon. The West Bengal has both chronically draught prone and flood affected areas within the state. The chronically drought prone area is, part of Bankura district. Chronically flood affected areas are parts of North 24 districts, purba and pashim Medinipore district and Malda district.

16. The ground water is largely being used for drinking purposes in the rural areas which is being extracted through hand pumps. The entire region has a very good potential for ground water development with estimated present ground water utilization at less than 50% of the available resources. The entire West Bengal falls under safe category as per Central Ground Water Board (CGWB) guidelines.

17. The west Bengal state owing to the varying altitude from the Himalayas to the coastal plains, the flora and fauna of the state is diverse. Forests make up 27% of the geographical area of West Bengal, which is more than the national average of 23%. Protected forests cover 4% of the state area. Part of the world's largest mangrove forest Sundarbans is located in southern West Bengal. None of the road stretches passes through any forest land/area. The tree density within ROW of sample road project alignment is about 2-3 trees per km. West Bengal has 5 National Parks and 15 Wildlife sanctuaries spread over an area of 2754.39 Sq. Km. There is no wildlife Sanctuaries/National Parks, Tiger Reserves etc. along the project road area. No wetland or large water body falls near sample roads. Fisheries activities are quite common in subproject areas. None of the sample roads consists of any rare, endangered or threatened floral or faunal species. Small number of tree is falling within ROW.

18. West Bengal has a total population of 90 million persons which is largely rural (73%). Tribal constitute about 5.8% of the population. The state has made considerable progress in the literacy level of the state. The literacy rate of the state is almost the same as national average. The percentage of population below the poverty is high at 32%. In both rural and urban areas of West Bengal, the proportion of households having access to safe drinking water is also less compared to the all-India scenario. Agriculture is the leading occupation in West Bengal. Rice is the state's principal food crop. Other food crops are pulses, oil seeds, wheat, tobacco, sugarcane and potatoes. Manufacturing industries playing an important economic role are engineering products, electronics, electrical equipment, cables, steel, leather, textiles, jewellery, frigates, automobiles, railway coaches, and wagons. West Bengal is nearly three percent of the nation's cultivable land. It produces more than eight per cent of the food of the country. West Bengal has well-developed road and rail network. The road density per 100 km in West Bengal is more than the National average

D. Anticipated Environmental Impacts and Mitigation Measures

19. Road improvements work brings substantial economic and social benefits to rural communities and national economies. However, it may also cause adverse environmental impacts though of smaller magnitude, since rural road subprojects are planned to follow the existing alignments and will be of 6 to 7.5 m width only. The impacts are largely expected to be during construction phase, which can be mitigated through engineering measures and adoption of best construction practices.

20. All sample roads included under Tranche II were selected based on ecological and climate change consideration defined under EARF. Accordingly, none of the sample roads passes through protected areas or encroaches precious ecology (sensitive or protected areas) or any historical or archeologically protected areas.

21. Most of the subproject roads pass through agricultural fields and along the existing alignments with low embankment height of 1m (average) from ground to crust except at the approaches of cross drainage structures. As such, the subproject roads are unlikely to be vulnerable or increase the vulnerability of surrounding areas (with respect to population growth, settlement patterns, increasing runoff or landslides). Compensatory tree plantations (1:3) will be made to compensate the loss of trees cut for construction of subproject roads. Efforts shall be made to plant additional trees for increasing the carbon sink.

22. Impacts due to road alignment and design is expected to be minor and limited to shifting of some common utilities, community structures (temple, school) and trees located along the road alignment. The road alignment is finalized considering availability of right of way. The ROW is reduced in built up area or constricted areas to minimize additional land requirement. The road alignment has also been modified to avoid tree cutting, shifting of utilities or community structure to the extent feasible.

23. No land acquisition is involved due to various measures considered for finalisation of road alignment. Villagers have volunteered to donate their land if at certain stages land is required for geometrical correction, to accommodate alignment at narrow stretch or alignment adjustment for avoiding tree cutting or shifting of community structure

24. Inadequate alignment planning may increase the cut and fill requirement as well as need for more borrow earth for embankment formation leading to some impact on land use. The

alignment design shall consider options to minimize excessive cuts and fills. The cut and fill quantities shall be used for embankment to minimize barrow earth requirement.

25. The congregation of labour population and technical staff in the subproject area during the construction phase is likely to put considerable stress on the limited resources of village areas. Some of the associated impacts are related to health, safety of the labourers at the construction camp sites, availability of safe drinking water, and sanitation. Similarly setting up hot/ spot mix plant and operation of construction equipment can cause air, noise and water pollution. Construction camp or hot/spot mix plant will be set up at least 500 m away from habitat or forest areas. All required sanitation, occupational health and safety measures will be followed as suggested under environmental management plan.

26. Water stagnation and water logging problem (due to poor drainage) is identified along few of the sample roads. Adequate design measures for drainage, road levels, slope stabilisation shall be taken for prevention of water logging or water stagnation or road overtopping during rains.

E. Environmental Management Plan and Institutional Arrangements

27. Appropriate mitigation measures are identified for all rural road construction and operation activities. The identified impacts associated with rural roads and mitigation measures are largely common to most of the roads. The EMP **(Appendix 5.1)** provides action common to all roads at pre construction, construction and operation stage. Before bidding road specific EMP should be prepare by PIC and which needs to be included in DPR.

28. The environmental monitoring program **(Appendix 5.2)** is prepared with aim to monitor the environmental performance of environmental management plan. For rural roads, Environmental Monitoring plan will be more observation oriented and it provides observation areas with frequency of monitoring at pre construction aspects, construction stage and operation stage.

29. NRRDA/WBSRRDA has defined institutional setup including with specified responsibility for environmental management. Existing capacity of the West Bengal State Rural Roads Development Agency (WBSRRDA) and Project Implementation Units (PIUs) for implementing environmental safeguard issues need substantial strengthening. The capacity enhancement is proposed through focused workshops and training session. Few workshops have already been conducted at participating states through ADB appointed Environmental specialist. Trained and experienced in-house officials should carry out more training in future periodically.

30. Grievance Redress Mechanism is also defined for receiving public concerns at state, PIU and central level.

F. Public Consultation and Information Disclosure

31. The project has immense acceptability among the local people. They perceived that in addition to providing all weather connectivity, the subproject road would bring positive socioeconomic changes in the area. The project has tried its best to address all the issues raised during consultations under the constraints of suitability from engineering point of view.

G. Conclusion

32. The findings of Environment Assessment of sample roads indicate that impacts are mostly similar and subprojects are unlikely to cause any significant environmental impacts. While some of the impacts are negative, there are many bearing benefits to the area. Most of the impacts are likely to occur during construction stage, are temporary in nature, and can be mitigated with minor to negligible residual impacts. The implementation of prescribed mitigation measures will minimize/avoid the adverse impacts. Moreover, the impacts shall be monitored continually by implementing and updating the Environmental Management plan and Environmental Monitoring Plan. Executing agency shall ensure that updated road specific EMP forms part of DPR and is available to contractor at the time of bidding. The contractor will specify the quantity and budget for various activities like rehabilitation of borrow earth pits, first aid and sanitation facilities at construction camp and temporary office/material storage place as per EMP requirements. The same shall be revised if there is any change in the project design. Any such change shall be reported to ADB as well.

33. Any major changes or any major additional work other than the proposed project activities will require updation of ECOP and IEE. The updated ECOP and IEE will have to be submitted to NRRDA, and ADB for concurrence before civil works commence.

I. INTRODUCTION

A. Project Background

1. The Government of India (GOI) has launched a nation-wide rural road improvement program in year 2000 namely "The Pradhan Mantri Gram Sadak Yojna (PMGSY). The objective of PMGSY is to provide all-weather road connectivity to all rural habitations with a population of more than 500 persons in plains and 250 persons in hill states. According to latest survey undertaken by state governments as part of PMGSY, about 0.167 million unconnected habitations are eligible for coverage under this programme. This involves construction of about 0.371 million km of roads for new connectivity and 0.368 million km under up-gradation. This programme is being implemented through National Rural Road Development Agency (NRRDA) under Ministry of Rural Development (MORD) at central level and through State Rural Road Development Agency (SRRDA) at state level.

2. PMGSY programme is anticipated to be essential for poverty elimination, and accelerating overall development in rural areas. The programme until now has been successful to meet its objective. Some of the following findings of latest survey conducted in different state implementing PMGSY programme indicate the success and need for continuation of this programme:

- **Employment Generation**: PMGSY roads have facilitated mobility to markets. Better accesses to markets have opened up avenues of employment both on-farm and off-farm as well as self-employment.
- **Trade Improvement**: Better linkages with markets have resulted in an expansion of agricultural and allied trade, local industries and petty trade.
- **Income enhancement**: The average household income[1] has recorded increase in one year time by 7.7 percent to 10.6 percent

3. The Rural Connectivity Investment Program (RCIP) is continuation of Rural Road Sector Programme (RRS II) and is a multi-tranche financing facility (MFF) that will construct or upgrade to the all-weather standard about 12,000 km of rural roads connecting around 4,000 habitations in the states of Assam, Chhattisgarh, Orissa, Madhya Pradesh and West Bengal (RCIP states). The RCIP will also focus on improvement of institutional arrangements, business processes and associated capacity building, especially in relation to design, operation, safeguard, financial, road safety, and asset management matters.

4. RRDA, Govt. of West Bengal selected **930.084 km road for Tranche II** funding. DPR and safeguard documents for **130 nos**. covering 930.084 km roads spread over 10 districts have been prepared. This report pertains to sample roads in West Bengal State after selected site observation and review of ECOP documents. The West Bengal State Rural Road Development Agency (WBSRRDA) is the implementation agency of PMGSY program in West Bengal.

B. Project Roads Identification and Location

5. PMGSY has prepared specific guidelines for the selection of roads under this programme. The key requirements is that any road will be eligible for construction or

[1] Based on the replies of 250 households directly/indirectly benefited from PMGSY programme.

upgradation only if it is part of the Core Network[2] and satisfy the following environmental safeguards:

- The selected road shall not disturb any cultural heritage designated by the Government or by international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance;
- The selected shall not pass through any designated wildlife sanctuaries, national parks, notified ecological sensitive areas or area of internationally significance (e.g., protected wetland designated by the Wetland Convention); and
- The subprojects shall only involve activities that follow Government of India laws and regulations and meets funding agency safeguard policies.

6. The WBSRRDA has selected about **930.08 km** of rural roads to be taken up under RCIP Tranche II subproject roads in West Bengal. The 930 km of roads comprises 130 different stretches spread over in ten districts of the State. Within each district, the roads are further scattered in several blocks and sub divisions. The minimum and maximum length of the roads ranges between **1.237 km and 26.29 km** respectively. The list of **930.084 km roads** with location and length is given in **Appendix 1.1** and the location map of the districts is shown in **Map 1**.

7. **Table I.1** shows the summary of roads district wise qualified for **Tranche II** funding.

Table I.1 : RCIP: Tranche II - List of Qualified Roads in West Bengal

S. No	Name of the District	No. of Roads	Tranche-II (Km)
1	North 24 Pargana	75	428.797
2	Bankura	4	32.124
3	Purulia	1	6.441
4	Purba Medinipur	1	7.718
5	Burdwan	2	11.050
6	Pashim Medinipur	19	215.109
7	Darjeeling	9	**73.130**
8	Jalpaiguri	15	129.174
9	Malda	3	22.370
10	Uttar Dinajpur	1	4.171
Overall		**130**	**930.084**

C. Rural Road Construction Proposal

8. The proposal for rural road construction works typically considers a 10-12 m right of way (ROW), which includes side slopes for embankment, side drains on either side of the alignment. The roads consists both Black Top (B.T.) and Cement Concrete (C.C.) as per the ROW availability.

[2] Core Network is that minimal network of roads (routes) that is essential to provide access to essential social and economic services to all eligible habitations in the selected areas through at least single all-weather road connectivity. A core network comprises of through routes and link routes. Through routes are the ones, which collect traffic from several link roads or a long chain of habitations and lead it to marketing centres either directly or through the higher category roads i.e., the district roads or the state or national highways. Link routes are the roads connecting a single habitation or a group of habitations to through routes or district roads leading to market centres. Link routes generally have dead ends terminating on a habitation, while through routes arise from the confluence of two or more link routes and emerge on to a major road or to a market centre.

9. The construction proposals are confined to the existing alignment of the unpaved / partly paved tracks. Majority of these are pathways traditionally used by the villagers and transformed into the present form of unpaved tracks/roads through minor construction works taken up by the communities, local bodies and state Government over the decades.

D. ADB's Safeguard Policies and Category of the Project

10. The Asian Development Bank has defined its Safeguard requirements under its 'Safeguard Policy Statement 2009' (SPS 2009). The SPS 2009 require environmental assessment, mitigation and commitment towards environmental protection. The prime objectives of these safeguard policies are to (i) avoid adverse impacts of projects on the environment and affected people, where possible; and (ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible. ADB as per SPS 2009 classify a project into category A, B or C depending on potential adverse environmental impacts.

11. All environmentally sensitive components along each subproject roads is critically analysed to assess the magnitude and extent of likely impacts. These sample subproject roads stretches do not pass through any protected areas nor located near any archeologically important monument. As per selection guidelines, none of the selected subproject road passes through reserved forests either. Few trees cutting though may be involved. The road primarily passes through agricultural and residential areas. Most of the roads follow existing village roads and unpaved movement paths. As such, additional land requirement is also low. Hence, the project falls under category B as per ADB Safeguard Policy Statement 2009.

12. No categorisation is made under environmental legislation since these small roads do not require any environmental clearance in accordance to Indian Environmental (Protection) Act and Rules, 1986 amended till date.

E. Objectives and Approach for Environnemental Assessment

13. The prime objectives of the environmental assessment is to identify the likely environmental impacts during design, construction and operation stage of each subproject and suggest cost effective mitigation and monitoring measures with institutional mechanism applicable to all the subprojects as well as specific to a subproject.

14. Since there is large number of subproject roads involved under RCIP and magnitude of each road is small, preparation of individual IEE's for each road will be difficult and time consuming. ADB had finalized Environmental Code of Practices (ECOP) checklist under RRS II, which is modified for RCIP. Subprojects specific Initial Environmental Assessment (IEE) is carried out as per this ECOP checklist for sample roads. These completed ECOP checklist with annexure on tree, utility and community structures, strip plans and selected photographs for 19 sample roads are enclosed as **Appendix 1.2** and **Appendix 1.3** respectively.

15. The findings of 19 sample subproject specific assessment suggest that similar issues exist amongst the other 109 roads with very few subproject specific issues. Therefore, IEE report has been prepared based on ECOP checklist of selected sample subproject roads (19 roads of 109.58 km) covering atleast 10% of total roads of each district. Impact is assessed for all the 130 roads under Tranche II. This IEE approach will be followed for conducting environmental assessment for remaining Tranches under RCIP.

F. IEE Methodology and Content

16. Initial Environmental Examination has been largely structured as per SPS, 2009 and ADB's Environmental Assessment Guidelines (2003). The IEE reports includes EMPs, monitoring plans; cover the most environmentally sensitive components in state as well as specific to sample roads.

17. **Corridor of Impact**: The direct area of influence or the corridor of impact (COI) has been considered as, 10 m on either side of the proposed roads alignment Based on the proposed cross-section.

18. **Field visits, Primary and Secondary Data Collection**: Few of the selected sample roads was visited along with concerned PIU officials and PIC for environmental assessment and identification of associated environmental issues. Each road specific strip map was prepared during the field visit to capture the information related to tree inventory, utility and community structures located along the proposed road alignment, surface water bodies, and ecological sensitivities. Secondary environmental information pertaining to the environmental issues, protected area, forests areas were collected from various government and non-governmental / research institutions for assessment of the baseline environment of the project locations, district and state as a whole. Finally IEE is prepared after site observation and review of all collected relevant documents.

19. **Data Analysis, Impact identification and Mitigation Measures**: Information collected were analysed and impact was identified using expert's assessment and following established practices. Mitigation measures are proposed common to larger roads and specific to the roads. EMP is prepared considering mitigation measures and institutional framework of WBSRRDA.

20. The IEE report includes following seven chapters including this introduction Chapter.

- Chapter 1- Introduction
- Chapter 2- Description of Project
- Chapter 3- Description of Environment
- Chapter 4- Anticipated Impacts and Mitigation Measures
- Chapter 5- Institutional Requirement and Environmental Monitoring Plan
- Chapter 6-Public Consultation and Information Disclosure
- Chapter 7- Conclusion and Recommendation

G. Legal Framework and Legislative Requirements

21. India has well defined institutional and legislative framework. The legislation covers all components of environment viz air, water, soil, terrestrial and aquatic flora and fauna, natural resources, and sensitive habitats. India is also signatory to various international conventions and protocols.

22. As per Environment (Protection) Act, 1986; the Environmental Impact Assessment Notification, 2006; amended in 2009 defines the environmental impact assessment for defined development projects. All New or expansion of National and State Highways requires Environmental Impact Assessment and Environmental Clearance from central or state level Environmental Appraisal Authority. However, small roads projects as proposed under RCIP do not require environmental assessment or clearance as per above notification. Since above environmental assessment requirement is not applicable, the mainstream environmental

concerns specific procedures that were formulated under Rural Roads Sector I (RRS I) and Rural Roads Sector II Investment Program (RRS II) will in any case be implemented.

23. In addition to above, new road construction or road improvement work attract many legislation including for diversion of forest land, tree cutting, opening of new quarry, establishment of temporary workshops, construction camps, hot/spot mix plants, and use of vehicles for construction. The legislation applicable for RCIP roads are listed below:

Table I.2 : Applicable Rules and Regulations for RCIP Roads

Sl. No.	Legislation	Applicability
1.	Environment (Protection) Act 1986-EIA Notification 2006 (Amended 2009)	Not applicable to these rural roads. It is applicable only to National and State highways.
2.	Forests (Conservation) Act 1980 (Amended 1988), and Forest (Conservation) Rules, 1981, (Amended 2003)	As per above Act/Rules *Forest Clearance* from Department of Forests/Ministry of Environment and Forests Govt. of India is required for diversion of forest land (if any) for non-forest purpose. Prior permission is required from forests department to carry out any work within the forest areas and felling of roadside trees. Cutting of trees need to be compensated by compensatory afforestation as per permission condition.
3.	The Wildlife (Protection) Act, 1972 (Amended 1993); Not applicable in this case. Since No roads will be selected passing through protected areas or sanctuaries	Not Applicable, since no roads is selected if it passes through protected areas.
4.	The Water (Prevention and Control of Pollution) Act 1972 (Amended 1988), and the Water (Prevention and Control of Pollution) Rules, 1974	Placement of hot-mix/ spot mix plants, quarrying and crushers, batch mixing plants, discharge of sewage from construction camps requires *No Objection Certificate (Consent to Establish and Consent to Operate)* from State Pollution Control Board prior to start of construction or setting up specific facility. *Authorisation* will also be required for disposal of Hazardous Waste like waste oil etc. from State Pollution Control Board
5.	The Air (Prevention and Control of Pollution) Act, 1981, (Amended 1987), and the Air (Prevention and Control of Pollution) Rules, 1982	
6.	The Noise Pollution (Regulation and Control) Rules, 2000 (Amended 2002)	
7.	The Hazardous Waste (Management, Handling and Transboundary Movement) Rules	

	2008 (Amended 2009), and the Batteries (Management and Handling) Rule, 2001	
8.	Guidelines for Ground Water Extraction Prescribed by Central Ground Water Authority under the power granted under Environment (Protection) Act 1986	*Permission* from Central Ground Water Authority (CGWA) is required for extracting ground water for construction purposes, from declared as Semi-critical, Critical and Overexploited areas critical or semi critical from ground water potential prospective. For NOC, An application in the prescribed Performa is to be submitted to either to the Office of the Regional Director, Central Ground Water Board (CGWB) of the concerned state, or to Member Secretary, CGWA, New Delhi

24. The PMGSY Scheme and Guidelines (2004) No. 12025/8/2001-RC, Ministry of Rural Development (MoRD) also defines environmental safeguards particularly with respect to sample road selection and regulatory compliance which is also to be complied with.

H. Acknowledgement

25. The TSC gratefully acknowledge the support received from NRRDA and WBSRRDA throughout the environmental assessment process. We also acknowledge the assistance received from respective PIUs and PIC and other Govt. agencies for primary and secondary data collection as well during public consultation.

II. DESCRIPTION OF THE PROJECT

A. General

26. The PMGSY program has mandate to provide all-weather roads to all the rural habitations within the country. RCIP is planned to meet above objective. 109.58 km roads (19 nos.) are identified as sample roads for West Bengal under Tranche II of RCIP. The broad specification for road alignment selection, payment design, construction methodology, geometric design etc. are same and is as per the "Specification for Rural Roads" published by IRC on behalf of the Ministry of Rural Development, Government of India. The design details presented in this chapter are as per above specifications. Minor changes will apply depending on road specific issues and design consideration.

27. Since topography of project districts of West Bengal state is largely flat and few patches are undulated, the design details applicable to flat terrain are presented in following section.

B. Sample Roads Selected in West Bengal State

28. The West Bengal state has selected 130 roads with a total length of **930.084** km spread over 10 districts for Tranche II funding. Details shown in **Appendix 1.1.** District-wise summary is given in **Table II.1.**

Table II.1: Summary of District Wise Rural Roads

S. No	Name of the District	No. of Roads	Length of Roads (km)		
			Total	Minimum	Maximum
1	North 24 Pargana	75	428.797	1.237	15.385
2	Bankura	4	32.124	5.867	9.742
3	Purulia	1	6.441	-	-
4	Purba Medinipur	1	7.718	-	-
5	Burdwan	2	11.050	3.207	7.843
6	Pashim Medinipur	19	215.109	2.993	26.29
7	Darjeeling	9	**73.130**	1.433	11.442
8	Jalpaiguri	15	129.174	1.911	18.591
9	Malda	3	22.370	6.175	8.692
10	Uttar Dinajpur	1	4.171	-	-
Overall		**130**	**930.084**	**1.237**	**26.29**

29. For preparation of IEE 19 sample roads (109.58 km) covering at least 10% of the total roads of the each district have been considered. All 10 districts are covered for selection of sample roads. Details are given in Table below.

Table II.2: Details of Sample Roads

Sr. No.	District	Block	Package No.	Road Name	Length (km)
1	North 24 Parganas	Rajarhat	WB-01-ADB 79	Dakshin Nayabad to Patharghata Bazar	4.666
2		Barasat-I	WB-01-ADB 105	Kalianai Purbapara to Kilispur Paschimpara	7.576
3		Amdanga	WB-01-ADB 114	Mathura to Bodai Purba	2.424
4	North 24 Parganas	Deganga	WB-01-ADB 107	Mollapara to Uttar chakla	2.408
5		Basirhat-I	WB-01-ADB 53	Nimdaria to Ramnagar More	8.095

Sr. No.	District	Block	Package No.	Road Name	Length (km)
6		Swarupnagar	WB-01-ADB 66	Taranipur Purba to Sarapul Bazar	4.978
7		Barasat-II	WB-01-ADB 71	Teghoria Dakshin to Balipur Dakshin	3.449
8		Barasat-II	WB-01-ADB 95	Teghoria Dakshin to Sankargachi Purba	2.238
8 Roads					**35.834**
9	Bankura	Joypur	WB-03-ADB 47	Belia to Shyamnagar	**9.742**
10	Purulia	Jhalda	WB-16-AD 17	Barahan Kol to Simni Road	**6.441**
11	Purba Medinipur	Panskura II	WB-19-ADB 19	T04_Uttar Brindaban Chack to Uttar Narayan Pakuria	**7.718**
12	Burdwan	Purbasthali II	WB-05-ADB 18	Uttar Lakshmipur to Tamaghata Bazar	**3.207**
13	Pashim	Narayangarh	WB-20-ADB 41	Gopinathpur to Kotaijiageria	11.876
14	Medinipur	Pingla	WB-20-ADB 47	Pratapchak to Barakhelna	5.405
	2 Roads				**17.281**
15	Darjeeling	Darjeeling Pulbazar	WB07-ADB 23	Kaijalay to Goke via Kolbong	**6.13**
16	Jalpaiguri	Alipurduar II	WB-10-ADB 39	T01 at Taleswarguri to T01 at Samuktala	4.774
17		Alipurduar II	WB-10-ADB 42	T18 at NH31C to T7 at Parakota GP Office	6.779
2 Roads					**11.553**
18	Malda	English Bazar	WB-11-ADB 27	Atgama to Mobarakpur	**7.503**
19	Uttar Dinajpur	Itahar	WB-15-ADB 21	Uzani to Pakabari	**4.171**
19 Roads in 10 Districts					**109.58**

C. Project Description

1. Rural Road Construction Proposals

30. The proposed rural road construction work will provide 7.5 m roadway width[3] with 3.75 m carriageway in accordance with the IRC-SP 20: 2002 in plain terrain. The proposal considers a 3.75 m cement concrete pavement with lined storm water drains for stretches passing through built-up areas, waterlogged/water overtopping/ flood prone areas. The pavement design considers a base layer of variable thickness as per the design with granular sub base, 150 mm thick water bound macadam (WBM grade I & II) and finally topped with 20 mm thick bituminous pavement. Adequate cross drainage structures like pipe or slab culverts/bridge structures are considered for drainage channels across the roads. **Figure II**.1 shows the typical cross section of the rural roads.

31. The rural road construction works will be in conformance with the Rural Roads Manual and/or Technical Specifications (IRC: SP20: 2002) for Rural Roads published by the Indian

[3] The road width may be reduced 6m as per PMGSY recent decision.

Road Congress (IRC) on behalf of Ministry of Rural Development, Government of India. The broad design considerations are given at later part of this chapter.

2. Present Condition

32. The project roads mainly pass through plain terrain except roads at Darjeeling district and agricultural area. The project roads have several cross drainage structure, electric post and telephone post along the existing alignment. There are some community physical structures like Temple, Mosque, primary or secondary schools beside the roads alignment, but will not be affected due to the widening of roads. There are some utilities besides the roads. Some of these may need to be shifted.

3. Alignment and Profile

33. The existing road is generally a murram/brick/partly bituminous track with some stretches of brickbat soling (description of the road surface). Thus, the project road is an upgraded road. The construction works are to be confined to the existing alignment. The existing horizontal and vertical alignment/profile will be generally maintained except for minor smoothening or corrections to sustain consistent design speed without causing any voluntary land acquisition requirements and thereby the possible social and/or environmental concerns.

4. Design Considerations

34. **Geometrical Design and ROW Requirements**: The geometric design standards for this project will conform to PMGSY (ADB) guidelines and the guidelines as stated in *IRC-SP 20:2002* and the final recommendations of NRRDA expert committee *(refer D.O. no. - 17305/1/2007-Tech/12 dated 30/09/2010)*. Recommended design standards vis-à-vis the standards followed for this road are described below. The requirement of ROW as per PMGSY guidelines considered for the design is given at **Table 2.3** below:

Table II.3 : ROW Requirement

Road classification	Plain and Rolling Terrain (ROW in m)			
	Open Area		Built-up Area	
	Width	Range	Width	Range
Rural roads (ODR and VR)	15	15-25	6.0	6.0

ODR= other district road, VR= village road.

35. Since terrain is plain mostly, the design speed considered is as per recommended design speed of 50 km/h for ruling (40 km/h as minimum speed). The radius of horizontal curve is considered as 90 m ruling minimum (60m absolute minimum). The vertical alignment is designed as per ruling gradient of 3.3% applicable for plain terrain.

36. **Pavement and Embankment Design**: Considering the sub-grade strength, projected traffic and the design life, the pavement design for low volume PMGSY roads are proposed to be carried out as per guidelines of IRC: SP: 72 – 2007 or IRC SP:77 “Design of Gravel Road” and IRC SP:62-2004 “Cement Concrete roads”. In built-up area for hygienic and safety reasons, C.C pavement is proposed with a hard shoulder and appropriate line drain. A design life of 10

years is considered for the purpose of pavement design of flexible and granular pavements. The embankment height considered as 1m (average) from ground to crust except at the approaches of cross drainage structures. The embankment height will vary in flood prone area as per the HFL.

37. **Road side drain**: As the insufficient drainage of surface water leads to rapid damage of road, road side drain (**Figure 2.1**) are provided on the locations of habitation areas with concrete pavement. The rainwater will flow along the longitudinal slope and intermittent gaps in concrete curbs

38. **Carriageway:** The carriageway is proposed as 3.75 m as per IRC-SP20: 2002. It may be even restricted to 3.0 m, where traffic intensity is less than 100 motorized vehicles per day and where the traffic is not likely to increase due to situation, like dead end, low habitation and difficult terrain condition. The ROW requirement in built-up/constricted area may be even reduced to 5 m.

39. **Shoulder:** Earthen shoulder shall be constructed in layers and compacted to 100% of Proctor's Density. It is proposed to have 1.875 m wide shoulder (0.875 m hard shoulder and 1 m earthen shoulder) on either side of carriage way.

40. **Surfacing**: Slow setting bitumen emulsion will be applied as primer on water bound layer. Rapid setting bituminous emulsion shall be used for Tack coat. Premixed carpet 20 mm thick and mixed with equivalent viscosity grade bitumen shall be laid as surfacing course. 6 mm thick, Type B seal coat is considered for sealing of the premixed carpet.

41. **Structural Works**: Following grades of concrete are proposed for Structural works as per specified MORD and IRC specifications:

- Concrete in superstructure of Slab Culvert – M-25 (RCC)
- Concrete in Abutment cap, Dirt wall of slab culverts – M-25 (PCC)
- Brickwork in Abutment, Return Wall, Headwall – Cement mortar (1:4)
- Concrete below Abutment, Return Wall, Headwall – M-10 (PCC)
- Concrete in pavement (on carriageway) – M-30 (PCC)
- Concrete in pavement (on shoulder and drain) – M-25 (PCC)

5. Construction Methods

461. Since these are smaller roads, NRRDA has framed specific guidelines for cost-effective construction of these rural roads. As per the guideline of NRRDA, construction by more of manual means is preferred. Motor grader & tractor-towed rotavator shall be used for handling of bulk materials like spreading of aggregates in sub-base & base courses by mix-in-place method. Compaction of all items shall be done by ordinary smooth wheeled roller if the thickness of the compacted layer does not exceed 100 mm. It is also considered that, hot mix/ spot mix plant of medium type & capacity with separate dryer arrangement for aggregate shall be used for bituminous surfacing work that can be easily shifted. A self-propelled or towed bitumen pressure sprayer shall be used for spraying the materials in narrow strips with a pressure hand sprayer. For structural works, concrete shall be mixed in a mechanical mixer fitted with water measuring device. The excavation shall be done manually or mechanically using suitable medium size excavators.

6. Available Right of Way

42. As per the information available with West Bengal State Rural Road Development Agency (WBSRRDA), ROW is largely available for all the sample roads. In some of the road, it is put to agricultural use by the adjacent landowners. The private landowners along the proposed right of way (ROW) however, are voluntarily parting the encroached land and in some cases parted even their own private land without any compensation, anticipating the developmental benefits from the road construction works.

7. Traffic

43. The present traffic data on each of these rural roads typically vary between 10-15 vehicles per day on most of the rural stretches. The traffic largely comprises motorcycles/two wheelers, tractors, light commercial vehicles, animal drawn carts and bicycles.

8. Economic Assessment

44. The economic analysis carried out under the project has indicated that the rural road construction works will act as a catalyst for the rural economic growth and poverty alleviation of the community in the region.

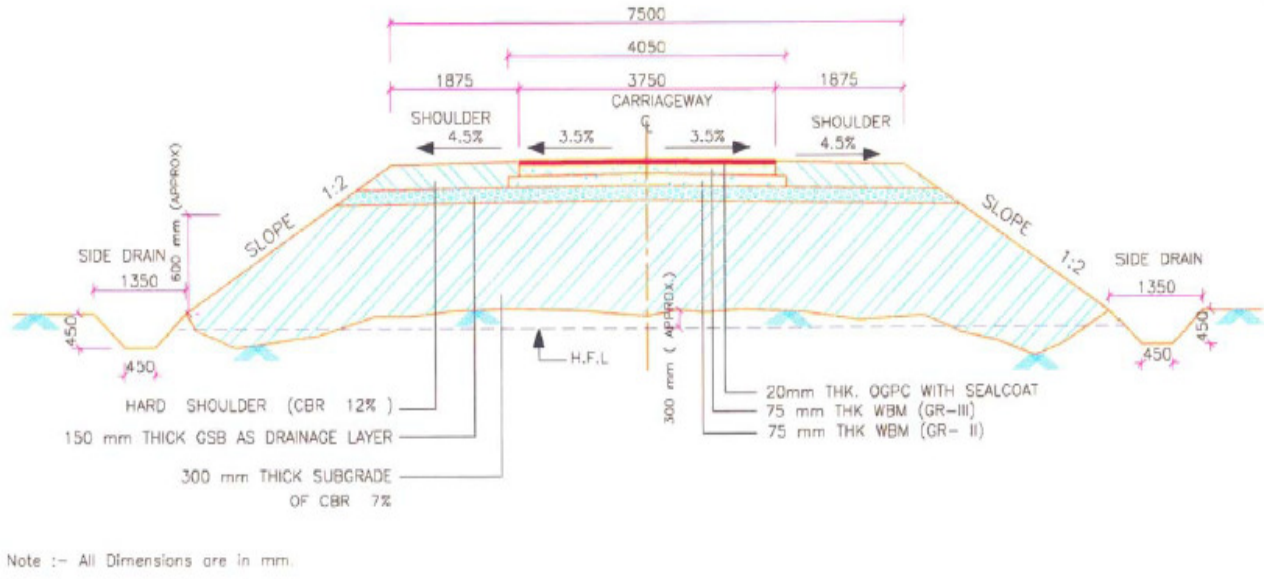


Figure II.1 : Cross-section of Rural Roads

III. DESCRIPTION OF THE ENVIRONMENT

A. General

45. Baseline environmental conditions about all facets of environment viz. physical, biological and socioeconomic have been established using both primary and secondary sources, consultation with local people, and interaction with forests officials and other Government officials. Efforts have been made to collect the latest information both at regional as well as local level especially along the project roads alignment. This will help to predict likely changes in the environment due to the RCIP road construction and will serve as performance indicators for various components.

46. The baseline information is presented below at state level and district level. Road specific environmental salient features has also been summarised in this chapter.

47. West Bengal is located between lat. 20°31'N and 27°12'N and long. 85°50' and 89°52' E. The geographical area of the state is 88,752 km^2 (34,267 sq mi). The state boundary touches five states of the country, namely Assam, Sikkim, Orissa, Jharkhand and Bihar. It also share boundary with three countries namely Nepal, Bhutan, and Bangladesh. The state forms the ethno-linguistic region of Bengal. The capital of the state is Kolkata, the third largest urban agglomeration and the third largest city in India. The selected Sample roads fall in North 24 Parganas, Bankura, Purulia, Purba Medinipur, Bardhaman, Pashim Medinipur, Darjeeling, Jalpaiguri, Malda and Uttar Dinajpur districts. Summary key environmental features of these the districts are given in **Table III.1.**

B. Physical Environment

1. Meteorology and Climate

48. The climate of the West Bengal state, except the Himalayan and sub-Himalayan region in the northern part of the state has a tropical climate. The tropic of cancer passes through the middle Burdwan districts and northern parts of Bankura district

49. **Temperature:** The minimum annual temperature in the northern districts (Himalayan foot hill region) varies from freezing point to 17°C and over 18°C in other parts of the state. The annual mean maximum temperature ranges from 28°C in the Himalayan region to 33°C in the plains. In certain parts of the state, occasionally the mean maximum temperature can rise up to 43°C.

50. **Rainfall:** The average rainfall in the State is 1,750 mm. In the Himalayan Region i.e in northern part the average rainfall ranges from 2,500 – 6,000 mm. In the southern part average rainfall ranges from 1,125 – 1,900 mm.

51. ***Relative Humidity*:** Normally, May to October months are humid and January to April are dry. The relative humidity (expressed in percentage) is more in northern and southern part of State as compared to western and eastern parts of the state. The maximum relative humidity ranges from 75 to 95% in morning hours and 50 to 65% in the evening hours.

Table III.1: Summary Key Environmental Features of the Sample Roads Districts

S. No.	Parameters	North 24 Parganas	Bankura	Purulia	Purba Medinipore	Burdwan
1.	**Location**	• The district lies between 22º11´6´´N to 23º15´2´´ N and 88º20´ E to 89º5´ E and covers an area of 4094 sq. Km. • The district is bordered to Nadia by north, to Bangladesh (Khulna Division) by north and east, to South 24 Parganas and Kolkata by south and to Kolkata, Howrah and Hoogly by west.	• The district lies between 22° 38' and 23° 38' N and 86° 36' and 87° 46' E and covers an area of 6882 sq.km • The district is surrounded by Purulia, Burdwan, Pashim Medenipur and Hooghly districts in east, northeast, southeast and west respectively.	• Purulia lies between 22°60' and 23°50' N and 85°75' and 86°65' E. The geographical area of the district is 6259 km². • This district is bordered on the east by Bankura, Paschim Medinipur districts, on the north by Burdwan district of West Bengal state and Dhanbad district of Jharkhand state, on the west by Bokaro and Ranchi districts of Jharkhand state and on the south by West Singhbhum and East Singhbhum districts of Jharkhand state.	• Purba Medinipore lies between 22°57'10" and 21°36'35"" N and 88°12'40" and 86°33'50" E. This District spread over 4295 Sq. km • Purba Medinipur is located in the southern part of West Bengal. It is bounded to the north by Paschim Medinipur and Howrah Districts, east by Howrah and South 24 Parganas Districts and Bay of Bengal, South by Bay of Bengal and West by Paschim Medinipur District and State of Orissa. The south west corner of this District shares a common border with the State of Orissa.	• Burdwan district extends from 22°56' to 23°53' North latitude and from 86°48' to 88o25' East longitudes. District has an area of 7,024 km². • Lying within Burdwan Division, the district is bounded on the north by Dumka (of Jharkhand), Birbhum and Murshidabad, on the east by Nadia, on the south by Hooghly, Bankura and Purulia and on the west by Dhanbad (of Jharkhand) districts.
2.	**Climate**	• The district has tropical climate with temperature ranging from 10°C in January to 41°C in May. The relative humidity ranges from 50% in March to 90% in July. The district receives about 1579 mm rainfall.	• The climate of the district is humid and tropical. Mean maximum temperature reaches about 35.8^{0}C in April – May, while mean minimum temperature of about 16.3^{0}C reaches in December – January. • The annual rainfall is about 1330mm, which peaks in the month of July to August.	• Purulia is one of the drought prone districts of West Bengal. It has a sub tropical climate nature and is characterized by high evaporation and low precipitation. • Temperature is very high in summer and low in winter which varies from 3.8 degrees in winter to 52 degrees in summer thus causes dryness in moisture. Record highest temperature is 54 degrees. South west monsoon is the principal source of rainfall in the district • Average annual rainfall varies between 1100 and 1500 mm. The relative humidity is high in monsoon	• The district has tropical climate with temperature- Mean Maximum temperature 32.05^o Celsius. Mean Minimum temperature 20.83^o Celsius. • Average Total Rainfall 1703 mm	• Average temperature in hot season is 30^{o}C while at the cold season is 20^{o}C. And average rainfall is 1500 mm

S. No.	Parameters	North 24 Parganas	Bankura	Purulia	Purba Medinipore	Burdwan
				season, being 75% to 85%. But in hot summer it comes down to 25% to 35%		
3.	**Wildlife Sanctuaries/ National Park etc**	• Bibhuti Bhusan Wildlife Sanctuary • However, none of subproject roads passes through this sanctuary.	None	None	None	• Ramnabagan Wildlife Sanctuary located in the district • However, none of subproject roads passes through this sanctuary.
4	**Geomorphology** - *.Major Physiographic Units and land use*	• The physiography of the region is that of a typical alluvial plain with gentle ups and downs. The terrain is essentially composed of soft river borne sediments deposited under fluviatile environment. The general slope is from North West to southeast. ▪ Major land use is agriculture	▪ The district has three distinct geomorphic characteristic, namely the ✓ hilly terrain in the west, ✓ the eastern plain land ✓ marginal undulating topography ▪ Major land use is agriculture	▪ The district has three distinct geomorphic characteristic, namely the ✓ hilly terrain in the west, ✓ the eastern plain land ✓ marginal undulating topography • Due to undulated topography nearly 50% of the rainfall flows away as runoff. The district is covered by mostly residual soil formed by weathering of bed rocks ▪ Major land use is agriculture	▪ The physiography of the region is that of a typical alluvial plain with gentle ups and downs. The terrain is essentially composed of soft river borne sediments deposited under fluviatile environment. The general slope is from north west to south east. ▪ Major land use is agriculture	▪ District with its varied tectonic elements and riverine features, is a transitional zone between the Jharkhand plateau which constitutes a portion of peninsular shield in the west and Ganga-Brahamaputra alluvial plain in the north and east. In general the Jharkhand plateau consists of the meta-sedimentary rocks of precambrian age, Gondwana sedimentary rocks, Rajmahal basalts and upper tertiary sediments. Laterite has developed on these older rocks as well as on early Quaternary sediments. Towards south, the alluvial plain merges with Damodar-kasain-Subarnarekha deltaic plains. ▪ Major land use is agriculture
	Geomorphology *Major Drainage*	▪ The district lies within the Ganges-Brahmaputra delta. ▪ The river Ganges flows along the entire west border of the district. There are many other rivers, which include the Ichhamati	▪ The Drainage of the district is mainly controlled by Damodar, the Dwarakeswar and the Kangsabati River along with their network of tributaries. They have in general south easterly flow. The courses of the principal	▪ Several rivers flow across Purulia. Among these Kangsabati, Kumari, silabati(silai),Dwarakeswar, Subarnarekha and Damodar are the important ones. Although several rivers flows across the district, 50% of the water run off due to the undulated topography. There	▪ The Drainage of the district is mainly controlled by by River (1) Rupnarayan (2) Kangsabati (3) Haldi (4) Keleghai (5) Chandia (6) Rosulpur. ▪ Bay of Bengal is located at the southern part of the District.	▪ The river system in Burdwan includes the Bhagirathi-Hooghly in the east, the Ajoy and its tributaries in the north and the Dwarakeswar, the Damodar and its branches in the south-west. Besides, there are innumerable Khals and old river beds all

S. No.	Parameters	North 24 Parganas	Bankura	Purulia	Purba Medinipore	Burdwan
			rivers are approximately parallel to each other.	are also several Small dams like Murguma, Pardi, Burda, Gopalpur, which are mainly used for irrigation of agriculture field. Saheb Bandh is one of the popular and famous water bodies of Purulia. It is located in the heart of the purulia town. It is a shelter of the migratory birds which comes from Bangladesh, Burma, Pakistan, Baluchistan during December to March		over the area..
5	**Major Soil Type**	▪ Alluvial soil ▪ Clay Loam texture mostly	▪ Red soil, Alluvial soil and Lateritic soil	▪ Red soil, and Lateritic soil ▪ Soil erosion is the most prominent phenomenon of this district resulting huge deposition of fertile soil in the valley region. As a result Purulia District is facing crisis due to depletion of top fertile soil and water loss.	▪ Red soil, Alluvial soil and Lateritic soil	▪ In the west coarse gritty soil blended with rock fragments is formed from the weathering of pegmatites, quartz veins and conglomeratic sandstones, where as sandy soil characteristic of granitic rocks and sandstones. This soil is of reddish colour, medium to coarse in texture, acidic in reaction, low in nitrogen, calcium, phosphate and other plant nutrients. Water holding capacity of this soil increases with depth as well as with the increase of clay portions. ▪ Towards the east alluvial soil attains an enormous thickness in the low level plains to the east. This alluvial soil is formed of alluvium brought down by the Ajay, Damodar, Bhagirathi and numerous other rivers. These soils are sandy, well drained and slightly acidic in nature.
6	**Principal Crops**	▪ Rice, Wheat, barley, Maize are major crops	▪ Rice, Wheat, Oil seeds and Vegetables are major agricultural	▪ Cultivation of this district is predominantly monocropped. About 60 % of the total	▪ Main Agricultural products: - Rice, Wheat, Mustard, Ground Nut and	▪ Main Agricultural products:- Rice, vegetables, mustard

S. No.	Parameters	North 24 Parganas	Bankura	Purulia	Purba Medinipore	Burdwan
			products	cultivated land is upland. ▪ Paddy is the primary crop of the district. 50% of the total land is under net-cropped area and only 17% of the net cropped area is under multi crop cultivation. ▪ Rice, Wheat, Oil seed, Sugarcane & Potato	Paan.	
7	**Hydrogeology**	▪ The entire district found the Unconfined aquifer available upto a depth of 200 m. Deeper confined aquifers are present. ▪ Water level of the district varies from 7 to 17 m BGL, No falling trend of water level in fully unconfined condition., in case of semi confined aquifer both falling and stable condition observed	▪ The diverse geology setup of Bankura district controls the Hydro geological condition of the district. In the area underline by hard crystalline and Gandwana rock, ground water occurs under un confined condition in the weathered residuum	▪ Gondwana sedimentary rocks, Rajmahal basalts and upper tertiary sediments. Laterite has developed on these older rocks as well as on early Quaternary sediments. Towards south, the alluvial plain merges with Damodar-Kasain-Subarnarekha deltaic plains. ▪ Areas with limited yield prospect (yield less than 50m3hr)	▪ Geological set up of the district found that, these stone-formations belong to 'recent' (Holocene), Pleistocene, Pliocene, Miocene, etc. Almost in 2/3 part of this region, 'recent aluvium' can be found. And then 'laterite'. Other rocks are conglomerate, epidiorite and niche	▪ Ground water occurs in this formation both under water table and confined condition. ▪ Most of the areas with moderate yield (yield between 50 - 150m3hr)
8	**Existing Environmental Issues**	▪ The district has no key environmental issue except that its ground water is contaminated with Arsenic. The district has substantial agriculture, fisheries and small scale industrial activities. Its forest covers is limited to 43 sq km against total area of the district as 4094 sq. km. (i.e only 1.08%)	▪ The district has no key environmental issues. The environmental issue are localised and may be associated with development of mines and minerals based industries, which play a vital role in the economy of Bankura. Mines and minerals based ventures have already come up on the stretch of land from Bankura to Saltora. Other industrial development is confined to cottage & small-scale industry, which also constitutes a major segment of district's economy and as such does not cause any significant environmental concern. Its forest covers is	▪ The district has no key environmental issues. The environmental issue are localized with development of industries like thermal power plant, steel plant. Its forest covers is limited to 876 sq km against total area of the district as 6259 sq. km. (i.e only 14 %)	▪ The district has no key environmental issues. Other than industrial emission impact natural hazards from drought and flood is common. Since sea coast exist in this district erosion is always an environment issue. Its forest covers is limited to 83 sq km against total area of the district as 4295 sq. km. (i.e only 1.93%)	▪ The district has no key environmental issues. The environmental issue are localised and may be associated with development of Industries. The western part of the district, chiefly Asansol, is rich in coal and other mineral resources. This part is highly industrialised and contains various factories based on iron and steel processing, as well as many cement factories. Durgapur, Burnpur, and Kulti are in the western part of the district. It also contains power plants at Durgapur and Dishergarh. ▪ It is reported that Purbasthali I & II Blocks of Burdwan District contains Arsenic above the permissible limit. Its forest

S. No.	Parameters	North 24 Parganas	Bankura	Purulia	Purba Medinipore	Burdwan
			limited to 1482 sq km, which constitutes 21.5% of the total geographical area of the district. Its forest covers is limited to 43 sq km against total area of the district as 4094 sq. km. (i.e only 1.08%)			covers is limited to 277 sq km against total area of the district as 7024 sq. km. (i.e only 3.94 %)

Table 3.1 Contd...

S. No.	Parameters	Pashim Medinipur	Darjeeling	Jalpaiguri	Malda	Uttar Dinajpur
1	**Location**	▪ It is situated between 220 57' 10" and 210 36' 35" North latitude and between 880 12' 40" and 860 33' 50" East longitude. Geographical area of the district is 9295.28 Sq. Km ▪ Paschim Medinipur is bounded by Bankura district from the northern side and Purba Medinipur district from the south-eastern side The southern boundary of the district is merged with Balasore and Mayurbhanj district of Orissa and western boundary is merged with Singbhum and east district of Jharkhand	▪ It is situated between 27 Deg. 13 Min. N to 26 Deg. 27 Min. N Latitude and 88 Deg. 53 Min. E to 87 Deg. 59 Min. E Longitude . Geographical area of 3,149 km2 ▪ Northern most districts. Of the state. North of North Dinajpur, west of Jalpaiguri, International boundaries are Nepal (west), China, Bhutan (north) & Bangladesh (east)	▪ The district lies between 26'.16" and 27'.0' N and 88'.4' N and 89'.53" E and covers an area of 6245 sq. km . It is located in the middle of the vast fertile plains (Terai) south of the Himalayas, and is considered as gateway to the entire North Eastern States and Bhutan. ▪ The district share borders with Bhutan and Bangladesh in north and south respectively. It is surrounded by Assam state in east and district Darjeeling in west.	▪ The District is situated between the Latitude and Longitude of 24040'20"N to 25032'08"N and 88028'10"E to 87045'50"E respectively and covers an area of 3733 sq km ▪ District surrounded by Bangladesh and South Dinajpur in the east, Santal Parganas of Jharkhand state in the west, Uttar Dinajpur in the north and Murshidabad in the south. Malda, the southern most of the North Bengal district is comprised within the Jalpaiguri Division.	▪ The District lies between latitude 25o11' N to 26o49' N and longitude 87o49' E to 90o00' E occupying an area of 3142 Sq. Km ▪ Enclosed by Bangladesh on the East, Bihar on the West, Darjeeling & Jalpaiguri District on the North and Malda District on the South.
2.	**Climate**	▪ The climate follows a hot tropical monsoon ▪ weather pattern. Summers last from April to mid-June with diurnal highs ranging from the upper 30°C to the mid 40°C and lows in the low 30°C. Daily heat is often followed by evening rains known as kalboishakhis or dust-storms (loo). Monsoon	▪ The mean annual temperature fluctuate from 240C in the plains and drops below 120c on the ridge. During summer month the temperature reaches 160C-170C on the ridge and during winter drops at 50C-60C ▪ The southern slopes of the ridges get much	▪ The district has tropical climate with temperature ranging from 6°C in winter season to 37°C in summer season. The district receive about 3736 mm	▪ The climate of the district is rather Extreme-very hot and sultry during summer season, with plentiful rains and moisture in the air throughout the year. Temperature in Summers: 460 C (Maximum), 250 C (Minimum)	▪ It is Hot in summer. Dinajpur Uttar District summer highest day temperature is in between 29 ° C to 42° C. Average temperatures of January is 18 ° C , February is 22 ° C , March is 28 ° C , April is 30 ° C , May is 30 ° C . Average Rainfall - 1448 mm

S. No.	Parameters	Pashim Medinipur	Darjeeling	Jalpaiguri	Malda	Uttar Dinajpur
		rains can last from mid-June to late August or even September with rains from the southeast monsoon contributi ng the lions-share of the annual rainfall of around 1500 mm. Winters last for 2 to 3 months and are mild; typical lows are from 8 °C - 14 °C.	higher (4000-5000mm) precipitation than the leeward sides (2000-2500mm). The next main ridge with Tiger Hill gets 3000mm. Annual total rainfall in Darjeeling fluctuates between 1870-3690mm.		Winters: 200 C (Maximum), 40 C (Minimum) ▪ The normal rainfall is 1453.1 mm.	
3.	**Wildlife Sanctuaries/ National Park etc**	▪ None	▪ Neora Valley National Park, Singhalila National Park, Jorepokhri Wildlife sanctuary, Mahananda Wildlife Sanctuary and Senchal Wildlife sanctuary are located in the district. ▪ However, none of subproject roads passes through any of the above protected areas.	▪ Gorumara and Buxa National park, Jaldapara, Chapramari and Buxa Wildlife Sanctuaries. ▪ However, none of subproject roads passes through any of the above protected areas.	▪ None	▪ Raiganj Wildlife sanctuary ▪ However, none of subproject roads passes through any of the above protected areas
4	**Geomorphology** -. *Major Physiographic Units and land use*	▪ This region with its varied tectonic elements and riverine features is a transitional zone between the Jharkhand plateau which constitutes a portion of peninsular shield in the west and Ganga-Brahamaputra alluvial plain in the north and east. In general the Jharkhand plateau consists of the meta-sedimentary rocks of precambrian age, Gondwana sedimentary rocks, Rajmahal basalts and upper tertiary sediments. Laterite has developed on these older rocks as well as on early Quaternary sediments. Towards south, the alluvial plain merges with Damodar-Kasain-Subarnarekha deltaic plains. ▪ Major land use is agriculture	▪ In Darjeeling District, Pre-Cambrian is represented by the Darjeeling Gneiss, Lingtse Gneiss and Daling group of rocks. Apart from the Precambrian formations, there exist some sedimentary rocks of the Gondwana period and also of Siwalik formations of the late Tertiary period.	▪ The physiographic nature of the district is Upper portion of the region is hilly terrain, Himalayan and sub Himalayan and rises abruptly from less than 100 m to 3500 m above msl. The lower part of this region is generally flat with gentle ups and down locally. The area is sloping towards south. ▪ Major land use is agriculture	▪ The district consists mainly of low - lying plains, sloping towards the south with undulating areas on the northeast. The river Mahananda divides the district into two regions-the eastern region., consisting mainly of old alluvial and relatively unfertile soil, is commonly known as "Barind". The western region is further subdivided by the river Kalindri into two areas, the northern area is known as "Tal " - it is low laying and vulnerable to inundation during rainy season, the southern area consists of very fertile land and is thickly populated, being commonly known as " Diara "	▪ The Distict forms a part of the basin lying between Rajmahal hills on the East. The older alluvium is estimated to be Pleistocene age

S. No.	Parameters	Pashim Medinipur	Darjeeling	Jalpaiguri	Malda	Uttar Dinajpur
					▪ Major land use is agriculture	
	Geomorphology *Major Drainage*	▪ The river system of Paschim Medinipur district codrainage nsists of the Rupnarayan, the Kansai and the Subarnarekha which enters this district from Singbhum and passes into the Balasore district, where it falls into the Bay of Bengal. The principal tributary of the Rupnarayan is the Silai or Silabati. This river enters Midnapore from the Manbhum district on the north, and follows a tortuous course.	▪ Teesta, Rangeet, Mechi, Balason, Mahananda, Lish, Gish, Chel, Ramman, Murti and Jaldhaka are the important drainage rivers of the district.	▪ The Testa, Torsa, Jaldhaka, Raidak, Dyna, Neora, Sankosh etc main river flowing is the district	▪ The river Ganges flow along the south-western boundary of district. Other important rivers are Kalindri, Tangoan , Punarbhaba, Pagla and Bhagirathi.	▪ River Nagar and Kulik are the major drainage river
5	**Major Soil Type**	▪ Soils near the Kangsabati River are alluvial ▪ with a high-degree of clay or sand, whereas soils towards Rangamati are lateritic.	▪ In general the soils have been developed by both fluvial action and lithological disintegration. The soils that have developed in the Kalimpong area are predominantly reddish in color. Occasional dark soils are found due to extensive existence of phyllitic and schists. Soils in the highlands stretching from the west to the east of the district along most of the interfluvial areas are mainly mixed sandy loam and loamy, while those on the southern slopes of Mirik and Kurseong are mainly clayey loam and reddish in color. Sandy soils are mainly found in the east of the river Tista.	▪ Sandy-to-Sandy loam.	▪ Partly Gangetic alluvium and rest red lateritic	▪ Uttar Dinajpur is bestowed with a very fertile soil. The soil is very rich in nature due to the alluvial deposition which helps to grow Paddy, Jute, Mesta and Sugarcane etc.
6	**Principal Crops**	▪ Rice, followed by vegetables, potato, mustard, til, and wheat	▪ Famous for Tea, Others are Aman Paddy, Maize, Millet, Wheat, Barley, Cardamom and Ginger	▪ Tea, Rice & Jute are principal crops	▪ Apart from being known for its silk and mango production, the Malda is also renowned for its	▪ Diverse and surplus production of various crops like Tea, Jute, Potato, Ginger, Spices and

S. No.	Parameters	Pashim Medinipur	Darjeeling	Jalpaiguri	Malda	Uttar Dinajpur
					surplus rice, jute, wheat and cotton productions.	Pineapple etc. the district has a strong base for agro based and horticulture-based industry
7	**Hydrogeology**	▪ In this lateritic part occurring in parts of Pashim Medinipur district, individual aquifers being of limited thickness and discontinuous nature. ▪ Areas with moderate yield(yield between 50 - 150m3hr) to limited yield prospect (yield less than 50m3hr)		▪ Ground water occurs both under unconfined & confined condition within the explored depth of maximum 600mbgl. Aquifers are fairly thick & regionally extensive with large yield prospect of about 150m3/hr.	▪ Ground water occurs both under unconfined & confined condition Areas with moderate yield (yield between 50 - 150m3hr)	▪ Ground water occurs both under unconfined & confined condition Areas with moderate yield (yield between 50 - 150m3hr)
8	**Existing Environmental Issues**	▪ The district has no key environmental issues. The environmental issue are localised and may be associated with industrial area is Kharagpur and several small scale clusters are found in Midnapore, Chandrakona, Jhargram, and Garhbeta. ▪ The experiences of drought and flood are common in the district. ▪ Its forest covers is limited to 1626 sq km against total area of the district as 9295.28 sq. km. (i.e about 17.5 %)	▪ Very rich in bio-diversity ▪ Due to unprecedented growth of population during the last few decades in the Darjeeling hill areas, nature has started reacting sharply to the accumulated human guilt. Landslide hazards, especially during rainy season have become a common factor to the people of the hill. ▪ Its forest covers is limited to 43 sq km against total area of the district as 4094 sq. km. (i.e only 1.08%)	▪ Key environmental issue of the district is “rich in bio-diversity”. However, the protected area and movement of fauna is confined to defined area on one end of the district. The key economic activity is agriclutral (tea farming) and tourism. ▪ Its forest covers is limited to 1214 sq km against total area of the district as 3149 sq. km. (i.e about 38.23 %)	▪ Key environmental issue in Malda is natural river bank erosion. Malda district in West Bengal has lost a lot of land to the river Ganga, as thousands of people are rendered homeless ▪ Soil erosion in the left bank of the river Ganga has rendered more then 3,500 people homeless in Malda district of West Bengal. ▪ Huge amount of fly ash releases from the chimneys of brick -field. The ash will kill the inflorescence of Mango tree and hamper the Mango cultivation. ▪ Its forest covers is limited to 20 sq km against total area of the district as 3733 sq. km. (i.e only 0.55%)	▪ The district has no key environmental issues. Common problems related to urbanization. Its forest covers is limited to 10 sq km against total area of the district as 3140 sq. km. (i.e only 0.32%)

Source: District Handbook, District Human Development Report, Central Ground Water Authority Report and other District/Govt., India Meteorological Department website, West Bengal: a study in urban geography, Z.T. Khan, Northern Book Centre, Delhi, 1994, pp. 221, District website of all districts, Wikipedia, State Forest Report, Govt. of West Bengal (2010)

2. Ambient Air Quality

52. Most of the project area lies in vast open agricultural land and is largely free from air pollution sources other than traffic and few brick-kilns & small scale industries existing in the area. These were located in open rural area and operate only for few months. As such, the ambient air quality for major pollutants like SO_2, RSPM and NO_X is expected to be within the limits. However, in absence of any existing data on ambient air quality levels of the project area, secondary sources were referred.

Table III.2: Ambient Air Quality during 2010

Area Classification	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	RSPM ($\mu g/m^3$)
Industrial (maximum observed value)	22	80	207
Residential (maximum observed value)	12	73	117
National Ambient Air Quality Standards for Industrial and Residential Areas	80	80	100

Source: National Ambient Air Quality Monitoring Series- Status and Trends in India, 2010, CPCB, MoEF

53. The above Table reveals that the concentration of all the pollutants is higher in industrial areas especially respirable suspended particulate matter. The levels of sulphur dioxide and nitrogen dioxide are largely within the limits (NAAQS) except few reading of NOx. The higher particulate matter levels are attributed to the vehicular movement on unpaved roads and the loose dust in the agricultural fields that lead to formation of dust clouds over short periods. The same can be concluded from **Table III.3** which provides a comparison of the air quality at different locations. All the locations are within the urban environment with industrial contribution at few of them.

Table III.3: Ambient Air Quality Status of West Bengal in 2010

City	Location	Type of Area	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	RSPM ($\mu g/m^3$)
Asansol (Burdwan Dist.)	Asansol MC	I	8	68	132
Durgpur (Burdwan Dist.)	Dew India	I	9	73	207
	Kwality Hotel	I	8	69	136
	PCBL club	R	7	60	90
Haldia (Purba Medinipore Ddist.)	Super Market	I	13	50	47
	WBIIDC	I	15	53	60
Howrah	Bandhaghat	I	15	85	127
	Howrah MC	I	12	80	127
	Bator	R	9	63	102
	Naskarpara	R	12	73	117
Kolkata	Behala chowrasta	I	9	72	98
	Cossipore P S	I	22	65	142
	Dunlop bridge	I	8	67	100
	Balshanbghata	R	6	52	77
National Ambient Air Quality Standards	Industrial Area (I) & Residential Area (R) (24 hourly average)		80	80	100

Source: National Ambient Air Quality Monitoring Series- Status and Trends in India, 2010, CPCB, MoEF
R – Residential and other areas, I – Industrial area.

3. Noise

54. Along the proposed road construction proposals, there is neither significant industrial activity nor significant vehicular traffic contributing to ambient noise levels. The occasional vehicular movement on the unpaved roads contributes to increased noise levels over short duration limited to daytime. The existing roads do not appear to have vehicular traffic in the night time. Therefore, the ambient noise levels are expected to be within the National Ambient Noise Standards.

4. Physiography and Geology

55. The West Bengal state can be divided into four distinct physiographic divisions **(Figure 3.1)** as here under;

- Hilly Districts like Darjeeling, Jalpaiguri and Coochbehar in Himalayan region
- Central part of the state like, Murshidabad is mainly being alluvial plains.
- Districts like Bardhaman and Bankura districts forming a fringe of western plateau.
- Lower Gangetic plain of North 24 Parganas district forming the part of deltaic zone

56. Detail of physiographic characteristics in three distinct regions which cover 19 sample roads of 10 districts is elaborated in **Table III.4.**

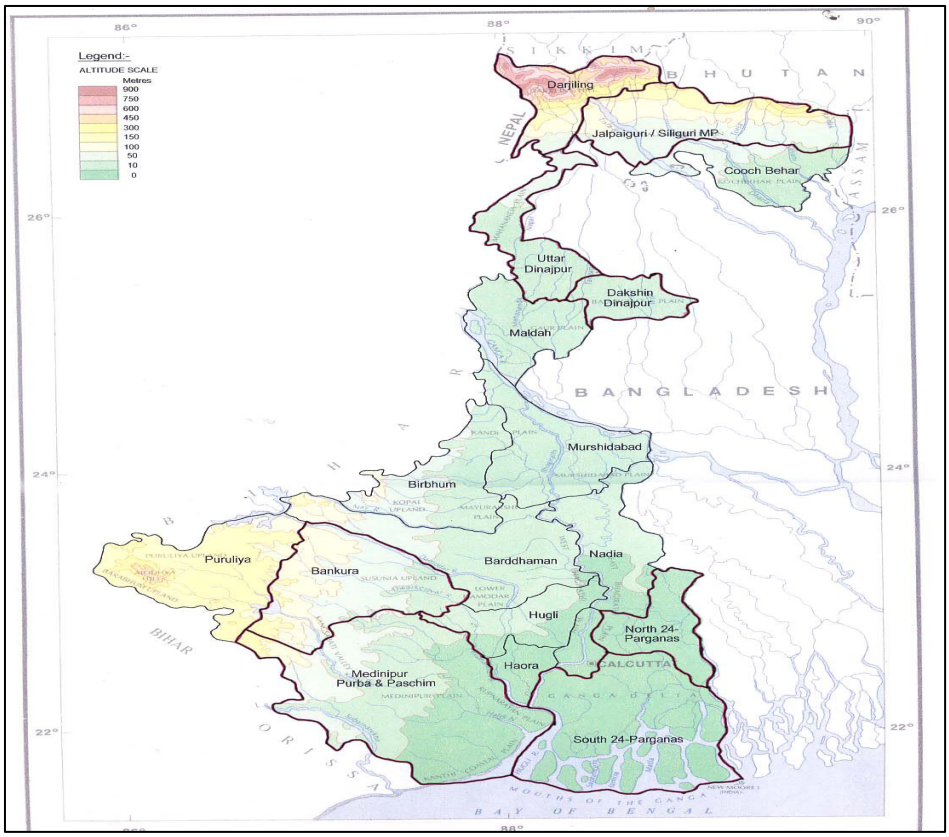


Figure 3.1: Physiography Map of Project Districts –West Bengal

Table III.4: Physiographic Characteristics of different districts

Districts	Physiographic Characteristics
Drjeeling, Jalpaiguri, Coochbehar, Uttar Dinajpur	In Darjeeling and Jalpaiguri Districts, Pre-Cambrian is represented by the Darjeeling Gneiss, Lingtse Gneiss and Daling group of rocks. Apart from the Precambrian formations, there exist some sedimentary rocks of the Gondwana period and also of Siwalik formations of the late Tertiary period. A belt of alluvial detritus of Tertiary age occurs in the Terai region of the northern part of Jalpaiguri, Coochbehar and Darjeeling districts. This area consists of alluvium terrain underlain by lithified soft Quaternary Formation comprising sand, silt and clay with fine texture. Flood plain deposits are noticed in and around the meander belt of different rivers.
Burdwan, Bankura, Birbhum, Purulia and West Medinipur	This region with its varied tectonic elements and riverine features is a transitional zone between the Jharkhand plateau which constitutes a portion of peninsular shield in the west and Ganga-Brahamaputra alluvial plain in the north and east. In general the Jharkhand plateau consists of the meta-sedimentary rocks of precambrian age, Gondwana sedimentary rocks, Rajmahal basalts and upper tertiary sediments. Laterite has developed on these older rocks as well as on early Quaternary sediments. Towards south, the alluvial plain merges with Damodar-Kasain-Subarnarekha deltaic plains. The western half of the district resembles a promontory jutting out from the hill ranges of Chotonagpur plateau and consists of barren, rocky and rolling country with a laterite soil rising into rocky hillocks, the highest being 227 m. These diversify the otherwise monotonous landscape and lend a special charm to the skyline around Asansol subdivision. In Purulia district due to undulated topography nearly 50% of the rainfall flows away as runoff. The district is covered by mostly residual soil formed by weathering of bed rocks.
South 24 Parganas, North 24 Parganas, Howrah, Hooghly, East Medinipur and Sundarban	The physiography of the region is that of a typical alluvial plain with gentle ups and downs. The terrain is essentially composed of soft river borne sediments deposited under fluviatile environment. The general slope is from north west to south east. As the area is situated very near to the out fall, the dominant slope of the land is towards south with average elevation varying from 3.5 m to 2.5 m above MSL. The region is criss-crossed by a network of small streams and rivulets without falls either at river Hooghly or Haldi. Since these rivers are connected to the sea, the channels suffer daily fluctuations in water level due to tidal influence. Hence, estuarine conditions prevail here with problems of salinity and coastal hazards especially along the banks and river fronts.

57. The Gondwana rocks show extensive development in the Burdwan district and extend into adjoining parts of Bankura and Puruliya districts and also occur as small basins in Birbhum district. The Gondwanas rest unconformably over the Precambrians. Subsequently the rocks have suffered a series of block faulting. The coalfield has a faulted contact with the Precambrians. A boulder bed, at the base of the sequence is considered to be of glacial origin. A thick series of shale and sandstones with inter-calatines of a number of coal seams overlie the boulder bed. Coal seams are mainly confined to Barakar and Raniganj formations. The Gondwana rocks are intruded by dykes and sills of dolomite, mica-peridotite and amprodite.

58. North 24 Parganas district is underlain by Quaternary sediments consisting of clay, silt and various grades of sand gravel and pebble. No hard rock geological formation is found here. Lithological log indicates the presence of a clay bed at the top of the geological succession with thickness varying from 10-40 m. Alternate clay and sand bed exists further in the downward direction. A group of granular aquifer is found between 250-650 m below ground level. The geological map of West Bengal is shown at **Figure 3.2.**

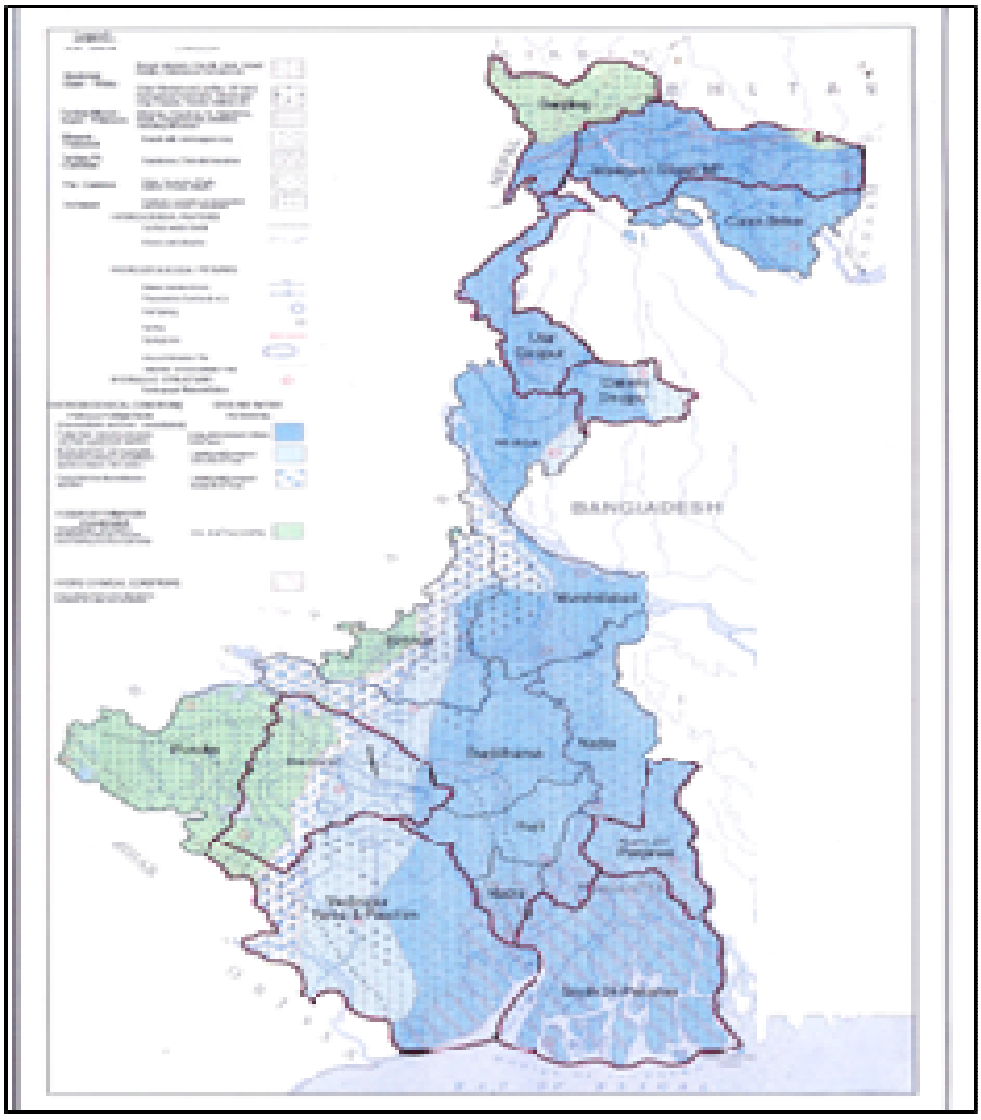


Figure III.2 : Geological Map of West Bengal

5. Soils

59. The major soil types within West Bengal can be classified into five groups namely ultisols, entisols, aridisols, mollisols and alfisols. These soil types can be further classified into several sub groups. The ultisols is sub-classified into brown, red, yellow and laterite soils. The entisols is sub-classified into younger alluvial, coastal alluvial and bhabar soils. The aridisols is sub-classified into saline and saline alkali soils. The mollisols is sub-classified into Tarai soils and mountain meadow soils. The alfisols is sub-classified into deltaic alluvial soils, older alluvial soils, red gravel soils, red sandy soils, and red loamy and mixed red black soils.

Table III.5: The soil pattern in the state

Agro climatic Zone (District wise)	Soil type
Entire North Bengal (Darjeeling, Jalpaiguri & Cooch Behar)	Acidic
Gangetic alluvium (N&S Dinajpur, Murshidabad, Malda, Nadia, Hugli, Haora, Birbhum , N & S 24 Parganas)	Alluvial
Vindhyan family soil (Barddhaman, Murshidabad, Medinipur (W), Haora, Birbhum & West Dinajpur)	Alluvial
Lateritic Red Soil (Birbhum, Barddhaman, Medinipur, Bankura, Puruliya, Malda, North & South Dinajpur)	Alluvial
Coastal Soil (South 24 Parganas, North 24 Parganas and East Medinipur)	Coastal Saline

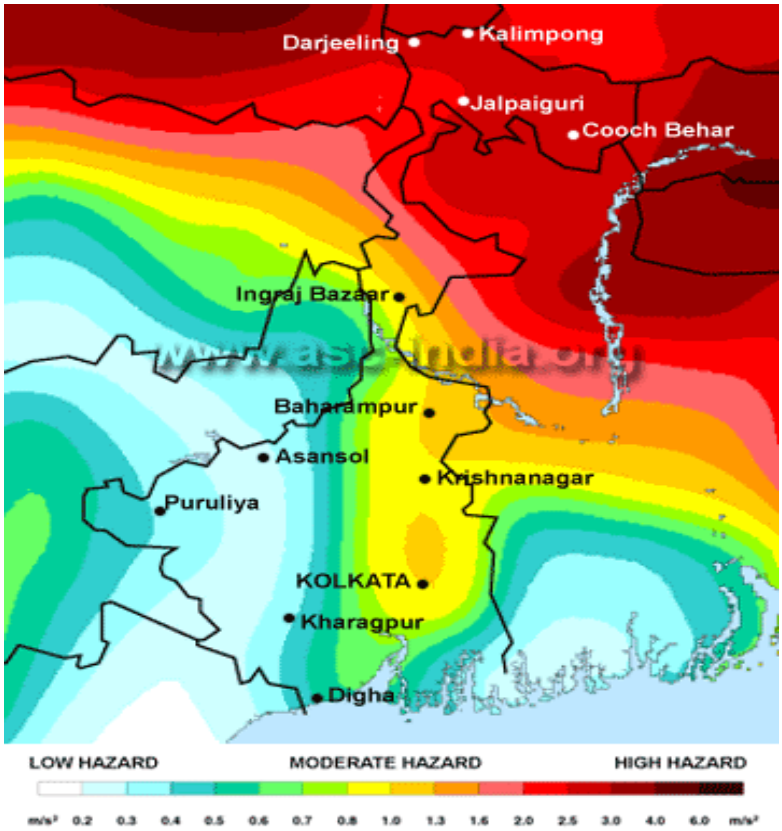
6. Seismicity

60. The seismic hazard map of India was updated by Bureau of Indian Standards (BIS) in 2000[4] . The main change was merging of Zones I & II. As per this map, western sections of the northern districts of **Jalpaiguri** and Coochbehar lie in Zone V (high seismicity). The remaining parts of these two districts, and other districts (**Darjeeling, Uttar Dinajpur,** Dakshin Dinajpur, **Maldah,** and South 24 Parganas) lie in Zone IV. The rest of the state including the city of Kolkata lies in Zone III. The Hazard and Seismic Zoning map is shown in **Figure 3.3** and **Figure 3.4** respectively.

7. Land use

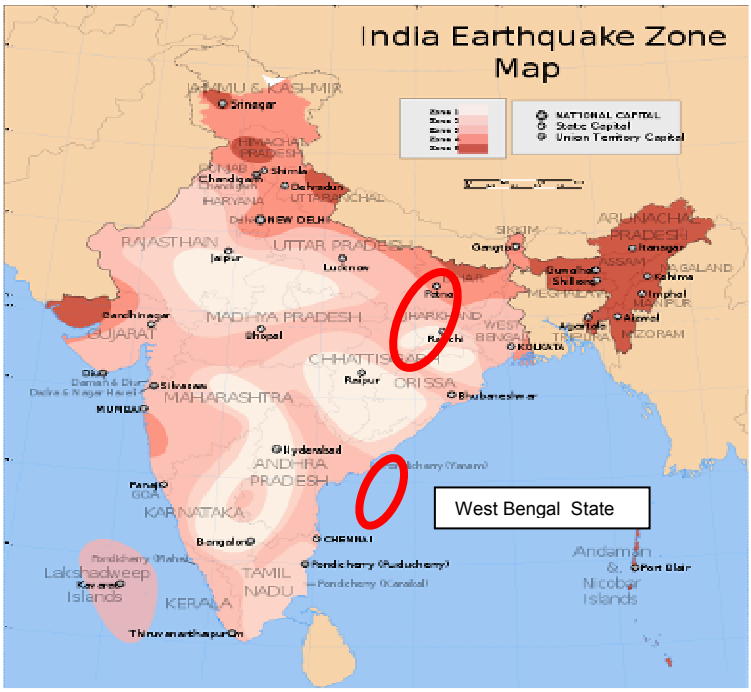
61. The distribution of land utilization within the entire state broadly comprises of cultivable land, uncultivable land, forest land, waste land, urban area and industrial area. Land use pattern along the project road is mixed type dominated by agriculture, barren land, forest land and barren areas. **Table III.6** indicates the land use pattern of project districts.

[4] IS 1893 (Part 1): 2002 Indian Standard Criteria for Earthquake Resistant Design of Structures Part 1 General Provisions and Buildings (Fifth Revision).



Source: Amateur Seismic Centre, Pune

Figure III.3 : Hazard Zone Map



Source: IS 1893 (Part 1) 2002

Figure III.4 : Seismic Zone Map

Table III.6: Land Utilization in project Districts – 2009-10 (In ha)

Sr. No.	District	Area according to village papers	Area not available for cultivation*	Other uncultivated land excluding current fallows**	Area under forest	Current fallows	Net area sown
1	North 24 Parganas	386524	123290	4475	-	39125	219634
2	Bankura	687998	149315	7284	148930	32317	350152
3	Purulia	625646	109784	18703	75048	102703	319408
4	Purba Medinipore	396594	102355	2497	899	1789	289054
5	Burdwan	698762	209893	8616	21165	4978	454110
6	Pashim Medinipur	928581	161822	17741	171935	12690	564393
7	Darjeeling	325469	42300	8660	124575	17666	132268
8	Jalpaiguri	622700	91029	5456	179000	11441	335774
9	Malda	370682	86623	3854	1679	60709	215997
10	Uttar Dinajpur	312466	32734	2248	580	1394	275510

Source: Statistical Handbook Govt. of West Bengal: 2010

** Area under non-agricultural uses, barren and unculturable land*

*** Area under permanent pastures & other grazing lands, land under misc. Tree groves not included in net area sown, culturable waste lands, fallow lands and other than current fallows*

8. Hydro-geology and Hydrology

62. **Hydro-geology**: Based on the geological and geomorphological set up, characteristics of the aquifers and chemical character of ground water the State can be divided into two broad units.

- **Fissured Formations:** Groundwater occurs in these formations in the upper weathered mantle (thickness 5-10 m) and at deeper levels (60-100 m depth) in the fractures, fissures and joints where limited quantities of ground water (less than 20 m^3/hr) maybe available from bore wells and large dia dug wells.

- **Porous Formations:** Groundwater occurs in this formation both underwater table and confined condition. In Nadia, Murshidabad (except Kandi Sub-division) districts down to 150m there is absence of any significant clay beds making the entire aquifer upto 150m depth to occur under water table condition. In the Bhabar Zone (foothills of Himalayan trench) aquifers are having very deep water table and are characterised by high seasonal variation of water table to the tune of 10-12 m. In this lateritic part occurring in parts of Birbhum, barddhaman, Bankura & Medinipur districts, individual aquifers being of limited thickness and discontinuous nature. The potentiality of this aquifer is very poor. By and large yield of the tube well(down to 100-400mbgl) varies from80-100m^3/hr.

- Based on the yield prospects the State can be divided into three parts namely:
  - Areas of prolific ground water resources (yield is more than 150m^3/hr) : Jalpaiguri, Coochbihar, Medinipur,N&S 24- Parganas districts

- Areas with moderate yield (yield between 50 - 150m^3/hr) : Comprising part of Malda, Uttar & Dakshin Dinajpur, western part of Murshidabad, marginal tract of Birbhum, Burdwan, Bankura and Medinipur districts.
- Areas with limited yield prospect (yield less than 50m^3/hr) : Extreme marginal tracts of Medinipur, Bankura, Purulia

63. The sand zones occurring within the depth range of 127 to 290 m bgl are more pronounced and attain fairly good thickness (often 25 or more) and laterally extensive as well. These grayish micaceous sand beds which are fine to coarse grained in texture are very important from the point of ground water storage. The sand beds are separated generally by fairly persistent clayey layers. Below the depth of 290 m, the unconsolidated sediments are generally argillaceous and do not hold much scope for ground water development.

64. The ground water development in West Bengal is generally occurring through shallow tube wells (yield up to 30 cum per hour), medium tube wells (yield up to 100 cum per hour) and deep heavy tube wells (yield up to 200 cum per hour). The entire region has a very good potential for ground water development with estimated present ground water utilization at less than 50% of the available resources. The entire West Bengal falls under safe category as per Central Ground Water Board (CGWB) guidelines.

65. In the coastal tract of East Medinipur, S 24- Parganas, southern part of N 24- Parganas, Bidhannagar and some parts of Haora lying in the active delta of the Ganga --- the Bhagirathi river system ground water occurs under a characteristic hydrochemical situation in which fresh water group of aquifers occurs within span of 120-300 m sandwitched between saline to brackish aquifers. Yield of the tube well varies from 100-150 m^3/hr. Some of the hot springs (35-41^{0}C) from deep seated fractured zones of older rocks occurs around Bakreswar, Birbhum districts.

66. **Hydrology**: West Bengal State has three major river basins, namely Ganga, Brahmaputra and Subarnarekha. Among these, Ganga is the largest and covers almost 80% of the state, whereas the Brahmaputra basin covers about 15% of the area and Subarnarekha basin covers about 5% of the geographical area of the State.

67. The rural road construction proposals are normally cross small drainage channels, which eventually join the major channels/rivulets. All of these channels generally remain dry for most part of the year and drain the storm water for few weeks only during or after the monsoon.

68. Several hand operated tube wells are seen along side of the existing tracks in many of the proposed road construction proposals. These tube wells are the main source of drinking water for rural communities in the region.

69. ***Flood Affected and Drought Prone areas***: The West Bengal has both chronically draught prone and flood affected areas within the state. The chronically drought prone area is, part of Bankura, Purulia district. Chronically flood affected areas are parts of North 24 parganas, Purba & Pashim Medinipore, Burdwan, and Malda districts.

70. **Water Quality**: State Pollution Control Board carries out the water quality monitoring in West Bengal. pH of groundwater is observed in the range of 7.1-8.37 and meets the water quality criteria. Conductivity varies from 589-1,983 µmhos/cm and meeting the criteria for beneficial uses. BOD is observed in the range of 0.2-1.8mg/l. Arsenic contamination is also seen in certain part of state. Total Coliform varies from 2-1,600 MPN/100 ml and meeting the

desired criteria at all the locations. The quality of surface water is generally good and can be used for drinking water with physio-chemical treatment.

C. Biological Environment

71. The west Bengal state owing to the varying altitude from the Himalayas to the coastal plains, the flora and fauna of the state is diverse. As on 2010 forests make up more than 27% of the geographical area of West Bengal, which is higher than the national average of 23%. Total recorded forest land in the state is 11,879 sq.km, of which 7,054 sq km is Reserved Forest, 3,772 sq.km. is Protected Forest and 1,053 sq.km. is Unclassified State Forest, thus constituting 13.38% of the geographical area of the state. Part of the world's largest mangrove forest Sundarbans is located in southern West Bengal.

1. Terrestrial flora

72. During the field investigations, the most dominant terrestrial flora within the project districts was recorded. The dominant flora comprised generally the trees planted along side of the rural road proposals, particularly the stretches along agricultural lands. Many of these are planted by the adjacent landowners and often perceived, as a fence to their respective lands. The common trees observed alongside of the road projects are presented in **Table III.7**

Table III.7: List of common plant species available in the study area

S.No.	Botanical Name	Local Name
1.	*Acacia auriculiformis*	Akashmani
2.	*Acacia catechu*	Khair
3.	*Acacia mangium*	Akashpradip
4.	*Ailanthus grandis*	Gokul
5.	*Anthocephalus kadamba*	Kadam
6.	*Artocarpus chaplasha*	Lator
7.	*Bischofia javanica*	Kainjal
8.	*Bombax ceiba*	Simul
9.	*Casaurina equisetifolia*	Jhau
10.	*Casaurina intertropica*	Jhau
11.	*Chukrasia tabularis*	Chikrassi
12.	*Cordia alleodora*	Bohori
13.	*Dalbergia sissoo*	Sissoo
14.	*Dipterocarpus macrocarpus*	Garjan
15.	*Duabanga sonneritiodes*	Lampate
16.	*Eucalyptus camaldulensis*	Eucalyptus
17.	*Eucalyptus citriodora*	Eucalyptus
18.	*Eucalyptus hybrida*	Eucalyptus
19.	*Eucalyptus tereticornis*	Eucalyptus
20.	*Gmelina arborea*	Gamar
21.	*Lagerostroemia microcarpa*	Benteak
22.	*Lagerostroemia parviflora*	Sidha
23.	*Lagerostroemia speciosa*	Jarul
24.	*Leucaena leucocephala*	Subabool
25.	*Madhuca latifolia*	Mahua
26.	*Michelia champaca*	Champ
27.	*Schima wallichii*	Chilouni
28.	*Shorea robusta*	Sal
29.	*Tectona grandis*	Teak

30.	*Terminalia arjuna*	Arjun
31.	*Terminalia myriocarpa*	Panisaj
32.	*Terminalia tomentosa*	Pacasaj
33.	*Xylia dolabriformis*	Lohakat
34.	*Ziziphus mauritiana*	Narkeli

73. None of the road stretches passes through any reserved and protected forest land/area. No sample road passes through the designated forest area. The tree density within ROW of sample road project alignment is about 2-3 trees per km.

2. Wildlife and Protected Areas

74. West Bengal has 5 National Parks and 15 Wildlife sanctuaries spread over an area of 2754.39 sq km **(Figure 3.5).** There is no wildlife Sanctuaries/National Parks, Tiger Reserves etc. along the sample project road area.

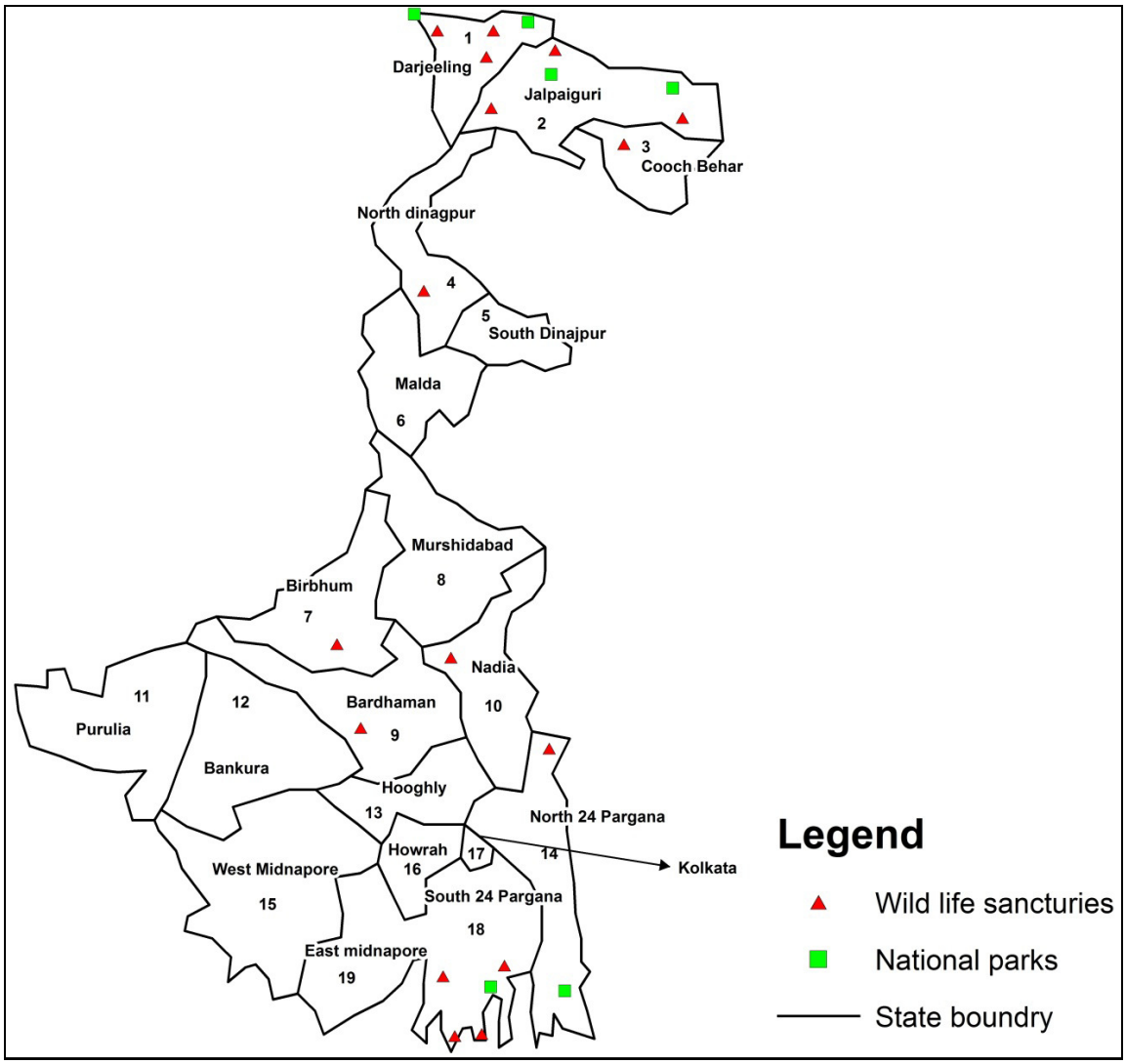


Figure III.5 : Protected Areas of West Bengal

Table III.8 provides details of National park and Sanctuaries corresponding to serial Number indicated at Figure 3.5 above.

Table III.8: List of Protected Areas in West Bengal

No.*	Name	Area (km^2)	District	Fauna
National Parks				
2	Buxa NP	117.1	Jalpaiguri	Asian Elephant, Tiger, Gaur, Wild boar, Sambar
2	Gorumara NP	79.45	Jalpaiguri	Tiger, Gaur, Wild boar, Sambar
1	Neora Valley NP	88	Darjeeling	clouded leopard, red panda, musk deer, black bear, sloth bear, golden cat, wild boar, leopard cat, goral, serow, barking deer, sambar, Himalayan flying squirrel, Rufous-throated Partridge, Satyr Tragopan, Crimson-breasted Woodpecker, Darjeeling Woodpecker, Bay Woodpecker, Golden-throated Barbet, Hodgson's Hawk Cuckoo,
1	Singhalila NP	78.6	Darjeeling	Red Panda, Leopard Cat, Barking Deer, Yellow-throated Marten, Wild Boar, Pangolin, Himalayan Black Bear, Leopard, Clouded Leopard, Serow and Takin. Tigers, Scarlet Minivet, Kalij Pheasant, Blood Pheasant, Satyr Tragopan
14,18	Sunderbans NP	1330.1	North & South 24-Paraganas	Royal Bengal Tiger; Fishing Cats, Macaques, Wild Boar, Common Grey Mongoose, Fox, Jungle Cat, Flying Fox, Pangolin, Chital
Wildlife Sanctuaries				
7	Ballavpur WLS	2	Birbhum	Blackbuck and Spotted deer, jackals, foxes and a variety of water birds
10	Bethuadahari WLS	0.67	Nadia	Spotted deer, Jackal, Bengal fox, Porcupine, Common Langur, Parakeets, Indian Cuckoo, Barbets Barbets and other smaller birds and pythons
14	Bibhutibhusan WLS	0.64	**North 24-Paraganas**	spotted deer and the sanctuary is also rich in common birds
2	Buxa WLS	251.89	**Jalpaiguri**	Asian Elephant, Tiger, Gaur, Wild boar, Sambar
2	Chapramari WLS	9.49	**Jalpaiguri**	Royal Bengal Tiger, elephant, varieties of deer, reptiles and other animals
18	Haliday Island WLS	5.95	South 24-Paraganas	wild boar, barking and spotted deer, and rhesus monkeys
2,3	Jaldapara WLS	216.51	**Jalpaiguri** & Cooch Behar	Royal Bengal Tigers, elephants, deers, sambhar, barking deer, spotted deer and hog deer, wild pig, bisons
1	Jorepokhri WLS	0.04	**Darjeeling**	Himalayan Salamander (*Tylototriton verrucosus*), locally known as 'Gora'
18	Lothian Island WLS	38	South 24-Paraganas	smaller birds, specially Paradise Flycatcher,
1	Mahananda WLS	127.22	**Darjeeling**	Royal Bengal Tiger, Indian elephants, Indian bison, chital (spotted deer), barking deer, sambar, Rhesus monkey
18	Narendrapur WLS	0.1	South 24-Paraganas	Smaller birds, specially Paradise Flycatcher, Oriole

No.*	Name	Area (km^2)	District	Fauna
4	Raiganj WLS	1.3	**North Dinajpur**	Asian openbill, open-bill storks, egrets, night herons and cormorants, kites, flycatchers, owls, kingfishers, woodpeckers, drongoes
9	Ramnabagan WLS	0.14	**Burdwan**	Spotted deer and Common Langur. Black Buck
18	Sajnekhali WLS	362.4	South 24-Paraganas	Spotted deer, Rhesus Macaques, wild boar, tigers, Water Monitor Lizards, Fishing Cats, otters, crocodiles, Batagur Terrapins, and migratory birds
1	Senchal WLS	38.88	**Darjeeling**	Barking deer, wild pig, himalayan black bear, leopard, jungle cat, common rhesus monkey, Assam macaque, Himalayan flying squirrel, etc.

* *Nos. Correspon to legend given in Fig 3.5*

75. Fauna of the districts comprise leopard, wolf, hyaena, jackal and other smaller species, but hyaenas and leopards are not common. Wolves are scarce, and are mostly found in the jungles north of Kanksa. Wild pigs and monkeys are numerous throughout the districts. In the hilly areas, poisonous snakes (several kinds of cobra, the karait and the deadly Russell's viper) and species of harmless grass snakes are very common. Python is also found but very occasionally.

76. The common avifauna of the districts are pea-fowl, jungle-fowl, jungle crow, house crow, treepie, common babbler, common jora, gold-fronted chloropsis, red-vented babul, red-whiskered bulbul, red spotted bluethroat, brown-backed robin, Shama, Tickell's blue flycatcher, paradise flycatcher, wood shrike, black drongo, tailor bird, streaked fantail warbler, golden oriole, common mayna, pied mayna, white-backed munia, white-throated munia, spitted munia, red munia, yellow-throated sparrow, house sparrow, woodpecker, India cuckoo, pied crested cuckoo, koel, parakeet, nilkantha, bee-eater, kingfisher, hornbill, hoopoe, horned owl, spotted owlet, jungle owlet, griffon vulture, long-billed vulture, scavenger vulture, lagger falcon, small spotted eagle, brahminy kite, pariah kite, sparrow hawk, various types of pigeon and dove, goose, duck, teal, lapwing, white necked stork and several varieties of egret and heron. The low-lying swampy areas of Burdwan being in line of migration provide a very good sheltering place for the migratory birds in winter.

3. Aquatic Biology

77. No wetland or large water body falls within the sample roads. Fisheries activities are quite common in subproject areas.

D. Socioeconomic Environment

1. Demography

78. It is a state with several unique features, such as abundant natural resources, rich biodiversity, and rich cultural diversity. The population of about 90 million is largely rural (73%). Tribal constitute about 5.8% of the population, and scheduled castes form about 28.6%. The welfare and development of tribal is an important focus area for the state government. The

gender ratio of the state is higher than the national average. **Table III.9** shows the demographic profile of the project districts.

Table III.9: Demographic Profile of the Project Districts

Sl. No.	State/ District	Area (Km^2)	Population 2001 (in 000)			Population 2011 (in 000)			Population Density Per Sq. Km.	
			P	M	F	P	M	F	2001	2011
West Bengal		**88,752**	**80176**	**41466**	**38710**	**91348**	**46927**	**44420**	**903**	**1029**
1	N 24 Parganas	4,094	8934	4639	4296	10083	5172	4911	2182	2463
2	Bankura	6,882	3193	1636	1557	3596	1841	1756	464	523
3	Purulia	6,259	2537	1298	1238	2928	1498	1430	405	468
4	Purba Medinipore	4,736	4417	2268	2149	5094	2631	2463	933	1076
5	Bardhaman	7,024	6896	3588	3307	7724	3975	3748	982	1100
6	Pashim Medinipur	9,345	5193	2648	2545	5943	3033	2911	556	636
7	Darjeeling	3,149	1609	831	779	1842	935	907	511	585
8	Jalpaiguri	6,227	3401	1751	1650	3870	1980	1890	546	621
9	Malda	3,733	3291	1689	1601	3998	2062	1936	881	1071
10	Uttar Dinajpur	3,140	2448	1260	1182	3001	1550	1451	778	956

P- Total, M- Male, F- Female
Source: Census, 2011

2. Healthcare

79. The healthcare system in the state is well establish and is undergoing for further upgradation through public private partnership. West Bengal's network of healthcare facilities comprises 433 Governmental & non-Governmental hospitals. West Bengal has established some of the most modern & extremely well equipped healthcare facilities such as Apollo Gleneagles Hospital, AMRI –Apollo & BM Birla Heart Research Centre.

3. Literacy and Education

80. The state has made considerable progress in the literacy level of the state. The literacy rate of the state is almost the same as national average. **Table III.10** shows human development indicators of West Bengal. The gross enrolment ratios for boys and girls are higher than the all-India average. The number of primary schools per 100 thousand population is above the average all-India level. **Table III.11** shows the literacy rate of project districts of West Bengal.

Table III.10: Human Development Indicators of West Bengal

Indicators		Year	Unit	West Bengal	All India
Infant Mortality Rate		2002	Per'000 live birth	40	63
Life Expectancy at Birth	Male	2003	Years	65	63.87
	Female	2003	Years	69	66.91
Death Rate		2002	Per '000 pop.	6.6	8.1
Gross Enrolment	Boys	2002-03	Per cent	98.60	97.53

Ratio (Classes I-IV)	Girls	2002-03	Per cent	85.60	93.07
	Total	2002-03	Per cent	92.20	95.39
Primary School		2002-03	Per Lakh Pop.	50.25	63.42

Source: Census, 2011

Table III.11: Literacy Rate of project districts

District	Literates 2011	Literates 2001	Literacy Rate (%) (Excluding 0-6 age group) 2011	Literacy Rate (%) (Excluding 0-6 age group) 2001
West Bengal	**62614556**	**47196401**	**77.08**	**68.64**
N 24 Parganas	7798722	6151527	84.95	78.07
Bankura	2264013	1734222	70.95	63.44
Purulia	1656940	1182284	65.38	55.57
Purba Medinipore	3969750	3037106	87.66	80.16
Bardhaman	5350197	4205146	77.15	70.18
Pashim Medinipur	4173522	3127210	79.04	70.41
Darjeeling	1328218	1008288	79.92	71.79
Jalpaiguri	2527018	1810083	73.79	62.85
Malda	2136898	1332704	62.71	50.28
Uttar Dinajpur	1521933	923477	60.13	47.89

Source: Census, 2011

4. Affluence

81. The percentage of population below the poverty is high at 32%. On an average, the level of affluence of a household in West Bengal is lower than that of a household in the rest of the country (**Table III.12**). In both rural and urban areas of West Bengal, the proportion of households having access to safe drinking water is also less compared to the all-India scenario.

Table III.12: Indicators of Affluence

Indicators		Year	Unit	West Bengal	All India
HH in houses with concrete roof		2001	Per cent	2.1	19.8
HH with drinking water in premises		2001	Per cent	32.1	39.0
HH with open drainage for waste water		2001	Per cent	23.4	33.9
HH having access to safe	Rural	2001	Per cent	36.2	73.2
Drinking water	Urban			58.8	90.0
	Total			47	77.9

Source: Census of India, 2001

5. Economy

82. Agriculture is the leading occupation in West Bengal. Rice is the state's principal food crop. Other food crops are pulses, oil seeds, wheat, tobacco, sugarcane and potatoes. Jute is the main cash crop of the region. Tea is also produced commercially; the region is well known for Darjeeling and other high quality teas. However, the service sector is the largest contributor

to the gross domestic product of the state, contributing 51% of the state domestic product compared to 27% from agriculture and 22% from industry.

83. Manufacturing industries playing an important economic role are engineering products, electronics, electrical equipment, cables, steel, leather, textiles, jewellery, frigates, automobiles, railway coaches, and wagons. The Durgapur centre has established a number of industries in the areas of tea, sugar, chemicals and fertilizers. Natural resources like tea and jute in and nearby parts has made West Bengal a major centre for the jute and tea industries.

6. Agriculture

84. West Bengal is nearly three percent of the nation's cultivable land. It produces more than eight per cent of the food of the country. The agricultural sector is characterized by the predominance of small and marginal farmers. The average size of holding here is also less than one hectare.

7. Mineral Resources

85. West Bengal stands third in the country in terms of mineral production. The state contributes about one-fifth to the total production of minerals in the country. Coal constitutes 99% of the minerals extracted in West Bengal; fireclay, china clay, limestone, copper, iron, wolfram, manganese and dolomite are mined in small quantities. There are good possibilities of obtaining mineral oil and natural gas in the areas near the Bay of Bengal, in Purba Medinipur, Sundarbans, South 24 Parganas and North Bengal plains. Research is undergoing for finding natural gas in various places.

86. West Bengal is the third largest state for coal production, accounting for about half of India's total. Coal is extracted from about 228 mines in the Raniganj and Asansol region of Burdwan district. High garde bituminous coal is mined at Raniganj, Dishergarh, Santaldih, Kulti, Barakar, Ghushik, Kajora. Coalfields stretch over an area of about 1,550 km^2 (598 sq mi). The coalfields of Raniganj support the Asansol-Durgapur industrial belt by providing fuel to the industries as well as generation of thermal power. Lignite mined in Darjeeling is used to make briquettes. Coal deposits are also found along the Ajoy river in Birbhum district.

87. West Bengal ranks next to Bihar and Madhya Pradesh in production of fireclay. Most of this mineral is extracted in the Raniganj region along with few amount is also extracted from Birbhum and Purulia. China clay used in the pottery, paper, textile, rubber and paint industries are unearthed at Mohammad Bazar in Birbhum and Mejia in Bankura. Rest of the production comes from Purulia, Burdwan, Darjeeling and Jalpaiguri.

88. Limestone used in cement industry is mined in Bankura, Purulia, Darjeeling and Jalpaiguri. There are copper mines in Jalpaiguri and Darjeeling. Small quantities of low quality iron-ore are mined in Bardhaman, Purulia, Birbhum and Darjeeling There are manganese in the Jhargramregion of Paschim Medinipur, Purulia and Burdwan. Wolfram is mined at Jhilimili in Bankura. The state’s production of dolomite comes from the Dooars region of Jalpaiguri.

89. No sample roads are located near mines.

8. Physical Infrastructure

90. West Bengal has well-developed road and rail network. As of 2012, the total length of surface road in West Bengal is over 92,023 km (57,180 mi); national highways comprise 2,578 km (1,602 mi) and state highways 2,393 km (1,487 mi). As of 2006, the road density of the state is 103.69 km per 100 km² (166.92 mi per 100 sq mi), higher than the national average of 74.7 km per 100 km² (120 mi per 100 sq mi). Average speed on state highways varies between 40–50 km/h (25–31 mi/h); in villages and towns, speeds are as low as 20–25 km/h (12–16 mi/h) due to the substandard quality of road constructions and low maintenance. As of 2012, the total railway route length is around 4,481 km (2,784 mi). **Table III.13** shows physical infrastructure of the state.

Table III.13: Physical Infrastructure

Indicators	Year	Unit	West Bengal	All India
Road Density	2006	Per '00 sq.km.	103.69	74.7
Railway route length	2001	Per'000 sq. km.	3.68	19.17
Village electrification	2004	Per cent	83.6	83.8
HH with electricity for lighting	2001	Per cent	24.34	55.8
No. of post offices	2002	Per Lakh Pop.	204	15.08
Tele density	2003	Per '00 Pop.	6.96	6.6

91. ***Power:*** The percentage of villages electrified is about 87% in the entire state. However, the percentage of households with electricity is only 27%. West Bengal has been a pioneer in power development over the years. NASSCOM-Gartner ranks West Bengal's power infrastructure as the best in the country. There has been an installed capacity of 9,629.9 MW in the State in 2008-09.

9. Religious and Cultural festivals

92. The festivals of West Bengal embody the robust and composite cultural heritage of India. Various communities of the Indian subcontinent celebrate as many as forty festivals with complete communal concordance. The most important festivals of West Bengal are Durga Puja, Sarasvati Puja, Kali Puja and Dol Purnima.

93. There are few temples, mosque located along the project roads. Some of these may need to be shifted.

E. Salient Environmental Features of Sample Roads

94. The salient environmental features of sample roads are summarized in **Table III.14** below:

Table III.14: Salient Environmental Features of Sample Roads

District	Block	Road Name (length)	Salient Environmental Features
N 24 Paraganas	Rajarhat	Dakshin Nayabad to Patharghata Bazar (4.666 km)	• Topography is plain • Inhabited areas are Hudarhait at Ch. 570m-760m, Kada Village Ch1025m-1550m , Akanda Kesari Ch 2500m-2900m & 3140m-

District	Block	Road Name (length)	Salient Environmental Features
			3450m, Patharghata Ch 3525m-4000m and Chapna 4300m-End. • Swampy area exists beside the alignment near Ch. 1780m-1980 (LHS). More than 30 ponds are located outside the impact zone • Bagjola side canal crosses the alignment at Ch. 860m, one small canal exists beside the alignment from 1681m-2400m (RHS) • Water stagnation problem has been observed at Ch. 1773m, on either side of the cross drainage structure. • 42 Nos. of trees and few utility structures (41 nos.) are located within 10m on either side of the alignment. 4 nos. trees need to be cut and few utility structures need shifting • There are 6 nos. of community structures (School, Temple Health Centre, etc.) within 10m on either side of the alignment. No impact is expected on community structure. • Project road passes mainly through agricultural land
North 24 Paraganas	Barasat-I	Kalianai Purbapara to Kilispur Paschimpara (7.576 km)	• Topography is plain and the project road passes mainly through agricultural land • Small villages namely Kalianai (0m-700m), Khorki (700m-1700m), Nakhasa (1700m-3000m), Jafarpur (4100m-4800m), Kalispur (4800m-5600m) exist beside the alignment. • There is no lake or swampy area beside the alignment but many small & big ponds (58 Nos.) exist beside the alignment. • There is no nalla/ stream/ river along or crossing the road. • Stagnant water has been observed within the side drain throughout the alignment. • There are 213 Nos. of trees are located within 10m on either side of the alignment. But no trees need to be cut • Few utility structures within 10m on either side of the alignment, but there is no need of shifting of utility • There are 13 nos. of community structures (School, Club, Mosque, Temple) within 10m on either side of alignment. No impact is expected on community structure.
North 24 Paraganas	Amdanga	Mathura to Bodai Purba (2.424 km)	• Topography is plain • The project road passes through the inhabited area like Mathura (0m – 800m) and Bodai (820m – 2400m). • There is no lakes / swamps along the project road alignment. There are few ponds / or shallow depth water bodies found • There is no water stagnation problems found during transect walk. • There are 86 Nos. of trees are located within 10m on either side of the alignment. Few of them needs to be cut • There are 91 nos. of utility structures including electric poles, hand pump etc. within 10m on either side the center line of the road

District	Block	Road Name (length)	Salient Environmental Features
			alignment. Few of them need to be shifted • There are religious, cultural or community structures at Ch. 140m, P. School at 250m and 2380m, ICDS at 1780m, SSK at 2400m (LHS) and Burial ground at 310m, School / Playground at 810m – 900m, School at 920m, Club house at 1040m, Temples at 1970m, Temple at 2510m (R.H.S). No community structure will be affected
North 24 Paraganas	Deganga	Mollapara to Uttar chakla (2.408 km)	• Topography is plain • There are small villages namely Mollapara (0m-300m), Kharati Subarnapur (300m-1000m), Pukurati Subarnapur (1000m-2075m) • There are no lakes / swamps falling beside the side of the project road alignment. Low-laying area exists beside the road near Ch. 2250m & Ch. 2600m. Other than these some small & big ponds exist beside the alignment. • There are small nallas existing beside the alignment & crossing the alignment near Ch. 0210m, 1100m respectively • Water stagnation problem exists beside the alignment near Ch. 0610m, again, near Ch. 0550m water flows on the road near rainy season. • There are 77 Nos. of trees are located within 10m on either side of the alignment. 7 of them needs to be cut • There are 37 Nos. of utility structures (EP, TP, HP, etc.) within 10m on either side of thecentre line of road alignment. No shifting is required • There are 4 nos. of community structures (School, Burial Ground, etc.) within 10m on either side of the alignment. Burial Ground Ch. 200m and Mosque Ch. 1310m (RHS).Primary School at Ch. 835m and Community Toilet at Ch. 1310m (LHS). No community structure will be affected. • Agricultural land exists beside the alignment near Ch. 1830m-2500m. Land type up to 1830m is of mixed nature.
North 24 Paraganas	Basirhat-I	Nimdaria to Ramnagar More (8.095)	• Topography is plain • Small villages namely Nimdaria (000m, -1000m),Sripur (1000m – 2200m), Higla (2200m – 2780m) Khiderpur (2780m- 3500m) Kathur (3500m – 3750m) Devoke (3750m – 59000m) Atkoria (5900m – 8200m) existing beside the alignment. • There is no lake or swampy area beside the alignment but many small & big ponds / Water body were found • There is no road side nalla • There are 38 Nos. of trees are located within 10m on either side of the alignment. 5 of them needs to be cut • There are 167 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment Shifting is required for few of them

District	Block	Road Name (length)	Salient Environmental Features
			• There are a total of 35 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • Agricultural land exists beside the alignment
North 24 Paraganas	Swarupnagar	Taranipur Purba to Sarapul Bazar (4.978)	• Topography is plain • Inhabited areas are concentrated near Ch. 0960m-1540m (Taranipur), 2760m-3157m (PurbaPalta) 3200m-3400m (PurbaPalta 4100m-5000m (Nalabara). • Swampy area exists beside the road near Ch. 3690m (RHS). Other than this few ponds exist beside the road • One canal crosses & flows along the alignment near Ch. 4157m. Other than this there are CD structures at Ch. 2000m, 4334m, 4370m. • No water stagnation problem • There are 59 Nos. of trees are located within 10m on either side of the alignment. No tree needs to be cut • There are 43 Nos. of utility structures (EP, TP, HP, etc.) within 10m on either side of the centre line of road alignment. There is requirement of shifting of only one EP only. • There are 7nos. of community religious structures (School, Temple Health Centre, etc.) within 10m on either side of the alignment. No community structure will be affected. • Agricultural area exists beside the alignment at Ch. 0425m-0530m (RHS), 695m (LHS), 1730m-2510m (Both Side), 3740m-3935m (Both Side), 4050m-4090m (Both Side).
North 24 Paraganas	Barasat-II	Teghoria Dakshin to Balipur Dakshin (3.499)	• Topography is plain • Small villages namely, Uttar Bahira (0m - 1991 m), Dakshin Bahira (1991m – 3470 m), exists beside the alignment. • There is no lake or swampy area beside the alignment but many small & big ponds / Water body were found • There is no road side nalla • There are 108 Nos. of trees are located within 10m on either side of the alignment. 24 of them needs to be cut • There are 109 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment Shifting is required for few of them • There are a total of 13 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • Agricultural land exists beside the alignment
North 24 Paraganas	Barasat-II	Teghoria Dakshin to Sankargachi Purba (2.238)	• Topography is plain • Small villages namely Teghoria (000m, - 567m), Sankargachi (567m – 1770m), Kaziright (1770m – 2264m) existing beside the alignment. • There is no lake or swampy area beside the

District	Block	Road Name (length)	Salient Environmental Features
			alignment but many small & big ponds / Water body were found • There are 63 Nos. of trees are located within 10m on either side of the alignment. 31 of them needs to be cut • There are 79 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment Shifting is required for few of them • There are a total of 11 community / religious, cultural structures within 10m on either side from the center line of the road alignment 1 mosque is located within the impact zone • Agricultural land exists beside the alignment
Bankura	Joypur	Belia to Shyamnagar (9.742 km)	• Topography is plain • There are small villages namely Gossainpur (0m-999m),Mobarakpur(999m-4335m),Kheraiboni (4335m-6478m),Belia (6478m-9822m) .Existing beside the alignment. • There is no lake or swampy area beside the alignment but many small & big ponds / Water body were found • There are few water courses(presently dry in nature) crossing the alignment at Ch 3801m, 4335m, 5845m and the river Darakeswar flows parallel to the alignment between Ch4180 to5774m. • There are 50 Nos. of trees are located within 10m on either side of the alignment. 23 of them needs to be cut • There are 57 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment Shifting is required for few of them • There are a total of 9 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • There is a barren land at Ch700-936m(both side),1433-1445m(LHS), • Scattered agricultural land exists beside the alignment
Purulia	Jhalda	Barahan Kol to Simni Road (6.441 km)	• Topography is plain • The inhabited areas are Barahankol Ch. 0m to 250m, Oldi Village Ch. 260m to 1000m, Khari Village Ch. 1050m to 1400m, Jhilinglohar Ch. 1450m to 2280m, Panrra Ch. 2300m to 3500m, Simni Ch. 5740m to 6441m. • There is no lake or swampy area beside the alignment but many small & big ponds / Water body were found • There are 32 Nos. of trees are located within 10m on either side of the alignment. No tree needs to be cut • There are 52 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment Shifting is not required • There are a total of 10 community / religious, cultural structures within 10m on either side from the center line of the road alignment No

District	Block	Road Name (length)	Salient Environmental Features
			community structure will be affected. • Scattered agricultural land exists beside the alignment
Purba Medinipur	Panskura II	T04_Uttar Brindaban Chack to Uttar Narayan Pakuria (7.718 km)	• Topography is plain • The proposed road passes through the inhabited area like Tahala ((0-632m), Nahala (632-770m), Sarda Basan (2306-2462m), Dakshin Sagarbar (2462-2833m), Chandpur (2910-3708m), Deulpur (3708-5450m), Dakshin Jiada (5450-6600m), Narayan Pakuria (6600-7235m). • There is a swampy area from Ch. (7280-7338m). • There is canal exist along the road from (126m-2306m) LHS and (126m-2110m) RHS. Again (2462m-2910m) LHS, (3708m to 6758m). • There are 16 Nos. of trees are located within 10m on either side of the alignment. No tree needs to be cut • There are 31 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment Shifting is required for few of them • There are a total of 5 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • Some portion of the project road passes through agricultural land at Ch. (2000m-2440m), (3708m-4252m), (5450m-6600m) RHS.
Burdwan	Purbasthali II	Uttar Laxmipur - Tamaghata Ferryghat (3.207 km)	• Topography is plain • There are small villages namely Uttar lakshmipur (000m-1000m), Tamaghata (1000m-3054m). • There is no lake or swampy area beside the alignment but few small ponds exist • There is no road side nalla/ canal rtc. • There are 30 Nos. of trees are located within 10m on either side of the alignment. 11 trees need to be cut • There are 71 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment Shifting is required for few of them • There are a total of 5 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • Some portion of the project road passes through agricultural land
Pashim Medinipur	Narayangarh	Gopinathpur to Kotaijiageria (11.876 km)	• Topography is plain • There are small villages namely Balichaturi, DakshinKotai, Harinageria, Jagannathgour, KismatKubirpur, Kubirpur, KushdaMadhabchak, Saubarikbar, Sarisa, Tosra • There is no lake or swampy area beside the alignment but few small ponds exist • There is no road side nalla/ canal rtc.

District	Block	Road Name (length)	Salient Environmental Features
			• There are more than 1000 Nos. of trees are located within 10m on either side of the alignment. But no trees need to be cut • There are 192 nos. utility structures (EP, TP, HP, TF) within 10m on either side of the alignment. Shifting is required for few of them • There are a total of 14 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • Some portion of the project road passes through agricultural land
Pashim Medinipur	Pingla	Pratapchak to Barakhelna (5.405 km)	• Topography is plain • There are small villages namely Barakheina, Jaganathpur, NayaPaschim, Tungur • There is no lake or swampy area beside the alignment but few small ponds exist • There is no road side nalla/ canal rtc. • There are 377 nos. of trees are located within 10m on either side of the alignment. But no trees need to be cut • There are 93 nos. utility structures (EP, TP, HP, TF) within 10m on either side of the alignment. Shifting is required for few of them • There are a total of 6 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • Some portion of the project road passes through agricultural land
Darjeeling	Darjeeling Pulbazar	Kaijalay to Goke via Kolbong (6.130 km)	• Topography is hilly – ups and downs • There are small habitation areas namely Sirisey, Bararey, Kolbong, Padeng, Malatang, Murmidang, Upper Nezi, Lower Nezi. • The area along the project road is not prone to landslide. • There is no lake / swamps falling by the side of the road but, there are some natural streams crossing the alignment. • Few nalla crosses the road • There are 166 nos. of trees are located within 10m on either side of the alignment. But no trees need to be cut • There are 98 nos. utility structures (EP, TP, HP, TF) within 10m on either side of the alignment. Shifting is required for few of them • There is a Health Centre at Ch. 3+150 on RHS.There is aSchool at Ch. 1+475on LHS and GP office at Ch. 1+475 on LHS. No structure will be affected
Jalpaiguri	Alipurduar II	T01 at Taleswarguri to T01 at Samuktala (4.774 km)	• Topography is plain • Habitation areas are Baniagaon South , Banidabari South, Banidabari West, Samuktala North • There is no lake / swamps falling by the side of the road but there are some water bodies at Ch.0+630, 4+120 on RHS and at Ch. 4+210 on LHS.

District	Block	Road Name (length)	Salient Environmental Features
			• No stream / nallah / river were found crossing the alignment. • There are 25 nos. of trees are located within 10m on either side of the alignment. No trees need to be cut • There are 105 nos. utility structures (EP, TP, HP, TF) within 10m on either side of the alignment. Shifting is required for few of them • There are a total of 4 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • The major portion of the road has agricultural land on both sides except in the built up area.
Jalpaiguri	Alipurduar II	T18 at NH31C to T7 at Parakota GP Office (6.779 km)	• Topography is plain • Habitation areas are Uttar Parokata, Madhya Parokata (East, West), DakshinParokata • There is no lake or swampy area beside the alignment but few small ponds exist • There are some nallah/streams crossing the road at Ch. 0+320, 1+857, 2+415, 3+237, 4+535, 5+530, and 6+230. • There are 166 nos. of trees are located within 10m on either side of the alignment. 106 nos. of trees need to be cut • There are 82 nos. utility structures (EP, TP, HP, TF) within 10m on either side of the alignment. Shifting is required for few of them • There are a total of 10 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • The major portion of the road has agricultural land on both sides except in the builtup area.
Malda	English bazaar	Atgama to Mobarakpur (7.503 km)	• Topography is plain • Habitation areas are Atgama, Gosainpur, Mobarakpur, Satgharia, Uttar Milki • There is no lake / swamps falling by the side of the road but there are some water bodies like ponds are located • Few stream / nallahs cross the alignment. • There are 252 nos. of trees are located within 10m on either side of the alignment. No trees need to be cut • There are 44 nos. utility structures (EP, TP, HP, TF) within 10m on either side of the alignment. Shifting is required for few of them • There is a School at Ch. 0+200 on LHS and graveyard at Ch.0+700 on the LHS. No community structure will be affected..
Uttar Dinajpur	Itahar	Uzani to Pakabari (4.171 km)	• Topography is plain • Few habitation areas nearby the project road are Belul, Dohal, Keotal, Palaibari North, Palaibari South • There is no lake / swamps falling by the side of the road but there are some water bodies

District	Block	Road Name (length)	Salient Environmental Features
			like ponds are located • Few stream / canal crosses the alignment. • There are 170 nos. of trees are located within 10m on either side of the alignment. 8 nos. trees need to be cut • There are 107 nos. utility structures (EP, TP, HP, TF) within 10m on either side of the alignment. Shifting is required for few of them • There are a total of 8 community / religious, cultural structures within 10m on either side from the center line of the road alignment No community structure will be affected. • The major portion of the road has agricultural land on both sides except in the built up area.

IV. ANTICIPATED ENVIRONMENTAL IMPACTS AND ITS MITIGATION MEASURES

95. Road improvements work brings substantial economic and social benefits to rural communities and national economies. However, it may also cause adverse environmental impacts though of smaller magnitude, since rural road subprojects aligned along the existing road alignments and will be of 7.5 m width only. The impacts are expected largely during construction phase, which can be mitigated through engineering measures and adoption of best construction practices. This section outlines the identified impacts during design, construction and operation phases along with proposed mitigation measures for eliminating or minimizing the adverse impacts.

96. The associated environmental impacts are assessed considering present environmental setting of the project area, nature, and extent of the proposed activities. Impacts are analysed on both generic and specific nature and are classified as insignificant, minor, moderate and major.

97. Since the issues associated with most of the roads are similar, the impacts and mitigation measures given below are applicable to rest of the subprojects. Any issue specific to a road, is separately mentioned.

A. Common Impacts during Design and Construction Phase

1. Climate change

98. **Impact**: The proposed roads are analysed considering climate change vulnerability screening checklist defined under EARF to RCIP. The resource (like barrow earth, aggregate, cement, concrete) requirements for these rural roads as such are minimal. None of these resources is likely to be affected by climate changes (such as changes in temperature and precipitation). None of the project roads is located in natural hazard areas or passes through protected areas or flood prone areas. None of the sample roads is prone to flood. The habitation is less along these rural roads and as such, no exponential population growth is expected considering the generic trend of population migration from rural to urban areas. Most of the sample roads pass through agricultural fields (except few roads at Darjeeling) and along the existing road alignments with low embankment height of 1m (average) from ground to crust except at the approaches to cross drainage structures. As such, the subproject roads are unlikely to be vulnerable or increase the vulnerability of surrounding areas (with respect to population growth, settlement patterns, increasing runoff).

99. **Mitigation Measures**: Compensatory tree plantations[5] (1:3) will be made to compensate the loss of trees if any for the construction of subproject roads and maintaining the tree cover. Efforts shall be made to plant additional trees for increasing the carbon sink. The tree may be planted with help of village Panchayat[6]. All non-sample rural roads to be included in RCIP, will also be screened for climate change vulnerability and necessary mitigation measures shall be adopted for minimisation of identified vulnerability if any.

[5] SRRDA mostly undertake this activity through state forest department. The forest department plants tree either along the proposed roads if land is available otherwise on nearby degraded forest land.

[6] Village Panchayats are planting trees at along rural roads with funding under Mahatma Gandhi National Rural Employment Guarantee Act (NREGA) scheme. The PIUs may facilitate with them for planting trees along the road. Some of the PIUs in different states are already helping Village Panchayats for the same.

2. Finalization of Alignment

100. **Impact**: The proposed rural road will be constructed to provide 7.5 m roadway in accordance with PMGSY guidelines and technical specifications (IRC-SP 20: 2002) for plain terrains. Sample rural road are aligned to existing road (murram, some stretches of brickbat soling or broken bituminous track). Basically present roads are considered for upgradation. The existing road passes through plain terrain except roads at Darjeeling district and primarily agriculture areas. None of the sample roads passes close to any protected monument or through protected areas. Impacts due to road alignment and design is expected to be minor and limited to shifting of some common utilities, community structures (temple, school) and cutting of trees falling within road way.

101. **Mitigation Measures**: The road alignment is finalized considering availability of right of way. The ROW is reduced in built up area or constricted areas to minimize land acquisition. The road alignment is modified to avoid tree cutting, shifting of utilities or community structure to the extent feasible. Some of the measures taken include widening of the road on one end to maintain the tree on the road edge to avoid its cutting, using retaining wall to minimize the road width to 5m wherever required. The road is designed to follow natural topography to avoid excessive cut and fill. All future roads to be included in RCIP will follow above measures. In addition these subprojects will comply with the following alignment finalisation criteria :

- The road will be part of district core network and will comply with PMGSY guidelines
- Subproject shall not disturb any cultural heritage designated by the government or by the international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance.
- Subproject will not pass through any designated wildlife sanctuaries, national park, notified Eco sensitive areas or area of international significance such as protective wet land designated under Wetland Convention, and reserve forest area..
- Subproject to comply with local and National legislative requirements (such as forest clearance for diversion of forest land) and ADB's Safeguard Policy Statement 2009.

3. Land Acquisition

102. **Impact**: Minor impact, since no land acquisition is involved due to various measures considered for finalisation of road alignment. Villagers have volunteered to donate their land if at certain stages land is required for geometrical correction or alignment adjustment for avoiding tree cutting or shifting of community structure. At narrow stretch volunteered land donation is absolutely required. There could be some impact on the encroachers; however, most of them have also volunteered to shift from the proposed alignment.

103. **Mitigation Measures**: All efforts shall be made to minimize the land requirement while finalising the alignment. In an unavoidable situation, adopt suitable engineering measures to reduce the ROW requirement or donation of land from landowners. In the encroached areas, efforts shall be made to restricted road construction to the available space.

4. Protected Areas (National parks, Wildlife sanctuaries, Eco sensitive zones, protected /historical monuments) and Forest Areas

104. **Impact**: West Bengal state has many wildlife sanctuaries but none of them is located within 10 km radius of the sample project roads. None of the sample road passes through any forest land and as such, project has no impact on forest cover of the state/Country. Village

social forestry is located near few roads but outside the impact zone. West Bengal is also known to have several archaeological monuments and historical monuments spread all over the state. However, none of them is located within 5 km of sample roads.

105. **Mitigation Measures**: As there are no Protected/Ecologically sensitive areas in the subproject areas, no such measures are proposed. In case of a diversion of forest land, prior forest clearance shall be obtained under Forest (Conservation) Act 1980 (amended 1988).

5. Land Clearing Operations

106. **Impact**: The site clearing operations may have impact on common utilities, community properties, land use and vegetation profile of the area if adequate considerations not given to road alignment finalisation, utility and community structure shifting plan, tree felling, and demolition waste disposal.

107. **Mitigation Measures**: The following steps shall be taken to minimize the associated impact with land clearing operations.

- The land clearing operation should be undertaken as per the defined road alignment and community structure, utility and road furniture shifting plan.
- The road land width shall be clearly demarcated on the ground.
- The utility and community structure shifting shall be as per plan and with consultations and concurrence of the community.
- Tree felling shall be limited to those, which could not be saved even by design measures. The tree shall be cut with a permission of Forest department. The vegetable cover shall be removed and disposed in consultation with community.
- All public utilities shall be shifted with a concurrence of respective agencies/authority and to the adjacent location approved by them.
- The top soils shall be collected and preserved for reuse as a base for turfing of embankment slopes or development of barren areas along roadside. The top soil shall be preserved at identified location with the provision of watering /grass development on the heap surface to prevent air pollution.

6. Cut and Fill and Embankment construction

108. **Impact**: Inadequate alignment planning may increase the cut and fill requirement as well as need for more borrow earth for embankment formation leading to some impact on land use. Inadequate provision for drainage and embankment slope protection may lead to soil erosion. Due consideration is given to above aspect for alignment finalisation of sample road. With the adoption of appropriate mitigation measures, the impact due to above activity on land use and other environmental component is expected to be minimal.

109. **Mitigation Measures:** The alignment design shall consider options to minimize excessive cuts and fills. The cut and fill quantities shall be used for embankment to minimize barrow earth requirement. The design shall be as per relevant IRC provisions for cut and fill, slope protection and drainage. Adequate provision shall be made for cross drainage structures for maintaining natural drainage pattern in the subproject area and preventing soil erosion. The top soil of the cut and fill area shall be used for embankment slope protection.

7. Establishment of Construction Camp, Temporary office and Storage Area

110. **Impact**: The congregation of labour population and technical staff in the subproject area during the construction phase is likely to put considerable stress on the limited resources of village areas. Some of the associated impacts are related to health, safety of the labourers at the construction camp sites, availability of safe drinking water, and sanitation.

111. The establishment of construction camp temporary office and storage area will reduce land productivity if these are established on agricultural land. Loading and unloading of construction material, transportation of material, handling of fuel and waste disposal from these areas may have direct and indirect impact on soil, water and air quality

112. **Mitigation Measures**: The following steps shall be taken to minimize/reduce these impacts:

- Construction camp sites shall be located away from any local human settlements (minimum 500m away) and preferably located on lands, which are not productive barren/waste lands presently. Similarly temporary office and storage areas shall be located away from human settlement areas (minimum 500 m).
- The construction camps, office and storage areas shall have adequate water supply, sanitation and all requisite infrastructure facilities. This would minimize dependence of construction personnel on outside resources, presently being used by local populace and minimize undesirable social friction thereof.
- The construction camps shall be located at a minimum 500 m from forest land/areas to deter the construction labour in trespassing. Similarly, temporary office and storage areas shall be located at a minimum 500 m from forest land/areas.
- The construction camps, office and storage areas shall have septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use.
- All construction camps shall have rationing facilities particularly for kerosene/LPG so that dependence on firewood for cooking is avoided completely to the extent possible.
- The construction camps, office and storage areas shall have health care facilities for adults, pregnant women and children.
- All construction personnel shall be subjected to routine vaccinations and other preventive/healthcare measures.
- Contractor shall arrange all personal protective equipment (PPEs) like helmet, gloves, boots, and earplugs for workers, first aid and fire fighting equipment at construction sites. An emergency plan shall be prepared to fight with any emergency like fire.
- Garbage bins must be provided in the camp and regularly emptied and disposed off in a hygienic manner. Domestic solid waste shall be disposed of in a control manner. The recyclable waste shall be sold off and non saleable and biodegradable waste shall be disposed through secured land filling.
- All fuel oil/lubricant unloading and storage shall be made on the paved areas away from storm water drainage.
- After completion of construction work, the camp /temporary office/storage areas sites shall be restored to its original condition.

8. Traffic Movement

113. **Impact**: Construction work along the existing road could cause disturbances to traffic movements. It will also pose risk of accident to motorist at night if these blockages and disruption are not clearly demarcated.

114. **Mitigation Measures**: The contractor will prepare appropriate traffic diversion scheme, which shall be implemented in different stretches of the road as per the progress of the construction work. This plan shall be approved by PIU and implemented before start of any construction work to avoid any inconvenience to the present road users. The diversion plan should ensure smooth flow of traffic, minimize accidents to road users during construction works. Adequate signboards shall be placed much ahead of diversion site to caution the road users. The road signs should be bold and visible and retro reflective in nature for day and night visibility.

9. Associated Impacts due to Construction Activities

a. Loss of productive soil, erosion and land-use

115. **Impact**: No land use will change due to the project, since required ROW is available throughout the alignment. Land use though will change temporarily of construction camp, temporary office storage areas for the period of construction. This will also result in loss of soil productivity. Soil erosion may take place along steep and un-compacted embankment slope, and wherever vegetation is cleared. Soil erosion may have cumulative effect viz. siltation, embankment damage, drainage clogging etc. The siltation, due to soil erosion may occur only in the ponds located close to the roads. There are 159 ponds are located very near to ROW of 19 roads in Wes Bengal, where protection work is needed

116. **Mitigation Measures**: It shall be ensured that the land taken on lease for access road, construction camp and temporary office of the storage facilities, is restored back to its original land use before handing it over back to land owner. The top soil from the productive land (borrow areas, road widening areas etc.) shall be preserved and reused for plantation purposes. It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion. All steep cuts shall be flattened and benched. Shrubs shall be planted in loose soil area.IRC: 56 -1974 recommended practice for treatment of embankment slopes for erosion control shall be taken into consideration. Soil erosion shall be visually checked on slopes and embankment areas. If soil erosion observed, suitable measures shall be taken to control it.

b. Borrow Areas and Quarries

117. **Impact**: Borrow areas if left un-rehabilitated may pose risk to people, particularly children and animals of accidentally falling into it. This may also become potential breeding ground for mosquitoes and vector born disease. Illegal quarrying may lead to unstable soil condition; destroy the landscape of the terrain, air and noise pollution.

118. **Mitigation Measures**: Borrowing earth from agricultural land shall be minimized to the extent possible. Further, no earth shall be borrowed from already low-lying areas. The borrow earth shall be sourced from identified locations and with prior permission of landowner and with clear understanding for its rehabilitation. The Indian Road Congress (IRC):10-1961 guideline should be used for selection of borrow pits and quantity that can be borrowed. The borrow area shall be located/ rehabilitated as per the guidelines given at **Appendix 4.1**. Fly ash shall also be used in road embankment as per IRC guidelines wherever thermal power plant is located within 100 km of the road alignment. The stone aggregate shall be sourced from existing licensed quarries only. The quarry should have requisite consent to operate from State Pollution Control Board. No new quarry shall be opened for the proposed project.

c. Hydrology and Drainage

119. **Impact**: The activities involved with proposed road development may alter the hydrology and drainage pattern of the area in absence of adequate provision for cross drainage structure, construction wastes disposal and drainage in habitat areas.

120. Few of the sample roads is crossing or running close to (outside impact zone) any natural stream or river (Ref. **Table 3.14**). In some cases project roads are crossing local and seasonal drains. Village ponds are also located close to few roads. There as impact on Hydrology and Drainage Pattern is expected to be minimal. Flooding of road due to water stagnation and road overtopping or flooding may occur near water stagnation areas.

121. **Mitigation Measures**: Adequate provisions are proposed for bank stabilization and prevention of silt run-off during construction and operational stage. The provision of adequate cross drainage structures shall be made to ensure smooth passage of water and maintaining natural drainage pattern of the area. The discharge capacity of the CD structure shall be designed accordingly. The construction work shall be planned in dry season so that water quality of the water channel is not affected due to siltation. It will be ensured that natural flow of water along the road to nearby Provision of additional cross drainage structures shall be made in the areas where nearby land is sloping towards road alignment in both sides. Bank stabilisation measures like bamboo or eucalyptus tree piling based support may be used where long road stretch get are involved and CC wall are not feasible.

122. Provision of CC road construction in habitat area with drainage of both side of the road shall be made as per the design specifications and with adequate slope to prevent any water logging.

d. Compaction and Contamination of Soil

123. **Impact**: Soil in the adjoining productive lands beyond the ROW, haulage roads, and construction camp area may be compacted due to movement of construction vehicles,

machineries, equipments and construction camps/storage facilities. It may get contaminated due to inappropriate disposal of liquid waste, (lubricating oil and fuel spills, waste oil and lubricant and vehicle/equipment washing effluent) and solid waste (fuel filters, oily rags) likely to be generated from repair and maintenance of transport vehicles, construction equipment and machinery.

124. **Mitigation Measures**: To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route. The productive land shall be reclaimed after construction activity. Septic tank or mobile toilets (fitted with anaerobic treatment) facility shall be provided at construction camp/temporary office/storage areas. Domestic solid waste at construction camp shall be segregated into biodegradable and non-biodegradable waste. The non-biodegradable and recyclable waste shall be sold off. Fuel and lubricants shall be stored at the predefined storage location. The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils. All efforts shall be made to minimize the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal. To avoid soil contamination at the wash-down and re-fuelling areas, “oil interceptors” shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized re-refiners.

e. Construction Debris and Wastes

125. **Impact**: Uncontrolled disposal of debris and waste may create unhygienic and unsafe condition around the disposal areas.

126. **Mitigation Measures**: All excavated materials from roadway, shoulders, verges, drains, cross drainage shall be used for embankments formation if feasible, filling pits, and landscaping. Unusable debris material should be suitably disposed off at pre-designated disposal locations, with approval of the concerned authority. The bituminous wastes shall be disposed in secure landfill sites only in environmentally accepted manner. MOSRTH guidelines shall be followed for debris, wastes removal and disposal at unproductive/wastelands which shall be selected with the consent of villagers and Panchayat. The dumping site should be of adequate capacity and to be located away from residential areas (at least 1,000 m away). It should also be located away from water bodies to prevent any contamination of these bodies.

f. Air Quality

127. **Impact**: The potential sources of air emission during the construction phase of the project are given below which can cause localised air pollution.

- Dust from earth works (during site preparation).
- Emissions from the operation of construction equipment and machines.
- Fugitive emissions from vehicles plying on the road, during the transport of construction materials.
- Emissions other than dust particularly from the hot mix plants and laying of bitumen. Hot mix plant will generate carbon monoxide (CO), un-burnt hydrocarbon (HC), sulphur dioxide (SO_2), particulate matters (PM), and nitrogen oxides (NOx) emissions.
- Localized increased traffic congestion in construction areas. Most of the emissions will be in the form of coarse particulate matter, which will settle down in close vicinity

of construction site. This may affect the air quality of nearby areas, especially, due to emission discharge from low height of the stack.

128. **Mitigation Measures**: All these impacts will be temporary and hence, no significant impact is envisaged. The following measures will be taken to minimize these:

- Vehicles delivering loose and fine materials like sand and aggregates shall be covered.
- Dust suppression measures like water sprinkling, shall be applied in all dust prone locations such as unpaved haulage roads[7], earthworks, stockpiles and asphalt mixing plant areas.
- Mixing plants and asphalt (hot/spot mix) plants shall be located at least 0.5 km away and in downwind direction of the human settlements.
- Material storage areas shall also be located downwind of the habitation area.
- Hot mix plant shall be fitted with stack of adequate height (30 m) or as may be prescribed by state pollution control board (SPCB) to ensure enough dispersion of exit gases.
- Diesel Generating (DG) sets shall also be fitted with stack of adequate height. Low sulphur diesel shall be used in DG sets and other construction machineries. Construction vehicles and machineries shall be periodically maintained.
- The requisite PPE (helmet, mask, boot, hand gloves) shall be provided to the construction workers.
- **Permits**: Contractor must obtain "Consent to Establish" before setting up Hot Mix plant, batching plants. The consent can be obtained by applying to State Pollution Control Board in prescribed format and with requisite fee. The consent to establish must be converted to 'Consent to Operate" once condition of consent to establish is complied with.

g. Noise Quality

129. **Impact:** Ambient noise level may increase temporarily in the close vicinity of various construction activities, maintenance workshops, vehicles movement and earthmoving equipment.

130. **Mitigation Measures**: The noise level will be intermittent and temporary and will attenuate fast with increase in distance from noise source. Further, vehicles and equipment should be fitted with silencers and maintained regularly. The workers shall be provided with personal protection devices such as earplugs and earmuffs. Workers exposure to noise will be restricted to less than 8 hours a day. Workers duty shall be regulated accordingly.

h. Groundwater and Surface Water Quality and Availability

131. **Impact:** Water will be required for compaction of formation and domestic purposes in the workers camp. These requirements will be mainly sourced from groundwater. Any uncontrolled abstraction of ground water can deplete the ground water table fast. Contamination of groundwater is not envisaged since all construction camps will have septic tanks or mobile toilets depending on the number of workers in each camp. The drinking water supply to the habitat is primarily through hand pumps and bore wells. No significant impact is anticipated on surface water bodies except probability of siltation during construction. Due to non-perennial

[7] Water suppression of fugitive dust can reduce emissions from 12% to 98%

nature of surface water bodies, water requirements for drinking and construction purpose shall be met from ground water sources.

132. **Mitigation Measures**: Requisite permission shall be obtained if applicable for abstraction of groundwater from State Ground Water Board/Central Ground Water Authority[8] if applicable. The contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected. Water intensive activities shall not be undertaken during summer period to the extent feasible. Provision shall be made to link side drains with the nearby ponds for facilitating water harvesting. Where ponds are not available, the water harvesting pits shall be constructed as per the requirement and rainfall intensity. Measures are already purposed in earlier section for prevention of siltation in water bodies.

i. Biological Environment

133. **Impact:** Since the sample roads are not passing through any protected areas or forest area, there is no diversion of forest land**.** The major adverse impacts will be due to tree cutting, Siltation and contamination of water bodies may affect the aquatic life. Since there are only ponds and non-perennial water the aquatic life is minimal and no significant impact is anticipated on aquatic life. As per estimation there will be 228 nos. tree felling will be required for construction of 19 sample roads (Ref **Table IV.1**). **Appendix 4.2** shows total number of tree felling for construction of 130 roads for entire Tranche II.

134. **Mitigation Measures:** All efforts shall be taken to avoid tree cutting wherever possible. Requisite permission from forest department shall be obtained for cutting of roadside trees. Compensatory Afforestation shall be made on 1:3 ratio basis. Additional trees shall be planted wherever feasible. All care shall be taken to avoid siltation/contamination of water bodies. Movement of herbivores like cattle, goats, cows etc., have been observed in the surrounding agriculture fields. Disturbance to these animals will be avoided to the extent possible.

j. Impact on Common Property Resources

135. **Impact**: There are public utilities like electric transformer, electric poles, telephone poles and hand pumps all along the rural roads. The road construction may require shifting of these utilities. There are many community structures like school, playground village office temples. Possible impact to common property for 19 sample roads is shown in **Table IV.1. Appendix 4.2** shows total impact for construction of 130 roads for entire Tranche II.

136. **Mitigation Measures**: All efforts are made to minimize shifting of common utilities and community structures. ROW has been reduced in constricted areas with appropriate engineering measures to minimize land possession and shifting of community structures. The community structures/utilities which cannot be saved will be shifted to adjacent area with the concurrence and in consultation with community.

B. Common Impacts during Post Construction and Operation Phase

[8] As per Central Ground Water Authority (CGWA), there are 43 notified blocks in India where prior permission is required fro extraction of ground water. Currently there are no notified areas in West Bengal. CGWA is continually updating the list of notified areas.

1. Air Quality

137. **Impact:** Decrease in air quality due to increase in traffic, idling at congestions.

138. **Mitigation Measures:** The bad road conditions the main cause of poor air pollution at present. The improved road conditions will result in the improved ambient air quality. Also, the subproject road is largely traversing through vast open agriculture areas, which will provide adequate dispersion to gaseous pollutants, generated from vehicles and will offset the increased pollutants**.**

2. Noise

139. **Impact**: During the operational phase, movement of traffic will be the prime source of noise. Traffic congestion and pedestrian interferences increase the use of horns. This may result in increased noise levels at habitat areas, nearby schools and religious places.

140. **Mitigation Measures**: Awareness signboard shall be provided for safe driving near the habitat areas. Speed limitation and honking restrictions may be enforced near sensitive locations.

3. Land, Soil, Tree Plantation

141. **Impact**: The better access can lead to conversion of agriculture land for residential and commercial purposes close to roads, which may result in loss of productive land and agricultural produce. Since the rural road are aimed at connecting the villages, and with the general trend of migration of rural population to urban areas, the phenomena of conversion of agriculture land to residential area is unlikely to change.

142. The land occupied for construction camp /temporary office/material storage area will remain unproductive if it is not restored after completion of construction activities.

143. It shall be essential to ensure the survivability of the compensatory tree planted

144. **Mitigation Measures** It shall be ensured that all construction camp/temporary office/material storage areas are restored to its original conditions. The borrow area rehabilitation will also be ensured as per the agreed plan with the landowner. Contractor and PIC will ensure the same and obtained clearance from PIU before handling over the site to WBSRRDA.

145. The PIC will undertake survivability assessment and report to PIU the status of compensatory tree plantation at a stage of completion of construction with recommendation for improving the survivability of the tree if required.

4. Groundwater

146. No impact is anticipated on groundwater due to the project during operation phase, hence, no specific mitigation is proposed.

5. Hydrology and Drainage

147. **Impact**: Water accumulation incidence may occur due to inadequate availability of cross drainage structure or clogging of cross drainage structures.

148. **Mitigation Measures**: Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points before the monsoon season. Rejuvenation of the drainage system by removing encroachments/ congestions shall be regularly conducted.

6. Socioeconomic Impact

149. Assessment of project impact on socioeconomic conditions point to the conclusions that positive benefits are many fold compared to its adverse impact.

150. **Positive Impacts**: The better road access is likely to contribute the overall economic condition of village community. With the quick access to urban market areas, the farmers are likely to get better prices for their farm produce. Children will also be able to access the school and education facilities in the nearby urban areas.

151. **Safety Measures** shall be adopted as per NRRDA guidelines. Some of them are highlighted below :

- Speed breakers (Rumble strips) as per IRC: 99-1988 shall be provided at sharp curves design and bends where the curve design speed is less than 40 km per hour in plain in rolling terrain.
- Speed breakers shall also be provided at a threshold of habitation (as per NRRDA guidelines) at regular intervals (150-200 m) through habitation.
- The speed breakers are provided and directional sight boards installed at sites where reverse horizontal curves are closely spaced and speed reduction is required.
- Hazard markers to be installed at each end of all box culverts, river crossing causeways and similar CD structures
- Shoulder side slopes shall not be steeper than 2h:1V unless stone pitching of the slopes is provided.
- Cement concrete pavement and V-shaped drain is constructed to the full width of the available roadway within densely populated habitation.
- Directional sight board are installed on all sharp curves and bends
  At main road, intersection or crossing “STOP” sign and ‘T-intersection’ warning sign shall be installed on the village road.

C. Road Specific Impacts

152. The Many adverse impacts of road projects can be avoided or minimized by applying environmentally sound design, construction and operation and maintenance practises. The review of the environmental salient features specific to sample roads given in chapter III identify that mitigation measures applicable to all the road are similar in nature except variation in terms of magnitude of the measures which depends on length of the road, presence of pond, number of community structure (mostly temples, school) likely to be shifted, number and type of common utility (hand pump, electric transformer, electrical poles).

153. Water stagnation and water logging problem is not identified along the sample road areas. If problems arise for rest of the roads adequate design measures for drainage, road levels shall be taken for prevention of water logging.

154. **Table IV.1** provides the list of common utilities, ponds, religious structures, trees falling within 2.75 M of the either side of centreline of the sample roads (19 nos.) which may be affected and needs shifting. Boundary wall of few schools is also located near the alignment. Effort shall be made to adopt the mitigation measures listed under respective section above including measures of aligning road on one end to save the structures/trees as much as possible.

155. **Appendix 4.2** shows the impact status for all the 130 roads under Tranche II.

Table IV.1: Impacts on biological environment, utility, community and religious structures

Sl No.	District	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious Structures and Community structure	Presence of Water Body (River/Lake)
1	N 24 Parganas	Mathura to Bodai Purba	2.424	No	EP-17, TP-5, HP-1, TF-1	9	Nil	Nil
2		Kalianai Purbapara to Kilispur Paschimpara	7.576	No	Nil	Nil	Nil	Nil
3		Teghoria Dakshin to Balipur Dakshin	3.449	No	EP-14(LHS), EP-14 (RHS), HP-2 (RHS), TF-2 (RHS)	24	Nil	Pond-7 (LHS), Pond-13 (RHS)
4		Teghoria Dakshin to Sankargachi Purba	2.238	No	EP-8 (RHS), EP-5 (LHS), HP-2 (RHS), HP-1 (LHS)	31	ICDS (LHS) MOSQUE (LHS)	POND-22
5		Mollapara to Uttar chakla	2.408	No	Nil	7	Nil	Nil
6		Taranipur Purba to Sarapul Bazar	4.978	No	EP-1 (LHS)	Nil	Nil	Nil
7		Dakshin Nayabad to Patharghata Bazar	4.666	No	EP-1 (RHS), EP-1 (LHS), TF-1 (RHS)	4	Nil	Nil
8		Nimdaria to Ramnagar More	8.095	No	EP-5 (RHS), EP-1 (LHS), HP-1 (LHS), HP-1 (RHS)	5	Nil	Pond-36 (LHS), Pond-32 (RHS)
9	Darjeeling	Kaijalay to Goke via Kolbong	6.130	No	EP- 21(LHS), EP- 9 (RHS), TF- 1(RHS)	Nil	Nil	Nil
10	Jalpaiguri	T01 at Taleswarguri to T01 at Samuktala	4.774	No	EP-22(LHS), TP-4(LHS), HP-1(LHS), EP-26 (RHS), TP-4(RHS),	Nil	Nil	Nil
11		T18 at NH31C to T7 at Parakota GP Office	6.779	No	EP-23 (LHS) EP-25 (RHS)	106	Nil	Pond-1(RHS)
12	Paschin Medinipur	Gopinathpur to Kotaijiageria	11.876	No	EP-53 (LHS), TF-5(LHS), EP-63 (RHS), TF-6 (RHS)	Nil	Nil	Pond-1 (LHS) pond-1(RHS)
13		Pratapchak to Barakhelna	5.405	No	TF-1 (LHS)	Nil	Nil	Nil
14	Bankura	Belia to Shyamnagar	9.742	No	EP-5 (LHS), EP-3 (RHS), TF-2 (RHS), HP-1 (RHS)	23	Nil	Pond-2 (RHS), Pond-2 (LHS)
15	Burdwan	Uttar Laxmipur - Tamaghata Ferryghat	3.207	No	EP-3 (LHS), EP-1 (RHS), HP-1 (RHS),	11	Nil	Nil
16	Purba Medinipur	Uttar Bindabanchak - Uttar Narayan Pakuria	7.718	No	EP-2 (LHS), EP-1 (RHS), TP-1 (LHS),	Nil	Nil	Nil
17	Malda	Atgama to Mobarakpur	7.503	No	EP-2 (LHS), TF-1(LHS), EP-4 (RHS), HP-1(RHS)	Nil	Nil	Nil
18	Purulia	Barahan Kol to Simni Road	6.441	No	Nil	Nil	Nil	Nil

Sl No.	District	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious Structures and Community structure	Presence of Water Body (River/Lake)
19	Uttar Dinajpur	Uzani - Pakaibari	4.171	No	EP-35 (LHS), HP-1(LHS), EP- 24 (RHS)	8	Nil	Nil
Total 19 Sample Roads in 10 Districts			**109.58**	**No**	**Total EP: 389, TP:14, TF:20, HP: 12**	**228**	**1 Mosque 1 office- ICDS**	**159 Ponds**

EP: Electric poles, TP: Telephone Poles, TF: Transformer, HP: Hand pumps

V. ENVIRONMENTAL MANAGEMENT PLAN, INSTITUTIONAL ARRANGEMENTS AND GRIEVANCE ADDRESS MECHANISM

A. Environmental Management Plan

156. The Environmental Management Plan (EMP) is prepared to facilitate effective implementation of recommended mitigations measures with defined roles and responsibility for implementation and monitoring, regulatory compliance requirements, stages of implementation with location, time frame and costs. The mitigation measures are proposed to eliminate or minimize the identified impact associated with design, construction and operation stages of the project, to acceptable level by adopting the most feasible options.

157. The EMP is prepared as per Environmental Management Standard (ECOP) applicable to rural road defined by ADB in the EARF for RCIP.

158. The identified impacts are insignificant and are related to clearing operations of RoW, traffic diversions, setting and operation of construction camps, quarry and borrowing operations, transportation of materials, construction of cross drainage structures, air & noise pollution due to construction activities and operation of construction equipment, tree cutting and shifting of utilities and physical community structure.

159. Appropriate mitigation measures are identified for all rural road construction and operation activities. The identified impacts associated with rural roads and mitigation measures are largely common to most of the roads. The EMP is detailed at *Appendix 5.1.* It provides action common to all roads at pre construction, construction and operation stage. Before bidding road specific EMP will be prepared by PIC and which will be attached in final DPR.

160. Since, these are rural road, the vehicular density and speed will be low. Movement of vehicles would be confined primarily for transfer of agricultural produce to market places. As such, no major emergency is anticipated. In any accidental eventuality, local administration can be reached quickly for help though Gram Panchayat (village administration) communication systems.

B. Environmental Monitoring Plan

161. The environmental monitoring program is prepared with aim to monitor the environmental performance of environmental management plan. The EMOP is planned with the focus on following objectives:

- To the assess the effectiveness of mitigation measures proposed
- To assess the change in environmental quality during construction and operation stage with respect to before the project scenario.
- To assess compliance to regulatory requirements
  To monitor the status of corrective action taken in case of deviation from the planned measures or regulatory requirements.

162. For rural roads, Environmental Monitoring plan will be more observation oriented and it provides observation areas with frequency of monitoring at pre construction aspects,[9]

[9] Aspects related to alignment selection for inclusion of new roads.

construction stage and operation stage. A monitoring plan with monitoring indicator and frequency of monitoring is given at **Appendix 5.2.**

C. Institutional Arrangements and Responsibilities

Institutional Arrangement

163. NRRDA constituted by MoRD is the nodal agency for the implementation of PMGSY in India. SRRDA is the state level agency responsible for implementation of PMGSY program in the state. NRRDA has developed various guidelines and defined institutional arrangements for effective and timely implementation of PMGSY program, which also covers measures for environmental and social safeguards. In line with the defined institutional requirements, each SRRDA has set up district level project implementation units (PIUs). NRRDA also appoints Technical Support Consultant (TSC) to provide technical support for capacity building in SRRDA/PIUs, facilitating them for environmental and social safeguard compliance monitoring and due diligence. SRRDA appoints PIC (project implementation consultant) for supervision of construction work. PIC also helps PIU in monitoring the EMP.

164. NRRDA is also responsible to coordinate with SRRDA and ensure compliance to ADB safeguard requirements.

165. The institutional arrangement at National Level and state level for implementation of PMGSY including RCIP is shown at **Figure 5.1.**

D. Institutional Environmental Responsibilities

166. The institutional environmental responsibilities for different level and function is elaborated below

167. **MoRD**[10] the executing agency has the responsibility for monitoring implementation of the EMP for all subprojects and undertaking necessary due diligence. MoRD ensure this through its Nodal Agency NRRDA (National Rural Road Development Agency). MoRD will also ensure that

- ADB is given access to undertake environmental due diligence for all subprojects, if and when needed as per EARF requirements.
- SRRDA meet all environmental assessment requirements in accordance with EARF
- It undertakes random monitoring of the implementation of the EMP
- Ensure compliance to legislative requirements such as forest clearance for diversion of forest land for non-forest purposes and Consent to Establish/Operate for hot mix plant, batching plant
- Appoint Technical Support Consultant (TSC) to assist SRRDA for various environmental aspect and safeguard compliances

[10] MoRD implements it through its nodal agency NRRDA which undertakes this with the help of Environmental Expert of Technical Support Consultant.

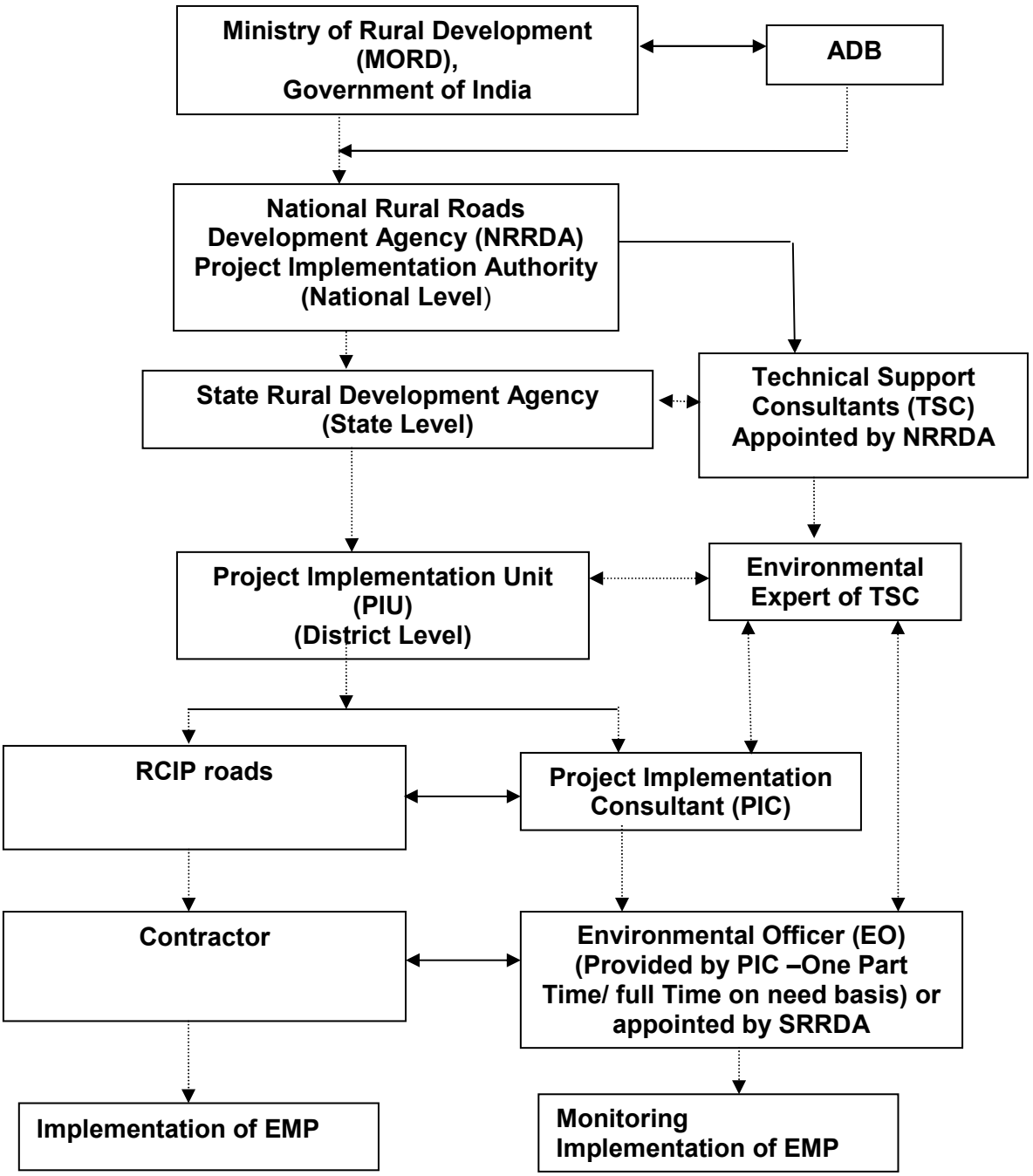


Figure V.1: Institutional Arrangement for EMP Implementation

168. SRRDA[11] will ensure that**:**

- ECOP checklist is prepared for each road;
- The completed ECOP checklist is included in the DPR with the help of PIC;
- Ensure that all required statutory environmental clearances are obtained and comply with clearance conditions;
- Ensure that the subproject specific EMPs and respective budget are included in the bidding documents;
- Ensure that the ECOP checklists and EMP (including general and site specific issues) are made available to the contractors;
- Undertake routine monitoring of the implementation of the EMP including spot checks on site and prepare monitoring reports at least once a year;
- With the support of technical support consultants prepare satisfactory environmental due diligence reports of the earlier tranche/periodic financing request before implementing the next tranche; and
- Appoint Project Implementation Consultant (PIC) for construction supervision and assist PIUs for EMP implementation and related safeguard compliances.

169. **PIU** will be responsible to:

- Complete the ECOP checklists and prepare subproject specific EMPs (including monitoring plan) for each subproject;
- Obtain necessary statutory environmental clearance prior to commencement of civil works;
- Update the respective ECOP checklists and EMPs if there are any changes in alignment of the subprojects;
- To conduct monitoring of all subprojects and prepare pre-, during and post-construction monitoring checklists through the project implementation consultants; and
- Prepare and submit to SRRDA annual monitoring report as per ADB defined format.

170. **The** Technical **Support Consultants (TSC)** appointed by NRRDA. The Environmental Expert of TSC:

- Will provide technical assistance to SRRDA/PIU regarding environmental aspects, environmental permitting/clearances requirement;
- Periodically review EMP implementation status including spot site inspections;
- Conduct workshops/capacity building program at different level and functions;
- Prepare environmental Due Diligence report for each tranche before implementing next tranche; and
- Prepare state Level IEE reports.

171. **Project Implementation Consultant (PIC) is** appointed by SRRDA. PIC will provide one Environmental Officer (EO). The EO will be responsible to ensure adherence and implementation of EMP at all stages of works by the contractor. The EO, if found warranting may also conduct field tests, independent of the contractor to determine the effectiveness of EMP under approval of PIC/PIU. The broad duties/responsibilities of the Environmental Officer will include:

[11] With assistance from PIU (Project Implementation Unit).

- Review of project design and specifications to ensure their adequacy and suitability with respect to the implementation of EMP;
- Collection and dissemination of relevant environmental documents including amendments to environmental protection acts issued by the various agencies, namely, ADB, Government of India/State and local bodies;
- Interact with the counterpart of the Contractor(s), review work progress/plans and ensure implementation of the EMP;
- Coordination with the NGOs, community groups and Government departments on environmental issues, provide clarifications/ and obtain clearances during project implementation if any, as required from the regulatory authorities and/or submitting periodic compliance reports as required by the State Authorities;
- Monitoring sensitive environmental attributes during construction and operation stages to ensure that the suggested mitigation measures in the EMP are implemented;
- Facilitate PIU for preparation of annual monitoring report as per ADB defined format;
- Documentation of the environmental management/monitoring activities for the regular project implementation progress report; which will serve as the basis for the annual environmental monitoring reports; and
- Conducting environmental training/awareness programs for the contractors, the project implementation personnel and the communities.

172. **Contractor** is appointed by SRRDA for construction of road and ensures implementation of EMP proposed. The broad duties of contractor are as follows**:**

- Make adequate costs provision for EMP requirements while biding;
- Ensure effective implementation of mitigation measures as per road specific EMP;
- Comply with all applicable legislative requirements and obtain necessary consents for to Establish/Operate before start of hot mix plant and batching plants. Comply with al permit conditions;
- Create awareness amongst workers for environment, occupational health and safety aspects. Participate in training and awareness programme along with its executives conducted by PIC;
- Provide PPE and adequate resources for Environment Occupational Health and Safety;
- Follow all the guidelines for borrowing earth and restoration of borrow areas, setting up construction camps;
- Sourcing of quarry material from approved quarries only; and
  Provide all required input to PIC for environmental monitoring as per EMP.

E. Environmental Assessment and Review Framework (EARF) for RCIP

173. ADB has prepared an Environmental Assessment and Review Framework (EARF) which identifies the broad scope of the MFF, outlines the policy, environmental screening and assessment, and institutional requirements for preparing the environmental assessments to be followed for subsequent batches and tranches. This EARF also specifies criteria for eligibility for selection rural roads under RCIP. The sample roads are selected following these criteria. The EMP, monitoring requirement, institutional aspects, capacity building, grievance redress mechanism presented in this chapter are developed in line with above EARF. The eligibility criteria for selection of roads under RCIP, environmental assessment requirement for each tranche and legal framework are given below:

1. Selection Criteria and Environmental Assessment Requirement

174. The following criteria will be followed for selection of non sample roads:

(i) No Category A (as per ADB's SPS) subproject will be included in the MFF.

(ii) Subprojects will be eligible for construction or upgrading in accordance with the PMGSY guidelines, and be included in the respective district core network.

(iii) The subprojects shall not disturb any cultural heritage designated by the Government or by international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance.

(iv) The subproject will not pass through any designated wildlife sanctuaries, national parks, other sanctuaries, notified ecological sensitive areas or area of internationally significance (e.g., protected wetland designated by the Wetland Convention).

(v) The projects shall only involve activities that follow Government of India laws and regulations, ADB's Safeguard Policy Statement (2009).

175. The following environmental Assessment requirement will be followed roads included under RCIP:

(i) ECOP checklists with annexes on trees, utility structures, community structures, strip plans and photographs will be completed for each and every road.

(ii) Based on the requirements of the PMGSY guidelines separate ECOP checklists will be prepared for bridges that are longer than 50 m.

(iii) Based on the completed ECOP checklists for roads and bridges, IEE reports will be prepared at a state level. These reports must contain a general EMP and a site specific EMP where there are site specific issues.

(iv) ADB's REA checklist for roads and highways will be completed based on the state level IEE reports prepared and submitted to ADB to confirm categorization.

176. The vulnerable to climate change will also be screened following screening checklists, which was integrated in the ADB REA Checklists and corresponding mitigation measures will be prepared.

(i) Is the project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes?

(ii) Could changes in precipitation patterns or evaporation rates over the lifespan of the project affect its sustainability and cost (i.e., increased landslides increase maintenance costs)?

(iii) Does the project use or depend on resources which could be affected by climate changes such as changes in temperature, precipitation, wind (increased soil moisture content in the sub-grade)?

(iv) Are there any demographic or socioeconomic aspects of the subproject and project area (e.g., population growth, settlement patterns) that increase the vulnerability of the project and surrounding area?

(v) Could the subproject potentially increase the vulnerability of the surrounding area (i.e., by increasing runoff, encouraging settlement in earthquake zones)?

2. Legal Framework

177. As per Indian legislation, an environmental clearance is not required for rural roads. However, it may attract provisions of Forest Conservation Act, Wildlife (Protection) Act, and other legislation related with Air, Water and Noise pollution controls and prevention. The legislative applicability screening is presented in chapter 1 of this report and it will apply for non-sample road as well. Additionally, to ensure conformance to ADB's Safeguard Policy Statement, 2009 (SPS), the subprojects will be subject to the following requirements:

(i) An Initial Environmental Examination[12] (IEE) report including the preparation of an Environmental Management Plan (EMP) and a Monitoring Plan.

(ii) Regular monitoring of implementation of the EMP and submission of monitoring reports and due diligence reports to ADB as necessary.

F. Capacity Building

178. Existing capacity of the West Bengal State Rural Roads Development Agencies (WBSRRDA) and Project Implementation Units (PIUs) for implementing environmental safeguard issues need substantial strengthening. Capacity building activities will mainly comprise training workshops for WBSRRDA and PIU environmental officers on (i) completion of environmental code of practice (ECOP) checklists; (ii) preparation of environmental management plan (EMP) and monitoring plans; (iii) monitoring of EMP implementation and completion of pre-, during and post-construction monitoring checklists; and (iv) preparation of monitoring reports. These few workshops have already been conducted at participating states though ADB appointed Environmental specialist. Additional training will be carried out periodically, by In-house trained and experienced officials.

G. Consultation and Information Disclosure

179. During the preparation of ECOP and detailed project report (DPR), the PIU has to ensure consultation, and addressal of concerns of the affected people.

180. All environmental assessment documents are subject to ADB's Public Communication Policy (2011) and will be made available to the public, upon request. The WBSRRDA are responsible for ensuring that all environmental checklist documentation, including the environmental due diligence and monitoring reports, are properly and systematically kept as part of the Investment Program specific records. MoRD must disclose sample road IEE report on its website.

[12] As per selection criteria, no Category A subproject will be included under RCIP.

H. Grievance Redress Mechanism

181. PRI administered village level committee is the first contact point for any aggrieved person. This committee will try to settle the concern by them self or in consultation with contractor or PIU. The unresolved concerned are forwarded to PIU for further action. PIU resolves these concerns in consultation with PIC, WBSRRDA, and contractor as the situation demands. This is an established practice and is seen effective enough in RRS II. PIC will also collect concerns received by this committee in the intervening period and report the effectiveness of action taken.

182. At national level NRRDA has made provision of registering complain /suggestion through its website. NRRDA forwards these complains to concerned SRRDA for necessary actions. SRRDA directly or through concerned PIU initiate the appropriate action and update the complainant as well as NRRDA. It is proposed that NRRDA website will be cross-linked to WBSRRDA website as well or WBSRRDA will also make provision of complain registry at its website.

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. General

183. Public consultation was undertaken consistent with the ADB's requirements. All the five principles of information dissemination, information solicitation, integration, coordination and engagement into dialogue were incorporated in the consultation process. A framework of different environmental impacts likely from the project was strengthened and modified based on opinions of all those consulted, especially in the micro level by setting up dialogues with the village people from whom information on site facts and prevailing conditions were collected.

184. Stakeholder's consultations were held with the intent to understand their concerns, apprehensions, overall opinion and solicit recommendations to improve project design. Informal meetings, interviews were organized covering the entire project stretch. The informal consultation generally started with explaining the subprojects, followed by an explanation to potential impacts. Participant's views were gathered with regard to loss of agricultural land, effect on air and noise quality of the area due to traffic, water availability, accident and risk.

185. The discussions were designed to receive maximum inputs from the participants regarding their acceptability and environmental concerns arising out of the subproject. They were given the brief outline of the project to which their opinion was sought. Suggestions were also sought for mitigating any potential adverse impact.

B. Compliance with Relevant Regulatory Requirements

186. In India, public consultation is mandatory in case of Category A and B1 category projects[13] in select conditions. Being a category B project as per ADB Environmental Guidelines 2003, consultation was carried out during the early stage of IEE report preparation. The requirement of public consultation during the implementation of the project has been proposed as part of the mitigation plan.

C. Beneficiaries' Comments

187. The project has immense acceptability among the local people. They perceived that in addition to providing all weather connectivity, the subproject road will bring positive socioeconomic changes in the area. Locals mainly discussed on issues related to drainage and commencement of the construction work.

188. Some of the general issues raised during the different consultation sessions can be summed up as follows.

- **Construction Camp** - Impacts from the establishment and operation of the construction camps like generation and disposal of solid wastes, sewage, potable water requirements, health/hygiene, and safety is part of the contractor's responsibility highlighting the need for compliance with applicable laws. Waste and material use minimization will be promoted to decrease the volume of wastes that will be generated.

[13] As per schedule I of EIA notification number S.O. 1533, dated 14th September 2006. This notification also defines when a public consultation is mandatory.

- The participants did not apprehend any adverse impact due to the construction camp near to their villages. They responded positively towards providing support to these, if required, in terms of any food, water requirements.

- **Water Logging and Drainage** - Participants informed about few low lying areas where water logging takes place during monsoon season. The villagers requested for provision of adequate cross drainage structures at these locations.

- **Loss of Livelihood and Income Restoration Options** - This issue was raised by those who had encroached on the proposed alignment. However, they offered the encroached space for the proposed project, if demanded.

- **Road Safety** - Safety issues did not raised concern among the inhabitants including women.

- **Land Acquisition through voluntary donation** - People were in full support of the project and were ready to donate their land for the same, if required.

- **Losses of Idols/Shrines -** Participants supported the project and were willing to shift the idols, burial grounds and other religious structures observed at certain locations. During construction of road contractor will try their best to save religious structure.

- **Loss of Trees Due to Road Construction** - Respondents were of the opinion that trees cutting should be avoided or else minimized. For trees to be cut compensatory plantation should be done. Some villagers expected additional plantation should be done. Recommended tree species for plantation were other local varieties.

- **Impacts on Health** - Separate consultation sessions were organised by social team to identify issues pertaining to health specifically for sexually transmitted diseases (STDs). Settlements along the rural roads were reported to be getting exposed to such diseases, as there are no long distance users on the project roads.

- **Ambient Air & Noise Quality** – The respondents viewed that these are the problems of urban areas and their villages are still untouched from this aspect. They even do not anticipate any of these problems after the completion of the project.

- **Inconvenience during Construction** - The participants viewed that they will manage it as it will be temporary.

- **Employment during Construction** - The locals expected that they should be given preference in employment during project implementation.

- **Perceptions and Expectations** - Perceptions and expectations of the community recorded during the consultation sessions can be broadly listed as:

  - The public and the affected persons appreciated and supported the project with their open hearts

  - Community at large appreciated overall benefits to them resulting from project development

- They were aware of the increased access, lesser commuting time after project implementation

- **Addressal of Issues** - The project has tried its best to address all the issues raised during consultations under the constraints of suitability from engineering point of view. Some of the provisions made under the project to address the issues and concerns of the community are given in **Table VI.1.**

Table VI.1: Addressal of Issues and Concerns under the Project

Issue/Concern	Addressal under the project
Water Logging and Drainage	Adequate cross drainage structures have been planned
Road Safety	Adequate safely signage is planned all along the rural road.
Land acquisition and Mode of compensation	The proposed RoW is 10-12m along the rural road. No land acquisition is planned in project road.
Loss of roadside idols/shrines	Idols and shrines will be relocated to the other nearby places with consultation and proper rituals
Loss of trees	Compensatory afforestation would be done at the ratio of three trees for each tree to be cut.
Excavation and back filling	Monitor adherence to contract specifications
Erosion	Monitor proper management of excavated soil/silt including timely removal of material from project site
Storage and transportation of construction materials, excavated soil and silt	Monitor adequacy of measures undertaken to prevent fugitive dust
Increased pollution levels	Pollution levels are not crossing the prescribed limits of CPCB and planned plantation will screen the emission.
Noise and emissions from construction vehicle	Monitor 'Pollution under Control' certificate are current for construction vehicles
Utilities and basic infrastructure	All the utilities, electric poles, telephone lines, wells, tube wells etc. to be impacted will be relocated under the project cost.
Employment of locals during construction	Locals will be given preference for employment during the project implementation
Health check up of workers	Monitor adequacy of health check up service provided including attendance of the physician retained and the extent to which the workforce is availing this service
Health and safety requirement	Monitor adherence to all occupational and safety requirements

189. The issues raised and their incorporation in the design has been explained in **Table VI.2.**

190. List of participants in public consultation is attached as **Appendix 6.1.**

Table VI.2: Summary of Issues and Findings at Various Locations

Location	Issues	Participants Comments and Suggestions
North 24 Parganas, Bankura, Purulia, Purba Medinipur, Burdwan, Pashim Medinipore, Darjeeling, Jalpaiguri, Malda and Uttar Dinajpur	• People's Perception about the Project • Air, Water Quality • Noise level • Water Source • Health and Environment • Road Alignment • Drainage • Soil Conservation • Accidents	• The Villagers are in favour of the Project as they see a job opportunity and faster transport. • Air and Water especially drinking water qualities are not polluted. • Primary water sources are hand pump and open well and these should be relocated first if affected. • No construction activity will be taken at night in village area. • Affected water sources will be relocated first and then there will be dismantling of the existing sources. • The villagers required proper traffic control at the road junctions to prevent accidents. • Villagers are sound in health • Villagers are agreeing to provide the land but not soil. • Renovation of the wood bridge. • Proper mitigation to design the road for avoiding water lodging. Identify low lying pockets and other basic need like undertaking canal rehabilitation to achieve greater benefits out of sewerage and drainage project. • Review and monitor road safety records to ensure all project related road accidents are being properly investigated and reported

VII. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

191. The findings of Environment Assessment of sample roads indicate that impacts are mostly similar and subprojects are unlikely to cause any significant environmental impacts. While some of the impacts are negative, there are many bearing benefits to the area. Most of the impacts are likely to occur during construction stage, are temporary in nature, and can be mitigated with minor to negligible residual impacts.

192. The project received immense support from local people as they perceive that this project will improve the overall connectivity and bring various economic opportunities to the people of the area.

193. All sample roads included under Tranche II were selected based on ecological and climate change consideration defined under EARF. Accordingly, none of the sample roads passes through protected areas or encroaches precious ecology (sensitive or protected areas) or any historical or archeologically protected areas. As per selection guidelines, none of the selected sample road passes through reserved forests either. Few trees cutting though may be involved.

194. None of the rural road crosses any natural stream and river. However, none of these roads is prone to flood.

195. All the sample roads are aligned with existing village roads and unpaved movement paths. As such, additional land requirement is very minimal which is also acquired through donations from villagers.

196. Considering insignificant environmental sensitivity, the project is categorised as category B as per ADB Safeguard Policy Statement 2009.

197. No categorisation is made under environmental legislation of India, since these small roads do not require any environmental clearance in accordance to Indian Environmental (Protection) Act and Rules, 1986 amended till date. However, clearance from Forest Department will be required for cutting of forest trees.

198. The impacts identified are mostly related to alignment selection, land clearing, borrowing earth, cutting of trees, shifting of utilities and community structures, establishment of construction camp or material storage areas, transportation of material and operation of hot mix plant. All identified impacts are either eliminated or minimized through design consideration and suitable mitigation measures.

199. Environmental Management plan covering all stages of road construction (design, construction and operation) is prepared with defined responsibility for its implementation. Environmental Monitoring plan is also prepared to ensure effective implementation of EMPs.

200. NRRDA/WBSRRDA has defined institutional setup including with specified responsibility for environmental management. Existing capacity of the West Bengal State Rural Roads Development Agencies (WBSRRDA) and Project Implementation Units (PIUs) for implementing environmental safeguard issues need substantial strengthening. The capacity enhancement is proposed through focused workshops and training session. Few workshops have already been

conducted at participating states through ADB appointed Environmental specialist. Trained and experienced in-house officials should carry out more raining in future periodically.

201. The IEE also indicate that rural road construction works does not warrant further EIA study for subsequent rural road construction works in West Bengal.

B. Key Recommendations

202. Any major changes or any major additional work other than the proposed project activities will require updation of ECOP and IEE. The updated ECOPs and IEE will have to be submitted to NRRDA and ADB for concurrence before civil works commence.

203. The implementation of prescribed mitigation measures will minimize/avoid the adverse impacts. Moreover, the impacts shall be monitored continually by implementing and updating the Environmental Management plan and Environmental Monitoring Plan.

204. These IEE is prepared based on ECOPs. Subproject specific EMP shall be improved as per the final provisions made under DPRs. The updated EMP if there is any change, shall also be sent to ADB for information.

205. Executing agency shall ensure that updated road specific EMP forms part of DPR and is available to contractor at the time of bidding. The contractor will specify the quantity and budget for various activities like rehabilitation of borrow earth pits, first aid and sanitation facilities at construction camp and temporary office/material storage place as per EMP requirements. The same shall be revised if there is any change in the project design. Any such change shall be reported to ADB as well.

Appendix 1.1: Details of Roads in West Bengal

Sl No.	District	Package	Block	Name of Road	Length (km)	Estimated Cost (Rs. lakh)
1	2	3	3	4	5	6
1	N 24 Parganas	WB-01-ADB 47	Amdanga	Durlavpur to Srirampur	5.09	274.030
2	N 24 Parganas	WB-01-ADB 100	Amdanga	Rahana More to Panchghoria West	3.240	174.170
3	N 24 Parganas	WB-01-ADB 101	Amdanga	Urla East to Sadhanpur	6.648	353.690
4	N 24 Parganas	WB-01-ADB 114	Amdanga	Mathura to Bodai Purba	2.424	127.180
5	N 24 Parganas	WB-01-ADB 48	Baduria	Narayanpur to Jadurhati Hospital	4.744	253.240
6	N 24 Parganas	WB-01-ADB 78	Baduria	Iswarigachha to Kolsur Madhya (upto Mamudpur)	8.187	443.460
7	N 24 Parganas	WB-01-ADB 106	Baduria	Jasaikhati Atghara GP to Atghara Monmdal Para	6.343	346.460
8	N 24 Parganas	WB-01-ADB 82	Bagdah	Helencha Paschim Para to Patkelpota	10.637	570.100
9	N 24 Parganas	WB-01-ADB 83	Bagdah	Helencha to beara Dakshin	6.721	363.730
10	N 24 Parganas	WB-01-ADB 56	Bagdah	Khorda Kulberia to Bagdah Bazar BDO Office	9.294	515.730
11	N 24 Parganas	WB-01-ADB 62	Barasat -I	Raghubirpur Purbapara to Bora Paschim	6.344	284.750
12	N 24 Parganas	WB-01-ADB 105	Barasat- I	Kalianai Purbapara to Kilispur Paschimpara	7.576	410.040
13	N 24 Parganas	WB-01-ADB 113	Barasat- I	Behera Dakshin to Duttapukur	1.260	67.540
14	N 24 Parganas	WB-01-ADB 71	Barasat -II	Teghoria Dakshin to Balipur Dakshin	3.449	185.530
15	N 24 Parganas	WB-01-ADB 95	Barasat -II	Teghoria Dakshin to Sankargachi Purba	2.238	118.550
16	N 24 Parganas	WB-01-ADB 50	Barackpore-I	Dariwala to Palla Daha Purba	5.589	335.500
17	N 24 Parganas	WB-01-ADB 63	Barackpore-I	Rajendrapur Uttar to Mamudpur	3.549	189.330
18	N 24 Parganas	WB-01-ADB 84	Barackpore-I	Mukundapur uttar to Keutia Dakshin	6.626	355.650
19	N 24 Parganas	WB-01-ADB 65	Barackpore-I	Hatkhola to Ruiya Schoolpara	5.064	257.380
20	N 24 Parganas	WB-01-ADB 72	Barackpore-II	Jaffarpur to Telenipara	5.570	293.110
21	N 24 Parganas	WB-01-ADB 91	Barackpore-II	Ruiya F.P. School to Mohanpur Dakshin	2.262	119.490
22	N 24 Parganas	WB-01-ADB 118	Barackpore-II	Pathulia Bera Bazar to Ruiya Ajamtala	1.435	75.730
23	N 24 Parganas	WB-01-ADB 94	Bongaon	17 no. rail gate to Sahispur	7.823	427.640
24	N 24 Parganas	WB-01-ADB 52	Bongaon	Ambikapur Mamudpur to Huda Bishnupur	19.709	1047.760

Sl No.	District	Package	Block	Name of Road	Length (km)	Estimated Cost (Rs. lakh)
25	N 24 Parganas	WB-01-ADB 69	Bongaon	Purba Arsingri to Gobrapota	6.062	334.330
26	N 24 Parganas	WB-01-ADB 86	Bongaon	Ganeshpur to Harishpur	5.704	294.760
27	N 24 Parganas	WB-01-ADB 96	Deganga	Rampur to Mirjapur	7.132	377.020
28	N 24 Parganas	WB-01-ADB 107	Deganga	Mollapara to Uttar chakla	2.408	130.510
29	N 24 Parganas	WB-01-ADB 57	Deganga	Paschim Kaukipara to Nachimpur	8.082	400.940
30	N 24 Parganas	WB-01-ADB 61	Deganga	Deganga market to Jhikra	6.627	335.080
31	N 24 Parganas	WB-01-ADB 104	Deganga	Nimtala to Biswanathpur Womens Camp	2.684	141.330
32	N 24 Parganas	WB-01-ADB 58	Gaighata	Sekhati to B M Pally	10.478	549.450
33	N 24 Parganas	WB-01-ADB 102	Gaighata	Goribpur to Dakshinpara	5.244	248.700
34	N 24 Parganas	WB-01-ADB 73	Gaighata	Bisnupur to panchpota West	14.225	752.020
35	N 24 Parganas	WB-01-ADB 89	Gaighata	Gopalpur to Ichhapur market	2.858	154.220
36	N 24 Parganas	WB-01-ADB 90	Gaighata	Sanapara to Ramchandrapur	6.327	316.130
37	N 24 Parganas	WB-01-ADB 112	Habra - I	(T05) Badar to Habra Municipality Border	3.577	166.910
38	N 24 Parganas	WB-01-ADB 108	Habra- I	Sahebbari to Tinmatha Natun Pally	5.577	273.620
39	N 24 Parganas	WB-01-ADB 49	Habra - I	Khosdelpur Municipal End to Maligram, Border Beliaghata Road	5.735	292.830
40	N 24 Parganas	WB-01-ADB 98	Habra - II	Samudrapur to Berabari	2.946	157.330
41	N 24 Parganas	WB-01-ADB 54	Habra - II	Nawa Para Charitable Disp.to Rahana NH34 within Amdanga Block	4.174	221.210
42	N 24 Parganas	WB-01-ADB 87	Habra - II	Kamarpur to KHD Sahara	8.811	465.160
43	N 24 Parganas	WB-01-ADB 68	Habra - II	Guma Chowmatha to Dogachia	3.577	177.640
44	N 24 Parganas	WB-01-ADB 66	Swarupnagar	Taranipur Purba to Sarapul Bazar	4.978	267.750
45	N 24 Parganas	WB-01-ADB 46	Swarupnagar	Duttapara to Boyerghata	4.522	243.770
46	N 24 Parganas	WB-01-ADB 59	Sandeshkhali - II	Dakshin Sitlia To Hatgachha bazar	6.388	463.490
47	N 24 Parganas	WB-01-ADB 76	Sandeshkhali - II	Bowthakurani to Dakshin sitalia	5.745	394.480
48	N 24 Parganas	WB-01-ADB 77	Sandeshkhali - II	L036 Metiakhali To chaital Within minakhan block	10.513	699.070
49	N 24 Parganas	WB-01-ADB 97	Rajarhat	Chandpur to Khariberia RD (Noai Khal dhar)	3.193	167.740
50	N 24 Parganas	WB-01-ADB 111	Rajarhat	Ghoshpara to Langolpota	2.992	158.170
51	N 24 Parganas	WB-01-ADB 79	Rajarhat	Dakshin Nayabad to Patharghata Bazar	4.666	242.590
52	N 24 Parganas	WB-01-ADB 110	Rajarhat	Kashinathpur to Patharghata Purba Panchayet Office	2.768	146.370
53	N 24 Parganas	WB-01-ADB 80	Basirhat I	Jirakpur More to Dandirhat	3.695	201.490

Sl No.	District	Package	Block	Name of Road	Length (km)	Estimated Cost (Rs. lakh)
54	N 24 Parganas	WB-01-ADB-70	Basirhat I	Sluice Gate to Merudaudi	1.995	110.400
55	N 24 Parganas	WB-01-ADB 53	Basirhat I	Nimdaria to Ramnagar More	8.095	463.660
56	N 24 Parganas	WB-01-ADB 55	Basirhat I	Raghunathpur to Ghorarash	15.385	866.340
57	N 24 Parganas	WB-01-ADB 103	Basirhat I	Uttar Gobila to Uttar Kankra	5.426	296.540
58	N 24 Parganas	WB-01-ADB 85	Haroa	Baganti to Dakshin Bakjuri	5.342	285.270
59	N 24 Parganas	WB-01-ADB 51	Hinjalganj	Dharmberia to Bhanderkali (PhII)	13.680	950.610
60	N 24 Parganas	WB-01-ADB 74	Minakhan	Bachhra FG to Muchikhola	8.845	556.790
61	N 24 Parganas	WB-01-ADB 93	Minakhan	Ramjoy Gheri to Bockchora	9.813	704.020
62	N 24 Parganas	WB-01-ADB 75	Barasat -I	Rangapur to Janapara (upto Miruthi) (Part-A)	6.493	343.280
			Barasat -I	Rangapur (From Miruthi) to Janapara (Part-B)	4.847	256.780
63	N 24 Parganas	WB-01-ADB 92	Barasat -I	Dubgaria to Mallikpara (upto Jafrabad) (Part- A)	2.719	140.090
			Barasat -I	Dubgaria (From Jafrabad) to Mallikpara (Part- B)	1.237	65.350
64	N 24 Parganas	WB-01- ADB 88	Barasat -I	Mondalganthi Bamanpara (Muruli) to Parjapur	3.695	195.590
65	N 24 Parganas	WB-01- ADB 45	Barasat -I	Joypul to Gopalpur	3.185	164.430
66	N 24 Parganas	WB-01- ADB 67	Habra - I	Kharo Mathpara to Chirsthanpara	5.242	272.540
67	N 24 Parganas	WB-01- ADB117	Habra - I	Ichspur Kolupsrs to Sarai Paschim	3.034	159.830
68	N 24 Parganas	WB-01- ADB116	Habra - I	Raghabpur Colony to Kumro Bijoypur	2.174	113.740
69	N 24 Parganas	WB-01- ADB115	Habra - I	Kumargram Panchyet to Ankhola	1.937	99.870
70	N 24 Parganas	WB-01- ADB109	Gaighata	Paschimpara to Amkola	3.887	200.220
71	N 24 Parganas	WB-01- ADB 99	Habra - II	Nurpur to Buzruk Digha (Asudi Dakshin)	2.172	110.020
72	N 24 Parganas	WB-01- ADB 64	Sandeshkhali -I	Gazikhali Nazat Ferry Ghat to Patharghata FP School connected to 24 PGS (S)	11.276	594.370
73	N 24 Parganas	WB-01- ADB 60	Barasat -II	Beliaghata to F Malrampur Purba	4.808	236.710
Grand Total of 75 roads of North 24 Parganas District					**428.797**	**23550.350**
74	Darjeeling	WB-07-ADB 17	Garubathan	Sombaray South to Kumami Munsi Line	8.443	647.660
75	Darjeeling	WB-07-ADB 21	Garubathan	Upper Fagu to Sherpa Tar	7.671	566.810
76	Darjeeling	WB-07-ADB 16	Kalimpong - I	Relly Road Kazi Compound to Bagrakote (Uttar Fulbari)	11.442	902.120
77	Darjeeling	WB-07-ADB 20	Kalimpong - I	Pedong to Pitamchen via Lingsey	7.208	539.610
78	Darjeeling	WB-07-ADB 24	Rangli	6 th Mile of SH 12 to Teesta	11.085	780.810

Sl No.	District	Package	Block	Name of Road	Length (km)	Estimated Cost (Rs. lakh)
			Rangliot	Bazar via Takda		
79	Darjeeling	WB-07-ADB 25	Mirik	Dhudhia New Bridge to Panighatta	1.433	104.920
80	Darjeeling	WB-07-ADB 22	Darjeeling Pulbazar	Darjeeling to Majutar (Samtikalyan)	11.393	822.860
81	Darjeeling	WB-07-ADB 23	Darjeeling Pulbazar	Kaijalay to Goke via Kolbong	6.130	451.850
82	Darjeeling	WB-07-ADB 19	Kueseong	Ambotia via Baseri to Namsu Bridge	8.325	661.060
Grand Total of 9 roads of Darjeeling District					**73.130**	**5477.700**
83	Jalpaiguri	WB-10-ADB 30	Dhupguri	T04 at NH31 at Mallikshova to T05 at PWD rd near Duramari	14.591	511.060
84	Jalpaiguri	WB-10-ADB 31	Jalpaiguri Sadar	T02 at Jalpaiguri at Jalpaiguri Haldibari road to T05 at pucca road at Panga Saheb Bari	6.473	298.900
85	Jalpaiguri	WB-10-ADB 32	Kalchini	T08 at NH31 at Bomdong Bazar to T01 at Gudambari HS	7.113	251.690
86	Jalpaiguri	WB-10-ADB 33	Maynaguri	T10 at SH 12A near Maynaguri road to T05 at Balapara	12.616	418.750
87	Jalpaiguri	WB-10-ADB 34	Alipurduar – II	NH-31C near Chaltatala to Alipurduar Volka PWD road	5.295	214.730
88	Jalpaiguri	WB-10-ADB 35	Alipurduar – II	T18 at Alipurduar Kumargram road to T01 at NH-31C via. Taleswarguri	1.911	76.840
89	Jalpaiguri	WB-10-ADB 36	Jalpaiguri Sadar	T05 at PWD road near Charakdangi to T03 at Jalpaiguri Siliguri Road at Panga Bottala	6.492	262.890
90	Jalpaiguri	WB-10-ADB 37	Matiali	NH31C at Chalsha to Junction line at SamsingTG	7.992	372.470
91	Jalpaiguri	WB-10-ADB 38	Kumargram	T12 at NH 31C at Telipara Choupathi to T06 at Pacca road at Gajendhani	4.314	173.520
92	Jalpaiguri	WB-10-ADB 39	Alipurduar – II	T01 at Taleswarguri to T01 at Samuktala	4.774	185.220
93	Jalpaiguri	WB-10-ADB 40	Jalpaiguri Sadar	T03 at Siliguri Jalpaiguri road at Golghumti to T01 at PWD road near Joram	18.591	790.090
94	Jalpaiguri	WB-10-ADB 41	Alipurduar – II	T18 at Samuktala to T01 at Tufanganj road	5.511	214.050
95	Jalpaiguri	WB-10-ADB 42	Alipurduar – II	T18 at NH31C to T7 at Parakota GP Office	6.779	255.000
96	Jalpaiguri	WB-10-ADB 43	Malbazar	R7 at NH31C at Mal to R8 at NH31 near Lataguri	11.56	409.100
97	Jalpaiguri	WB-10-ADB 44	Dhupguri	T04 at NH31C at Banarhat to	15.162	541.110

Sl No.	District	Package	Block	Name of Road	Length (km)	Estimated Cost (Rs. lakh)
				T06 at PWD road at Dakshin Salbari		
Grand Total of 15 roads of Jalpaiguri District					**129.174**	**4975.420**
98	Paschin Medinipur	WB-20-ADB 41	Naryangarh	Gopinathpur to Kotaijiageria	11.876	572.300
99	Paschin Medinipur	WB-20-ADB 55	Naryangarh	Makrampur to Nayapukur - Keshiary Block	11.242	594.450
100	Paschin Medinipur	WB-20-ADB 58	Jhargram	Jhargram to Manikpara (T01)	15	625.260
101	Paschin Medinipur	WB-20-ADB 59	Kharagpur - II	Rambhadrapur to Asudchak	24.446	1167.350
102	Paschin Medinipur	WB-20-ADB 56	Binpur- II	Belpahari to Chakadoba	3.317	178.260
103	Paschin Medinipur	WB-20-ADB 57	Medinipur Sadar	Pachkhuri to Raghunathpur	12.698	569.120
104	Paschin Medinipur	WB-20-ADB 42	Chandrakona – I	Srinagar to Dinapur	6.531	308.950
105	Paschin Medinipur	WB-20-ADB 43	Chandrakona – II	Atghara to Pinglash	12.52	627.510
106	Paschin Medinipur	WB-20-ADB 44	Datan-II	Gokulpur to Srikrishnapur	5.242	304.230
107	Paschin Medinipur	WB-20-ADB 45	Datan-II	Jahalda to Bhatpara	6.186	346.600
108	Paschin Medinipur	WB-20-ADB 46	Pingla	Pingla to Kalukhanra	2.993	154.910
109	Paschin Medinipur	WB-20-ADB 47	Pingla	Pratapchak to Barakhelna	5.405	283.240
110	Paschin Medinipur	WB-20-ADB 48	Sankrail	Jangalkurchi to Murakati	19.763	1053.230
111	Paschin Medinipur	WB-20-ADB 49	Sankrail	Rohini to Harapariya	7	344.630
112	Paschin Medinipur	WB-20-ADB 50	Debra	Fatebar to Radhamohanpur	8.819	509.280
113	Paschin Medinipur	WB-20-ADB 51	Daspur -II	Marishgata to Ajurya	9.573	528.730
114	Paschin Medinipur	WB-20-ADB 52	Daspur -II	Ranichak Paschimpara to Jotghaneshyan	14.767	776.070
115	Paschin Medinipur	WB-20-ADB 53	Daspur -II	Chaksultan to Uttarbar	11.441	611.400
116	Paschin Medinipur	WB-20-ADB 54	Daspur -II	Dubrajpur to Jot Ghanashyam	26.29	1388.620
Grand Total of 19 roads of Paschim Medinipur District					**215.109**	**10944.140**
117	Bankura	WB-03-ADB 45	Bankura -II	Bikna to Ailtha	8.417	429.750
118	Bankura	WB-03-ADB 46	Bankura -II	Kanchanpur to Nabanda	8.098	405.810
119	Bankura	WB-03-ADB 47	Joypur	Belia to Shyamnagar	9.742	514.430
120	Bankura	WB-03-ADB 48	Taldanga	Katpara to Chanchurya	5.867	308.070
Grand Total of 4 roads of Bankura District					**32.124**	**1658.060**
121	Burdwan	WB-05-ADB 19	Ausgram-I	Joykrishnapur to Gobindapur	7.843	447.020
122	Burdwan	WB-05-ADB 18	Purbasthali -II	Uttar Laxmipur – Tamaghata FG	3.207	167.370
Grand Total of 2 roads of Burdwan District					**11.050**	**614.390**
123	Purba Medinipur	WB-19-ADB 19	Panskura - II	Uttar Bindabanchak - Uttar Narayan Pakuria	7.718	396.070
Grand Total of 2 roads of Purba Medinipur District					**7.718**	**396.070**
124	Malda	WB-11-ADB 27	Englishbazar	Atgama to Mobarakpur	7.503	347.960
125	Malda	WB-11-ADB 28	Kaliachak - II	Balugram to Panchanandapur-I Colony	6.175	326.280

Sl No.	District	Package	Block	Name of Road	Length (km)	Estimated Cost (Rs. lakh)
126	Malda	WB-11-ADB 29	Kaliachak - III	Baburbona to Baribona	8.692	450.430
Grand Total of 3 roads of Malda District					**22.370**	**1124.670**
127	Purulia	WB-16-AD 17	Jhalda	Barahan Kol to Simni Road	6.441	330.620
Grand Total of 1 road of Purulia District					**6.441**	**330.620**
128	Uttar Dinajpur	WB-15-ADB 21	Itahar	Uzani - Pakaibari	4.171	224.030
Grand Total of 1 road of Uttar Dinajpur District					**4.171**	**224.030**
Grand Total of 130 Roads					**930.084**	**49295.450**

Appendix 1.2: ECOPS OF SAMPLE ROADS IN WEST BENGAL

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Dakshin Nayabad to Patharghata Bazar
Block Name: Rajarhat
District Name: North 24 Paraganas
Total Length of the Road: 4.666 Km
Package No. : WB-01-ADB 79

A. Climatic Conditions

Temperature	High: 36°C (May) Low: 14°C(Dec)
Humidity	High: 92% in July Low: 65% in March
Rainfall Rainy Season	1550mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	Distance from Coastline: km. The area is far away from coastal belt. ( ) more than 50% ( ) less than 20%
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 12.7m The topography of the area is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: There is no forest area beside or away from the alignment. Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)* No part of the project road passes through any forest area.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: N.A. Endangered species (if any):None
5.	Inhabited Area	√		Inhabited areas are concentrated between Ch. 570m-760m (Hudarhait), 1025m-1550m (Kada Village), 2500m-2900m (Akanda Kesari), 3140m-3450m (Akandakesari), 3525m-4000m (Patharghata), 4300m-End (Chapna).
6.	Agricultural Land	√		Agricultural land exists between Ch. 060m-560m (LHS), 570m-700m (RHS), 1570m-1680m (Both Side), 2030m (LHS), 2965-3000m (RHS).
7.	Grazing Grounds	√		Grazing Ground exists beside the alignment near Ch. 62m (LHS), 1681m (LHS), 2176m (RHS) and 4018m (LHS).
8.	Barren Land		√	No part beside the alignment consists of barren land.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (***If yes, indicate the location (right or left side) and the chainage)***		√	There is no such area since the topography of the area is flat in nature.
				( ) No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (***If yes, list them indicating the location (right or left side)and the chainage***)	√		Swampy area exists beside the alignment near Ch. 1780m-1980 (LHS). Small & big Ponds exist near Ch. 0m, 1220m, 1382m, 2200m, 2250m, 2333m, 2439m, 2450m, 2470m, 2750m, 2950m, 3030m, 3150m, 3300m, 3480m, 3600m, 4180m, 4495m, 4530m (LHS) and Ch. 1240m, 1476m, 1550m, 2450m, 2470m, 2600m, 2687m, 2800m, 3123m, 3300m, 3480m, 3600m, 3700m, 3800m, 4000m, 4070m, 4100m, 4180m, 4450m, 4495m, 4650m (RHS).
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (***If yes, list them indicating the location (right, left or crossing) and the chainage***	√		Bagjola side canal crosses the alignment at Ch. 860m, one small canal exists beside the alignment from 1681m-2400m (RHS). Other than these there are CD structures at Ch. 1773m, 3500m, 4491m, 4636m.
4.	Are there problems of water stagnation and other drainage issues on or near the road? (***If yes, mention chainage)***	√		Water stagnation problem has been observed at Ch. 1773m, on either side of the cross drainage structure.
				( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? ***(If yes, mention flood level and frequency)***		√	**The area is not prone to flooding.**
				( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (***If yes attach list of Trees indicating the location (right or left side)and the chainage***)	√		There are 42 Nos. of Trees with a dbh of 30m or more within 10m on either side of the alignment. (List attached)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? ***(If yes, specify details of habitat with chainage)***		√	There are no such areas within 100m from the road shoulder.
				( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no evidence of endangered species of flora or fauna.
				( ) No Secondary Information Available and Local Community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
9.	Are there any utility structures[14] within 10 m on either side from the center line of the road alignment? ***(If yes, attach list with chainage)***	√		There are 41 nos. of utility structures (EP, TP, HP, TF etc.) within 10m on either side of the road alignment. (List attached)
10.	Are there any religious, cultural or community structures/buildings[15] within 10 m on either side from the center line of the road alignment? ***(If yes attach list with chainage)***	√		There are 6 nos. of community structures (School, Temple Health Centre, etc.) within 10m on either side of the alignment. (List attached)

[14] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.
[15] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. ***(Attach list of people met and dates)***	√		Consultation with local community was conducted on 02.11.2012.(List of people attached)
2.	Any suggestion received in finalizing the alignment	√		Suggestions were received (Provision of culverts, speed breakers etc.) from the community.
3.	If suggestions received, were they incorporated into the design?		√	Final decision will be taken after discussion with respective PIUs.

E. Please attach the following:

1) List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2) List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3) List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4) Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5) Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Block : RAJARHAT
Road Name Dakshin Nayabad to Patharghata Bazar
Package No. : WB-01-ADB 79

Attachment I

List of Trees

Left (No. of Trees)	Chainage (M)	Right (No. of Trees)
-	23m	Tree
-	225m	Tree
Tree	386m	Tree
-	450m	Tree
-	560m	Tree
-	765m	Tree
Tree	771m	Tree
Tree	776m	-
-	810m	Tree
-	825m	Tree
Tree	900m	-
-	910m	Tree
-	920m	Tree
-	925m	Tree
-	935m	Tree
-	1100m	Tree
Tree	1490m	-
Tree	2243m	-
Tree	2276m	-
Tree	2490m	-
Tree	2500m	-
Tree	2940m	-
Tree	2990m	-
Tree	3000m	-
Tree	3073m	-
Tree	3123m	-
-	3140m	Tree
-	3430m	Tree
Tree	4000m	-
Tree	4018m	-
Tree	4150m	-
-	4200m	Tree
-	4220m	Tree
-	4228m	Tree
-	4235m	Tree
-	4250m	Tree
-	4370m	Tree
-	4470m	Tree
Tree	4520m	-
1 Tree	4660m-4666m	

Attachment II

List of Utilities

Left	Chainage(M)	Right
EP	23m	-
-	41m	EP
-	275m	EP
EP	300m	-
-	570m	EP
EP	680m	-
EP	700m	-
EP	760m	-
EP	810m	-
-	847m	HP
HP	1043m	TF
-	1060m	EP
-	1220m	HP
EP	1247m	-
HP	1440m	-
EP	1510m	-
-	2540m	HP
-	2630m	EP
EP	2750m	-
-	2880m	HP
EP	2950m	-
-	3270m	HP
HP	3400m	-
-	4150m	HP
-	4180m	EP
-	4280m	HP
-	4300m	HP
TF	4400m	-
EP	4430m	EP
-	4450m	EP
EP	4470m	-
-	4540m	HP
4EP	4660m-4666m	2 EP, 1 HP

Attachment III

List of Community Structures

Left	Chainage(M)	Right
Temple	650m	-
-	1247m	ICDS
Club	2740m	-
-	3073m	Temple
Club	3140m	-
Burial Ground	4200m	-

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			EP		23m		Tree				
					41m		EP				
					225m		Tree				
					275m		EP				
			EP		300m						
			Tree		386m		Tree				
					450m		Tree				
					560m		Tree				
					570m		EP				
			Temple		650m						
			EP		680m						
			EP		700m						
			EP		760m						
					765m		Tree				
			Tree		771m		Tree				
			Tree		776m						
			EP		810m		Tree				
					825m		Tree				
					847m		HP				
					860m						CD
			Tree		900m						
					910m		Tree				
					920m		Tree				
					925m	Tree					
					935m	Tree					
			HP		1043m	TF					
					1060m		EP				
					1100m		Tree				
					1210m		Pond				
			Pond		1220m		HP				
			EP		1247m		ICDS				
			Pond		1382m						
			HP		1440m						
					1476m		Pond				
				Tree	1490m						
				EP	1510m						
					1550m		Pond				
					1773m						CD
		Pond	Tree		2243m						
		Pond	Tree		2276m						
			Pond		2333m						
			Pond		2450m		Pond				
			Pond		2470m		Pond				
			Tree		2490m						
			Tree		2500m						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					2540m		HP				
					2600m		Pond				
					2630m	EP					
					2687m		Pond				
		Pond	Club		2740m						
			EP		2750m						
					2800m		Pond				
					2880m		HP				
					2890m						CD
			Tree		2940m						
		Pond	EP		2950m						
			Tree		2990m						
			Tree		3000m						
			Pond		3030m						
Tree					3073m		Temple				
			Tree		3123m						
			Club		3140m	Tree					
			Pond		3150m						
					3270m		HP				
			Pond		3300m		Pond				
			HP		3400m						
					3430m		Tree				
			Pond		3480m		Pond				
					3500m						CD
			Pond		3600m			Pond			
					3700m			Pond			
					3800m			Pond			
		Tree			4000m			Pond			
			Tree		4018m						
					4070m			Pond			
					4100m			Pond			
			Tree		4150m		HP				
					4180m		EP				
			Buriall Ground		4200m		Tree				
					4220m		Tree				
					4228m		Tree				
					4235m		Tree				
					4250m		Tree				
					4280m		HP				
					4300m		HP				
					4370m		Tree				
			TF		4400m						
					4410m						CD
			EP		4430m		EP				
					4450m		EP	Pond			
			EP		4470m		Tree				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					4490m						CD
			Pond		4495m		Pond				
			Tree		4520m						
			Pond		4530m						
					4540m		HP				
					4636m						CD
					4650m			Pond			
			4EP, 1 Tree		4660m-4666m		2 EP, 1 HP				

EP - Electric Pole; TP - Telephone Post; H.P - Hand Pump: A.L - Agriculture Land; C.D - Cross Drainage Structure

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Kalianai Purbapara to Kilispur Paschimpara (T10)
Block Name: Barasat-I
District Name: North 24 Parganas
Total Length of the Road: 7.576km
Package No. : WB-01-ADB 105

A. Climatic Conditions

Temperature	High: 35°C, Low: 14°C
Humidity	High: 90% in July Low: 69% in March
Rainfall Rainy Season	1550 mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The area is far away from CRZ (Coastal Regulation Zone).
				( ) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: The topography of the area is flat in nature.
4.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: N.A Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)*
				There is no forest area beside or always from the alignment.
5.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: NA Endangered species (if any):None
6.	Inhabited Area	√		Small villages namely Kalianai (0m-700m), Khorki (700m-1700m), Nakhasa (1700m-3000m), Jafarpur (5376m-6076m), Kalispur (6076m-6876m) exist beside the alignment.
7.	Agricultural Land	√		Agricultural land exist beside the alignment between Ch. 3100m to 3500m & 7076m to 7576m.
8.	Grazing Grounds		√	There is no grazing Ground beside the alignment.
9.	Barren Land		√	There is no barren land beside the alignment.

C. Specific description of the Road Environment
(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*			There is no such area with land slide or erosion problem.
			√	( ) No Secondary Information is available and Local Community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake or swampy area beside the alignment but many Ponds/ water body were found at Ch. 40m, 45m, 80m, 130m, 255m, 430m, 520m, 690m, 705m, 780m, 810m, 915m, 1215m, 1625m, 1760m, 1875m, 2065m, 2145m, 2285m, 2505m, 3020m, 3170m, 3730m, 3753m, 3810m, 3910m, 4010m, 4060m & so on (R.H.S.) Ch. 520m, 940m, 1190m, 1240m, 1360m, 1780m, 2220m, 3420m, 4000m, 4060m & so on (L.H.S.). Exist beside the alignment.
3.	Are there any nallas/ streams /rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There is no nalla/ stream/ river along the side along the road alignment. However few cross drainage structure were notice at Ch. 285m, 755m, 1110m, 5646m & so on crossing the road.
4.	Are there problems of water stagnation and other drainage issues on or near the road? **(*If yes, mention chainage)***	√		Stagnant water has been observed within the side drain throughout the alignment. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area is not flood prone. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 213 nos. of Trees with a dbh of 30 cm or more within 10 m on either side of the road alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	There are no such areas within 100m from the road shoulder.
			√	( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no endangered species of flora or fauna within 100m from the road shoulder. ( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures[16] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are 122 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment.
10.	Are there any religious, cultural or community structures/ buildings[17] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are 14 nos. of community structures (School, Club, Mosque, Temple) within 10m on either side of alignment.

[16] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.
[17] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment. Date of consultation 19/09/2012 (List of people attached).
2.	Any suggestion received in finalizing the alignment	√		Villagers suggested to provide speed breaker, protection wall etc. wherever required.
3.	If suggestions received, were they incorporated into the design?		√	Suggestion will be incorporated after discussion with PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6)
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9)
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10)
4. Sketch of strip map of the road covering details of at least 10 m on either side from the centre line of the road
5. Photographs of the project area showing at least 10 m on either side from centre line of road alignment. Every 2 km or less of road must have at least 1 photograph.

Attachment I

List of Trees

Left (No.of Trees)	Chainage (M)	Right (No. of Trees)
3 Tree	50-60	
2 Tree	215-220	
	230	1 Tree
1 Tree	260	
2 Tree	320-330	
	335	1 Tree
	345	1 Tree
1 Tree	410	
	415-420	2 Tree
8 Tree	460-500	
1 Tree	560-580	4 Tree
1 Tree	630	
1 Tree	685	
6 Tree	710-745	
3 Tree	815-830	
1 Tree	1015	
1 Tree	1050	
1 Tree	1160-1190	4 Tree
2 Tree	1220-1230	
1 Tree	1280	
1 Tree	1310	
	1420	1 Tree
	1505	1 Tree
1 Tree	1515	
	1570	1 Tree
	1575	1 Tree
1 Tree	1580	
1 Tree	1605	
	1715-1730	2 Tree
2 Tree	1735-1745	
	1755	1 Tree
1 Tree	1765	
	1835	1 Tree
	1840	1 Tree
1 Tree	1890	
1 Tree	1910	
	1955	1 Tree
	1960	1 Tree
1 Tree	1970	
	2065	1 Tree
	2120	1 Tree
4 Tree	2145-2190	
	2250	1 Tree
3 Tree	2300-2320	
2 Tree	2340-2350	
4 Tree	2370-2390	1 Tree
	2405	1 Tree

Left	Chainage(M)	Right
	2420	1 Tree
2 Tree	2430-2495	4 Tree
2 Tree	2520-2570	3 Tree
6 Tree	2 640-2670	
3 Tree	2705-2725	2 Tree
	2755-2795	7 Tree
7 Tree	2800-2900	4 Tree
4 Tree	2900-3000	
5 Tree	3000-3100	
6 Tree	3200-3300	
1 Tree	3300-3400	2 Tree
1 Tree	3540	
3 Tree	3840-3860	
	3955-3970	2 Tree
1 Tree	5446-5461	2 Tree
1 Tree	5476	
	5486-5506	2 Tree
1 Tree	5526	
1 Tree	5536-5546	2 Tree
1 Tree	5591	
1 Tree	5606	
2 Tree	5616-5626	2 Tree
1 Tree	5656	1 Tree
	5666	1 Tree
2 Tree	5701-5711	
	5721-5731	2 Tree
1 Tree	5766	
1 Tree	5786	
3 Tree	5816-5846	
4 Tree	5886-5956	
	5986	1 Tree
	5996	1 Tree
	6026-6046	2 Tree
2 Tree	6131-6146	1 Tree
1 Tree	6271	1 Tree
	6341	1 Tree
1 Tree	6346	
	6381-6396	2 Tree
1 Tree	6466	
	6756-6771	2 Tree
	6781	1 Tree
1 Tree	6826	
	6831-6851	2 Tree
1 Tree	6896	
1 Tree	6916	
1 Tree	6956	
3 Tree	6976-7076	3 Tree

Attachment II

List of Utilities

Left	Chainage (M)	Right
	3	EP
	30	EP
1EP	50	
	90	EP
EP	II5	

Left	Chainage (M)	Right
EP	2080	
	2130	EP
HP	2285	
EP	2290	
	2300-2320	EP

Left	Chainage (M)	Right
EP	140	
EP	190	
EP	210	
	250	EP
EP	280	
	340	HP
	370	EP
	450	EP
EP	505	
	515	HP
	555	EP
EP	610	EP/TF
EP	650	EP
EP	670	
EP	690	
EP	770	
EP	850	
EP	900	
	910	EP
EP	915	
EP	950	
	970	EP
TF	980	
EP	1040	
HP	1045	
EP	1160-1190	
	1215	EP
	1245	EP
EP	1320	
EP	1340	
	1360	EP
EP	1380	
	1440	EP
EP	1480	
	1550	EP
EP	1600	
	1615	EP
EP	1645	
	1665	EP
EP	1680	
	1710	EP/TF
	1735-1745	EP
EP	1770	
EP	1820	
EP	1845	
	1855	EP
EP	1980	
	2015	HP
EP	2510	
HP	6681	
	6696	EP
	6746	EP
	6811	HP
	6816	EP
	6826	EP
EP	6856	
TP	6861	
HP	6866	
	6896	HP
	6916	EP
	6956	EP
EP	2605	

Left	Chainage (M)	Right
EP	2360	
	2420	HP
EP	2740	
EP	3580	
EP	3880	
	3940	EP
HP	3950	
	3980	EP
EP	4000	
	4020	EP
	4040	EP
TP	5396	
EP	5416	
	5436	EP
	5521	EP
	5566	HP
EP	5571	
	5596	EP
EP	5636	
EP	5666	
EP	5696	
	5746	EP
EP	5806	
TF	5856	
EP	5861	
	5886-5956	EP
EP	5996	
	6066	EP
EP	6116	
	6121	EP
	6126	HP
	6161	EP
EP	6196	
TP	6236	
	6306	HP
	6336	EP
	6361	EP
	6416	EP
	6471	EP
	6496	EP
EP	6576	
	6606	EP
HP	6626	
TF	6646	

Attachment III
List of Community Structures

Left	Chainage (M)	Right
Temple	310	
	385	Temple
	945	Mosque
Madrasa Sch.	970	
	1140	Health Center
	1935	Club
Temple	2210	
	2240	Temple
ICDS	2250	
Primary Sch.	2780	
Mosque	3920	
	6236	Temple
	6516	Temple

Left	Chainage (M)	Right
	2730	EP
	2750	EP

Left	Chainage (M)	Right
	6631	Temple

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					3		EP				
					30		EP				
					40		Pond				
					45		Pond				
			1EP		50						
			3 Tree		50-60						
					80		Pond				
					90		EP				
			EP		115						
					130		Pond				
			EP		140						
			EP		190						
			EP		210						
		2Tree			215-220						
					230			1Tree			
					250		EP				
					255			Pond			
			1 Tree		260						
			EP		280						
					285						CD
			Temple		310						
		2 Tree			320-330						
					335			1 Tree			
					340			HP			
					345		1 Tree				
					370		EP				
					385			Temple			
		1 Tree			410						
					415-420		2 Tree				
					430		Pond				
					450		EP				
		8 Tree			460-500						
			EP		505						
					515		HP				
			Pond		520		Pond				
					555		EP				
			1 Tree		560-580		4 Tree				
			EP		610		EP/TF				
			1 Tree		630						
			EP		650		EP				
			EP		670						
		1 Tree			685						
			EP		690			Pond			
					705		Pond				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
		6 Tree			710-745						
					755						CD
			EP		770						
					780		Pond				
					810			Pond			
			3 Tree		815-830						
			EP		850						
			EP		900						
					910		EP				
			EP		915		Pond				
			Pond		940						
					945		Mosque				
			EP		950						
			Madrasa Sch.		970		EP				
			TF		980						
			Pond, 1 Tree		1015						
			EP		1040						
			HP		1045						
			1 Tree		1050						
					1110						CD
					1140		Health Center				
		1 Tree	Pond, EP		1160-1190		4 Tree				
					1215		EP				
			2 Tree		1220-1230						
			Pond		1240						
					1245		EP				
					1250		Pond				
			1 Tree		1280						
			1 Tree		1310						
			EP		1320						
			EP		1340						
			Pond		1360		EP				
			EP		1380						
					1420		1 Tree				
					1440		EP				
			EP		1480						
					1505		1 Tree				
			1 Tree		1515						
					1550		EP				
					1570		1 Tree				
					1575		1 Tree				
			1 Tree		1580						
			EP		1600						
			1 Tree		1605						
					1615		EP				
					1625		Pond				
			EP		1645						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1665		EP				
			EP		1680						
					1710		EP/TF				
					1715-1730		2 Tree				
			2 Tree		1735-1745		EP				
					1755		1 Tree				
					1760		Pond				
			1 Tree		1765						
			EP		1770						
			Pond		1780						
			EP		1820						
					1835		1 Tree				
					1840		1 Tree				
			EP		1845						
					1855		EP				
					1875		Pond				
			1 Tree		1890						
			1 Tree		1910						
					1935		Club				
		Pond			1945						
					1955		1 Tree				
					1960		1 Tree				
			1 Tree		1970						
			EP		1980						
					2015			HP			
					2065			1 Tree			
					2065		Pond				
			EP		2080						
					2120			1 Tree			
					2130		EP				
			4 Tree		2145-2190		Pond				
			Temple		2210						
			Pond		2220		Pond				
					2240		Temple				
			ICDS		2250		1 Tree				
			HP		2285						
			EP		2290						
			3 Tree		2300-2320		EP, Pond				
			2 Tree		2340-2350						
			EP		2360						
			4 Tree		2370-2390		1 Tree				
					2405		1 Tree				
					2420		1 Tree	HP			
			2 Tree		2430-2495		4 Tree				
					2505		Pond				
			EP		2510						
			2 Tree		2520-2570		3 Tree				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			EP		2605						
			6 Tree		2 640-2670						
		3 Tree			2705-2725			2 Tree			
					2730		EP				
					2750		EP				
					2755-2795			7 Tree			
		7 Tree			2800-2900			4 Tree			
		4 Tree			2900-3000						
		5 Tree			3000-3100			Pond			
					3170		Pond				
		6 Tree			3200-3300						
			1 Tree		3300-3400		2 Tree				
			Pond		3420						
			1 Tree		3540						
			EP		3580						
					3730		Pond				
			EP		3740						
					3755		Pond				
			Primary School		3780						
					3810		Pond				
			3 Tree		3840-3860						
			EP		3880						
					3910		Pond				
			Mosque		3920						
					3940		EP				
			HP		3950						
					3955-3970		2 Tree				
					3980		EP				
			Pond, EP		4000						
					4010		Pond				
					4020		EP				
					4040		EP				
			Pond		4060		Pond				
		BT Road			4100-5376			BT Road			
			TP		5396						
			EP		5416						
			Pond		5426						
					5436		EP				
			1 Tree		5446-5461		2 Tree				
			1 Tree		5476						
					5486-5506		2 Tree				
					5521		EP				
			1 Tree		5526						
			1 Tree		5536-5546		2 Tree				
					5556		Pond				
					5566		HP				
			EP		5571						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Pond		5586						
			1 Tree		5591						
					5596		EP				
			Pond, 1 Tree		5606		Pond				
			2 Tree		5616-5626		2 Tree				
			EP		5636						
			Pond		5641						
					5646						CD
			1 Tree		5656		1 Tree				
			EP		5666		1 Tree				
			EP		5696						
			2 Tree		5701-5711						
					5716						CD
					5721-5731		2 Tree				
					5746		EP				
			1 Tree		5766						
			1 Tree		5786						
			EP		5806						
			3 Tree		5816-5846						
			TF		5856						
			EP		5861						
					5876		Pond				
			4 Tree		5886-5956		EP				
					5966						CD
			Pond		5976						
					5986		1 Tree				
			EP		5996		1 Tree				
					6026-6046		2 Tree				
					6066		EP				
			Pond		6096						
			EP		6116						
					6121		EP				
					6126		HP, Pond				
			2 Tree		6131-6146		1 Tree				
					6161		EP				
					6166						CD
			Pond		6176						
					6181		Pond				
			EP		6196						
			Pond		6206						
			TP		6236		Temple				
			1 Tree		6271		1 Tree				
					6306		HP				
					6336		EP				
					6341		1 Tree				
			1 Tree		6346		Pond				
					6361		EP				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					6381-6396		2 Tree				
					6416		EP				
			1 Tree		6466						
					6471		EP				
					6496		EP				
					6516		Temple				
					6526						CD
			Pond		6536			Pond			
					6581		Pond				
			EP		6576						
					6606		EP				
			HP		6626						
					6631		Temple				
			TF		6646						
			Pond		6656						
			HP		6681						
					6696		EP				
					6716		Pond				
					6746		EP				
					6756-6771		2 Tree				
					6781		1 Tree				
					6796		Pond				
					6811			HP			
					6816		EP				
			1 Tree		6826		EP				
					6831-6851		2 Tree				
			EP		6856						
			TP		6861						
			HP		6866						
			1 Tree		6896		HP				
			1 Tree		6916		EP				
			1 Tree		6956		EP				
		3 Tree			6976-7076			3 Tree			
End Point					7576	End Point					

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Mathura To Bodai Purba (T-09)
Block Name: Amdanga
District Name: North 24 Paraganas
Total Length of the Road: 2.424Km
Package No. : WB-01-ADB 114

A. Climatic Conditions

Temperature	High: 36°C Low: 14°C
Humidity	High: 90% in July Low: 69% in March
Rainfall Rainy Season	1550mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	Distance from Coastline: km. The proposed road is far away from CRZ. (Coastal Regulation Zone)
				( ) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 12.5m The area along the project road is flat in nature. The topography of the project road is flat at all locations.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: The road is not passed through any forest area. Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)*
				No part of the project road passes through any forest area.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: There is no wildlife species in the project areas as there is no forest. Endangered species (if any):None
5.	Inhabited Area	√		The project road passes through the inhabited area like Mathura (0m – 800m) and Bodai (820m – 2400m).
6.	Agricultural Land	√		Some portion of project road passes through agricultural area at Ch. 540m – 850m (LHS) and 600m – 700m (RHS).
7.	Grazing Grounds		√	There is no grazing Ground in the project road.
8.	Barren Land		√	There is no barren land in the project road area.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no land slide or erosion problem along the road.
				( ) No Secondary Information is available and Local Community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lakes / swamps falling beside the side of the project road alignment. There are few Ponds / or shallow depth water bodies found at Ch. 390m, 420m, 1050m, 1150m, 1280m, 1360m, 1520m, 1670m, 1850m, 2200m, 2350m, 2420m (LHS) and 300m, 400m, 1180m, 1250m, 1460m, 1710m, 2180m, 2310m, 2370m (RHS). Adequate provisions for protective work have been kept in the DPR to avoid any probability of damage of the road embankment running by the side of tanks or water bodies.
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There is no nallah/streams/rivers etc. along by the road. However, few dry CD structures were observed at Ch. 1800m and 2370m.
4.	Are there problems of water stagnation and other drainage issues on or near the road? **(*If yes, mention chainage)***		√	There is no water stagnation problems found during transect walk. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not prone to the flooding problems. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 86 nos. of Trees with adbh of 30 cm or more within 10m on either side from center line of the road alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area, or other similar areas. ( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no froral, faunal species found that are classified as endangered species. ( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures[18] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are 91 nos. of utility structures including electric poles, hand pump etc. within 10m on either side the center line of the road alignment.
10.	Are there any religious, cultural or community structures/buildings[19] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are religious, cultural or community structures at Ch. 140m, P. School at 250m and 2380m, ICDS at 1780m, SSK at 2400m (LHS) and Buriall Ground at 310m, School / PlayGround at 810m – 900m, School at 920m, Club house at 1040m, Temples at 2424m.

[18] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.
[19] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment (list of people attached).
2.	Any suggestion received in finalizing the alignment	√		Suggestion received in finalizing the alignment.
3.	If suggestions received, were they incorporated into the design?		√	It will be incorporated after consulting with respective PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Left (No. of Trees)	Chainage (M)	Right (No. of Trees)
Tree	0m	
	10m	Tree
	15m	Tree
	20m	Tree
2Tree	30m-45m	
	90m	Tree
3 Tree	160m-170m	
3 Tree	180m-190m	
	315m	Tree
Tree	330m	
Tree	400m	
Tree	425m	
Tree	450m	
	810m-900m	12 Tree
	1020m	Tree
Tree	1060m	
2 Tree	1080m-1100m	
2Tree	1160m-1170m	
	1180m-1190m	3 Tree
Tree	1205m	
	1240m	Tree
3 Tree	1260m-1270m	4 Tree
2 Tree	1265m-1285m	
4 Tree	1295m-1300m	
2 Tree	1320m-1360m	
2 Tree	1380m	
	1390m	1 Tree
	1415m	1 Tree
	1540m	1 Tree
1 Tree	1550m	
1 Tree	1640m-1650m	
1 Tree	1680m	
1 Tree	1820m	
1 Tree	1850m-1880m	
	1900m-1950m	5 Tree
	2035m-2060m	2 Tree
3 Tree	2210m-2240m	1 Tree
4 Tree	2290m-2300m	
	2320m-2330m	2 Tree
	2400m-2424m	3 Tree

Attachment II
List of Utilities

Left	Chainage (M)	Right
	25m	HP
	35m	EP
	100m	EP
	120m	EP
	150m	EP
EP	195m	
EP	215m	
HP	230m	
EP	250m	
	300m	EP
	315m	HP
	330m	EP
TP	375m	
	395m	EP
EP	405m-416m	HP+TP
	460m	EP
TF	540m	
EP	610m-690m	4 EP
EP+TF	810m-900m	
EP	920m	
	990m	EP
EP	1000m	
HP+TP	1040m	
EP	1080m-1100m	EP
	1115m	TP
	1205m	EP
EP	1250m	
TP	1275m-1285m	EP+2 HP
	1295m-1300m	EP+2 HP
2 EP+TP	1320m-1360m	HP
TP	1390m	
	1440m	EP
EP+TP	1475m	
	1500m	HP
EP	1540m	
	1550m	EP
	1570m	EP
	1580m	HP
	1600m	HP
	1640m-1650m	EP
TP	1670m	
	1680m	EP
TP	1735m	EP
HP	1770m	
2 TP+EP	1850m-1880m	
EP	1900m-1950m	HP
	1960m	EP
	1975m	HP
TP	1978m	
	2005m	EP

Attachment II
List of Utilities (Contd.)

Chainage(M)	Left	Right
2035m		TF
2045m		EP
2070m	EP	
2080m-2090m	EP	EP
2130m-2150m	EP	EP
2180m-2190m		EP+HP
2210m-2220m	2 EP	
2250m	EP	
2300m-2400m	2EP	2EP
2400m-2424m	EP+TP	EP

Attachment II

List of Community Structures

Chainage(M)	Left	Right
140m	Resort	-
250m	P. School	-
310m	-	Burial Ground
810m-900m	-	P. School, Play Ground
920m	-	H. School
1040m	-	Club
1780m	Icds	-
2300M-2400m	P. School, S.S.K.	-
2400m-2424m	-	Temple

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Tree		0m						
					10m		Tree				
					15m		Tree				
					20m		Tree				
					25m		HP				
			Tree		30m						
				Tree	35m-44m		EP				
					90m			Tree			
					100m		EP				
					120m		EP				
			Resort		140m						
					150m		EP				
		3 Tree			160m-170m						
		3 Tree			180m-190m						
			EP		195m						
			EP		215m						
		Hp			230m						
	P. School		EP		250m						
					300m		EP				
					310m			Buriall Ground			
					315m		HP+Tree				
		Tree			330m		EP				
			TP		375m						
			Pond		390m						
					395m		EP				
		Tree			400m						
			EP		405m-416m		HP+TP				
		Tree			425m						
		Tree			450m						
					460m		EP				
		TF			540m						
			EP		610m-690m		4 EP				
		TF	EP		810m-900m		12 Tree	P. Sch, Play Grd			
			EP		920m		H. School				
					990m		EP				
			EP		1000m						
					1020m			Tree			
			HP+TP		1040m			Club			
		Tree			1060m						
			Pond		1070m						
		2 Tree	EP		1080m-1100m		EP				
					1115m		TP				
		Tree			1160m						
			Pond	Tree	1170m						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1180m-1190m			3 Tree			
		Tree			1205m		EP				
					1240m			Tree			
			EP		1250m						
		3 Tree			1260m-1270m			4 Tree			
		2 Tree	TP		1275m-1285m		EP+2 HP				
		3 Tree		Tree	1295m-1300m		EP+2 HP				
		2 Tree	2 EP+TP		1320m-1360m		HP				
		2 Tree			1380m						
			TP		1390m		1 Tree				
					1415m			1 Tree			
					1440m		EP				
					1460m		Pond				
			EP+TP		1475m						
					1500m		HP				
			EP		1540m			1 Tree			
		1 Tree			1550m		EP				
					1570m		EP				
					1580m		HP				
					1600m		HP				
		1 Tree			1640m-1650m		EP				
			TP		1670m						
		1 Tree			1680m		EP				
		Pond			1710m						
			TP		1735m		EP				
			HP		1770m						
	ICDS				1780m						
					1800m						CD
		1 Tree			1820m						
					1830m			Pond			
		1 Tree	2 TP+EP		1850m-1880m						
			EP		1900m-1950m	2 Tree	HP	3 Tree			
					1960m		EP				
					1970m			Temple			
					1975m		HP				
			TP		1978m						
					1980m		Pond				
					2005m		EP				
					2035m		TF	1 Tree			
					2045m		EP				
			EP		2060M-2070m	Tree					
			EP		2080m-2090m		EP				
			EP		2130m-2150m		EP				
					2180m-2190m		EP+HP				
			Pond		2200m						
			2 EP		2210m-2220m			1 Tree			
			EP	3 Tree	2240M-2250m						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
		4 Tree			2290m-2300m						
	P. Sch. SSK.		2 EP		2300m-2400m		2 EP	Pond, 2 Tree			CD
			Pond, EP, TP		2400m-2424m			3 Tree	Temple		
EP - Electric Pole; TP - Telephone Post; H.P - Hand Pump: A.L - Agriculture Land; C.D - Cross Drainage Structure											

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Mollapara To Uttar Chakla (T13)
Block Name:DEGANGA
District Name: North 24 Paraganas
Total Length of the Road: 2.408km
Package No. : WB-01-ADB 107

A. Climatic Conditions

Temperature	High: 36°C (May) Low: 14°C(Dec)
Humidity	High: 92% in July Low: 65% in March
Rainfall Rainy Season	1550mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	Distance from Coastline: km. The area is far away from CRZ (Coastal Regulation Zone).
				( ) more than 50% ( ) less than 20%
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 11.8m The topography of the area is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: There is no forest area beside the alignment. Legal Status of the Forest Area: N.A. *(Reserved, National Park, Sanctuaries, Unclassified, etc.)*
				No part of the project road passes through any forest area.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: N.A. Endangered species (if any):None
5.	Inhabited Area	√		There are small villages namely Mollapara (0m-300m), Kharati Subarnapur (300m-1000m), Pukurati Subarnapur (1000m-2075m).
6.	Agricultural Land	√		Agricultural land exists beside the alignment near Ch. 1830m-2408m. Land type up to 1830m is of mixed nature.
7.	Grazing Grounds	√		Grazing Ground exists beside the alignment near Ch. 2375m.
8.	Barren Land		√	There is no barren land beside the alignment.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no landslide or erosion problem along the road.
				( ) No Secondary Information is available and Local Community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*	√		There are no lakes but swampy area& low-laying area exists beside the road near Ch. 2250m & Ch. 2300m respectively. Other than these some small & big Ponds exist beside the alignment at Ch. 0025m, 0280m, 0480m, 0880m, 1150m, 1230m, 1320m, 1500m, 1550m, 1590m.
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There are small nallas existing beside the alignment & crossing the alignment near Ch. 0210m, 1100m respectively.
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*	√		Water stagnation problem exists beside the alignment near Ch. 0610m, again, near Ch. 0550m water flows on the road during rainy season.
				( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area is not prone to flooding.
				( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 77 Nos. of Trees with a dbh of 30m or more within 10m on either side of the alignment. (List attached)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	There are no such areas within 100m from the road shoulder.
				( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no evidence of endangered species of flora & fauna within 100m from road shoulder.
				( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures[20] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are 37 Nos. of utility structures (EP, TP, HP, etc.) within 10m on either side of the centre line of road alignment. (List attached)
10.	Are there any religious, cultural or community structures/buildings[21] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are 4 nos. of community structures (School, Buriall Ground, etc.) within 10m on either side of the alignment. Buriall Ground Ch. 200m and Mosque Ch. 1310m (RHS).Primary School at Ch. 835m and Community Toilet at Ch. 1310m (LHS). (List attached).

[20] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

[21] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted on 26.09.2012.(List attached)
2.	Any suggestion received in finalizing the alignment	√		Community suggested to construct culverts, speed breakers, pilling work wherever required.
3.	If suggestions received, were they incorporated into the design?		√	Suggestions will be incorporated after discussion with respective PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of at least 10 m on either side from the center line of the road.
5. Photographs of the project area showing at least 10 m on either side from center line of road alignment. Every 2 km or less of road must have at least 1 photograph.

Attachment I

List of Trees

Left (No. of Trees)	Chainage (M)	Right (No. of Trees)
Tree	25m	-
Tree	40m	-
Tree	50m	-
Tree	60m	-
Tree	90m	-
Tree	130m	-
Tree	140m	-
Tree	150m	-
-	190m	Tree
-	210m	Tree
-	240m	Tree
-	250m	Tree
-	265m	Tree
Tree	300m	-
Tree	365m	-
Tree	415m	-
Tree	440m	-
-	580m	Tree
-	610m	Tree
Tree	615m	-
-	640m	Tree
Tree	650m	-
Tree	670m	-
-	700m	Tree
Tree	755m	-
-	760m	Tree
Tree	770m	-
-	780m	Tree
Tree	790m	-
-	820m	Tree
-	840m	Tree
-	870m	Tree
-	910m	Tree
Tree	950m	Tree
-	980m	Tree
-	990m	Tree
-	1020m	Tree
Tree	1120m	-
Tree	1140m	-
Tree	1150m	Tree
Tree	1160m	Tree
Tree	1180m	-
-	1185m	Tree
Tree	1190m	-
-	1220m	Tree
Tree	1230m	-
Tree	1410m	-
Tree	1430m	Tree
Tree	1440m	-
-	1460m	Tree
-	1480m	Tree
Tree	1560m	-
-	1580m	Tree
-	1610m	Tree
-	1680m	Tree
-	1690m	Tree
-	1720m	Tree
Tree	1760m	-
Tree	1780m	-
-	1810m	Tree
-	1830m	Tree
Tree	1860m	-
Tree	1880m	-
Tree	1930m	-
Tree	2020m	-
Tree	2080m	-
-	2120m	Tree
-	2170m	Tree
-	2320m	Tree
Tree	2340m	-
3Tree	2395m-2408m	

Attachment II
List of Utilities

Left	Chainage (M)	Right
-	10m	EP
HP	65m	-
-	70m	EP
TP	75m	-
TP	90m	-
-	100m	EP
EP	110m	-
HP	160m	-
-	175m	TF
EP	210m	-
-	255m	TP
-	270m	EP
EP	340m	-
-	390m	EP
EP	460m	-
HP	550m	EP
EP	600m	-
-	630m	HP
-	660m	EP
-	670m	TP
-	690	EP
-	730m	HP
EP	740m	-
-	930m	EP
-	1040m	EP
-	1280m	EP
EP	1350m	-
EP	1420m	-
HP	1460m	-
-	1625m	HP
-	1660m	HP
TF	1710m	-
EP	2120m	-
EP	2390m	-
EP	2395m-2408m	EP

Attachment III
List of Community Structures

Left	Chainage (M)	Right
-	200m	Buriall Ground
P. School	835m	-
Comm. Toilet	1310m	Mosque

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					10m		EP				
			Tree		25m						
			Tree		40m						
			Tree		50m						
			Tree		60m						
			HP		65m						
					70m		EP				
			TP		75m						
			TP+ Tree		90m						
					100m		EP				
			EP		110m						
			Tree		130m						
			Tree		140m						
			Tree		150m						
			HP		160m						CD
					175m		TF				
					190m		Tree				
					200m		Buriall Ground				
			EP		210m		Tree				
					240m	Tree					
					250m	Tree					
					255m		TP				
					265m		Tree				
					270m		EP				
			Tree		300m						
			EP		340m						
			Tree		365m						
					390m		EP				
			Tree		415m						
			Tree		440m						
			EP		460m						
			HP		550m		EP				
					580m		Tree				
			EP		600m						
					610m		Tree				
			Tree		615m						
					630m		HP				
					640m		Tree				
			Tree		650m						
					660m		EP				
			Tree		670m		TP				
					690m		EP				
					700m		Tree				
					730m		HP				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			EP		740m						
			Tree		755m						
					760m		Tree				
			Tree		770m						
					780m		Tree				
			Tree		790m						
					820m		Tree				
		P. School			835m						
					840m		Tree				
					870m	Tree					
					910m		Tree				
					930m		EP				
			Tree		950m		Tree				
					980m		Tree				
					990m		Tree				
					1020m		Tree				
					1040m		EP				
					1100m						CD
			Tree		1120m						
				Tree	1140m						
				Tree	1150m		Tree				
			Tree		1160m		Tree				
			Tree		1180m						
					1185m		Tree				
			Tree		1190m						
					1220m		Tree				
				Tree	1230m						
					1280m		EP				
			Comm. Toilet		1310m		Mosque				
			EP		1350m						
			Tree		1410m						
			EP		1420m						
				Tree	1430m		Tree				
			Tree		1440m						
			HP		1460m		Tree				
					1480m		Tree				
			Tree		1560m						
					1580m		Tree				
					1610m		Tree				
					1625m		HP				
					1660m		HP				
					1680m		Tree				
					1690m		Tree				
			TF		1710m						
					1720m		Tree				
			Tree		1760m						
			Tree		1780m						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1810m		Tree				
					1830m		Tree				
			Tree		1860m						
			Tree		1880m						
			Tree		1930m						
			Tree		2020m						
			Tree		2080m						
			EP		2120m		Tree				
					2170m		Tree				
					2320m		Tree				
			Tree		2340m						
			EP		2390m						
			3 Tree, 1 EP		2395m-2408m		EP				

EP - Electric Pole; TP - Telephone Post; H.P - Hand Pump: A.L - Agriculture Land; C.D - Cross Drainage Structure

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Nimdaria To Ramnagar More
Block Name: BASIRHAT-I
District Name: North 24 Parganas
Total Length of the Road: 8.095km
Package: WB-01-ADB 53

A. Climatic Conditions

Temperature	High: 35°C, Low: 14°C
Humidity	High: 90% in July Low: 69% in March
Rainfall Rainy Season	1550 mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The area is far away from CRZ (Coastal Regulation Zone). ( ) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 12.3 m The topography of the area is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: N.A Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)* There is no forest area beside or away from the alignment.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: NA Endangered species (if any):None
5.	Inhabited Area	√		Small villages namely Nimdaria (000m-1000m), Sripur (1000m–2200m), Higla (2200m–2780m) Khiderpur (2780m-3500m) Kathur (3500m–3750m) Devoke (3750m–59000m) Atkoria (5900m–8095m) existing beside the alignment.
6.	Agricultural Land	√		There are few patches where there are agricultural land beside the alignment, 900m – 950m 1410m – 1950m, 3500m – 3770m, 4980m – 5000m, 6790m- 6995m, 7200m – 7800m (LHS) and 000m – 720m, 900m – 950m, 1420m – 1900m, 3280m – 3300m, 3500m – 3675m,6800m –6900m, 7200m–7800m, 7890m–7950m, (RHS).
7.	Grazing Grounds		√	There is no grazing Ground beside the alignment.
9.	Barren Land		√	There is no barren land beside the alignment.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no such area with landslide or erosion problem. ( ) No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake or swampy area beside the alignment but many small & big Ponds / Water body were found at Ch. 115m, 262m, 264m, 380m, 635m, 886m, 1020m, 1220m, 1325m, 1340m, 1505m, 1532m, 2000m, 2198m, 2577m, 2670m, 2788m, 2953m, 3000m, 3189m, 3315m, 3678m, 4192m, 4247m, 4500m, 4740m, 4857m, 4900m, 5000m, 5197m, 6450m, 6600m, 7065m, 7197m, 7800m, 7980m, (LHS) on the other hand, 592m, 720m, 1050m, 1494m, 1938m, 2180m, 2294m, 2312m, 2349m, 2388m, 2477m, 2685m, 2800m, 3000m, 3215m, 3300m, 3410m, 3572m, 3678m, 3885m, 4200m, 4337m, 4805m, 5208m, 5288m, 5300m, 5696m, 5785m, 7082m, 7100m, 7180m, 8050m,(RHS). exists beside the alignment.
3.	Are there any nallas/ streams /rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There are no road side nallas / streams / rivers noticed along the road alignment. However, few CD structures were noticed at Ch. 688m, 840m, 900m, 1950m, 2780m, 3830m, 3935m, 5000m, 6115m, 6200m, 6270m, 7008m, 8070m
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no problem of any water stagnation and other drainage issues observed. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area is not flood prone. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the canter line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 38 nos. of Trees with a dbh of 30 cm or more within 10 m on either side of the road alignment.(List Attached)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	There are no such areas within 100m from the road shoulder. ( ) No Secondary Information is available and Local Community is not aware of this matter
			√	
8.	Along the road and within 100m of the road shoulder			There is no endangered species of flora or fauna within 100m from the road shoulder.

No.	Parameter/ Component	Yes	No	Explanation
	is there any evidence of floral and faunal species that are classified as endangered species?		√	( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures within 10 m on either side from the canter line of the road alignment? *(If yes, attach list with chainage)*	√		There are **167 nos**. utility structures (EP, TP, HP) within 10m on either side of the alignment.(List Attached**)**
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the canter line of the road alignment? *(If yes attach list with chainage)*	√		There are a total of **35** community / religious, cultural structures within 10m on either side from the center line of the road alignment Primary school at 754m, 5378m, ICDS 1172m, 5088m, 6187m, Temple 1285m, Buriall Ground 2895m, 3200m, 3995m, 4458m, 5200m, 6995m, Mosque 4100m, 6670m, 7985m, Samiti 4452m, (LHS) on the other hand SSk 115m, Mosque 728m, 2275m, 2577m, Ration Shop 754m, ICDS 2249m, 4228m, Buriall Ground 2450m, 2930m, 3205m, 5025m, 5197m, Primary school 3462m, 5378m, 6650m, Health Center 5286m, Temple 5649m (RHS).

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted on 06.12.2012. List of people attached.
2.	Any suggestion received in finalizing the alignment	√		Villagers suggested to provide speed breaker, protection wall etc. wherever required.
3.	If suggestions received, were they incorporated into the design?		√	Suggestion will be incorporated after discussion with PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6)
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9)
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10)
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the centre line of the road
5. Photographs of the project area showing atleast 10 m on either side from centre line of road alignment. Every 2 km or less of road must have at least 1 photograph.

Attachment I

List of Trees

Utilities

Left (No.of Trees)	Chainage(M)	Right (No. of Trees)
Tree	80	
Tree	90	
Tree	263	
Tree	280	
Tree	800	
Tree	1010	
Tree	1018	
	1175	Tree
	1180	Tree
	1185	Tree
Tree	1240	
	1248	Tree
Tree	1380	
2 Tree	1415	
Tree	2244	
Tree	2260	
Tree	2290	
2 Tree	2294	
Tree	2349	
Tree	2380	
Tree	2675	
	2953	Tree
Tree	2985	
Tree	3090	
2 Tree	3215	
Tree	4194	
Tree	4196	
Tree	4332	
Tree	4335	
	5430	Tree
Tree	6000	
Tree	6005	
Tree	6010	
Tree	6190	
	8095	Tree

Attachment II

List of

Left	Chainage(M)	Right
	70	EP
	260	EP
	263	EP
	340	EP
	380	EP
	400	EP
HP	590	
	595	EP
	700	EP
HP	730	
	800	EP
	825	EP
	830	EP
EP	845	
EP	870	
	910	EP
EP	980	EP
EP	1000	
EP	1015	EP
	1018	EP
	1050	
EP	1090	EP
	1100	HP
	1145	
	1160	EP
	1166	EP
EP	1170	EP
EP	1192	EP
EP	1230	
HP	1248	
	1275	
	1290	
	1300	EP
EP	1340	EP
	1360	EP
EP	1430	
	1488	EP
EP	1492	
	1530	EP
HP	1700	
	1830	EP
	2040	
	2100	EP
	2150	EP
EP	2178	EP
EP	2198	EP
	2280	HP
EP	2395	
EP	2400	EP
	2565	
EP	2570	
	2577	
	2580	
	2650	EP
	2670	
	2675	
	2780	
EP	2788	

	2790	EP
	2870	
	2880	EP

Attachment II
(Contd.)

Left	Chainage(M)	Right
EP	2900	
EP	2930	
	2960	EP
	2980	HP
	2990	EP
HP	3015	
	3030	EP
EP	3130	
	3191	HP
	3194	EP
	3345	EP
EP	3360	
	3380	EP
HP	3465	
	3560	EP
	3750	HP
	3800	HP +EP
EP	3880	
	3945	EP
HP	3950	
EP	4160	EP
HP	4244	
	4247	EP
EP	4410	
	4454	HP
	4458	EP
EP	4600	
EP	4700	
EP	4800	EP
EP	4897	
EP	4910	
EP	4920	HP
EP	4940	
	4950	EP
EP	4960	
	4980	TF
EP	5030	
EP	5070	
	5080	EP
EP	5100	
	5200	HP
	5280	EP
EP	5288	
EP	5300	
HP	5370	EP
EP	5384	
EP	5388	
TF	5400	
EP	5430	
EP	5450	
EP	5488	
EP	5500	
EP	5547	EP
EP	5552	
EP	5588	HP
	5710	EP
	5800	EP

Left	Chainage(M)	Right
	6000	EP
HP	6025	
EP	6110	
	6180	EP
	6250	EP
HP	6260	EP
EP	6320	EP
EP	6360	
EP	6380	
EP	6496	
	6515	EP
EP	6560	
EP	6660	
	6675	EP
HP	6680	
EP	6695	
	6700	EP
EP	6750	
TF	6780	
EP	6820	
EP	6870	
EP	6900	
	6935	EP
HP	7000	
	7080	EP
EP	7085	
EP	7120	
EP	7480	
	7530	EP
	7580	EP
	7610	EP
	7830	EP
	7900	EP
	7970	EP
HP	7995	EP
	8072	EP
EP	8088	
EP	8095	

EP	5827	
	5864	EP
EP	5900	
	5980	EP

Attachment III

List of Community Structures

Chainage (M)	Left	Right
115		Ssk
728		Mosque
754	P.School	Ration Shop
1172	ICDS	
1200	Club	
1285	Kali Temple	
2275		Mosque
2450		Buriall Ground
2577		Mosque
2895	Buriall Ground	
2930		Buriall Ground
3200	Buriall Ground	
3345		High School
3395	Buriall Ground	
3462		P.School
4095	Burial Ground	
4100	Mosque	
4190	Club	
4228		ICDS
4452	Samiti	
4458	Buriall Ground	
5025		Buriall Ground
5088	ICDS	
5197		Buriall Ground
5200	Buriall Ground	
5286		Helth Center
5378	Police Staction	P.School
5649		Temple
6187	ICDS	
6650		P.School
6670	Mosque	
6995	Buriall Ground	
7985	Mosque	

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					70		EP				
			Tree		80						
			Tree		90						
			Pond		115		SSK				
					260		EP				
				Pond	262						
				Tree	263	EP					
				Pond	264						
				Tree	280						
					340		EP				
				Pond	380		EP				
					400		EP				
				HP	590						
					592	Pond					
					595		EP				
				Pond	635						
					688						CD
					700		EP				
					720	Pond					
					728		Mosque				
			HP		730						
			P.School		754		Ration shop				
			Tree		800		EP				
					825		EP				
					830		EP				
					840						CD
			EP		845						
			EP		870						
				Pond	886						
					900						CD
					910		EP				
			EP		980		EP				
			EP		1000						
			Tree		1010						
					1015		EP				
			Tree		1018		EP				
				Pond	1020						
			EP		1050	Pond					
					1090		EP				
					1100		HP				
			EP		1145						
					1160	EP					
			PHE		1166		EP				
					1170		EP				
			ICDS		1172						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1175		Tree				
					1180		Tree				
					1185		Tree				
					1192		EP				
			Club		1200						
				Pond	1220						
			EP		1230						
				Tree	1240						
			EP		1248		Tree				
			EP		1275						
			Kali Temple		1285						
			HP		1290						
					1300		EP				
				Pond	1325						
				Pond	1340		EP				
					1360		EP				
			Tree		1380						
			2 Tree		1415						
			EP		1430						
					1488		EP				
			EP		1492						
					1494	Pond					
				Pond	1500						
					1530		EP				
				Pond	1532						
				EP	1700						
					1830		EP				
					1938	Pond					
					1950						CD
				Pond	2000						
			HP		2040						
					2100		EP				
					2150		EP				
					2178		EP				
					2180	Pond					
				Pond	2198	EP					
			Tree		2244						
					2248		ICDS				
			Tree		2260						
					2275		Mosque				
			EP		2280		HP				
			Tree		2290						
			2 Tree		2294	Pond					
					2312	Pond					
			Tree		2349	Pond					
			Tree		2380						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					2388	Pond					
			EP		2395						
					2400		EP				
					2450		Burial Ground				
					2477	Pond					
			EP		2565						
			EP		2570						
				Pond	2577		Mosque				
			EP		2580						
					2650		EP				
				Pond	2670						
				Tree	2675						
					2685	Pond					
					2780						CD
				Pond	2788						
					2790		EP				
					2800	Pond					
			EP		2870						
					2880		EP				
			Burial Ground		2895						
			EP		2900						
			EP		2930		Burial Ground				
				Pond	2953		Tree				
					2960		EP				
					2980		HP				
			Tree		2985						
					2990		EP				
				Pond	3000	Pond					
			HP		3015						
					3030		EP				
			Tree		3090						
				EP	3130						
				Pond	3189						
					3191		HP				
					3194		EP				
			Burial Ground		3200						
					3205		Burial Ground				
			2 Tree		3215	Pond					
					3300	Pond					
					3345	EP	High School				
					3350	Pond					
			EP		3360						
					3380		EP				
			Burial Ground		3395						
					3410	Pond					
					3462		P.School				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			HP		3465						
					3560		EP				
					3572	Pond					
				Pond	3678	Pond					
					3750		HP				
					3800	HP	EP				
					3830						CD
			EP		3880						
					3885	Pond					
					3935						CD
					3945		EP				
			HP		3950						
			Burial Ground		4095						
			Mosque		4100						
			EP		4160		EP				
			Club		4190						
				Pond	4192						
			Tree		4194						
			Tree		4196						
					4200	Pond					
					4228		ICDS				
			HP		4244						
				Pond	4247		EP				
			Tree		4332						
			Tree		4335						
					4337	Pond					
			EP		4410						
			Samiti		4452						
					4454		HP				
			Burial Ground		4458		EP				
				Pond	4500						
			EP		4600						
			EP		4700						
				Pond	4740						
			EP		4800		EP				
					4805	Pond					
				Pond	4857						
			EP		4897						
				Pond	4900						
			EP		4910						
			EP		4920		HP				
			EP		4940						
					4950		EP				
			EP		4960						
					4980		TF				
				Pond	5000						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					5001						CD
					5025		Burial Ground				
			EP		5030						
			EP		5070						
					5080		EP				
			ICDS		5088						
			EP		5100						
				Pond	5197		Burial Ground				
			Burial Ground		5200		HP				
					5208	Pond					
					5280		EP				
					5286		Health Center				
			EP		5288	Pond					
			EP		5300	Pond					
			HP		5370		EP				
			Police Station		5378		P. School				
			PHE		5382						
			EP		5384						
			EP		5388						
			TF		5400						
			EP		5430		Tree				
			EP		5450						
			EP		5488						
			EP		5500						
			EP		5547		EP				
			EP		5552						
			EP		5588		HP				
					5649		Temple				
					5696		Pond				
					5710		EP				
					5785	Pond					
					5800		EP				
			EP		5827						
					5864		EP				
			Pond+ EP		5900						
					5980		EP				
				Tree	6000	EP					
			Tree		6005						
			Tree		6010						
			HP		6025						
					6035						CD
			EP		6110						
					6115						CD
					6180		EP				
			ICDS		6187		Play Ground				
			Tree		6190						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					6200						CD
					6250		EP				
			HP		6260		EP				
					6270						CD
			EP		6320		EP				
			EP		6360						
			EP		6380						
				Pond	6450						
			EP		6496						
				Pond	6500						
					6515		EP				
			EP		6560						
				Pond	6600						
					6650		P. School				
			EP		6660						
			Mosque		6670						
					6675		EP				
			HP		6680						
			EP		6695						
					6700		EP				
			EP		6750						
			TF		6780						
			EP		6820						
			EP		6870						
			EP		6900						
					6935		EP				
			Burial Ground		6995						
			HP		7000						
					7008						CD
				Pond	7065						
					7080		EP				
					7082	Pond					
			EP		7085						
					7100	Pond					
			EP		7120						
				Pond	7180	Pond					
				Pond	7197						
			EP		7480						
					7530		EP				
					7580		EP				
					7610		EP				
				Pond	7800						
					7830		EP				
					7900		EP				
					7970		EP				
				Pond	7980						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Mosque		7985						
			HP		7995		EP				
					8050	Pond					
					8070						CD
					8072		EP				
			EP		8088						
			EP		8095		Tree				

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Taranipur Purba to Sarapul Bazar
Block Name: Swarupnagar
District Name: North 24 Paraganas
Total Length of the Road: 4.978Km
Package No. : WB-01-ADB 66

A. Climatic Conditions

Temperature	High: 36°C (May) Low: 14°C(Dec)
Humidity	High: 92% in July Low: 65% in March
Rainfall Rainy Season	1550mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	Distance from Coastline: km. The road is far away from CRZ. (Coastal Regulation Zone)
				( ) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 12.4m **The topography of the area is flat in nature.**
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: There is no forest area besidethe alignment. Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)*
				No part of the project road passes through any forest area.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals:N.A. (There is no forest area beside or near the project road). Endangered species (if any):None
5.	Inhabited Area	√		Inhabited areas are concentrated near Ch. 0960m-1540m (Taranipur), 2760m-3157m (Purba Palta) 3200m-3400m (Purba Palta) 4100m-4978m (Nalabara).
6.	Agricultural Land	√		Agricultural area exists beside the alignment at Ch. 0425m-0530m (RHS), 695m (LHS), 1730m-2510m (Both Side), 3740m-3935m (Both Side), 4050m-4090m (Both Side).
7.	Grazing Grounds	√		Grazing Ground exists beside the road near Ch. 3607m (RHS).
8.	BarrenLand		√	There is no barren land beside the alignment.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no such problem along the road. ( ) No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*	√		Swampy area exists beside the road near Ch. 3690m (RHS). Other than this Ponds exist beside the road at Ch. 2630m, 2915m, 3370m, 3986m, 4700m (LHS) & Ch. 1344m, 1576m, 3157m (RHS).
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		One canal crosses & flows along the alignment near Ch. 4157m. Other than this there are CD structures at Ch. 2000m, 4334m & 4370m.
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	Water stagnation problem has not been noted on or near the road. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area is not prone to flooding. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 59 Nos. of Trees with a dbh of 30m or more within 10m on either side of the alignment. (List attached)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	There are no such areas within 100mof the road shoulder. ( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no evidence of endangered species of flora or fauna within 100m of the road shoulder. ( ) No Secondary Information Available and Local Community is not aware of this matter

9.	Are there any utility structures[22] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are 43 nos. of utility structures (EP, TP, HP, TF etc.) within 10m on either side of the road alignment. (List attached)
10.	Are there any religious, cultural or community structures/buildings[23] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are 8 nos. of community religious structures (School, Temple Health Centre, etc.) within 10m on either side of the alignment. (List attached)

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted on 06.11.2012. (List of people attached)
2.	Any suggestion received in finalizing the alignment	√		Community suggested for provision of protective works (pilling) speed breakers, safety signage etc.
3.	If suggestions received, were they incorporated into the design?		√	Suggestions will be incorporated into design after discussion with respective PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

[22] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

[23] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

Attachment-I
List of Trees

Left (No.of Trees)	Chainage (M)	Right (No. of Trees)
Tree	70m	-
-	100m	Tree
-	120m	Tree
Tree	175m	-
Tree	200m	-
Tree	295m	-
Tree	390m	-
Tree	405m	-
Tree	425m	-
Tree	470m	-
Tree	510m	-
Tree	530m	-
-	580m	Tree
Tree	690m	-
Tree	695m	-
-	840m	Tree
-	860m	Tree
Tree	870m	-
Tree	930m	-
-	960m	Tree
-	990m	Tree
-	1160m	Tree
-	1225m	Tree
-	1344m	Tree
-	1500m	Tree
-	1590m	Tree
-	1610m	Tree
Tree	1730m	-
Tree	1760m	-
Tree	1800m	-
Tree	1820m	-
Tree	1850m	-
Tree	1970m	-
Tree	2510m	-
Tree	2530m	-
-	2650m	Tree
-	2690m	Tree
-	2710m	Tree
-	2800m	Tree
-	2860m	Tree
Tree	3050m	-
Tree	3060m	-
Tree	3080m	-
Tree	3100m	-
Tree	3110m	-
Tree	3120m	-
Tree	3157m	-
Tree	3160m	Tree
Tree	3170m	-
-	3400m	Tree
Tree	3990m	-
Tree	4000m	-
-	4010m	Tree
Tree	4050m	-
Tree	4080m	-
Tree	4330m	-
Tree	4580m	Tree

Attachment-II
List of Utilities

Left	Chainage(M)	Right
EP	40m	-
-	60m	EP
EP	120m	-
-	175m	EP
-	260m	EP
EP	350m	EP
-	390m	EP
-	500m	EP
-	530m	EP
-	600m	EP
EP	680m	-
EP	700m	-
-	730m	EP
EP	760m	-
TF	818m	-
-	825m	TF
EP	835m	-
-	890m	EP
EP	910m	-
EP	940m	-
EP	1040m	-
EP	1070m	-
HP	1100m	-
EP	1130m	-
-	1322m	HP
-	1330m	EP
EP	1360m	-
-	1380m	EP
-	1470m	HP
EP	1576m	-
-	2510m	EP
-	2550m	EP
EP	2760m	-
-	2890m	HP
HP	2900m	-
HP	2950m	HP
EP	3025m	-
-	3110m	EP
-	3250m	EP
EP	4700m	-
EP	4880m	-

Attachment III
List of Community Structures

Left	Chainage(M)	Right
-	985m	P. School
Burial Ground	1025m	-
-	1214m	Mosque
-	1540m	Club
-	1680m	Idgah
Mosque	2925m	-
-	4595m	Temple
Temple	4978m	-

Attachment-IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (m)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			EP		40m						
					60m		EP				
			Tree		70m						
					100m		Tree		Poultry Farm		
			EP		120m		Tree				
			Tree		175m		EP				
			Tree		200m						
					260m		EP				
			Tree		295m						
			EP		350m		EP				
			Tree		390m		EP				
			Tree		405m						
		Tree			425m						
	Poultry Farm				450m						
			Tree		470m						
					500m		EP				
			Tree		510m						
			Tree		530m		EP				
					580m				Tree		
					600m		EP				
			EP		680m						
	Tree				690m						
			Tree		695m						
			EP		700m						
					730m		EP				
			EP		760m						
			TF		818m						
					825m		TF				
			EP		835m						
					840m				Tree		
					860m		Tree				
		Tree			870m						
					890m		EP				
			EP		910m						
			Tree		930m						
			EP		940m						
					960m		Tree				
					985m			P. School			
					990m		Tree				
			Burial Ground		1025m						
			EP		1040m						
			EP		1070m						
			HP		1100m						
			EP		1130m						
					1160m		Tree				
					1214m		Mosque				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (m)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1225m		Tree				
					1322m		HP				
					1330m		EP				
					1344m		Tree	Pond			
			EP		1360m						
					1380m		EP				
					1470m		HP				
					1500m		Tree				
					1540m		Club				
		EP			1576m		Pond				
					1590m			Tree			
					1610m				Tree		
					1680m		Idgah				
			Tree		1730m						
			Tree		1760m						
			Tree		1800m						
			Tree		1820m						
			Tree		1850m						
			Tree		1970m						
					2000m						CD
	Tree				2510m		EP				
	Tree				2530m						
					2550m		EP				
			Pond		2630m						
					2650m			Tree			
					2690m		Tree				
					2710m		Tree				
			EP		2760m						
					2800m		Tree				
					2860m		Tree				
					2890m		HP				
			HP		2900m						
			Pond		2910m						
			Mosque		2925m						
			HP		2950m		HP				
				EP	3025m						
			Tree		3050m						
			Tree		3060m						
			Tree		3080m						
			Tree		3100m						
			Tree		3110m		EP				
			Tree		3120m						
			Tree		3157m		Pond				
			Tree		3160m		Tree				
		Tree			3170m						
					3250m		EP				
			Pond		3370m						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (m)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					3400m			Tree			
			Pond		3986m						
Tree					3990m						
			Tree		4000m						
					4010m		Tree				
Tree					4050m						
			Tree		4080m						
					4100m			Poultry Farm			
					4157m						CD
			Tree		4330m						
					4334m						CD
					4370m						CD
			Tree		4580m		Tree				
					4595m		Temple				
			Pond, EP		4700m						
			EP		4880m						
			Temple		4978m						

EP - Electric Pole; TP - Telephone Post; H.P - Hand Pump: A.L - Agriculture Land; C.D - Cross Drainage Structure

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: TEGHORIA DAKSHIN TO BALIPUR DAKSHIN
Block Name: BARASAT-II
District Name: North 24 Parganas
Total Length of the Road: 3.449km
Package No.: WB-01-ADB 71

A. Climatic Conditions

Temperature	High: 35°C, Low: 14°C
Humidity	High: 90% in July Low: 69% in March
Rainfall Rainy Season	1550 mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The area is far away from CRZ (Coastal Regulation Zone).
				(.....) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 12.3 m The topography of the area is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: N.A Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)*
				There is no forest area beside or away from the alignment.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: NA Endangered species (if any):None
5.	Inhabited Area	√		Small villages namely, Uttar Bahira (0m - 1991 m), Dakshin Bahira (1991m – 3449 m), exists beside the alignment.
6.	Agricultural Land	√		Few patches of agricultural land beside the alignment between 10m -968m, 1520m -1566m, 1875m - 1919m, 2480m - 2625m, 3175m - 3220m, 3292m – 3345m, (LHS) and 115m – 928m, 1719m – 1885m, 2915 – 3005m, 3390m – 3429m (RHS).
7.	Grazing Grounds		√	There is no grazing Ground beside the alignment.
9.	Barren Land		√	There is no barren land beside the alignment.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or*			There is no such area with landslide or erosion problem.

No.	Parameter/ Component	Yes	No	Explanation
	left side) and the chainage)		√	( ) No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake or swampy area beside the alignment but many small & big Ponds / Water body were found at Ch. 112m, 203m, 1130m, 1200m, 1365m, 1445m, 2202m, 2226m, 2330m, 2420m, 2690m, 2890m, 2950m, 3005m, 3042m, 3075m, 3230m (LHS) and 1130m, 1200m, 1287m, 1375m, 1451m, 1540m, 1640m, 2168m, 2276m, 2420m, 2449m, 2482m, 2514m, 2530m, 2650m, 2666m, 2830m, 2915m, 3050m, 3085m, 3150m, 3250m (RHS). exists beside the alignment.
3.	Are there any nallas/ streams /rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There are no road side nallas / streams / rivers noticed along the road alignment. However, few CD structures were noticed at Ch. 529m, 705m, 1185m, 1566m, 2473m, 3429m.
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no problem of any water stagnation and other drainage issues observed. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area is not flood prone. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the canter line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 108 nos. of Trees with a dbh of 30 cm or more within 10 m on either side of the road alignment.(List Attached)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	There are no such areas within 100m from the road shoulder. ( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no endangered species of flora or fauna within 100m from the road shoulder. ( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures within 10 m on either side from the canter line of the road alignment? *(If yes, attach list with chainage)*	√		There are 109 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment.(List Attached)

No.	Parameter/ Component	Yes	No	Explanation
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the canter line of the road alignment? *(If yes attach list with chainage)*	√		There are a total of 13 community / religious, cultural structures within 10m on either side from the center line of the road alignment Party office at 1967m, Temple at 2240m, Club at 2365m, SSK at 2980m (LHS) on the other hand Primary school at 694m, 1235m, 2357m, Mosque at 1216m, ICDS at 1904m, Temple at 2208m, 2352m, Buriall Ground at 3066m, High School at 3300m (RHS).

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted on 02.11.2012. List of pepole attached.
2.	Any suggestion received in finalizing the alignment	√		Villagers suggested to provide speed breaker, protection wall etc. wherever required.
3.	If suggestions received, were they incorporated into the design?		√	Suggestion will be incorporated after discussion with PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6)
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9)
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10)
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the centre line of the road
5. Photographs of the project area showing atleast 10 m on either side from centre line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Left (No.of Trees)	Chainage(M)	Right (No. of Trees)
Tree	20	
Tree	52	
Tree	97	
Tree	109	
	112	Tree
Tree	130	
Tree	139	
	166	Tree
Tree	184	
	203	Tree
Tree	222	
Tree	251	
	262	Tree
	275	Tree
3 TreeE	303-307	
Tree	310	Tree
Tree	312	Tree
Tree	316	Tree
Tree	332	Tree
Tree	342	Tree
	350	Tree
	355	Tree
Tree	380	Tree
Tree	406	Tree
3 Tree	418	Tree
	446	Tree
Tree	464	
	475	Tree
	488	Tree
	500	Tree
	513	Tree
	527	Tree
	532	Tree
	554	Tree
Tree	565	Tree
	586	Tree
Tree	592	
Tree	598	
Tree	612	Tree
Tree	615	Tree
	630	Tree
	647	Tree
Tree	709	
Tree	730	Tree
Tree	747	
	791	Tree
	874	Tree
Tree	928	
Tree	1054	
Tree	1057	
Tree	1060	
Tree	1451	
Tree	1716	
Tree	1733	
	1840	Tree
	1847	Tree
	1875	Tree
	1890	Tree
	1894	Tree
	1950	Tree
	1964	Tree
	1988	Tree

Left (No.of Trees)	Chainage(M)	Right (No. of Trees)
	2343	Tree
Tree	2352	
Tree	2375	
Tree	2398	
Tree	2400	
Tree	2405	
Tree	2410	
2 Tree	2420	
Tree	2449	
Tree	2507	
Tree	2514	
Tree	2519	Tree
Tree	2573	
	2625	Tree
Tree	2635	
	2670	Tree
Tree	2809	
Tree	2880	
	3080	Tree
Tree	3224	
Tree	3389	
Tree	3392	
Tree	3400	
	3435	Tree
	3443	Tree

Attachment II
List of Utilities

Left	Chainage(M)	Right
	43	EP
EP	85	HP
HP	88	
	100	
	141	EP
	172	EP
	285	EP
	542	EP
	592	EP
	650	EP
EP	730	EP
EP	765	
	798	
	844	EP
	877	EP
	928	EP
	968	EP
HP	1000	EP
EP	1020	
	1035	
	1054	EP
	1060	EP
	1075	EP
EP	1080	EP
	1112	
EP	1123	EP
	1158	
EP	1210	EP+HP
EP	1255	TF
	1273	EP
EP	1287	
EP	1301	
EP	1318	

	2276	Tree
	2330	Tree
	2337	Tree

EP	1332	
	1357	
EP	1386	EP

Attachment II

List of Utilities (Contd.)

Left	Chainage(M)	Right
	1415	
EP	1445	EP
	1464	
EP	1477	EP
EP	1511	
	1520	
	1566	HP
EP	1613	EP
	1657	
	1675	HP
	1704	EP
EP	1752	
EP	1768	
EP	1799	
EP	1834	
	1872	EP
EP	1919	
EP	1964	
EP	2079	
EP	2084	
	2111	EP
EP	2129	
	2159	EP
	2194	EP
EP	2224	
EP	2256	
EP	2263	
HP	2281	
EP	2285	
	2293	EP
	2319	EP
	2321	EP
HP	2357	EP
EP	2362	EP
EP	2367	TF
EP	2396	EP
	2442	EP
	2485	
	2491	EP
	2494	TF
	2527	EP

Left	Chainage(M)	Right
EP	2573	
	2597	
	2662	
	2666	
	2712	HP
EP	2720	
EP	2745	
	2757	EP
	2809	EP
EP	2847	
EP	2855	
EP	2874	
EP	2877	
	2904	EP
	2964	EP
HP	2995	
	3005	EP
EP	3035	
	3038	EP
	3075	EP
EP	3111	
EP	3126	
	3143	EP
EP	3158	
EP	3179	
EP	3220	
	3255	EP
EP	3292	
EP	3344	
	3397	EP

Attachment III

List of Community Structures

Chainage(M)	Left	Right
694		Primary School
1216		Mosque
1235		Primary School
1904		ICDS
1967	Party Office	
2208		Temple
2240	Temple	
2352		Temple
2357		Primary School
2365	Club	

Chainage(M)	Left	Right
2980	SSK	
3066		Burial Ground
3300		High School

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Tree		20						
					43		EP				
			Tree		52						
					85		HP				
			EP		88						
			Tree		97						
			HP		100						
			Tree		109						
				Pond	112		Tree				
			Tree		130						
			Tree		139						
					141		EP				
		PUMP House			160						
					166		Tree				
					172		EP				
				Tree	184						
				Pond	203	Tree					
				Tree	222						
			Tree		251						
					262	Tree					
					275	Tree					
					285		EP				
				3 Tree	303-307						
			Tree		310		Tree				
			Tree		312		Tree				
			Tree		316		Tree				
			Tree		332		Tree				
			Tree		342		Tree				
					350		Tree				
					355		Tree				
			Tree		380		Tree				
			Tree		406		Tree				
			3 Tree		418		Tree				
					446		Tree				
			Tree		464						
					475	Tree					
					488	Tree					
					500	Tree					
					513	Tree					
					527	Tree					
					529						CD
					532		Tree				
					542		EP				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					554		Tree				
			Tree		565		Tree				
					586		Tree				
			Tree		592		EP				
			Tree		598						
			Tree		612		Tree				
			Tree		615		Tree				
					630		Tree				
					647		Tree				
					650		EP				
					694		Primary School				
					705						CD
			Tree		709						
			Tree		730		EP+Tree				
			Tree		747						
			EP		765						
					791		Tree				
			EP		798						
					844		EP				
					874		Tree				
					877		EP				
			Tree		928		EP				
					968		EP				
					1000		EP				
			HP		1020						
			EP		1035						
			Tree		1054		EP				
			Tree		1057						
			Tree		1060		EP				
					1075		EP				
					1080		EP				
				EP	1112						
					1123	EP					
				Pond	1130	Pond					
			EP		1158						
					1185						CD
				Pond	1200		Pond				
					1210		EP+HP				
					1216		Mosque				
					1235		Primary School				
				EP	1255		TF				
			EP		1273		EP				
					1287		Pond				
				EP	1301						
			EP		1318						
			EP		1332						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			EP		1357						
			Pond		1365						
					1375		Pond				
					1386		EP				
			EP		1415						
			Pond		1445		EP				
			Tree		1451		Pond				
			EP		1464						
					1477	EP					
				EP	1511						
				EP	1520						
					1540	Pond					
					1566	HP					CD
					1613	EP					
					1640		Pond				
			EP		1657						
					1675		HP				
					1704		EP				
			Tree		1716						
			Tree		1733						
			EP		1752						
			EP		1768						
			EP		1799						
			EP		1834						
					1840		Tree				
					1847		Tree				
					1872		EP				
					1875		Tree				
					1890		Tree				
					1894		Tree				
					1904		ICDS				
			EP		1919						
					1950		Tree				
			EP		1964		Tree				
			Party Office		1967						
					1988		Tree				
				Bahira Kalibari Station	1991	Bahira Kalibari Station					
			EP		2079						
			EP		2084						
					2111		EP				
				EP	2129						
					2159	EP					
					2168	Pond					
					2194	EP					

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
				Pond	2202						
					2208		Temple				
			EP		2224						
			Pond		2226						
			Temple		2240						
			EP		2256						
			EP		2263						
					2276		Pond+Tree				
			HP		2281						
			EP		2285						
					2293		EP				
					2319		EP				
					2321		EP				
			Pond		2330		Tree				
					2337		Tree				
					2343		Tree				
			Tree		2352		Temple				
			HP		2357		Primary School				
			EP		2362						
			Club		2365						
			EP		2367						
			Tree		2375						
			EP		2396						
			Tree		2398						
			Tree		2400						
			Tree		2405						
			Tree		2410						
			Pond + 2 Tree		2420		Pond				
					2442	EP					
				Tree	2449	Pond					
					2473						CD
					2482	Pond					
					2485	EP					
					2491	TF					
					2494	EP					
				Tree	2507						
				Tree	2514	Pond					
				Tree	2519	Tree					
					2527	EP					
					2530	Pond					
				Tree+EP	2573						
					2597	EP					
					2609	Pond					
					2625	Tree					
				Tree	2635						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					2650	Pond					
					2662	TF					
					2666	Pond+EP					
					2670	Tree					
				Pond	2690						
					2712	HP					
				EP	2720						
				EP	2745						
					2757	EP					
				Tree	2809	EP					
					2830	Pond					
				EP	2847						
				EP	2855						
				EP	2874						
				EP	2877						
				Tree	2880						
				Pond	2890						
					2904	EP					
					2915	Pond					
			Pond		2950						
					2964		EP				
			SSK		2980						
			HP		2995						
			Pond		3005		EP				
			EP		3035						
					3038		EP				
			Pond		3042						
					3050		Pond				
					3066		Burial Ground				
			Pond		3075		EP				
					3080		Tree				
					3085		Pond				
			EP		3111						
				EP	3126						
					3143		EP				
					3150	Pond					
			EP		3158						
			EP		3179						
			EP		3220						
			Tree		3224						
			Pond		3230						
					3250		Pond				
					3255		EP				
			EP		3292						
					3300		High School				
			EP		3344						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Tree		3389						
			Tree		3392						
					3397		EP				
			Tree		3400						
					3429						CD
					3435		Tree				
					3443		Tree				
End Point					3449	End Point					

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: TEGHORIA DAKSHIN TO SANKARGACHI PURBA
Block Name: BARASAT-II
District Name: North 24 Parganas
Total Length of the Road: 2.238km
Package No.: WB-01-ADB 95

A. Climatic Conditions

Temperature	High: 35°C, Low: 14°C
Humidity	High: 90% in July Low: 69% in March
Rainfall Rainy Season	1550 mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The area is far away from CRZ (Coastal Regulation Zone).
				( ) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 12.3 m The topography of the area is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: N.A Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)*
				There is no forest area beside or away from the alignment.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: NA Endangered species (if any):None
5.	Inhabited Area	√		Small villages namely Teghoria (000m, - 567m), Sankargachi (567m – 1770m), Kaziright (1770m – 2238m) existing beside the alignment.
6.	Agricultural Land	√		There are few patches where there are agricultural land beside the alignment, 500m -665m, 1156m - 1194m, 1251m - 1356m, 1414m – 1730m, (LHS) and 500m – 651m, 1595m - 1632m, 1740m - 1883m (RHS).
7.	Grazing Grounds		√	There is no grazing Ground beside the alignment.
9.	Barren Land		√	There is no barren land beside the alignment.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road?			There is no such area with landslide or erosion problem.

No.	Parameter/ Component	Yes	No	Explanation
	(*If yes, indicate the location (right or left side) and the chainage)*		√	( ) No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake or swampy area beside the alignment but many small & big Ponds / Water body were found at Ch. 10m, 52m, 846m, 955m, 977m, 1099m, 1140m, 1275m, 1938m, 1965m, 2048m. (LHS) and 19m, 52m, 92m, 360m, 390m, 560m, 950m, 981m, 1156m, 1201m, 1270m, 1298m, 1366m, 1370m, 1439m, 1460m, 1525m, 1588m, 1690m, 2106m, (RHS). exists beside the alignment.
3.	Are there any nallas/ streams /rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There are no road side nallas / streams / rivers noticed along the road alignment. However, few CD structures were noticed at Ch. 35m, 343m, 567m, 1006m, 1029m, 1046m, 1097m, 1102m, 2075m.
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no problem of any water stagnation and other drainage issues observed. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area is not flood prone. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the canter line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 63 nos. of Trees with a dbh of 30 cm or more within 10 m on either side of the road alignment.(List Attached)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	There are no such areas within 100m from the road shoulder.
			√	( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no endangered species of flora or fauna within 100m from the road shoulder. ( ) No Secondary Information Available and Local Community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
9.	Are there any utility structures within 10 m on either side from the canter line of the road alignment? *(If yes, attach list with chainage)*	√		There are 79 nos. utility structures (EP, TP, HP) within 10m on either side of the alignment.(List Attached)
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the canter line of the road alignment? *(If yes attach list with chainage)*	√		There are a total of 11 community / religious, cultural structures within 10m on either side from the center line of the road alignment ICDS at 193m, Mosque at 1010m, Idgha at 1120m, High Madrasha at 2187m, Bus Stand at 2234m. (LHS) on the other hand Club at 77m, Madrasha at 266m, & 1138m, Primary school at 1560m, Mosque at 1801m, Burial Ground at 2184m (RHS).

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted on 05.11.2012.List of people attached.
2.	Any suggestion received in finalizing the alignment	√		Villagers suggested to provide speed breaker, protection wall etc. wherever required.
3.	If suggestions received, were they incorporated into the design?		√	Suggestion will be incorporated after discussion with PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6)
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9)
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10)
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the centre line of the road
5. Photographs of the project area showing atleast 10 m on either side from centre line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Left (No.of Trees)	Chainage(M)	Right (No. of Trees)
	13	Tree
	19	Tree
	24	Tree
	30	Tree
	37	Tree
	48	Tree
	50	Tree
	51	Tree
	60	Tree
	115	Tree
	120	Tree
	129	Tree
	178	Tree
4 Tree	266-276	
	272	Tree
	276	Tree
	280	Tree
	285	Tree
	356	Tree
Tree	365	
	410	Tree
Tree	418	Tree
	431	Tree
	435	Tree
Tree	450	
Tree	457	
Tree	474	
Tree	697	
Tree	715	
Tree	717	
	772	Tree
5 Tree	775-804	
Tree	990	
Tree	1004	
Tree	1033	
	1384	Tree
	1770	Tree
	1816	Tree
	1824	Tree
Tree	1834	
	1868	Tree
	1872	Tree
Tree	1883	Tree
	1887	Tree
	1903	Tree
Tree	1908	
Tree	1915	
Tree	1922	
	1934	Tree
	1938	Tree
	1960	Tree
Tree	2219	
	2222	Tree
	2234	Tree

Attachment II

Left	Chainage(M)	Right
	80	HP
	108	EP
EP	114	
2EP	148	
EP	150	
	176	EP
	193	EP
EP	216	
	245	EP
	247	EP
	274	HP
	278	HP
	290	EP
	318	EP
	346	EP
	651	EP
	665	EP
EP	689	
	717	EP
	735	EP
	744	EP
EP	772	
	804	EP
EP	836	EP
EP	862	
HP	865	
EP	892	
	906	TF
	935	EP
EP	970	
	1004	HP
	1010	EP
	1033	HP
EP	1062	
HP	1076	
	1080	EP
	1120	EP
EP	1156	
EP	1194	
EP	1195	
EP	1212	
EP	1251	
	1259	HP
	1261	EP
EP	1270	
	1292	EP
	1346	EP
EP	1396	
EP	1414	
	1426	HP
	1444	EP
EP	1452	
EP	1515	
EP	1545	
	1582	EP

List of Utilities

TF	35	
EP	37	
	75	EP
HP	1585	
	1632	EP
EP	1694	
	1746	EP

Attachment II
List of Utilities Contd.

Left	Chainage(M)	Right
EP	1776	
HP	1797	
EP	1827	
	1863	EP
EP	1903	
EP	1953	
	1989	EP
EP	2012	
EP	2038	
EP	2069	
	2131	EP
EP	2184	
	2215	EP
HP	2222	
	2236	EP

Attachment II
List of Community Structures

Left	Chainage(M)	Right
	77	Club
ICDS	193	
	266	Madrasha
Mosque	1010	
Idgha	1120	
	1138	madrasha
	1560	Primary School
	1801	Mosque
	2184	Burial Ground
High Madrasha	2187	
Bus Stand	2234	

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
				Pond	10						
					13	Tree					
					19	Tree	Pond				
					24	Tree					
					30	Tree					
			TF		35						CD
			EP		37		Tree				
					48		Tree				
					50		Tree				
					51		Tree				
				Pond	52		Pond				
					60		Tree				
					75		EP				
					77		Club				
					80		HP				
					92		Pond				
					108		EP				
			EP		114						
					115		Tree				
					120	Tree					
					129		Tree				
			2EP		148						
			EP		150						
					176	EP					
					178	Tree					
				ICDS	193		EP				
			EP		216						
					245		EP				
					247		EP				
					266		Madrasha				
				4 Tree	266-276						
					272	Tree					
					274		HP				
					276	Tree					
					278		HP				
					280		Tree				
					285	Tree					
					290		EP				
					318		EP				
					343						CD
					346		EP				
					356	Tree					
					360		Pond				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
				Tree	365						
					390		Pond				
					410	Tree					
				Tree	418	Tree					
					431	Tree					
					435		Tree				
			Tree		450						
				Tree	457						
				Tree	474						
					560	Pond					
					567						CD
					651		EP				
					665		EP				
			EP		689						
			Tree		697						
			Tree		715						
				Tree	717		EP				
					735	EP					
					744		EP				
			EP		772	Tree					
			5 Tree		775-804						
					804	EP					
				EP	836	EP					
				Pond	846						
			EP		862						
			HP		865						
			EP		892						
					906		TF				
					935	EP					
					950	Pond					
				Pond	955						
				EP	970						
				Pond	977						
					981	Pond					
			Tree		990						
				Tree	1004	HP					
					1006						CD
				Mosque	1010	EP					
					1029						CD
				Tree	1033	HP					
					1046						CD
			EP		1062						
			HP		1076						
					1080		EP				
					1097						CD
				Pond	1099						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1102						CD
			Idgha		1120		EP				
					1138		Madrasha				
				Pond	1140						
			EP		1156		Pond				
			EP		1194						
			EP		1195						
					1201		Pond				
				EP	1212						
			EP		1251						
					1259		HP				
					1261	EP					
			EP		1270	Pond					
				Pond	1275						
					1292		EP				
					1298		Pond				
					1346		EP				
					1366	Pond					
					1370	Pond					
					1384	Tree					
			EP		1396						
			EP		1414						
					1426		HP				
					1439		Pond				
					1444		EP				
			EP		1452						
					1460	Pond					
			EP		1515						
					1525	Pond					
			EP		1545						
					1560		Primary School				
					1582		EP				
				HP	1585						
					1588	Pond					
					1632	EP					
					1690	Pond					
			EP		1694						
					1746		EP				
					1770		Tree				
			EP		1776						
			HP		1797						
					1801		Mosque				
					1816	Tree					
					1824	Tree					
			EP		1827						
			Tree		1834						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1863		EP				
					1868		Tree				
					1872		Tree				
			Tree		1883		Tree				
					1887		Tree				
				EP	1903	Tree					
				Tree	1908						
			Tree		1915						
			Tree		1922						
					1934		Tree				
				Pond	1938		Tree				
			EP		1953						
					1960	Tree					
				Pond	1965						
					1989		EP				
			EP		2012						
			EP		2038						
				Pond	2048						
				EP	2069						
					2075						CD
					2106	Pond					
					2131		EP				
			EP		2184		Burial Ground				
			High Madrasha		2187						
					2215		EP				
			Tree		2219						
			HP		2222		Tree				
			Bus Stand		2234		Tree				
					2236		EP				
End Point					2238	End Point					

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: **Belia to Shyamnagar**
Block Name: **Joypur**
District Name: **Bankura**
Total Length of the Road**: 9.742 km**
Package No,: **WB-03-ADB 47**

A. `Climatic Conditions

Temperature	High: 42°C Low: 10°C
Humidity	High: 67% in July Low: 32% in March
Rainfall Rainy Season	1550 mm/year June to September

N.S. – Not Specified

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The area is for away from CRZ.(coastal regulation zone). ( ) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:77.8 m The topography is partly flat in nature.
4.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*	√		There is .forest land beside the alignment between Ch 1445-1842m &between 2190-3240m (LHS) Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)*
5.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: There are no wildlife species found in the project area. Endangered species (if any):None
6.	Inhabited Area	√		There are small villages namely Gossainpur (0m-999m), Mobarakpur (999m-4335m), Kheraiboni (4335m-6478m), Belia (6478m-7687m). Existing beside the alignment.
7.	Agricultural Land	√		Agricultural land exists beside the alignment near at Ch 0-48m (LHS). 217-651m (both side), 1445-1943m (RHS) 1842-2260m (LHS) 2498-2652m (RHS), 3240-3801m (both side), 4300-5521m (LHS), 4705-5521m(RHS),6478-7020m (both side), 7020-7218m (RHS), 7687-8011m (both side), 8494-9742m (both side) in scattered manner.
8.	Grazing Grounds	√		Grazing Ground exists beside the alignment at Ch. 3865m.
9.	Barren Land	√		There is a barren land at Ch. 700m-936m (both side), 1433m-1445m (LHS),

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	No such problem has been observed along the road since no part of the project road comprises of hilly terrain. ( ) No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/ swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake or swampy area beside the alignment. But many small & big Ponds exists beside the alignment at Ch. 1134m, 3941m, 4114m, 5574m, 5643m, 5762m, 5925m, 6290m & 8482m, (LHS) and 1134m, 3908m, 3978m, 6188m & 8268m (RHS)
3.	Are there any nallas/ streams/rivers etc. along/ crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There are few water courses(dry in nature) crossing the alignment at Ch 3801m, 4335m, 5845m and the river Darakeswar flows parallel to the alignment between Ch4180 to5774m. Other than these cross drainage structures exist throughout the alignment near Ch 378, 452, 510, 651, 999, 1254, 1433, 2260m and so on
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	Water stagnation problem has not been observed. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not prone to flooding. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 50 nos. of Trees with a dbh of 30 cm or more within 10m on either side of the alignment. (Annexure-I)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	There are no such areas within 100m from the road shoulder. ( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There are no rare or endangered species of flora or fauna within 100m from the road shoulder. ( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures within 10 m on either side from the centre line of the road alignment? *(If yes, attach list with chainage)*	√		There are 57 nos. of utility structures (EP, TP, HP) within 10m on either side of the road alignment. (Annexure-II)

No.	Parameter/ Component	Yes	No	Explanation
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are 9 nos. community structures within 10m on either side of the alignment as follows: Ch. 4057m (LHS) Temple ,7560m(LHS) P. School, 7590m (LHS) High School, 37m, 4697 (RHS) P. School. 4044m, 4098m, 5683m (RHS) Temple. 2331m (RHS) High School. (Annexure-III)

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalization of alignment, on 28/2/2013 & 1/3/2013. (list of people attached)
2.	Any suggestion received in finalizing the alignment	√		Suggestions (providing retaining wall, speed breaker, employment of local people) were received during finalisation.
3.	If suggestions received, were they incorporated into the design?		√	Final decision will be taken after discussion with PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6)

2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9)

3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10)

4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road

5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
1231		Tree
1403		Tree
1411		Tree
1433		Tree
1445		Tree
3542		Tree
3573		Tree
3958	Tree	
3976		Tree
4037		Tree
4114		Tree
4146	Tree	
4161	Tree	
4172	Tree	
4635		Tree
4697		Tree
5155-5211	5 Tree	
5233-5521	6 Tree	3 Tree
5739	Tree	
5774	Tree	
6221		Tree
7182		Tree
7205	Tree	
7218	Tree	
7471	Tree	
7495-7512	3 Tree	
7658		Tree
7695-7724		3 Tree
8051-8192	3 Tree	3 Tree

Attachment III
List of Community Structures

Chainage(M)	Left	Right
37		P. School
2331		High School
4044		Temple
4057	Temple	
4098		Temple
4697		P.School
5683		Temple
7560	P.School	
7590	High School	

Attachment II
list of Utilities

Chainage (M)	Left	Right
48	EP	
84	EP	
101		HP
153		EP
217	EP	
264		TF
1043		HP
1071	EP	
1104		EP
1129	EP	
1157		EP
1168		HP
1170		EP
1213		EP
1263		TF
1288		EP
1317		EP
1342	HP	
1372		EP
1397		EP
1435		EP
1943		High-tension(EP)
2652	High-tension(EP)	
3893	EP	
3962	EP/HP	
4040		HP
4075		EP
4125	EP	EP
4153		TF
4154		HP
4561	EP	
4598	EP	
4718	TF/EP	
4769	EP	
5608		TF
5643		EP
5762		EP
5815		EP
5896		TF
5925		EP
6167		EP
6195	EP	
6229		HP
6233		EP
6259	EP	
6478		EP
6590	EP	
6651		EP
7580	EP	
7613		EP
7642	HP	
7645	EP	
7687	EP	
8670	TF	

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					37			p.school			
			EP		48						
			EP		84						
					101		HP				
					153		EP				
				EP	217						
					264	TF					
					378						CD
					452						CD
					510						CD
					651						CD
					999						CD
					1043		HP				
				EP	1071						
					1104	EP					
			EP		1129						
					1134		Pond				
					1157		EP				
					1168		HP				
					1170	EP					
					1213		EP				
					1231		Tree				
					1254						CD
					1263		TF				
					1288		EP				
					1317		EP				
			HP		1342						
					1372		EP				
					1397		EP				
					1403		Tree				
					1411		Tree				
					1433		Tree				CD
					1435		EP				
					1445	Tree					
					1943			High Tension			
					2260						CD
					2331			High School			
		HighTENTION			2652						
					2896						CD
					3542	Tree					
					3573	Tree					
					3801						CD
					3865		Graging Ground				
				EP	3893						

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					3908	Pond					
				Pond	3941						
				Tree	3958						
			EP/HP		3962						
					3964						CD
					3976		Tree				
					3978		Pond				
					4037	Tree					
					4040	HP					
					4044		Temple				
			Temple		4057						
					4075		EP				
					4098		Temple				
					4114		Tree				
			EP		4125		EP				
			Tree		4146						
					4153		TF				
			Pond		4154		HP				
			Tree		4161						
			Tree		4172						
					4335						CD
				EP	4561						
				EP	4598						
					4635	Tree					
					4697	Tree		P.School			
			TF/EP		4718						
			EP		4769						
					4797						CD
					4915						CD
					5008						CD
					5147						CD
				5 Tree	5155-5211						
					5228						CD
				6 Tree	5233-5521	3 Tree					
					5559						CD
			Pond		5574						
					5608	TF					
				Pond	5643		EP				
					5683		Temple				
			Tree		5739						
			Pond		5762		EP				
				Tree	5774						
					5815		EP				
					5845						CD
					5896		TF				
			Pond		5925		EP				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage(M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					6117						CD
					6167		EP				
					6188	Pond					
			EP		6195						
					6221		Tree				
					6229		HP				CD
					6233		EP				
			EP		6259						
			Pond		6290						
					6478		EP				CD
			EP		6590						
					6651		EP				
					7182	Tree					
			Tree		7205						
			Tree		7218						
			Tree		7471						
			3 Tree		7495-7512						
		P.School			7560						
			EP		7580						
		High School			7590						
					7613	EP					
			HP		7642						
			EP		7645						
					7658		Tree				
			EP		7687						
					7695-7724		3 Tree				
					8011						CD
			3 Tree		8051-8192		3 Tree				
					8213						CD
					8268		Pond				
			Pond		8482						
					8494						CD
			TF		8670						
					8880						CD
					9445						CD
End Point					9742	End Point					

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Barahankol to Simni (T-07)
Block Name: Jhalda-2
District Name: Purulia
Total Length of the Road: 6.441 km
Package No.: WB-16-ADB 17

A. Climatic Conditions

Temperature	High: 42°C Low: 15°C
Humidity	High: 89% in July Low: 25% in Feb
Rainfall Rainy Season	1395mm/year July to September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The area along the project road is far away from coastal area.
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*		√	Altitude: The topography of the area is mainly plain in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: Legal Status of the forest area: (Reserved, National Park, Sanctuaries, unclassified, etc.)
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: N/A Endangered species (if any) : None
5.	Inhabited Area	√		The inhabited area starts basically from Barahankol Ch. 0m to 250m, Oldi Village Ch. 260m to 1000m, Khari Village Ch. 1050m to 1400m, Jhilinglohar Ch. 1450m to 2280m, Panrra Ch. 2300m to 3500m, Simni Ch. 5740m to 6441m.
6.	Agricultural Land	√		The agriculture land exists beside the project road.
7.	Grazing Grounds	√		As per the discussions with the villagers there is no grazing Ground.
8.	Barren Land	√		There is no barren land.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no problem of land slide or erosion along the road. ( ) No Secondary Information is available and Local Community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
2.	Are there any lakes/ swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	As such there are no lakes/Swamps beside the project road alignment. However, few Ponds or water bodies were found to be existing at Ch.-1450m (LHS), Ch.-1720m (L.H.S.), Ch.-2300m (L.H.S.), Ch.-3180m (L.H.S.), Ch.-3700m (L.H.S.), Ch.-2810m (Both Side), Ch.-2010m (R.H.S.), Ch.-3200m (R.H.S.), Ch.-3300m (R.H.S.), Ch.-3550m (R.H.S.), Ch.-4020m (R.H.S.), Ch.-4950m (R.H.S.) Ch.-5530m (R.H.S.) and Ch.-5920m (RHS).
3.	Are there any nallas/ streams/rivers etc. along/ crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There were no streams nallas/ streams/ rivers found crossing the road. However, the existing cross drainages were noticed at Ch. 300m, 3820m, 4600m.
4.	Are there problems of water Stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no problem of water stagnation and other drainage issues on or near the road ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not flood prone. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are altogether 32 nos. of Trees with dbh of 30cm or more within 10m on either side from the centre line of the road alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	No faunal habitat areas or faunal breeding Ground exists along the road within 100m of the road shoulder ( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species. ( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures[1] within 10 m on either side from the centre line of the road alignment? *(If yes, attach list with chainage)*	√		There are 52 nos. of EP (including transformer) and 7 nos. of HP within 10m on either side from the centre line of the road alignment.
10.	Are there any religious, cultural or community structures/buildings[2] within 10 m on either side from the centre line of the road alignment? *(If yes attach list with chainage)*	√		In case of religious of cultural or community structures, there are School at Ch. 1120m (R.H.S.), 1380m (R.H.S.), 2700m (R.H.S.), 3510m (R.H.S.), 1890m (L.H.S.) and 6441m (at the end point). There are also Temples at Ch. 6010m (RHS) & Ch. 6115m (LHS), Post Office at Ch. 6205m (LHS), Tomb at Ch. 3250m (RHS) and Community Hall at Ch. 5860m (LHS).

D. Public Consultation

[1] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

[2] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		The proposed alignment has been finalized after taking suggestions from the local community. This was confirmed by the villagers during the transect walk as shown in Attachment IV.
2.	Any suggestion received in finalizing the alignment	√		Suggestion received in finalizing the alignment.
3.	If suggestions received, were they incorporated into the design?		√	Suggestion will be incorporated after consulting with respective PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6)
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9)
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10)
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
1550m	-	2 Tree
1890m	-	1 Tree
2750m	1 Tree	-
3300m	-	1 Tree
3400m	1 Tree	-
3700m	-	1 Tree
4700m-4800m	2 Tree	4 Tree
4800m-5000m	3 Tree	3 tree
5000m-5200m	3 Tree	5 Tree
5700m	-	1 Tree
5840m	1 Tree	-
5910m	1 Tree	-
6060m	-	1 Tree
6210m	-	1 Tree

Attachment III
List of Community Structures

Chainage(M)	Left	Right
1120m	-	School
1380m	-	School
1890m	S.S.K.	-
2700m	-	School
3250m	-	Tomb
3510m	-	School
5860m	Community Hall	-
6010m	-	Temple
6115m	Temple	-
6205m	Post Office	-

Attachment II
list of Utilities

Chainage (M)	Left	Right
5m	-	1EP
35m	-	1EP
70m	1EP	-
100m	-	1EP
135m	1EP	-
170m	-	1EP
220m	1EP	-
380m	-	1EP
420m	1HP	-
440m	1EP	-
500m	-	1EP
570m	-	1EP
670m	EP	-
700m	-	1EP
730m	-	1EP
780m	-	1EP
820m	1EP	-
860m	-	1EP
900m	1EP	-
950m	1EP	-
975m	1TF	1EP
1050m	-	1EP
1080m	1EP	-
1100m	1EP	-
1110m	-	1EP
1150m	1EP	1HP
1170m	-	1EP
1190m	1EP	1HP
1240m	1EP	-
1280m	1EP	-
1340m	1EP	-
4598	EP	1360m
4718	TF/EP	1380m
2080m	1HP	-
2170m	1EP	-
2650m	-	1EP
3100m	1EP	-
3300m	-	1EP
3385m	-	1EP
3400m	1TF	-
3430m	-	1EP
3460m	-	1EP
5630m	-	1EP
5650m	-	1HP
5670m	1EP	-
5740m	-	1EP
5780m	1EP	-
5840m	-	1EP
5860m	1EP	-
6030m	1TF+1EP	1HP
6060m	1EP	-
6110m	-	1EP
6115m	1EP	-
6110m-6200m	1EP	-
6210m	-	1EP
6205m-6380m	2EP	-
6400m	-	1EP
6415m	1EP	-
6430m	-	1EP

Attachment- IV

8m to 10m	6m to 8m	4m to 6m	2m to 4m	0m to 2m	Chainage(M)	0m to 2m	2m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					5m		1EP				
					35m		1EP				
			1EP		70m						
		House			100m		1EP				
			1EP		135m						
					170m		1EP	House			
		B.Wall			185m-200m						
			1EP		220m						
					300m						E.B.C.
		House			340m						
		House			380m		1EP				
		2House			400m						
		1HP			420m						
			1EP		440m						
					500m		1EP				
					570m		1EP				
					585m			Bou. Wall			
		2 House			620m						
			EP		670m						
					700m		1EP				
					730m		1EP				
		3 House			730m-750m			House			
					780m		1EP				
			1EP		820m						
		House			860m		1EP				
			1EP		900m						
			1EP		950m						
	1TF				975m		1EP				
		House			1000m						
					1050m		1EP				
			1EP		1080m						
			1EP		1100m						
					1110m		1EP				
					1120m				P.School		
			1EP		1150m		1HP				
					1170m		1EP				
			1EP		1190m		1HP				
					1200m			2House			
			1EP		1240m			B.Wall			
			1EP		1280m						
			1EP		1340m						
					1360m		1EP	House			
					1380m		1HP	School			
	Pond				1440m						

8m to 10m	6m to 8m	4m to 6m	2m to 4m	0m to 2m	Chainage(M)	0m to 2m	2m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
	A.L.				1500m				A.L.		
					1550m		2Tree				
					1600m-1700m		2 House				
	Pond				1740m						
		House			1760m						
		House			1800m						
	S.S.K.				1890m		1Tree				
					2020m			Pond			
			House		2060m						
			1HP		2080m						
		House			2100m						
		House			2140m						
			1EP		2170m						
		2House			2180m						
	Pond				2300m						
					2390m						
					2650m		1EP				
					2700m			School			
		1Tree			2750m						
	Pond				2810m			Pond			
			1EP		3100m			2 House			
	Pond				3190m						
		Side Drain			3200m			Pond			
			House		3250m				Tomb		
					3300m		1EP		Pond		
		House			3310m						
		House			3385m		1EP				
		1Tree	1TF		3400m						
		2House			3430m		1EP				
		House			3460m		1EP				
		House			3470m		House				
					3510m			School			
	Pond				3700m		1Tree				
					3820m						E.P.C.
					4040m				Pond		
					4590m						E.B.C.
		2Tree			4700m-4800m			4Tree			
		3Tree			4800m-5000m		3Tree	Pond			
		3Tree			5000m-5200m		5Tree				
					5440m						P.P.C
					5630m		1EP				
					5650m		1HP				
			1EP		5670m						
					5700m			1Tree			
					5740m		1EP				

8m to 10m	6m to 8m	4m to 6m	2m to 4m	0m to 2m	Chainage(M)	0m to 2m	2m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			1EP		5780m						
			1Tree		5840m		1EP				
Community Hall			1EP		5860m						
			1Tree		5910m			Pond			
		House			6000m						
					6010m				Temple		
	Pond	1TF	1EP		6030m		1HP				
			1EP		6060m		1Tree				
		House	House		6050m-6100m		2House				
					6110m		1EP				
		Temple	1EP		6115m						
		2House	1EP		6110m-6200m		1Tree	3 House			
			2House		6210m		1EP	1Tree			
		P.O.			6205m						
		5House	2EP		6205m-6380m			10House			
			House		6390m			2 House			
					6400m		1EP				
			1EP		6415m						
					6430m		1EP				

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Uttar Brindaban Chak to Uttar Narayan Pakuria
Block Name: Panskura-II
District Name: Purba Midnapur
Total Length of the Road: 7.718Km
Package No.: WB-19-ADB 19

A. Climatic Condition

Temperature	High: 38°C Low: 20°C
Humidity	High: 88% in July Low: 32% in March
Rainfall Rainy Season	1400mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	Distance from Coastline: km. The proposed road is far away from Coastal Regulation Zone (CRZ). ( ) more than 50% ( ) less than 20%
2.	Type of Terrain (Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 9.0m The area along the project road is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: The proposed road is not passed through any forest area. Legal Status of the Forest Area: The road neither passed through any forest area not located along the forest area. *(Reserved, National Park, Sanctuaries, Unclassified, etc.*
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals: There is no wild-life species in the project area.(as there is no forest) Endangered species (if any):None
5.	Inhabited Area	√		The proposed road passes through the inhabited area like Tahala ((0-632m), Nahala (632-770m), Sarda Basan (2306-2462m), Dakshin Sagarbar (2462-2833m), Chandpur (2910-3708m), Deulpur (3708-5450m), Dakshin Jiada (5450-6600m), Narayan Pakuria (6600-7265m).
6.	Agricultural Land	√		Some portion of the project road passes through agricultural land at Ch. (2000m-2440m), (3708m-4252m), (5450m-6600m) RHS.
7.	Grazing Grounds		√	There is no grazing Ground in the project site area.
8.	Barren Land		√	There is no barren land in the project site area.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road?		√	The area along the project road is not prone to the landslide or erosion problems.

No.	Parameter/ Component	Yes	No	Explanation
	(*If yes, indicate the location (right or left side) and the chainage)*			( ) No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*	√		There is a swampy area from Ch. (7280-7335m). There is no lake falling by the side of the road.
3.	Are there any nallas/ streams/ rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There is no nallas/ streams/ rivers etc. Along/ crossing by the road but there is canal exist along the road from (126m-2306m) LHS and (126m-2110m) RHS. Again (2462m-2910m) LHS, (3708m to 6758m).
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no water stagnation problem or any other drainage issue on or near the road. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not prone to the flooding problems. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 16 Nos. of Trees with a dbh of 30cm or more within 10m on either side from the centre line of the road alignment. (Moreover there is a series of Trees below the dbh of 30 cm. on either side of the road alignment, out of which 100Trees to be felled) (List of Trees indicating the location has been attached in Attachment-I)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road and within 100m of the road shoulder, there are no faunal habitat areas faunal breading Ground, bird migration areas or other similar areas. ( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder, there is no evidence of floral and faunal species that are classified as endangered species. ( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures[26] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are 31 nos. of utility structures (EP, TP, HP, Tap, TF etc.) within 10m on either side from the center line of the road alignment. (List of utility has been attached with chainage in Attachment-II)
10.	Are there any religious, cultural or community structures/buildings[27] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are 5 nos. Of religious, cultural or community structures buildings within 10m on either side from the center line of the road alignment. (List has been attached in Attachment-III)

[26] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

[27] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment. Date of consultation 20/03/2013 (List of people attached)
2.	Any suggestion received in finalizing the alignment	√		Suggestion has been received before finalizing the alignment.
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU.

E. Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I

List of Trees

Chainage(M)	Left (No.of Trees)	Right (No. of Trees)
482		Tree
632		Tree
770		Tree
2000		Tree
2795		Tree
2844		Tree
2850	Tree	
2851	Tree	
2880	Tree	
2890	Tree	
2900	Tree	
3265		Tree
3714	Tree	
3836	Tree	
6900		Tree
6990		Tree

Attachment II

List of Utilities

Chainage(M)	Left	Right
0		EP
12	EP	EP
20	HP	
645		EP
2526		EP
2533	EP	
2599	TF	EP
2636		EP
2690	EP	
2758	TF	
2775		EP
2833		EP
2851		EP
2880		TP
2890		TF
2900	EP	EP
3050	EP	
3100	EP	
3149	EP	
3240		EP
3280		TF
3319	TP	
3348		
3370	EP	
3375	TAP	
3421	EP	
3467		EP
7100		2 EP

Attachment III

List of Community Structures

Chainage(M)	Left	Right
2636	ICDS	
2833	S.S.K.	
3348		Party Office
3375		Sishu Bikash Kendra
3435		ICDS

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					0		EP				
			EP		12		EP				
			HP		20						
					67						CD
					482		Tree				
					632		Tree				
					645		EP				
					770		Tree				
					900			Pond			
					935			Pond			
					1618						CD
					2000		Tree				
					2462						CD
					2526		EP				
			EP		2533						
			TF		2599		EP				
			ICDS		2636		EP				
			EP		2690						
			TF		2758						
					2775		EP				
					2795		Tree				
			S.S.K.		2833		EP				
					2844		Tree				
			Tree		2850						
			Tree		2851		EP				
			Tree		2880		TP				
			Tree		2890		TF				
		Tree	EP		2900		EP				
				EP	3050						
			EP		3100						
			EP		3149						
					3240		EP				
					3265		Tree				
					3280		TF				
				TP	3319						
					3348		Party Office				
			EP		3370						
			TAP		3375		Sishu Bikash Kendra				
				EP	3421						
					3435			ICDS			
					3467	EP					
					3708						CD

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Tree		3714						
			Tree		3836						
					4252		Big Pond				
					4730						CD
					6900		Tree				
					6990		Tree				
					7100		2 EP				
					7265						CD
		End Point			7718			End Point			
EP - Electric Pole; TP - Telephone Post; H.P - Hand Pump: A.L - Agriculture Land; C.D - Cross Drainage Structure											

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Uttar lakshmipur To Tamaghata ferryghat
Block Name: Purbasthali II
District Name:Burdwan
Total Length of the Road: 3.2 km
Package No.: WB-05-ADB 18

A. Climatic Conditions

Temperature	High: 36°C (May) Low: 14°C(Dec)
Humidity	High: 92% in July Low: 65% in March
Rainfall Rainy Season	1550mm/year June to mid-September

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	Distance from Coastline: km. The area is far away from CRZ (Coastal Regulation Zone). ( ) more than 50% ( ) less than 20%
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude: 11.8m The topography of the area is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	Type of Vegetation: There is no forest area beside the alignment. Legal Status of the Forest Area: *(Reserved, National Park, Sanctuaries, Unclassified, etc.)* No part of the project road passes through any forest area.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	Name of animals:N.A. Endangered species (if any):None
5.	Inhabited Area	√		There are small villages namely Uttar lakshmipur(000m-1000m),Tamaghata(1000m-3054m).
6.	Agricultural Land	√		Some part of the project road passes through agriculture land at following ch. 414-980m(LHS). 430m- 577m(RHS). 2179m-2418m(LHS)2200m-2418(RHS)
7.	Grazing Grounds		√	As per the discussions with the villagers no part of the study area consisted of grazing land.
8.	Barren Land		√	There is no barren land beside the alignment.

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no landslide or erosion problem along the road. ( ) No Secondary Information is available and Local Community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lakes/swamps beside the road, but there are Ponds at Ch. 345m, 425m, 998m, (RHS) 407m, 998m, (LHS).
3.	Are there any nallas/ streams/ rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	There are no nallahs/streams/rivers etc. crossing by the road but there are some cross drainage structures at Ch. 20m, 413m, 1819m, 1880m, 2139m.
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no water stagnation problems in the project road. ( ) No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area is not prone to flooding. ( ) No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 30 Nos. of Trees with a dbh of 30m or more within 10m on either side of the alignment. (List attached)
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	No faunal habitat, breeding Ground etc. Has been found within 100 m of the road shoulder. ( ) No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	There is no evidence of endangered species of flora & fauna within 100m from road shoulder. ( ) No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures[1] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are 71 Nos. of utility structures (EP, TP, HP, etc.) within 10m on either side of the centre line of road alignment. (List attached)
10.	Are there any religious, cultural or community structures/buildings[2] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are 5 nos. of community structures (School, club, Temple Grave yard, etc.) within 10m on either side of the alignment. (List attached)

[1] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

[2] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted on 08.03.2013.(list of people attached).
2.	Any suggestion received in finalizing the alignment	√		Community suggested to construct culverts, speed breakers, pilling work wherever required.
3.	If suggestions received, were they incorporated into the design?		√	Suggestions will be incorporated after discussion with respective PIU.

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
346M	Tree	
577M		Tree
628M		Tree
818M		Tree
1165M		Tree
1169M	Tree	
1204M	Tree	Tree
1288M		Tree
1305M		Tree
1312M		Tree
1541M	Tree	
1720M	Tree	
1743M	Tree	
1746M	Tree	
1748M	Tree	
1822M		Tree
1843M		Tree
1881M	Tree	
2037M	Tree	
2589M	Tree	
2591M		Tree
2617M		Tree
2657M		Tree
2696M	Tree	
2736M		Tree
2935M	Tree	
2988M		Tree
3031M	Tree	Tree

Attachment II
List of Utilities

Chainage (M)	Left	Right
2M	TP	
10M		HP
15M		EP
48M		EP
90M	EP	
103M		HP
105M		EP
130M	HP	
157M	EP	
186M	TP	
188M		EP
238M	EP	
285M		EP
329M		HP
334M	EP	
650M		EP
707M	EP	
763M	EP	
807M	EP	
865M	EP	
902M		HP
980M	EP	
1232M		EP
1279M	EP	
1322M		EP
1342M		HP
1386M	EP	
1429M		EP
1465M		EP
1480M	EP	
1498M	EP	
4598	EP	1510M

Attachment II
list of Utilities (Contd.)

Chainage (M)	Left	Right
4718	TF/EP	1528M
1538M		TRF
1545M		EP
1581M		EP
1639M	EP	
1684M	EP	
1774M	EP	
1809M	EP	
1866M		EP
1899M		EP
1939M	EP	
1940M		TP
1979M	EP	
2021M		EP
2469M		EP
2531M	EP	
2546M		HP
2550M		EP
2608M	EP	
2640M	EP	
2645M		EP
2647M		TRF
2650M		EP
2676M	EP	
2692M		EP
2746M	EP	
2750M		EP
2810M		EP
2820M	EP	
2849M		EP
2860M	EP	
2875M	HP	
2929M	EP	
2956M	EP	
2962M		EP
2987M		EP
3022M	EP	
3030M		HP

Attachment III
List of Community Structures

Chainage(M)	Left	Right
40M		Club
800M		ICDS
1549M		Idgah
2900M	Samabay Samity	
3030M	School	
3510m	-	School
5860m	Community Hall	-
6010m	-	Temple
6115m	Temple	-
6205m	Post Office	-

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			TP		2M						
					10M	HP					
					15M		EP				
					20M						CD
					40M		Club				
					48M		EP				
			EP		90M						
					103M		HP				
					105M		EP				
			HP		130M						
			EP		157M						
			TP		186M						
					188M		EP				
					220M-330M		Brick Klins				
			EP		238M						
					285M		EP				
					329M		HP				
			EP		334M						
					345M		Pond				
			Tree		346M						
			Pond		407M						
					413M						CD
					425M		Pond				
					430M-511M		A.L				
			A.L		414M-980M						
					577M		Tree				
					628M		Tree				
					650M		EP				
			EP		707M						
			EP		763M						
					800M		ICDS				
			EP		807M						
					818M		Tree				
			EP		865M						
					902M		HP				
			EP		980M						
			Pond		998M		Pond				
					1165M	Tree					
				Tree	1169M						
				Tree	1204M	Tree					
					1232M		EP				
				EP	1279M						
					1288M		Tree				
					1305M		Tree				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1312M		Tree				
					1322M	EP					
					1342M		HP				
					1350M						
			EP		1386M						
					1429M		EP				
					1465M		EP				
			EP		1480M						
			EP		1498M						
					1510M		HP				
		TRF	EP		1528M						
					1538M		TRF				
			Tree		1541M						
					1545M		EP				
					1549M		Idgah				
					1581M		EP				
			EP		1639M						
			EP		1684M						
				Tree	1720M						
				Tree	1743M						
				Tree	1746M						
				Tree	1748M						
				EP	1774M						
			EP		1809M						
					1819M						CD
					1822M		Tree				
					1843M		Tree				
					1866M		EP				
					1880M						CD
				Tree	1881M						
					1899M		EP				
			EP		1939M						
					1940M		TP				
			EP		1979M						
					2021M		EP				
			Tree		2037M						
					2139M						CD
		A.L			2179M-2418M						
					2200M-2418M			A.L			
					2469M		EP				
			EP		2531M						
					2546M		HP				
					2550M		EP				
				Tree	2589M						
					2591M		Tree				

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			EP		2608M						
					2617M	Tree					
			EP		2640M						
					2645M		EP				
					2647M		TRF				
					2650M		EP				
					2657M		Tree				
			EP		2676M						
					2692M		EP				
			Tree		2696M						
					2736M		Tree				
			EP		2746M						
					2750M		EP				
					2810M		EP				
			EP		2820M						
					2849M		EP				
				EP	2860M						
			HP		2875M						
			Samabay Samity		2900M						
			EP		2929M						
			Tree		2935M						
			EP		2956M						
					2962M		EP				
					2987M		EP				
					2988M		Tree				
			EP		3022M						
School					3030M		HP				
			Tree		3031M		Tree				
End Point					3207 M	End Point					
EP - Electric Pole; TP - Telephone Post; H.P - Hand Pump: A.L - Agriculture Land; C.D - Cross Drainage Structure											

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Gopinathpur to Kotaijiageria
Block Name: Narayangarh
District Name: Paschim Medinipur
Total Length of the Road: 11.876Km
Package No.: WB-20-ADB 41

A. Climatic Conditions

Temperature	**C.**	High:32°C	low:18°C
Humidity	**D.**	High: 81%	low: 43%
Rainfall Rainy Season	1450 mm/year June to September		

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The project road is far away from CRZ (Costal Regulation Zone)
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:23 m The project road passes through plain land.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	The road does not pass through any forest area. No secondary information is available and local community is not aware of this matter
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	There is no wildlife as there is no forest area. Endangered species (if any): None
5.	Inhabited Area	√		Balichaturi, DakshinKotai, Harinageria, Jagannathgour, KismatKubirpur, Kubirpur, KushdaMadhabchak, Saubarikbar, Sarisa, Tosra.
6.	Agricultural Land	√		The road is passing through agricultural land
7.	Grazing Grounds		√	There is no grazing Ground in the project road
8.	BarrenLand		√	There is no barren land

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	The area along the project road is not prone to landslide or erosion problems No secondary information is available and local community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake / swamps except other water bodies like Pond falling by the side of the road atCh. 0+126, 8+892 and 11+320 on LHS and at Ch. 1+892, 2+940, 4+015, 5+221, 7+490 and 10+042 on RHS
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There are some water crossing the road at Ch. 0+220, 0+302, 0+552, 0+609, 1+024, 1+621, 2+043, 2+288, 2+511, 2+709, 3+207, 3+422, 3+671, 3+707, 3+902, 3+946, 3+994, 4+089, 4+145, 4+508, 4+532, 4+612, 4+823, 4+896, 4+950, 5+011, 6+722, 7+765, 7+942, 8+056, 8+875, 8+956, 9+751, 9+856, 9+912, 10+156, 10+880.

No.	Parameter/ Component	Yes	No	Explanation
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no water stagnation area found in the project road.
				No secondary information is available and local community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not flood prone.
				No secondary information is available and local community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? \ (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 1011 Trees with dbh of 30m or more within 10m on either side of the alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road and within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area or similar area.
				No secondary information is available and local community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species
9.	Are there any utility structures within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are (TP- 10, EP- 71, HP- 4, Transformer- 5, SP- 2)nos.on LHS and (TP- 5, EP- 71, HP- 13, Transformer- 6, SP- 2) nos. on RHS within 10m on either side of the road alignment.
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are schools at Ch. 0+060 and 2+960 on LHS and at Ch.0+942, 5+803, 5+823, 5+831 and 7+059 on RHS. There are Temples at Ch. 3+790 on LHS and at Ch. 1+076 and 7+352 on RHS. There are Banks at Ch. 5+795, 5+803 on LHS and at Ch.6+141 on RHS. There is Post Office and Club at Ch. 5+795 and 9+716 respectively on LHS.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment.
2.	Any suggestion received in finalizing the alignment	√		Suggestions received during finalizing the alignment
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.

Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
60		Tree- 1
71		**Tre**e- 3
96	Tree- 6	
329		Tree- 2
361	Tree- 1	Tree- 1
550	Tree- 20	Tree- 27
636	Tree- 7	Tree- 21
716	Tree- 5	Tree- 16
766	Tree- 8	Tree- 8
810	Tree- 5	Tree- 4
844	Tree- 5	Tree- 2
887	Tree- 3	Tree- 13
924		Tree- 3
978	Tree- 3	Tree- 7
988	Tree- 10	
1011- 1035	Tree- 6	
1035		Tree- 11
1076	Tree- 13	
1123	Tree- 4	Tree- 2
1168	Tree- 11	Tree- 6
1211	Tree- 7	Tree- 6
1241	Tree- 3	Tree- 6
1279		Tree- 9
1309	Tree- 4	Tree- 6
1332	Tree- 1	Tree- 3
1378		Tree- 6
1415- 1444	Tree- 8	Tree- 1
1430	Tree- 4	
1478		Tree- 2
1514	Tree- 4	Tree- 2
1553	Tree- 3	
1588	Tree- 6	Tree- 2
1621	Tree- 4	
1652		Tree- 1
1785	Tree- 2	
1879	Tree- 8	
1968		Tree- 22
2056		Tree- 5
2587	Tree- 3	
2756	Tree- 6	Tree- 3
2759	Tree- 2	
2786	Tree- 3	Tree- 6
2824	Tree- 4	Tree- 1
2828	Tree- 2	
2867		Tree- 6
2930	Tree- 3	Tree- 2
3030	Tree- 2	
3051	Tree- 3	Tree- 2
3118	Tree- 4	
3138		Tree- 3
3160	Tree- 3	Tree- 3
3165		Tree- 6
3195		Tree- 3
3239		Tree- 2
3260	Tree- 2	
4433		Tree- 3
4449		Tree- 1
4524		Tree- 2
4545	Tree- 1	Tree- 4
4628	Tree- 2	
4632	Tree- 3	
4649		Tree- 11
4653	Tree- 3	
4779	Tree- 52	Tree- 21
4840	Tree- 9	Tree- 20
5614	Tree- 8	

Chainage (M)	Left (No. of Trees)	Right (No. of Trees)
5682		Tre**e- 4**
5726		Tree- 6
5776		Tree- 2
5783	Tree- 1	
5823	Tree- 4	
5876		Tree- 6
5904	Tree- 1	Tree- 7
5904	Tree- 2	Tree- 8
5953	Tree- 6	Tree- 9
6010		Tree- 5
6104		Tree- 3
6126		Tree- 2
6216	Tree- 4	
6260	Tree- 1	Tree- 2
6265	Tree- 9	
6409	Tree- 26	Tree- 3
6594	Tree- 4	
6620	Tree- 15	
6650	Tree- 5	Tree- 8
6708	Tree- 3,	Tree- 15
6716		Tree- 6
6853	Tree- 3	Tree- 6
6865	Tree- 2	
6868	Tree- 3	
6891	Tree- 1	
6900	Tree- 10	
6954	Tree- 4	
6999		Tree- 1
7037		Tree- 6
7059	Tree- 4	Tree- 2
7084	Tree- 4	
7121	Tree- 3	
7164	Tree- 1	
7203	Tree- 3	
7223	Tree- 6	Tree- 2
7266	Tree- 4	Tree-4
7352	Tree- 2	Tree- 4
8070	Tree- 1	Tree- 4
8701		Tree- 8
8728	Tree- 2	
8746	Tree- 1	Tree- 2
8767	Tree- 2	
8813	Tree- 4	Tree- 6
8838	Tree- 2	Tree- 4
8866	Tree- 1	
8882	Tree- 1	
8929	Tree- 2	
8984		Tree- 2
9011		Tree- 2
9022	Tree- 5	Tree- 2
9055	Tree- 6	
9135	Tree- 3	Tree- 2
9152	Tree- 2	
9193	Tree- 6	
9383	Tree- 3	Tree- 2
9404	Tree- 8	
9429	Tree- 3	Tree- 2
9583	Tree- 6	
9639	Tree- 2	Tree- 2
9716	Tree- 9	Tree- 4
9725	Tree- 1	
9757	Tree- 8	
9791	Tree- 7	Tree- 3
9822	Tree- 2	Tree- 1
9849		Tree- 2
10019		Tree- 4

5644	Tree- 4	

Attachment I (Contd.)

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
10444	Tree- 2	
10215		Tree- 2
10340	Tree- 1	Tree- 3
10373	Tree- 2	

Attachment II
List of Utilities

Chainage (M)	Left	Right
4	TP	
43	EP	
96		EP
116	TP	
117		TP
145		EP
151		EP
192		EP
239		EP
263		EP
290		EP
296		EP
316		EP
340		EP
716		EP
766		EP
810	EP	
844		EP
887	EP	
924		HP
935	EP, TP	
942	TP	TP
978	TP	
988	EP	
993	EP	
1076	EP	
1123	EP	
1173	EP	TP
1241	EP	
1279	EP	
1309	EP	
1332	EP	
1337- 1374	HP	
1378		EP
1444	EP	
1514	EP	
1553	EP	EP
1621	EP	EP
1652	Transformer	
1677	EP	
1739		EP
1785		EP
2553		EP
2636	EP	EP-2
2695	EP	
2723	EP	
2756		HP
2759	EP	
2786		HP
2828	EP	
2870		Transformer
2873		EP-2
2890	TP	
2930	EP	
2960	EP	

10045		Tree- 5
10166	Tree- 10	Tree- 6

Attachment I I (Contd.)

Chainage (M)	Left	Right
3195	EP	
3239	EP	EP
3260		HP
3279		EP
4354	Transformer	
4381		EP-2
4433	EP- 2	EP
4470	EP	
4524		HP
4545	EP	
4600	EP	EP
4628		HP
4649		EP
4653		TP
4850	EP	EP
5545	EP-2	
5585	EP	
5644	EP	EP, HP
5682	EP	
5726	TP	
5776	EP	
5795	TP	
5823	SP	
5831	HP	EP
5849	TP	
5904		EP
5904		EP
5953	EP	
6003		SP
6048	EP	
6104	HP	
6126	Transformer	EP
6180		EP
6197	EP	Transformer
6216	EP	
6265		EP
6511	EP	Transformer
6594	EP	
6620	EP- 2	
6650		EP
6708	EP	
6865		EP
6868		EP
6891		EP
6900	EP	EP
6954		HP
6960	EP	EP
7084	EP-2	EP
7089		HP, EP-2, Transformer
7127		EP
7164	EP	
7203	EP	
7243		Transformer
7266		EP-2
8701	EP-2	
8776	EP,Transformer	EP
8813	EP	EP
8866		HP, EP-2
8882		EP-2
8929	EP-2	
9011	EP	
9022		EP
9055		HP
9152		EP

3051		EP		9193		EP
3118	EP			9383		EP
3160	EP			9583		EP

Attachment I I (Contd.)

Chainage (M)	Left	Right
9725		EP
9757		EP
9822	EP	
9849		EP
9940	EP	
10045		HP
10052		EP
10080		EP
10126	EP	EP
10444	EP	EP, Transformer
10215		EP
10340	EP	
10343		HP
10373		SP
10395	HP	
10411	EP	
10438	EP	
10454	SP	
10476	EP	
10560		EP
10566		TP
10602	TP	
11876	Transformer, EP-3	EP-5

Attachment III

List of Community Structures

Chainage(M)	Left	Right
60	School	
935		
942		School
1076		Temple
2960	School	
3790	Temple	
5795	Post Office, Bank	
5803	Bank	School
5823		School
5831		School
6141		Bank
7059		School
7352		Temple
9716	Club	

ATTACHMENT- IV

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m
			TP		4					
			EP		43					
			School		60		Tree			
					71		Tree- 3			
			Tree- 6		96		EP			
					102					
			TP		116					
					117		TP			
					145	EP				
					151	EP				
					155					
					192	EP				
					205					
					239	EP				
					263	EP				
					283					
					290		EP			
					296			EP		
					316		EP			
					322					
					329		Tree- 2			
					340		EP			
			Tree		361		Tree			
			Tree- 20		550		Tree- 27			
			Tree- 7		636		Tree- 21			
			Tree- 5		716		EP, Tree- 16			
			Tree- 8		766		EP, Tree- 8			
		Pond	EP, Tree- 5		810		Tree- 4, Pond			
			Tree- 5, Pond		844		Tree- 2, EP			
		Pond	EP, Tree-3		887		Tree- 13			
			Pond		924		Tree- 3, HP			
		Pond	EP, TP		935				School	
			TP		942		TP	School		
			Tree- 3, TP		978		Tree- 4	Tree- 2	Tree- 1	
Tree- 3	Tree- 2		Tree- 5, EP		988					
					991					
			EP		993					
		Tree- 6	Pond		1011- 1035					
					1035	EP	Tree- 8	Tree- 3		
		EP	Tree- 13		1076				Temple	
		EP	Tree- 4		1123		Tree- 2			
			Tree- 11, Pond		1168		Tree- 6			
				EP	1173		TP			
			Tree- 7		1211		Tree- 6, Pond			

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m
			Tree- 3	EP	1241		Tree- 6, Pond			
		EP			1279		Tree- 6	Tree-3	Pond	
		EP	Tree- 4		1309		Pond, Tree- 6			
		EP	Tree		1332		Tree- 3			
			HP		1337- 1374		Pond			
					1378	EP	Tree- 6			
			Tree- 8		1415- 1444		Pond	Tree- 1		
			Tree- 4		1430					
				EP	1444					
					1478		Tree- 2			
			Tree- 4	EP	1514		Tree- 2			
			Tree- 3	EP	1553	EP	Pond			
			Tree- 6		1588		Tree- 2			
		Tree- 4		EP	1621	EP				
			Transformer	Pond	1652		Tree- 1			
				EP	1677					
					1699					
					1739	EP				
			Tree- 2		1785	EP				
			Tree- 8		1879					
					1968		Tree- 22			
					1988	Pond				
					2056		Tree- 5			
					2480					
					2528					
					2553	EP				
			Tree- 3		2587					
				EP	2636	EP-2				
				EP	2695					
				EP	2723					
			Tree- 6		2756		HP, Tree- 3			
			Tree- 2	EP	2759					
			Tree- 3		2786		HP, Tree- 6			
					2802		Pond			
			Tree- 4		2824		Tree- 1			
			Tree- 2	EP	2828					
					2867		Tree- 4		Tree- 2	
					2870			Transformer		
					2873	EP-2				
			TP		2890					
					2920		Pond	Pond		
			Tree- 3	EP	2930		Tree- 2			
School				EP	2960					
			Tree- 2		3030		Pond			
			Tree- 3		3051		EP, Tree- 2			

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m
					3080					
			EP- Tree- 4		3118			Pond		
			Pond		3138		Tree- 3			
			EP- Tree- 3		3160		Tree- 3			
					3165		Tree- 6			
				EP	3195		Tree- 3			
				EP	3239		EP, Tree- 2			
			Tree- 2, Pond		3260		HP			
			Pond		3279	EP				
			Temple		3790					
					3791					
					4255					
		Pond	Transformer		4354					
					4365					
					4381	EP-2				
					4400		Pond			
			T- 3	EP-2	4433	EP	Tree- 3			
			Pond		4449		Tree			
				EP	4470					
			Pond		4505					
			Pond		4524		Tree- 2, HP			
			Tree- 1	EP	4545		Tree- 4			
			Pond		4586		Pond			
			Pond	EP	4600	EP				
			Tree- 2		4628		HP			
			Tree- 3		4632					
					4649	EP	Tree- 11			
			Tree- 3		4653		TP	Pond		
	Tree- 2	Tree- 6	Tree- 44		4779		Tree- 21			
			Tree- 9, Pond		4840		Tree- 20			
			Pond	EP	4850	EP				
				EP-2	5545					
				EP	5585					
			Tree- 8		5614					
			Tree- 4	EP	5644	EP			HP	
				EP	5682		Tree- 4			
			TP		5726		Tree- 6	Tree- 2		
				EP	5776		Tree- 2			
			Tree- 1		5783					
			TP, PO, Bank		5795		School			
			Bank		5803		School			
		SP	Tree- 4		5823		School			
			HP		5831	EP				
			TP		5849					
					5853					

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m
					5864					
					5876		Tree- 6			
			Tree- 1		5904	EP		Tree- 4		
			Tree- 2		5904	EP	Tree- 5			
			Tree- 6	EP	5953		Tree- 2			
					6003		SP			
					6010		Tree- 2	Tree- 3		
				EP	6048					
			HP		6104		Tree- 3			
				Transformer	6126	EP	Tree- 2			
					6141		Bank			
					6180	EP				
				EP	6197	Transformer				
			Tree- 4	EP	6216					
			Tree- 1		6260		Tree- 2			
			Tree- 9		6265			EP		
					6292					
					6354					
					6384		Pond, Tree- 6			
			Tree- 26		6409		Tree- 3			
				EP	6511	Transformer				
					6543					
		EP	Tree- 4		6594					
	EP- 2		Tree- 15		6620					
			Tree- 5		6650	EP	Tree- 8			
			Tree- 3, EP		6708		Tree- 13	Tree- 2		
					6716		Tree- 6			
			Tree- 3		6853		Tree- 6			
			Tree- 2		6865			EP		
		Tree- 1	Tree- 2		6868				EP	
			Tree- 1		6891		EP			
			Tree- 10	EP	6900		EP			
			Tree- 4		6954		HP			
				EP	6960		EP			
					6999		Tree- 1			
					7037		Tree- 6			
			Tree- 4		7059		School	Tree- 2		
			Tree- 4	EP-2	7084	EP				
					7089	EP-2, Transformer		HP		
			Tree- 3, HP		7121					
					7127	EP				
			Tree- 1	EP	7164			Pond		
			Tree- 3	EP	7203					
			Tree- 6		7223		Tree- 2			
					7243	Transformer				

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m
			Tree- 4		7266	EP-2	Tree-4			
			Tree- 2		7352		Tree- 4, Temple			
			Tree- 1		8070		Tree- 4			
					8520					
				EP-2	8701		Tree- 8			
			Pond, Tree- 2		8728					
			Tree- 1		8746		Tree- 2			
			Tree- 2		8767					
				EP, Transformer	8776	EP				
			Tree- 4	EP	8813	EP	Tree- 6			
			Tree- 2		8838		Tree- 4			
			Tree- 1		8866	EP-2			HP	
			Tree- 1		8882	EP-2				
		Tree- 2		EP-2	8929		Pond			
			Pond		8984		Tree- 2			
				EP	9011		Tree- 2			
		Tree- 2	Tree- 3		9022		Tree- 2	EP		
		Tree- 3	Tree- 3		9055		HP			
		Pond	Tree- 3		9135		Tree- 2			
	Tree- 1		Tree- 1		9152	EP				
	Tree- 2	Tree- 1	Tree- 3		9193	EP				
	Tree- 1		Tree- 2		9383	EP	Tree- 2			
		Tree- 4	Tree- 4		9404					
		Tree- 1	Tree- 2		9429		Tree- 2			
	Tree- 3		Tree- 3		9583	EP				
			Tree- 2		9639		Tree- 2			
		Tree- 5	Club, Tree- 4		9716		Tree- 1	Tree- 2	Tree- 3	
			Tree- 1		9725	EP				
		Tree- 6	Tree- 2		9757	EP				
		Tree- 4	Tree- 3		9791		Tree- 3			
			Tree- 2	EP	9822		Tree- 1			
					9849	EP	Tree- 2			
					9859		Pond			
			Tree- 10, EP		9940		Pond			
			Pond		10019		Pond, Tree- 4			
		Tree- 1	Tree- 6		10030		Pond			
			Tree- 1		10045		HP, Tree- 5			
			Tree- 4		10052	EP				
					10080	EP	Pond			
			Tree- 4		10120					
				EP	10126	EP				
		Tree- 2	Pond, Tree- 8		10166		Tree- 4	Tree- 2		
					10209					
			Tree- 2	EP	10444	EP, Transformer-1	EP			
					10288					

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m
					10215		EP, Tree- 2			
			Tree- 1	EP	10340		Tree- 3			
					10343		HP			
			Tree- 2		10373		SP, Pond			
			Tree- 1, HP		10395					
			EP		10411		Tree- 2			
			EP, Tree- 2		10438					
			SP		10454		Tree- 1			
		Pond	EP		10476					
EP					10512					
			Tree- 5		10543		Tree- 4, Pond			
			Tree- 2		10560		EP			
					10566		TP			
			TP, Tree- 1		10602		Tree- 4			
					11000					
				EP-3, Transformer-1	11876	EP-5				

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Pratapchak to Barakhelna
Block Name: Pingla
District Name: PaschimMedinipur
Total Length of the Road: 5+405 Km
Package No: WB-20-ADB 47

A. Climatic Conditions

Temperature	**E.**	High:32°C	low:18°C
Humidity	**F.**	High: 81%	low: 43%
Rainfall Rainy Season	1450 mm/year June to September		

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The project road is far away from CRZ (Costal Regulation Zone)
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:23mtr The project road passes through plain land.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	The road does not pass through any forest area. No secondary information is available and local community is not aware of this matter
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	There is no wildlife as there is no forest area. Endangered species (if any): None
5.	Inhabited Area	√		Barakheina, Jaganathpur, NayaPaschim, Tungur
6.	Agricultural Land	√		The road is passing through agricultural land
7.	Grazing Grounds		√	There is no grazing Ground in the project road
8.	Barren Land		√	There is no barren land

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage*)		√	The area along the project road is not prone to landslide or erosion problems No secondary information is available and local community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake / swamps except other water bodies like Pond falling by the side of the road at Ch. 0+324, 0+613, 0+835, 0+908, 1+471, 1+613, 1+782, 1+788, 2+655, 2+717, 3+888, 3+960, 3+991, 4+039, 4+358, 4+421, 4+544, 4+615, 4+683, 4+882, 5+325, 5+382.
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There are some water crossing on the road at Ch. 0+300, 0+150, 0+602, 0+733, 1+651, 1+945, 2+001, 2+214, 2+355, 2+427, 2+629, 4+174, 4+678 and 5+048.

No.	Parameter/ Component	Yes	No	Explanation
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		 √	There is no water stagnation area found in the project road. No secondary information is available and local community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not flood prone. No secondary information is available and local community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? \ (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 377 Trees with dbh of 30m or more within 10m on either side of the alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road and within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area or similar area. No secondary information is available and local community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species
9.	Are there any utility structures within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are (EP-42, TP-12, SP-3, Transformer-3) nos. on LHS and (EP-24, HP-5, TP-3, SP-1) on RHS within 10m on either side of the road alignment.
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are schools at Ch. 2+017, 2+033 on LHS and at Ch. 4+022 on RHS. There are Temples at Ch. 4+758 on LHS and at Ch. 3+779 and 3+809 on RHS.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. ***(Attach list of people met and dates)***	√		Consultation with local community was conducted before finalizing the alignment.
2.	Any suggestion received in finalizing the alignment	√		Suggestions received during finalizing the alignment
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph

Attachment I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
50	Tree	
90		Tree
115	Tree	
548		Tree
562	Tree	
581		Tree
605	Tree	
620		Tree
632		Tree
648		Tree
659		Tree
675	Tree	Tree
956		Tree
968	Tree- 2	
985	Tree	
1007		Tree- 4
1031	Tree	
1034		Tree
1045	Tree	
1140		Tree- 2
1181	Tree- 4	
1200	Tree	
1277	Tree- 4	
1349	Tree- 17	
1355	Tree- 5	
1449	Tree- 6	Tree- 2
1480	Tree- 5	
1504	Tree- 6	Tree- 12
1537	Tree- 4	
1656	Tree	
1777	Tree	Tree- 2
1861	Tree- 6	
1914		Tree
1928	Tree	
1984	Tree	
2017		Tree- 4
2020		Tree- 2
2025		Tree- 3
2030		Tree- 2
2033- 2087		Tree- 2
2041		Tree
2079	Tree- 8	Tree- 4
2186		Tree- 3
2205		Tree- 2
2245		Tree- 2
2319	Tree- 5	
2369	Tree- 6	Tree- 4
2411	Tree- 6	Tree- 4
2432- 2450	Tree- 4	
2434	Tree	
2450	Tree- 6	
2474	Tree	
2490	Tree- 4	Tree- 2
2507	Tree	
2532	Tree- 3	Tree- 6
2550		Tree- 2
2583		Tree- 2
2597		Tree
2611	Tree- 3	
2615	Tree	
2623	Tree- 3	
2671		Tree- 2
2701		Tree- 12
2801		Tree- 9
3413	Tree- 4	

Chainage (M)	Left (No. of Trees)	Right (No. of Trees)
3647	Tree- 2	Tree- 5
3690	Tree- 2	
3090		Tree- 6
3758		Tree- 8
3817		Tree- 2
3850		Tree- 2
3868		Tree
3885	Tree- 8	Tree- 2
3906	Tree- 2	
3926	Tree- 4	Tree- 2
3945		Tree- 3
3964	Tree- 2	
3979	Tree- 2	
4009	Tree- 4	Tree- 5
4022	Tree- 4	
4033		Tree- 4
4051		Tree- 2
4070		Tree
4099		Tree- 2
4171		Tree- 10
4202		Tree- 3
4562	Tree- 4	
4588		Tree- 4
4803	Tree- 26	
4975		Tree- 2
5009	Tree- 4	Tree- 5
5073		Tree- 2
5161	Tree	Tree- 4

Attachment II
List of Utilities

Chainage (M)	Left	Right
0	TP	
50	EP	
63	EP	
90	EP	
112	EP	
150	EP	
156	Transformer	
199	EP	
243	EP	
247		EP-2
290		EP
348	EP	
726	EP	
762	EP	
845	EP	
928	EP	
1449	TP	EP- 2
1534	EP	
1756		EP
1793	EP	
1828		EP
1964	TP	
1984	EP	
1994		EP
2030	TP	
2174	EP	
2205	EP	
2245		EP
2285	EP	
2319		EP
2369	EP	
2411		EP
2432- 2450	EP	
2434	TP	

3489	Tree- 3	

2450	SP	
2474	EP	

Attachment II
List of Utilities (Contd.)

Chainage (M)	Left	Right
2490	EP	
2507		HP
2510	EP	
2532	TP	
2550	EP	
2557	EP- 2, SP	
2597		EP
2611	EP	
2615	Transformer	
2623	SP	
2628	EP	
2701		EP, HP
2714	EP	
2717	EP, Transformer	
3413		EP
3445		EP
3489		EP
3555		EP
3647	EP	
3090		EP
3779	TP	
3805	EP	
3809		HP
3850	EP	
3868	TP	
3926	EP	
3964	EP	
4009	EP	
4033		HP
4099	TP	
4149		TP
4171		TP
4280	TP	
4562		EP
4588		EP
4696	TP	
4851		EP
4944		EP
4975	EP	
5009	EP- 2	
5043		HP
5047	EP- 2	
5073	EP	
5078		EP
5119	HP	
5130		EP, SP
5161	EP	
5170		TP
5213	TP	

Attachment III

List of Community Structures

Chainage(M)	Left	Right
2017	School	
2033	School	
3758	Temple	
3779		Temple
3809		Temple
4022		School

Attachment IV

6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
		TP		0						
		Statue		16						
		EP, Tree		50						
		EP		63						
		EP		90		Tree				
		EP		112						
		Tree		115						
		EP		150						
		Transformer		156						
		EP		199						
		EP		243						
				247			EP-2			
				290		EP				
EP				348						
				434						
				548		Tree				
		Tree		562						
				581		Tree				
		Tree		605						
				620		Tree				
				632		Tree				
				648		Tree				
				659		Tree				
		Tree		675		Tree				
EP				726						
	EP			762						
	EP			845						
	EP			928						
				956		Tree				
	Tree- 2			968						
		Tree		985						
				1007		Tree- 4				
		Tree		1031						
				1034		Tree				
		Tree		1045						
				1140				Tree	Tree	
	Tree- 2	Tree- 2		1181						
		Tree		1200						
		Tree- 4		1277						
Tree- 2	Tree- 2	Tree- 13		1349						
	Tree	Tree- 4		1355						
				1412						
		TP, Tree- 6		1449		Pond EP		Tree- 2, EP		
		Tree- 5		1480						

6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
		Tree- 6		1504			Tree- 12			
	EP	Tree- 4		1534						
		Pond, Tree- 4		1537						
		Tree		1656						
		Tree		1777		Pond	Pond		Tree- 2	
		Pond		1756		EP				
		EP		1793						
				1828		EP				
	Tree- 6			1861						
				1914			Tree			
	Tree			1928						
	Temple			1939						
		Pond		1957						
		TP		1964						
		EP, Tree		1984						
				1994		EP				
		School		2017		Tree- 2	Tree- 2			
				2020		Tree- 2				
				2025		Tree- 3				
		TP		2030		Tree- 2				
		School Boundary		2033- 2087		Tree- 2				
				2041		Tree				
		Tree- 8		2079		Tree- 4				
		EP		2174						
				2186		Tree- 3				
		EP		2205		Tree- 2				
				2245		EP, Tree- 2				
		Pond		2261						
		EP		2285						
	Tree	Tree- 4		2319		EP				
		Tree- 6, EP		2369		Tree- 4				
		Tree- 6		2411		EP, Tree- 4				
		EP, Tree- 4		2432- 2450		Pond				
		TP, Tree		2434						
		SP, Tree- 6		2450						
		EP, Tree		2474		Pond				
	Tree- 4	EP		2490		Tree- 2				
	HP, Tree			2507			HP			
		EP		2510						
		TP, Tree- 3		2532		Pond, Tree- 6				
		EP		2550		Tree- 2				
	EP	EP		2557						
		SP		2583		Pond, Tree- 2				
				2597			Tree	EP		
	EP	Tree- 3		2611						

6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
	Transformer	Tree		2615						
		Tree- 3, SP		2623						
		EP		2628						
				2671		Tree- 2				
				2701		EP, Tree- 6	Tree- 6		HP	
		EP		2714						
		EP		2717						
				2801		Tree- 9				
				2805 -3371		Plantation				
				3152						
				3371						
				3382						
		Tree- 4		3413			EP			
				3445				EP		
		Tree- 3	TF	3489				EP		
				3517						
				3555			Pond	EP		
	EP	Tree- 2		3647			Tree- 3	Tree- 2		
		Tree- 2, Pond		3690			Pond			
				3090			EP	Tree- 6		
	Temple			3758			Tree- 6	Tree- 2		
		TP		3779		Temple				
		EP		3805						
				3809			HP	Temple		
				3817		Tree- 2, Pond				
		EP, Pond		3850		Tree- 2				
	TP			3868			Tree			
		Pond, Tree- 8		3885		Tree- 2	Pond			
		Tree- 2		3906						
	EP, Tree- 2	Tree- 2		3926		Tree- 2				
		Pond		3945		Tree- 3				
	Pond, EP, Tree- 2			3964						
		Tree- 2		3979						
	Tree- 1	EP, Tree- 3		4009		Tree- 2	Tree- 3			
	Tree- 2	Tree- 2		4022		School				
				4033		Tree	Tree- 3		HP	
				4051		Tree- 2				
				4070		Tree				
		TP		4099		Tree- 2				
				4149		TP				
				4171		Tree- 2, TP	Tree- 4	Tree- 2	Tree- 2	
				4202		Pond, Tree- 3				
		TP		4280						
		Tree- 4		4562		EP				

6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
				4588		EP, Tree- 4				
		TP		4696						
		Tree- 26		4803						
				4851			EP			
				4944			EP			
		EP		4975		Tree- 2				
	EP- 2	Tree- 4		5009		Tree- 2	Tree- 3			
				5043		HP				
	EP	EP		5047						
		EP		5073		Tree- 2				
				5078		EP				
		HP		5119						
				5130		EP, SP				
		EP, Tree		5161		Tree- 4				
				5170		TP				
		TP		5213						
				5405						

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Kaijalay toGoke Via Kolbong
Block Name: DarjeelingPulbazar
District Name:Darjeeling
Total Length of the Road: 6+130 Km
Package No.: WB07-ADB 23

A. Climatic Conditions

Temperature	**G.**	High:20°C	low:08°C
Humidity	**H.**	High: 85%	low: 65%
Rainfall Rainy Season	2750 mm/year June to September		

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The project road is far away from CRZ (Costal Regulation Zone)
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:2134 m The project road passes through hilly area
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		 √	The road does not pass through any forest area. No secondary information is available and local community is not aware of this matter
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	There is no wildlife as there is no forest area. Endangered species (if any): None
5.	Inhabited Area	√		Sirisey, Bararey, Kolbong, Padeng, Malatang, Murmidang, Upper Nezi, Lower Nezi.
6.	Agricultural Land	√		The road is passing through Agricultural Land.
7.	Grazing Grounds		√	There is no grazing Ground in the project road
8.	Barren Land		√	There is no barren land

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	The area along the project road is not prone to landslide. No secondary information is available and local community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake / swamps falling by the side of the road but, there are some Natural streams crossing the alignment.
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There are some streams / nallas crossing the road at Ch. 0+230, 0+511, 0+626, 0+690, 0+839, 0+876, 1+084, 1+225, 1+635, 1+658, 1+722, 1+832, 1+962, 2+019, 2+087, 2+278, 2+372, 2+720, 2+825, 2+866, 2+940, 2+975, 3+293, 3+454, 3+729, 3+784, 4+679, 4+755, 4+880, 5+107, 5+255, 5+318, 5+400, 5+427, 5+696, 5+833,

No.	Parameter/ Component	Yes	No	Explanation
				5+915
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no water stagnation area found in the project road. No secondary information is available and local community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not flood prone. No secondary information is available and local community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? \ (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 166 Trees with dbh of 30m or more within 10m on either side of the alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road and within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area or similar area. No secondary information is available and local community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species
9.	Are there any utility structures within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are EP-78nos. on LHS and (EP-17, Transformer-3) nos. on RHS within 10m on either side of the road alignment.
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There is a Health Centre at Ch. 3+150 on RHS.There is aSchool at Ch. 1+475on LHS and GP office at Ch. 1+475 on LHS.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment.
2.	Any suggestion received in finalizing the alignment	√		Suggestions received during finalizing the alignment
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph.

Attachment I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
300		**Tree-2**
400		Tree-5
500		Tree-4
600		Tree-2
700		Tree-2
800		Tree-2
900		Tree-4
1000		Tree-3
1100	Tree-2	
1300		Tree-5
1500	Tree-1	Tree-8
1600		Tree-6
1700	Tree-2	
2100	Tree-1	Tree- 1
2300	Tree-8	
2500	Tree-2	
2600		Tree-6
2900	Tree-3	
3200	Tree-1	
3300		Tree-6
3600	Tree-6	
3700		Tree-1
3800	Tree-2	
4000		Tree-1
4100	Tree-2	Tree-7
4300	Tree-11	Tree-5
4400	Tree-2	Tree-1
4600	Tree-1	Tree-4
4700	Tree-2	Tree-5
4800	Tree-1	Tree-3
5100	Tree-2	Tree-5
5200	Tree-6	Tree-2
5300	Tree-5	Tree-1
5400	Tree-1	
5500		Tree-5
5700	Tree-4	Tree-2
5900		Tree-2
6130	Tree-1	

Attachment II
List of Utilities

Chainage (M)	Left	Right
300	EP-2	
400	EP-3	EP-1
500	EP-2	
600	EP-2	EP-1
700	EP-2	EP-1
800	EP-2	EP, Transformer
900	EP-1	EP-1
1300	EP-3	
1400	EP-3	EP-1
1500	EP-2	
1600	EP-4	EP-1
1700	EP-2	EP-1
1800	EP-2	
1900	EP-2	EP-1
2000	EP-2	EP-1
2100	EP-3	EP-1
2300	EP-2	
2400	EP-2	EP-1
2500	EP-2	EP-1
2600	EP-3	EP-1
2800	EP-3	
3000	EP-2	EP-1
3100	EP-2	Transformer

Attachment II
List of Utilities (Contd.)

Chainage (M)	Left	Right
3200	**EP-3**	
3400	EP-2	
3500	EP-1	EP-2
3600	EP-2	
3700		Transformer
3900	EP-2	
4000	EP-1	
4100	EP-2	
4200	EP-1	
4500	EP-1	
4600	EP-2	
5200	EP-1	
5700	EP-2	
5800	EP-2	
5900	EP-1	
6100	EP-2	
6130		

Attachment III
List of Utilities

Chainage(M)	Left	Right
1475	School, GP	
3150		Health center

ATTACHMENT- IV

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					0						
				EP-2	300		Tree-2				
			EP-1	EP-2	400		Tree-5, EP				
			EP-2		500		Tree-4				
				EP-2	600		Tree-2, EP				
			EP-2		700		Tree-2, EP				
			EP-2		800	EP-1	Tree-2, Transformer				
			EP-1		900	EP-1	Tree-4				
					1000		Tree-3				
			Tree-2		1100						
					1200						
			EP-2	EP-1	1300		Tree-5				
			EP-2	EP-1	1400	EP-1	EP				
			School, Gram Panchayat		1475						
			EP-2, Tree-1		1500		Tree-8				
			EP-2	EP-2	1600	EP-1	Tree-6, EP				
			EP-2, Tree-2		1700		EP				
			EP-2		1800						
			EP-2		1900	EP-1					
			EP-2		2000		EP				
			EP-3, Tree-1		2100		EP, Tree				
					2200						
		Tree-8	EP-2		2300						
			EP-1	EP-1	2400		EP				
		Tree-2	EP-1	EP-1	2500		EP				
			EP-2	EP-1	2600		EP	Tree-6			
				EP-2	2700	EP-2					
			EP-1	EP-2	2800						
		Tree-3			2900						
			EP-2		3000		EP				
			EP-2	EP-1	3100	Transformer					
					3150				Health center		
		Tree-1	EP-2	EP-1	3200						
					3300			Tree-6			
			EP-2		3400						
			EP-1		3500	EP-1	EP				
		Tree-6	EP-2		3600						
					3700			Tree-1, Transformer			
		Tree-2			3800						
			EP-2		3900						

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			EP-1		4000			Tree-1			
		Tree-2	EP-1	EP-1	4100			Tree-7			
			EP-1		4200						
		Tree-11			4300			Tree-5			
		Tree-2			4400			Tree-1			
			EP-1		4500	EP-1					
		Tree-1	EP-1	EP-1	4600			Tree-4			
		Tree-2			4700			Tree-5			
		Tree-1			4800			Tree-3			
					4900						
					5000						
		Tree-2			5100			Tree-5			
		Tree-6	EP-1		5200			Tree-2			
		Tree-5			5300			Tree-1			
		Tree-1			5400						
					5500			Tree-5			
					5600						
		Tree-4	EP-2		5700			Tree-2			
			EP-2		5800						
			EP-1		5900			Tree-2			
					6000						
			EP-2		6100						
		Tree-1			6130						

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Taleswarguri to Samuktala
Block Name: Alipurduar II
District Name: Jalpaiguri
Total Length of the Road: 4+774 Km
Package No.: WB-10-ADB 39

A. Climatic Conditions

Temperature	**I.**	High:32°C	low: 19°C
Humidity	**J.**	High: 90%	low: 70%
Rainfall Rainy Season	3767 mm/year June to September		

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The project road is far away from CRZ (Costal Regulation Zone)
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:75m The project area is flat in nature.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	The road does not pass through any forest area.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	There is no wildlife as there is no forest area. Endangered species (if any): None
5.	Inhabited Area	√		Baniagaon South , Banidabari South, Banidabari West, Samuktala North
6.	Agricultural Land	√		The major portion of the road has agricul tural land on both side except in the built-up area.
7.	Grazing Grounds		√	There is no grazing Ground in the project road
8.	BarrenLand		√	There is no barren land

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no area along the project road is prone to landslide or erosion problems No secondary information is available and local community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake / swamps falling by the side of the road but there aresome water bodies at Ch.0+630, 4+120 on RHS and at Ch. 4+210 on LHS.
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*		√	Nostream / nallah / river was found crossing the alignment.

No.	Parameter/ Component	Yes	No	Explanation
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no water stagnation area found in the project road. No secondary information is available and local community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not flood prone. No secondary information is available and local community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? \ (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 25 Trees with dbh of 30m or more within 10m on either side of the alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road and within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area or similar area. No secondary information is available and local community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species.
9.	Are there any utility structures within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are (EP-48, TP-5, HP-2, TF-3)nos. of utility structures on LHS and (EP-43, TP-4, TF-1) nos. within 10m on either side of the road alignment.
10.	Are there any religious, cultural or community structures/buildings within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There is a PHE at Ch. 0+700 and a School at Ch. 4+700 on RHS. There are two PO's at Ch. 2+105 on both LHS and RHS.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment.
2.	Any suggestion received in finalizing the alignment	√		Suggestions received during finalizing the alignment.
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU.

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph

ATTACHMENT- I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
530- 633	Tree- 21	
570		Tree
725	Tree	
2110	Tree	
3090		Tree

ATTACHMENT-II
List of Utilities

Chainage (M)	Left	Right
0	TP	
160		EP
215	EP	
250		EP
270	EP	
355		EP
495	EP	
422		EP
470	EP	
590	HP	
520	EP	
640	Transformer	
665		EP
670		EP
710		EP
780	EP	
802	EP	
850		EP
895	EP	
995	EP	
1080	EP	EP
1130		EP
1167	EP	
1220	EP	
1260		EP
1315	EP	
1370		EP
1386	EP	
1410	EP	
1455	EP	
1490		EP
1530	EP	
1570		EP
1610		EP
1645		EP
1690		EP
1750	EP	
1755	HP	
1775		Transformer
1820		EP
1925	EP	
1950	EP	
1990	EP	
2040	EP	
2050	EP	EP
2110	EP	

Attachment II
List of Utilities (Contd.)

Chainage (M)	Left	Right
2160		EP
2190		EP
2250	EP	
2330	EP	
2400		EP
2440		EP
2475	EP	
2530		EP
2635	EP	
2685	EP	
2725	EP	
2790	EP	
2870		
3045		EP
3055	Transformer	
3090	EP	
3110	EP	
3150	EP	
3201	EP	
3230		EP
3250		EP
3275	EP	
3325	EP	
3390	EP	
3440		EP
3510		EP
3600		EP
3625		EP
4015	TP	
4040	EP	
4090	EP	
4120	TP	EP
4170	TP	EP
4210		EP
4215	EP	
4260	EP, Transformer	TP
4300	EP	TP
4320	EP	TP
4345	EP	
4365	EP	
4375	EP	
4420	TP	EP
4460		EP
4525	EP	TP
4560		EP
4570		EP
4654		EP- 3
4700		EP- 2

ATTACHMENT- III

LIST OF COMMUNITY STRUCTURES

Chainage(M)	Left	Right
700		PHE
2105	PO	PO
4700		School

ATTACHMENT- IV

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			TP		0						
					160	EP					
				EP	215						
					250	EP					
				EP	270						
					355	EP					
				EP	495						
					422	EP					
				EP	470						
				HP	590						
			EP		520						
			Tree- 21		530- 633						
					570		Tree				
					633						
			Transformer		640						
					665	EP					
					670	EP					
					700			PHE			
					710		EP				
			Tree		725						
				EP	780						
				EP	802						
					850		EP				
			EP		895						
			EP		995						
			EP		1080	EP					
					1130	EP					
				EP	1167						
				EP	1220						
					1260	EP					
				EP	1315						
					1370	EP					
				EP	1386						
				EP	1410						
				EP	1455						
					1490	EP					
			EP		1530						
					1570	EP					
					1610	EP					
					1645	EP					
					1690	EP					
			EP		1750						
			HP		1755						

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					1775		Transformer				
					1820	EP					
				EP	1925						
				EP	1950						
			EP		1990						
			EP		2040						
			EP		2050		EP				
		PO			2105		PO				
			EP, Tree		2110						
					2160		EP				
					2190		EP				
			EP		2250						
					2300						
			EP		2330						
					2400		EP				
					2440		EP				
			EP		2475						
					2530		EP				
			EP		2635						
			EP		2685						
	EP				2725		Tree				
			EP		2790						
					2870						
					3045		EP				
			Transformer		3055						
			EP		3090		Tree				
			EP		3110						
			EP		3150						
			EP		3201						
					3230		EP				
					3250	EP					
			EP		3275						
			EP		3325						
			EP		3390						
					3440		EP				
					3510		EP				
					3600		EP				
					3625		EP				
				TP	4015						
		EP			4040						
				EP	4090						
				TP	4120	EP					
				TP	4170	EP					
					4210	EP					
				EP	4215						

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Transformer	EP	4260	TP					
				EP	4300	TP					
				EP	4320	TP					
				EP	4345						
				EP	4365						
				EP	4375						
				TP	4420		EP				
					4460		EP				
			EP		4525	TP					
					4560		EP				
					4570	EP					
					4654	EP- 3					
					4700	EP- 2		School			

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name:HN31C to Parakota GF Office.
Block Name: Alipurduar II
District Name: Jalpaiguri
Total Length of the Road: 6+779 Km
Package No.: WB-10-ADB 42

A. Climatic Conditions

Temperature	**K.**	**High:32°C**	**low: 19°C**
Humidity	**L.**	**High: 90%**	**low: 70%**
Rainfall Rainy Season	**3767 mm/year** **June to September**		

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The project road is far away from CRZ (Costal Regulation Zone)
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:75m The project road passes through plain area.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*			The road does not pass through any forest area.
			√	No secondary information is available and local community is not aware of this matter
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	There is no wildlife as there is no forest area. Endangered species (if any): None
5.	Inhabited Area	√		Uttar Parokata, Madhya Parokata (East, West), DakshinParokata
6.	Agricultural Land	√		The major portion of the road has agricultural land on both sides except in the builtup area.
7.	Grazing Grounds		√	There is no grazing Ground in the project road
8.	Barren Land		√	There is no barren land

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no area along the project road is prone to landslide or erosion problems.
				No secondary information is available and local community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake / swamps falling by the side of the road but there aresome water bodies at Ch.1+500, 2+750, 4+600, 5+400, 5+900, 6+300 on LHS and 4+000, 4+370, 5+200, 5+850, 6+100, 6+200, 6+300, 6+400, 6+770 on RHS.

No.	Parameter/ Component	Yes	No	Explanation
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There are some nallah/streams crossing the road at Ch. 0+320, 1+857, 2+415, 3+237, 4+535, 5+530, and 6+230.
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no water stagnation area found in the project road.
				No secondary information is available and local community is not aware of this matter
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not flood prone.
				No secondary information is available and local community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? \ (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 166 Trees with dbh of 30m or more within 10m on either side of the alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road and within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area or similar area.
				No secondary information is available and local community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species
9.	Are there any utility structures[30] within 10 m on either side from the centerline of the road alignment? *(If yes, attach list with chainage)*	√		There are (EP-32, HP-4, TP-3, Transformer-3) nos. on LHS and (EP-33, TP-4, HP-1, Transformer-2) on RHS within 10m on either side of the road alignment.
10.	Are there any religious, cultural or community structures/buildings[31] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are Schools at Ch. 2+273 on LHS and Ch. 5+525 on RHS and Temples at Ch.2+325, 2+682, 6+585 on RHS and at Ch. 6+338 on LHS. There are PHE's at Ch. 0+815, 1+340 and 2+240 on RHS and a GP office at Ch. 6+755 on LHS.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment.
2.	Any suggestion received in finalizing the alignment	√		Suggestions received during finalizing the alignment
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).

[30] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

[31] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph

ATTACHMENT- I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
85	Tree-1	
97		Tree-1
103		Tree-1
120	Tree-1	
128		Tree-1
132		Tree-1
135	Tree-1	
141		Tree-1
161		Tree-1
146	Tree-1	
192		Tree-1
270	Tree-1	
279	Tree-1	
300	Tree-1	
378	Tree-1	
382	Tree-1	
395		Tree-1
396	Tree-1	
412	Tree-1	
415	Tree-1	
445	Tree-1	
900	Tree-1	
926		Tree-1
935		Tree-2
1125		Tree-1
1130		Tree-1
1135		Tree-1
1138		Tree-1
1142		Tree-1
1155		Tree-1
1222		Tree-1
1278	Tree-1	
1546		Tree-1
1595		Tree-1
1604		Tree-1
1608		Tree-1
1613		Tree-1
1625		Tree-1
1650 -1700		Tree-14
1720		Tree-1
1735		Tree-1
1750		Tree-1
1765		Tree-1
1815		Tree-1
1905		Tree-1
1915		Tree-1
1930		Tree-1
1973		Tree-1
2075 -2120	Tree-1	Tree-26
2165	Tree-1	
2180		Tree-1
2232	Tree-1	
2254		Tree-1
2280	Tree-1	
2348		Tree-1
2355		Tree-1
2374	Tree-1	
2376	Tree-1	
2444		Tree-1
2455		Tree-1
2680	Tree-1	
2700	Tree-1	

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
3570	Tree-1	
3580		Tree-1
3860		Tree-1
3975 - 4025		Tree-11
4152		Tree-1
4535		Tree-1
4540		Tree-1
4645	Tree-1	
4652	Tree-1	
4850	Tree-1	
4870	Tree-1	
5065	Tree-1	
5070	Tree-1	
5081	Tree-1	
5087	Tree-1	
5093	Tree-1	
5100	Tree-1	
5125		Tree-1
5150		Tree-1
5180		Tree-1
5204		Tree-1
5220	Tree-1	
5410		Tree-1
5420		Tree-1
5436		Tree-1
5495		Tree-1
5658		Tree-1
5660		Tree-1
5725		Tree-1
5760		Tree-1
5780		Tree-1
5805		Tree-1
5855		Tree-1
5845		Tree-1
5900		Tree-1
5925 -5982		Tree-6
6010	Tree-1	
6115	Tree-1	
6130	Tree-1	
6150	Tree-1	
6025		Tree-1
6175		Tree-1
6205	Tree-1	
6280	Tree-1	
6290		Tree-1
6295	Tree-1	
6315		Tree-1
6320		Tree-1
6330		Tree-1
6380		Tree-1
6385		Tree-1
6395		Tree-1
6400		Tree-1
6410		Tree-1
6453		Tree-1
6460		Tree-1
6454		Tree-1
6470		Tree-1
6480		Tree-1
6500		Tree-1
6508		Tree-1
6522		Tree-1

3240	Tree-1	
3300		Tree-1

6526		Tree-1
6530		Tree-1

ATTACHMENT- I
List of Trees (Contd.)

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
6534		Tree-1
6538		Tree-1
6542		Tree-1
6546		Tree-1
6551	Tree-1	
6566	Tree-1	
6585		Tree-1
6605		Tree-1
6615	Tree-1	
6338	Tree-1	
6723	Tree-1	
6770		Tree-1
6778		Tree-1

Attachment II
List of Sructures

Chainage(M)	Left	Right
3		EP
35		EP
146		EP
174		EP
215		EP
265	EP	
290	HP	
355	EP	
405	EP	
438	EP	
790	Transformer	
792	TP	
865		EP
913		EP
935	EP	
960	EP	EP
974		EP
984		EP
1000		EP
1025		Transformer
1110		EP
1156	EP	
1186	EP	
1125		EP
1275	EP	TP
1316		EP
1338		EP
1340	Transformer	
2210	HP	
2220		Transformer
2240	TP	
2273		EP
2285		TP
2310		EP
2348		EP
2390		EP
2415	TP	
2431	EP	EP
2484	EP	
2500	EP	
2511	EP	
2534	EP	
2585	EP	
2595	EP	

ATTACHMENT- II
List of Utilities (Contd.)

Chainage(M)	Left	Right
2846		EP
3175	Transformer	EP
3200		EP
3205	EP	
3240	EP	
3255	EP	
3285	EP	
3475		EP
3590	EP	
5114		EP
5170	EP	
5212		EP
5240	EP	
5278	EP	
5320		EP
5370	EP	
5430		EP
5480	EP	
5510		EP
6380	EP	
6415	EP	
6453	EP	
6466	EP	
6518	EP	
6550		HP
6615		TP
6617		EP-2
6660	EP	
6675	HP	
6708		EP
6735		TP

Attachment III
List of Community Sructures

Chainage(M)	Left	Right
815		PHE
1340		PHE
2240		PHE
2273	School	
2325		Temple
2682		Temple
5525		Primary School
6585		Temple
6338	Temple	
6755	GP Office	

2680		EP
2760		EP
2827	HP	

ATTACHMENT- IV

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					3				EP		
					35					EP	
				Tree	85						
					97	Tree					
					103	Tree					
				Tree	120						
					128	Tree					
					132	Tree					
				Tree	135						
					141	Tree					
					161	Tree					
				Tree	146	EP					
					174	EP					
					192	Tree					
			Tree	Tree	270						
			Tree	Tree	279						
			Tree		300						
		Tree			396						
				EP	405						
				Tree	412						
				Tree	415						
				EP	438						
				Tree	445						
			Transformer		790						
			TP		792						
					815	PHE					
					818						
					865	EP					
			Tree		900						
					913	EP					
					926	Tree					
				EP	935	Tree	Tree				
				EP	960	EP					
					974	EP					
					984	EP					
					1000	EP					
					1025				Transformer		
					1110	EP					
					1125			Tree			
					1130			Tree			
					1135	EP		Tree			
					1138			Tree			
					1142			Tree			
					1155			Tree			

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
				EP	1156						
				EP	1186						
					1222		Tree				
					1125	Bamboo, EP					
				EP	1275		TP				
		Tree			1278						
					1316	EP					
					1338	EP					
			Transformer		1340		PHE				
		Pond			1402						
					1545		Pond				
					1546		Tree				
					1595		Tree				
					1604		Tree				
					1608		Tree				
					1613		Tree				
					1625		Tree				
					1650 -1700	Tree-6	Tree-8				
					1720	Tree					
					1735	Tree					
					1750	Tree					
					1765	Tree					
					1815		Tree				
					1905		Tree				
					1915		Tree				
					1930		Tree				
					1973		Tree				
				Bamboo	1973 -2075						
				Tree	2075 -2120	Tree-26					
				Tree	2165						
					2180	Tree					
			HP		2210						
					2220		Transformer				
				Tree	2232						
			TP		2240					PHE	
					2254	Tree					
School					2273			EP			
				Tree	2280						
					2285	TP	TP				
					2310				EP		
					2325			Temple			
					2348	EP		Tree			
					2355		Tree				
				Tree	2374						
				Tree	2376						

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					2390				EP		
			TP		2415						
				EP	2431				EP		
					2435						
					2444		Tree				
					2455		Tree				
		EP			2484						
			EP		2500						
	EP				2511						
			EP		2534						
			EP		2585						
				EP	2595						
			Tree		2680						
					2680	EP					
					2682			Temple			
				Tree	2700						
					2760	EP					
		HP			2827						
					2846	EP					
		Transformer			3175	EP					
					3200	EP					
				EP	3205						
				Tree, EP	3240						
				EP	3255						
				EP	3285						
					3300	Tree					
					3350	Pond					
					3475	EP					
				Tree	3570						
					3580		Tree				
				EP	3590						
				Bamboo	3600 - 3760						
					3860	Tree					
					3975 - 4025	Tree-11	Pond				
					4152	Tree					
					4535	Tree					
					4540	Tree					
				Tree	4645						
				Tree	4652						
				Tree	4850						
			Tree		4870						
			Tree		5065						
			Tree		5070						
			Tree		5081						
			Tree		5087						

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Tree		5093						
			Tree		5100						
					5114	EP					
					5125	Tree					
					5150	Tree					
				EP	5170						
					5180	Tree					
					5204	Tree					
					5212		EP				
				Tree	5220						
			EP		5240						
			EP		5278						
					5320	EP					
				EP	5370						
					5410	Tree					
					5420	Tree					
					5430	EP					
					5436	Tree					
				EP	5480						
					5495	Tree					
					5510		EP				
					5525		Primary School				
					5658		Tree				
					5660		Tree				
					5725		Tree				
					5760		Tree				
					5780		Tree				
					5805		Tree				
					5855		Tree				
					5845		Tree				
					5900		Tree				
				Bamboo	5925 -5982	Tree -2	Tree -4				
			Tree		6010						
			Tree		6115						
			Tree		6130						
			Tree		6150						
					6025	Tree	Pond				
					6175	Tree	Pond				
				Tree	6205						
			Pond		6215						
				Tree	6280						
					6290		Tree				
				Tree	6295						
					6315	Tree					
					6320	Tree					

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					6330		Tree				
				EP	6380	Tree					
					6385	Tree					
					6395		Tree				
					6400		Tree				
					6410	Tree					
				EP	6415						
EP				EP	6453		Tree				
					6460		Tree				
					6454		Tree				
				EP	6466						
					6470		Tree				
					6480		Tree				
					6500		Tree				
					6508		Tree				
				EP	6518						
					6522		Tree				
					6526		Tree				
					6530		Tree				
					6534		Tree				
					6538		Tree				
					6542		Tree				
					6546		Tree				
					6550		HP				
			Tree		6551						
			Tree		6566						
					6585		Temple				
					6585		Tree				
					6605		Tree				
			Tree		6615		TP				
					6617	EP					
Temple			Tree		6338						
				EP	6660						
			HP		6675						
					6708	EP					
				Tree	6723		Pond				
					6735		TP				
			GP Office		6755						
					6770		Tree				
					6779		Tree				

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name: Atgama to Mobarakpur
Block Name: English Bazar
District Name: Malda
Total Length of the Road: 7+503 Km
Package No.: WB-11-ADB 27

A. Climatic Conditions

Temperature	**M.**	High:32°C	low: 19°C
Humidity	**N.**	High: 90%	low: 70%
Rainfall Rainy Season	3767 mm/year June to September		

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The project road is far away from CRZ (Costal Regulation Zone)
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:400m The project road passes through plain area.
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	The road does not pass through any forest area. No secondary information is available and local community is not aware of this matter
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	There is no wildlife as there is no forest area. Endangered species (if any): None
5.	Inhabited Area	√		Keotal, Palaibari North, Palaibari South, Belul, Dohal
6.	Agricultural Land	√		The major portion of the road passes through agricultural land on both sides.
7.	Grazing Grounds		√	There is no grazing Ground in the project road
8.	BarrenLand		√	There is no barren land

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	There is no area along the project road is prone to landslide or erosion problems No secondary information is available and local community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake / swamps / other than water bodies found by the side of the road at Ch. 0+667, 1+158, 1+475, 1+781 and 1+970 on LHS and at Ch. 0+078, 0+138, 0+599, 0+860, 0+994 and 1+422 on RHS
3.	Are there any nallas/streams/rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There isstream / nallahcrossing on the alignment at Ch.0+205, 0+760, 0+829, 1+205, 1+656, 2+125, 2+325, 2+874, 3+105, and 3+450
4.	Are there problems of water stagnation and other drainage issues on or near the road? (*If yes, mention chainage)*		√	There is no water stagnation area found in the project road. No secondary information is available and local community is not aware of this matter

No.	Parameter/ Component	Yes	No	Explanation
5.	Is the area along the project road prone to flooding? *(If yes, mention flood level and frequency)*		√	The area along the project road is not flood prone. No secondary information is available and local community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? \ (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 252 Trees with dbh of 30m or more within 10m on either side of the alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas? *(If yes, specify details of habitat with chainage)*		√	Along the road and within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area or similar area. No secondary information is available and local community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species
9.	Are there any utility structures[1] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are (EP-12, TP-3, TF-1)nos. on LHS and (EP-22, TP-5, Tubewell-1) nos. on RHS of utility structures within 10m on either side of the road alignment.
10.	Are there any religious, cultural or community structures/buildings[2] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There is a School at Ch. 0+200 on LHS and graveyard at Ch.0+700 on the LHS.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. *(Attach list of people met and dates)*	√		Consultation with local community was conducted before finalizing the alignment.
2.	Any suggestion received in finalizing the alignment	√		Suggestions received during finalizing the alignment
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph

[1] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.
[2] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

ATTACHMENT- I
List of Trees

Chainage (M)	Left (No.of Trees)	Right (No. of Trees)
100		
200		
300	Tree-1	Tree-2
400	Tree-1	Tree-4
500	Tree-1	Tree-1
600	Tree-5	Tree-5
700		Tree-3
800	Tree-4	Tree-4
900	Tree-2	Tree-3
1000	Tree-5	
1100		
1200	Tree-3	Tree-2
1300	Tree-4	Tree-2
1400	Tree-5	
1500	Tree-5	
1600	Tree-1	
1700	Tree-5	Tree-1
1800	Tree-3	Tree-4
1900	Tree-2	Tree-4
2000	Tree-6	Tree-4
2100	Tree-7	Tree-2
2200	Tree-5	Tree-4
2300	Tree-7	Tree-2
2400	Tree-2	Tree-2
2500	Tree-1	Tree-4
2600	Tree-4	Tree-1
2700	Tree-2	
2800	Tree-2	Tree-3
2900	Tree-1	Tree-1
3000		
3100		
3200	Tree-1	Tree-3
3300	Tree-4	
3400	Tree-1	
3500	Tree-1	
3600	Tree-1	
3700		
3800		
3900		Tree-3
4000	Tree-1	Tree-2
4100	Tree-2	
4200		Tree-3
4300	Tree-2	Tree-2
4400	Tree-2	Tree-5
4500	Tree-4	Tree-1
4600		Tree-3
4700		
4800		
4900	Tree-1	
5000	Tree-5	Tree-2
5100	Tree-3	
5200	Tree-6	Tree-2
5300	Tree-4	Tree-1
5400	Tree-1	Tree-1
5500		Tree-6
5600	Tree-1	Tree-4
5700		Tree-3
5800		Tree-4
5900		
6000	Tree-1	
6100		
6200		
6300		
6400		Tree-2
6500	Tree-2	Tree-2
6600	Tree-2	Tree-1
6700		
6800		Tree-1
6900	Tree-1	Tree-2
7000	Tree-1	Tree-1
7100		
7200	Tree-4	Tree-4
7300		Tree-1
7400		
7503		

Attachment II
List of Utilities

Chainage(M)	Left	Right
100		EP-2, TP-2
200	EP-2	EP-1, TP-1
300	EP-2	EP-1
400	EP-4	
500	TF	EP-3
600	EP-1	EP-1, Tubewell
1000	TP-3	
4600		EP-3, TP-1
4700	EP-1	EP-1
4800	EP-1	EP-1, TP-1
4900		
5000		EP-2
5100		EP-2
5200	EP-1	EP-1
5300		EP-1
5700		EP-1
7200		EP-1
7500		EP-1

Attachment III
List of Community Structures

Chainage(M)	Left	Right
200	Graveyard	
700	School	

ATTACHMENT- IV

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
					100	EP		EP, TP-2			
		EP-2	School		200	EP		TP-1			
		Tree-1, EP		EP	300			Tree-2, EP-1			
		Tree-1, EP-3		EP	400			Tree-4			
		Tree-1		TF	500		EP-3	Tree-1			
		Tree-4	Tree-1, EP-1		600		EP-1	Tree-1	Tree-4		
			Graveyard		700	Tubewell		Tree-3			
		Tree-4			800			Tree-2	Tree-2		
		Tree-2			900			Tree-3			
		Tree-5	TP-3		1000						
					1100						
		Tree-3			1200			Tree-2			
		Tree-4			1300			Tree-2			
		Tree-5			1400						
		Tree-5			1500						
		Tree-1			1600						
		Tree-3	Tree-2		1700			Tree-1			
		Tree-3			1800			Tree-2	Tree-2		
		Tree-2			1900			Tree-1	Tree-3		
		Tree-6			2000			Tree-4			
		Tree-6			2100			Tree-2			
		Tree-5			2200			Tree-4			
	Tree-4	Tree-2	Tree-1		2300			Tree-2			
		Tree-2			2400			Tree-2			
		Tree-1			2500			Tree-4			
		Tree-4			2600			Tree-1			
		Tree-2			2700						
		Tree-2			2800					Tree-3	
		Tree-1			2900					Tree-1	
					3000						
					3100						
		Tree-1			3200					Tree-3	
		Tree-2	Tree-2		3300						
		Tree-1			3400						
		Tree-1			3500						
		Tree-1			3600						
					3700						
					3800						
					3900			Tree-3			
		Tree-1			4000			Tree-2			
		Tree-2			4100						
					4200			Tree-3			

8m to 10m	6m to 8m	4m to 6m	2+75m to 4m	0m to 2+75m	Chainage(M)	0m to 2+75m	2+75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
		Tree-2			4300			Tree-2			
		Tree-2			4400			Tree-5			
		Tree-4			4500			Tree-1			
					4600		EP-3	Tree-3, TP-1			
		EP-1			4700			EP-1			
		EP-1			4800			EP-1, TP-1			
		Tree-1			4900						
		Tree-5			5000			EP-2		Tree-2	
		Tree-3			5100			EP-2			
	Tree-4	Tree-2, EP-1			5200			Tree-2, EP-1			
		Tree-4			5300			Tree-1			
		Tree-1			5400			Tree-1			
					5500				Tree-6		
		Tree-1			5600			Tree-4			
					5700			Tree-3			
					5800			Tree-4			
					5900						
		Tree-1			6000						
					6100	EP					
					6200						
					6300						
					6400					Tree-2	
		Tree-2			6500	EP				Tree-2	
		Tree-2			6600					Tree-1	
					6700						
					6800					Tree-1	
		Tree-1			6900					Tree-2	
		Tree-1			7000					Tree-1	
					7100						
		Tree-4			7200			EP-1		Tree-4	
					7300					Tree-1	
					7400						
					7503			EP-1			

RURAL ROADS: ENVIRONMENTAL CHECKLIST

Road Name :Uzani to Pakaibari
Block Name: Itahar
District Name:Uttar Dinajpur
Total Length of the Road: 4.171 Km
Package No.: WB-15-ADB 21

A. Climatic Conditions

Temperature	**O.**	High:37°C	low:8°C
Humidity	**P.**	High: 81%	low: 43%
Rainfall Rainy Season	1970 mm/year June to September		

B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)		√	The project road is far away from **CRZ** (Costal Regulation Zone)
2.	Type of Terrain(Plain/Hilly/ Mountainous etc.) *(Explain the topography of the area and how many km of the road are located in the hilly area)*	√		Altitude:53 m The project road passes through plain land
3.	Forest Area *(Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?*		√	The road does not pass through any forest area.
4.	Wildlife (*Explain whether there are any wildlife species in the project area*)		√	There is no wildlife as there is no forest area. Endangered species (if any): None
5.	Inhabited Area	√		Keotal, Palaibari North, Palaibari South, Belal & Dohal
6.	Agricultural Land	√		The road is passing through agricultural land
7.	Grazing Grounds		√	There is no grazing Ground in the project road
8.	Barren Land		√	There is no barren land

C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (*If yes, indicate the location (right or left side) and the chainage)*		√	The area along the project road is not prone to landslide or erosion problems No secondary information is available and local community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (*If yes, list them indicating the location (right or left side)and the chainage)*		√	There is no lake / swamps except other water bodies like Pond falling by the side of the road at km0+078, 0+138, 0+600, 0+860, 0+994 and 1+429on RHS and at km0+667, 1+158, 1+475, 1+781and 1+970 on LHS
3.	Are there any nallas/ streams/ rivers etc. along/crossing the road? (*If yes, list them indicating the location (right, left or crossing) and the chainage*	√		There are somecross drainage (nallas) at km. 0+205, 0+829, 1+205 and 2+125.
4.	Are there problems of water stagnation and other drainage issues on or near the road?			There is no water stagnation area found in the project road.

No.	Parameter/ Component	Yes	No	Explanation
	(*If yes, mention chainage)*		√	No secondary information is available and local community is not aware of this matter
5.	Is the area along the project road prone to flooding?		√	The area along the project road is not flood prone.
	(If yes, mention flood level and frequency)			No secondary information is available and local community is not aware of this matter
6.	Are there any Trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? \ (*If yes attach list of Trees indicating the location (right or left side)and the chainage*)	√		There are 170 Trees and social forestry with dbh of 30cm or more within 10m on either side of the alignment.
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding Ground, bird migration area, or other similar areas?		√	Along the road and within 100m of the road shoulder there is no faunal habitat areas faunal breeding Ground bird migration area or similar area.
	(If yes, specify details of habitat with chainage)			No secondary information is available and local community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?		√	Along the road and within 100m of the road shoulder there is no evidence of floral and faunal species that are classified as endangered species
				No secondary information is available and local community is not aware of this matter
9.	Are there any utility structures[1] within 10 m on either side from the center line of the road alignment? *(If yes, attach list with chainage)*	√		There are (EP-49, TP-1, TW - 2) nos. on LHS and (EP-39, TF-6) nos.on RHS of utility structures within 10m on either side of the road alignment.
10.	Are there any religious, cultural or community structures/ buildings[2] within 10 m on either side from the center line of the road alignment? *(If yes attach list with chainage)*	√		There are one Madrasa school at Ch. 1+750 on RHS, one GP office at0+467 on RHS, one Mosque at Ch 0+327 on RHS, one Temple at CH 1+562 on LHS and three graveyards at Ch. 1+565, 2+034 & 4+126 on RHS, respectively.

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment.	√		Consultation with local community was conducted before finalizing the alignment.
2.	Any suggestion received in finalizing the alignment	√		Suggestions received during finalizing the alignment
3.	If suggestions received, were they incorporated into the design?		√	It will be decided after consulting with respective PIU

Please attach the following:

1. List of Trees indicating location (left or right side of the road) and chainage (as required under C. 6).
2. List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9).
3. List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10).
4. Sketch of strip map of the road covering details of atleast 10 m on either side from the center line of the road.
5. Photographs of the project area showing atleast 10 m on either side from center line of road alignment. Every 2 km or less of road must have atleast 1 photograph

[1] Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

[2] Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

Attachment I
List of Trees

Chainage (M)	Left (No. of Trees)	Right (No. of Trees)
13	Tree-1	
19	Tree-6	
43	Tree-1	
177		Tree-1
327		Tree-3
467		Tree-1
474		Tree-2
722		Tree-1
986	Tree-4	
1000		Tree-3
1046		Tree-3
1058		Tree-2
1069		Tree-1
1081		Tree-1
1100		Tree-2
1410		Tree-1
1427		Tree-1
1433	Tree-1	Tree-1
1445		Tree-1
1452		Tree-1
1562		Tree-3
1582	Tree-1	Tree-2
1597	Tree-1	
1611	Tree-1	
1825	Tree-6	Tree-1
1867	Tree-2	
1942	Tree-4	
1949	Tree-1	
2034		Tree-2
2118	Tree-7	
2154		Tree-3
2265		Tree-1
2286	Tree-2	Tree-7
2327		Tree-1
2407	Tree-6	Tree-3
2529		Tree-1
2558	Tree-1	
2645		Tree-3
2733	Tree-1	Tree-1
3148	Tree-2	Tree-1
3267		Tree-2
3270	Tree-1	
3532	Tree-2	
3585		Tree-4
3593	Tree-4	Tree-1
3627	Tree-1	
3664	Tree-7	
3666	Tree-1	
3688	Tree-5	Tree-3
3695	Tree-3	Tree-2
3715	Tree-4	Tree-3
3752	Tree-7	
3903	Tree-4	Tree-5
3953	Tree-4	Tree-2
4060	Tree-2	
4124		Tree-1
4145		Tree-1

Attachment II
List of Utilities

Chainage (M)	Left	Right
0	EP	
22	EP	
84		EP
117		EP
215	EP	
268		EP
308	EP	
371	EP	
400	EP	
429	EP	Transformer
458	EP	
496	EP	
519	EP	
673	EP	
722	EP	
772	EP	EP
823	EP	EP
939		EP
986		EP
1000	EP	
1046	EP	
1093	EP	EP
1100		EP
1154	EP	EP
1157	EP	
1220	EP	EP
1277	EP	EP
1427		Transformer
1433	EP	
1503	EP	EP
1524	EP	EP-2
1555	EP-2	
1565	EP	
1573	EP	
1602		EP, Transformer
1609	TP	
1778		EP-2
1825	EP	
1867	EP	
1896	TW	
1907	EP	
1940		Transformer
1942		EP
2118		EP
2154	TW	
2171	EP-2	
2278	EP	Transformer
2327	EP-2	
2335	EP	
2474	EP	
2529	EP	
2532	EP	EP
2570		EP, Transformer
2573		EP
2645	EP	
2733	EP	
3148		EP
3267	EP	EP
3270	EP	
3532		EP
3585		EP
3627	EP	EP
3664		EP-2
3666		EP

Chainage (M)	Left (No. of Trees)	Right (No. of Trees)

Chainage (M)	Left	Right
3715	EP	
3752		EP
3803	EP	

Attachment II
List of Utilities (Contd.)

Chainage(M)	Left	Right
3853	EP	
3903		EP
3953	EP	
3997		EP
4045		EP
4060		EP
4086		EP
4124		EP-2
4162	EP	

Attachment III
List of Community Structures

Chainage (M)	Left	Right
327	Mosque	
335		Edgah
467		GP Office
1562	Temple	
1565		Graveyard
1750		Madrasa
2034		Graveyard
4126		Graveyard

Attachment IV

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
				EP	0						
			Tree-1		13						
			Tree-6		19						
			EP+TR		22						
			Tree-1		43						
					84	EP					
					117	EP					
					177	Tree-1					
					205						CD
				EP	215						
					268	EP					
				EP	308						
			Mosque		327		Tree-3				
					335		Edgah				
				EP	371						
				EP	400						
				EP	429			Transformer			
				EP	458						
					467	Tree-1			GP Office		
					474	Tree-1	Tree-1				
				EP	496						
				EP	519						
				EP	673						
				EP	722		Tree-1				
					760						CD
				EP	772						
				EP	823	EP					
					829						CD
					939	EP					
			Tree-4		986	EP					
				EP	1000		Tree-3				
				EP	1046			Tree-2	Tree-1		
					1058		Tree-1	Tree-1			
					1069		Tree-1				
					1081		Tree-1				
			EP		1093	EP					
					1100		Tree-1	Tree-1	EP		
			EP		1154	EP					
				EP	1157						
					1205						CD
				EP	1220		EP				
			EP		1277	EP					
					1410		Tree-1				
					1427		Tree-1	Transformer			

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Tree-1, EP		1433		Tree-1				
					1445		Tree-1				
					1452		Tree-1				
				EP	1503		EP				
			EP		1524	EP	EP				
			EP	EP	1555						
			Temple		1562		Tree-3				
			EP		1565		Graveyard				
				EP	1573						
			Tree-1		1582		Tree-2				
		Tree-1			1597						
					1602		EP	Transformer			
			TP		1609						
		Tree-1			1611						
					1656						CD
					1750				Madrasa		
			Temple		1778	EP-2					
			Tree-6	EP	1825		Tree-1				
			Tree-2, EP		1867						
			TW		1896						
			EP		1907						
					1940		Transformer				
		Tree-4			1942		EP				
			Tree-1		1949						
					2034		Tree-2, Graveyard				
	Tree-3	Tree-4			2118		EP				
					2125						CD
				TW	2154			Tree-3			
			EP	EP	2171						
					2265		Tree-1				
				EP	2278			Transformer			
		Tree-1	Tree-1		2286		Tree-7				
					2325						CD
				EP-2	2327		Tree-1				
				EP	2335						
			Tree-6		2407		Tree-3				
				EP	2474						
				EP	2529		Tree-1				
		EP			2532	EP					
			Tree-1		2558						
					2570	EP		Transformer			
					2573	EP					
			EP		2645			Tree-3			
		EP	Tree-1		2733			Tree-1			
					2874						CD
					3015						CD

8m to 10m	6m to 8m	4m to 6m	2.75m to 4m	0m to 2.75m	Chainage (M)	0m to 2.75m	2.75m to 4m	4m to 6m	6m to 8m	8m to 10m	CD
			Tree-2		3148	Tree-1		EP			
			EP		3267		EP	Tree-2			
		EP	Tree-1		3270						
					3450						CD
			Tree-2		3532	EP					
					3585	EP	Tree-4, EP				
		Tree-4			3593		Tree-1				
			Tree-1	EP	3627	EP					
		Tree-3	Tree-4		3664	EP	EP				
			Tree-1		3666	Tree-1	EP				
		Tree-3		Tree-2	3688		Tree-1	Tree-3			
		Tree-2	Temple	Tree-1	3695			Tree-2			
		Tree-4		EP	3715			Tree-3			
			Tree-7		3752	EP					
				EP	3803						
				EP	3853						
			Tree-4		3903	EP	Tree-5				
			Tree-4	EP	3953		Tree-2				
					3997	EP		EP			
					4045		EP				
			Tree-2		4060		EP	Tree-1			
				EP	4086	EP					
					4124	EP		Tree-1, EP			
					4126		Graveyard				
					4145		Tree-1				
				EP	4162						

Appendix 1.3: Photo Illustration of Sample Roads

Photo 1: Road in North 24 Pgs- Mathura to Bodai Purba considered for upgradation

Photo 2: Public consultation at Bodai Gram Panchyat

Photo 3: Ponds near road Mathura to Bodai Purba

Photo 4: Dakshin Nayabad to Patharghata Bazar Road at North 24 Pgs

Photo 5: Public consultation at Patharghata GP

Photo 6: Road in North 24 Pgs -Teghoria Dakshin to Balipur Dakshin considered for upgradation

Photo 7: Public consultation in the road Teghoria Dakshin to Balipur Dakshin

Photo 8: Road stretch Teghoria Dakshin to Sankargachi Purba

Photo 9: Road stretch Mollapara to Uttar chakla in North 24 Pgs

Photo 10: Water stagnation on road Mollapara to Uttar chakla in North 24 Pgs

Photo 11: School near Mollapara to Uttar chakla

Photo 12: Road stretch Taranipur Purba to Sarapul Bazar- pond nearby the road

Photo 13: Uttar Lakshmipur to Tamaghata Bazar road at Burdwan

Photo 14: Public consultation at Uttar Lakshmipur to Tamaghata Bazar road at Burdwan

Photo 15: Road stretch Belia to Shyamnagar at Bankura

Photo 16: Temple near road Belia to Shyamnagar

Photo 17: Road stretch Pratapchak to Barakhelna in Pashim Medinipore

Photo 18: Public consultation at GP in Pashim Medinipore

Photo 19: Road - T04_Uttar Brindaban Chack to Uttar Narayan Pakuria at Purba Medinipore – Plantation near road noted

Photo 20: Road stretch Gopinathpur to Kotaijiageria in Pashim Medinipore

Photo 21: Public consultation at Gramraj GP for Gopinathpur to Kotaijiageria road in Pashim Medinipore

Photo 22: Temple away from the impact zone in the road Pratapchak to Barakhelna at Pashim Medinipore

Appendix 4.1: Guidelines for Borrow Areas Management

I. SELECTION OF BORROW AREAS

1. Location of borrow areas shall be finalized as per IRC: 10-1961guidlines. The finalization of locations in case of borrows areas identified in private land shall depend upon the formal agreement between landowners and contractor. If, agreement is not reached between the contractor and landowners for the identified borrow areas sites, arrangement for locating the source of supply of material for embankment and sub-grade as well as compliance to environment requirements in respect of excavation and borrow areas as stipulated from time to time by the Ministry of Environment and Forests, GoI, and local bodies, as applicable shall be the sole responsibility of the contractor.

2. The contractor in addition to the established practices, rules and regulation will also consider following criteria before finalizing the locations.

- The borrow area should not be located in agriculture field unless unavoidable i.e. barren land is not available.
- The borrow pits preferably should not be located along the roads.
- The loss of productive and agriculture soil should be minimum.
- The loss of vegetation is almost nil or minimum.
- The Contractor will ensure that suitable earth is available.

II. CONTRACTOR'S RESPONSIBILTY

3. The Contractor shall obtain representative samples from each of the identified borrow areas and have these tested at the site laboratory following a testing programme approved by the Engineer. It shall be ensured that the sub-grade material when compacted to the density requirements shall yield the design CBR value of the sub-grade. Contractor shall begin operations keeping in mind following:

- Haulage of material to embankments/ other areas of fill shall proceed only when sufficient spreading and compaction plants operating at the place of deposition.
- No excavated acceptable material other than surplus to requirements of the Contract shall be removed from the site. Contractor should be permitted to remove acceptable material from the site to suit his operational procedure, then shall make consequent deficit of material arising there from.
- Where the excavation reveals a combination of acceptable and un-acceptable materials, the Contractor shall, unless otherwise agreed by the Engineer, carry out the excavation in a manner that the acceptable materials are excavated separately for use in the permanent works without contamination by the unacceptable materials. The acceptable material shall be stockpiled separately.
- The Contractor shall ensure that he does not adversely affect the stability of excavation or fills by the methods of stockpiling materials, use of plants are siting of temporary buildings or structures.

III. BORROWING FROM DIFFERENT LAND FORMS

A. Borrow Areas located in Agricultural Lands

(i) The preservation of topsoil will be carried out in stockpile.

(ii) A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2 m and side slopes not steeper than 1:2 (Vertical: Horizontal).

(iii) Borrowing of earth will be carried out up to a depth of 1.5 m from the existing ground level.

(iv) Borrowing of earth will not be done continuously through out the stretch.

(v) Ridges of not less than 8 m widths will be left at intervals not exceeding 300 m.

(vi) Small drains will be cut through the ridges, if necessary, to facilitate drainage.

(vii) The slope of the edges will be maintained not steeper than 1:4 (vertical: Horizontal).

(viii) The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside.

B. Borrow Areas located in Elevated Lands

(i) The preservation of topsoil will be carried out in stockpile.

(ii) A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).

(iii) At location where private owners desire their fields to be levelled, the borrowing shall be done to a depth of not more than 1.5m or up to the level of surrounding fields.

C. Borrow Areas near River side

(i) The preservation of topsoil will be carried out in stockpile.

(ii) A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).

(iii) Borrow area near to any surface water body will be at least at a distance of 15m from the toe of the bank or high flood level, whichever is maximum.

D. Borrow Areas near Settlements

(i) The preservation of topsoil will be carried out in stockpile.

(ii) A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).

(iii) Borrow pit location will be located at least 0.75 km from villages and settlements. If un-avoidable, the pit will not be dug for more than 30 cm and drains will be cut to facilitate drainage.

(iv) Borrow pits located in such location will be re-developed immediately after borrowing is completed. If spoils are dumped, that will be covered with a layers of stockpiled topsoil in accordance with compliance requirements with respect MOEF/PPCB guidelines.

IV. Borrow Pits along the Road

4. Borrow pits along the road shall be discouraged and if deemed necessary and permitted by the Engineer; following precautions are recommended:

(i) The preservation of topsoil will be carried out in stockpile.

(ii) A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2 m and side slopes not steeper than 1:2 (Vertical: Horizontal).

(iii) Ridges of not less than 8m widths should be left at intervals not exceeding 300 m.

(iv) Small drains shall be cut through the ridges of facilitate drainage.

(v) The depth of the pits shall be so regulated that there bottom does not cut an imaginary line having a slope of 1 vertical to 4 horizontal projected from the edge of the final section of bank, the maximum depth of any case being limited to 1.5 m.

(vi) Also, no pit shall be dug within the offset width from the toe of the embankment required as per the consideration of stability with a minimum width of 10 m.

V. REHABILITATION OF BORROW AREAS

5. The objective of the rehabilitation programme is to return the borrow pit sites to a safe and secure area, which the general public should be able to safely enter and enjoy. Securing borrow pits in a stable condition is fundamental requirement of the rehabilitation process. This could be achieved by filling the borrow pit floor to approximately the access road level.

6. Re-development plan shall be prepared by the Contractor before the start of work inline with the owners will require and to the satisfaction of owner. The Borrow Areas shall be rehabilitated as per following;

- Borrow pits shall be backfilled with rejected construction wastes and will be given a vegetative cover. If this is not possible, then excavation sloped will be smoothed and depression will be filled in such a way that it looks more or less like the original round surface.
- Borrow areas might be used for aquaculture in case landowner wants such development. In that case, such borrow area will be photographed after their post use restoration and Environment Expert of Supervision Consultant will certify the post use redevelopment.

7. The Contractor will keep record of photographs of various stages i.e., before using materials from the location (pre-project), for the period borrowing activities (construction Phase) and after rehabilitation (post development), to ascertain the pre and post borrowing status of the area.

Appendix 4.2: Impacts on Biological Environment, Utility, Community and Religious Structures- All Roads Under Tranche II

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
1	2	3	4	5	6	7	8	9	10	11
1	North 24 Parganas	WB-01-ADB 47	Amdanga	Durlavpur to Srirampur	5.09	No	Nil	Nil	Nil	Nil
2	North 24 Parganas	WB-01-ADB 100	Amdanga	Rahana More to Panchghoria West	3.240	No	Nil	Nil	Nil	Nil
3	North 24 Parganas	WB-01-ADB 101	Amdanga	Urla East to Sadhanpur	6.648	No	EP-8 (LHS), EP-16 (RHS), TF-1 (LHS)	4	Nil	Nil
4	North 24 Parganas	WB-01-ADB 114	Amdanga	Mathura to Bodai Purba	2.424	No	EP-17, TP-5, HP-1, TF-1	9	Nil	Nil
5	North 24 Parganas	WB-01-ADB 48	Baduria	Narayanpur to Jadurhati Hospital	4.744	No	EP-3 (LHS), TP-1 (LHS)	3	Nil	Nil
6	North 24 Parganas	WB-01-ADB 78	Baduria	Iswarigachha to Kolsur Madhya (upto Mamudpur)	8.187	No	EP-4 (LHS), EP-1 (RHS), TF-1 (LHS)	3	Nil	Nil
7	North 24 Parganas	WB-01-ADB 106	Baduria	Jasaikhati Atghara GP to Atghara Monmdal Para	6.343	No	Nil	Nil	Nil	Nil
8	North 24 Parganas	WB-01-ADB 82	Bagdah	Helencha Paschim Para to Patkelpota	10.637	No	EP-7 (LHS), TP-3 (LHS)	30	Nil	Nil
9	North 24 Parganas	WB-01-ADB 83	Bagdah	Helencha to beara Dakshin	6.721	No	EP-4 (LHS), EP-2 (RHS), TP-2 (LHS)	1	Nil	Pond-1
10	North 24 Parganas	WB-01-ADB 56	Bagdah	Khorda Kulberia to Bagdah Bazar BDO Office	9.294	No	Nil	1	Nil	Nil
11	North 24 Parganas	WB-01-ADB 62	Barasat -I	Raghubirpur Purbapara to Bora Paschim	6.344	No	EP-1 (LHS)	Nil	Nil	Nil
12	North 24 Parganas	WB-01-ADB 105	Barasat- I	Kalianai Purbapara to Kilispur Paschimpara	7.576	No	Nil	Nil	Nil	Nil
13	North 24 Parganas	WB-01-ADB 113	Barasat- I	Behera Dakshin to Duttapukur	1.260	No	EP-4 (LHS)	Nil	Nil	Nil
14	North 24 Parganas	WB-01-ADB 71	Barasat -II	Teghoria Dakshin to Balipur Dakshin	3.449	No	EP-14(LHS), EP-14 (RHS), HP-2 (RHS), TF-2 (RHS)	24	Nil	Pond-7 (LHS), Pond-13 (RHS)
15	North 24 Parganas	WB-01-ADB 95	Barasat -II	Teghoria Dakshin to Sankargachi Purba	2.238	No	EP-8 (RHS), EP-5 (LHS), HP-2 (RHS), HP-1 (LHS)	31	ICDS (LHS) MOSQUE (LHS)	POND-22

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
16	North 24 Parganas	WB-01-ADB 50	Barackpore-I	Dariwala to Palla Daha Purba	5.589	No	EP-2	Nil	Nil	Nil
17	North 24 Parganas	WB-01-ADB 63	Barackpore-I	Rajendrapur Uttar to Mamudpur	3.549	No	Nil	Nil	Nil	Nil
18	North 24 Parganas	WB-01-ADB 84	Barackpore-I	Mukundapur uttar to Keutia Dakshin	6.626	No	Nil	Nil	Nil	Nil
19	North 24 Parganas	WB-01-ADB 65	Barackpore-I	Hatkhola to Ruiya Schoolpara	5.064	No	Nil	Nil	Nil	Nil
20	North 24 Parganas	WB-01-ADB 72	Barackpore-II	Jaffarpur to Telenipara	5.570	No	Nil	Nil	Nil	Nil
21	North 24 Parganas	WB-01-ADB 91	Barackpore-II	Ruiya F.P. School to Mohanpur Dakshin	2.262	No	Nil	Nil	Nil	Nil
22	North 24 Parganas	WB-01-ADB 118	Barackpore-II	Pathulia Bera Bazar to Ruiya Ajamtala	1.435	No	Nil	Nil	Nil	Nil
23	North 24 Parganas	WB-01-ADB 94	Bongaon	17 no. rail gate to Sahispur	7.823	No	EP-1 (RHS)	2	Nil	Nil
24	North 24 Parganas	WB-01-ADB 52	Bongaon	Ambikapur Mamudpur to Huda Bishnupur	19.709	No	EP-2 (LHS), HP-1, TP-1 (LHS)	7	Nil	Pond-22
25	North 24 Parganas	WB-01-ADB 69	Bongaon	Purba Arsingri to Gobrapota	6.062	No	EP-1 (LHS), EP-1 (RHS)	4	Nil	Nil
26	North 24 Parganas	WB-01-ADB 86	Bongaon	Ganeshpur to Harishpur	5.704	No	Nil	Nil	Nil	Nil
27	North 24 Parganas	WB-01-ADB 96	Deganga	Rampur to Mirjapur	7.132	No	HP-1 (RHS)	Nil	Nil	Nil
28	North 24 Parganas	WB-01-ADB 107	Deganga	Mollapara to Uttar chakla	2.408	No	Nil	7	Nil	Nil
29	North 24 Parganas	WB-01-ADB 57	Deganga	Paschim Kaukipara to Nachimpur	8.082	No	EP-2 (RHS), EP-1 (LHS), TP-2 (RHS)	2	Nil	Pond-25
30	North 24 Parganas	WB-01-ADB 61	Deganga	Deganga market to Jhikra	6.627	No	EP-3 (LHS), HP-1 (LHS)	22	Nil	Pond-28
31	North 24 Parganas	WB-01-ADB 104	Deganga	Nimtala to Biswanathpur Womens Camp	2.684	No	Nil	Nil	Nil	Nil
32	North 24 Parganas	WB-01-ADB 58	Gaighata	Sekhati to B M Pally	10.478	No	EP-6 (LHS), EP-4 (RHS)	8	Nil	Nil
33	North 24 Parganas	WB-01-ADB 102	Gaighata	Goribpur to Dakshinpara	5.244	No	EP-3 (LHS)	12	Nil	Nil
34	North 24 Parganas	WB-01-ADB 73	Gaighata	Bisnupur to panchpota West	14.225	No	EP-6 (LHS), EP-8 (RHS),	28	Nil	POND-6

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
							TP-3 (LHS), TP-1 (RHS)			
35	North 24 Parganas	WB-01-ADB 89	Gaighata	Gopalpur to Ichhapur market	2.858	No	EP-1 (RHS)	6	Nil	Nil
36	North 24 Parganas	WB-01-ADB 90	Gaighata	Sanapara to Ramchandrapur	6.327	No	Nil	11	Nil	Nil
37	North 24 Parganas	WB-01-ADB 112	Habra - I	(T05) Badar to Habra Municipality Border	3.577	No	Nil	Nil	Nil	Nil
38	North 24 Parganas	WB-01-ADB 108	Habra- I	Sahebbari to Tinmatha Natun Pally	5.577	No	EP-4 (RHS), EP-3 (LHS)	10	Nil	Nil
39	North 24 Parganas	WB-01-ADB 49	Habra - I	Khosdelpur Municipal End to Maligram, Border Beliaghata Road	5.735	No	Nil	Nil	Nil	Nil
40	North 24 Parganas	WB-01-ADB 98	Habra - II	Samudrapur to Berabari	2.946	No	EP-2 (RHS), EP-5 (LHS), TP-1 (LHS), TP-3 (RHS)	8	Nil	Nil
41	North 24 Parganas	WB-01-ADB 54	Habra - II	Nawa Para Charitable Dispensary to Rahana NH34 within Amdanga Block	4.174	No	EP-1 (RHS), EP-7 (LHS), TP-1 (LHS)	2	Nil	Nil
42	North 24 Parganas	WB-01-ADB 87	Habra - II	Kamarpur to KHD Sahara	8.811	No	EP-2 (LHS)	2	Nil	Nil
43	North 24 Parganas	WB-01-ADB 68	Habra - II	Guma Chowmatha to Dogachia	3.577	No	Nil	Nil	Nil	Nil
44	North 24 Parganas	WB-01-ADB 66	Swarupnagar	Taranipur Purba to Sarapul Bazar	4.978	No	EP-1 (LHS)	Nil	Nil	Nil
45	North 24 Parganas	WB-01-ADB 46	Swarupnagar	Duttapara to Boyerghata	4.522	No	EP-1 (RHS)	1	Nil	Nil
46	North 24 Parganas	WB-01-ADB 59	Sandeshkhali - II	Dakshin Sitlia To Hatgachha bazar	6.388	No	Nil	1	Nil	Nil
47	North 24 Parganas	WB-01-ADB 76	Sandeshkhali - II	Bowthakurani to Dakshin sitalia	5.745	No	EP-3 (RHS), EP-2 (LHS)	Nil	Nil	Nil
48	North 24 Parganas	WB-01-ADB 77	Sandeshkhali - I	L036 Metiakhali To chaital Within minakhan block	10.513	No	EP-18 (LHS), EP-8 (RHS),	3	Nil	Nil
49	North 24 Parganas	WB-01-ADB 97	Rajarhat	Chandpur to Khariberia RD (Noai Khal dhar)	3.193	No	EP-2 (LHS)	2	Nil	Nil
50	North 24 Parganas	WB-01-ADB 111	Rajarhat	Ghoshpara to Langolpota	2.992	No	EP-1 (RHS), EP-1 (LHS)	1	Nil	Nil
51	North 24	WB-01-ADB 79	Rajarhat	Dakshin Nayabad to	4.666	No	EP-1 (RHS),	4	Nil	Nil

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
	Parganas			Patharghata Bazar			EP-1 (LHS), TF-1 (RHS)			
52	North 24 Parganas	WB-01-ADB 110	Rajarhat	Kashinathpur to Patharghata Purba Panchayet Office	2.768	No	EP-2 (LHS), EP-1 (RHS), TF-1 (RHS)	3	Nil	Nil
53	North 24 Parganas	WB-01-ADB 80	Basirhat I	Jirakpur More to Dandirhat	3.695	No	EP-2 (LHS), EP-2 (RHS)	8	Nil	Pond-16 (LHS), Pond-27 (RHS)
54	North 24 Parganas	WB-01-ADB-70	Basirhat I	Sluice Gate to Merudaudi	1.995	No	EP-7 (LHS), EP-4 (RHS), TP-1 (LHS)	4	Nil	Pond-25
55	North 24 Parganas	WB-01-ADB 53	Basirhat I	Nimdaria to Ramnagar More	8.095	No	EP-5 (RHS), EP-1 (LHS), HP-1 (LHS), HP-1 (RHS)	5	Nil	Pond-36 (LHS), Pond-32 (RHS)
56	North 24 Parganas	WB-01-ADB 55	Basirhat II	Raghunathpur to Ghorarash	15.385	No	EP-4 (RHS), EP-2 (LHS), HP-1 (RHS)	3	Nil	Pond-25 (RHS), 12 (LHS)
57	North 24 Parganas	WB-01-ADB 103	Basirhat II	Uttar Gobila to Uttar Kankra	5.426	No	EP-2 (LHS), EP-2 (RHS), HP-2 (LHS), HP-1 (RHS)	9	Nil	Pond-35
58	North 24 Parganas	WB-01-ADB 85	Haroa	Baganti to Dakshin Bakjuri	5.342	No	EP-4 (LHS), EP-13 (RHS)	12	Nil	Pond-7
59	North 24 Parganas	WB-01-ADB 51	Hinjalganj	Dharmberia to Bhanderkali (Phase II)	13.680	No	EP-1 (RHS), EP-1 (LHS)	5	Nil	Nil
60	North 24 Parganas	WB-01-ADB 74	Minakhan	Bachhra ferry ghat to Muchikhola	8.845	No	EP-5 (LHS), EP-3 (RHS)	15	Nil	Pond-1
61	North 24 Parganas	WB-01-ADB 93	Minakhan	Ramjoy Gheri to Bockchora	9.813	No	EP-16 (LHS), EP-6 (RHS)	1	Nil	Nil
62	North 24 Parganas	WB-01-ADB 75	Barasat -I	Rangapur to Janapara (upto Miruthi) (Part-A)	6.493	No	EP-2 (LHS) EP-4 (RHS)	3	Nil	Nil
			Barasat -I	Rangapur (From Miruthi) to Janapara (Part-B)	4.847					
63	North 24 Parganas	WB-01-ADB 92	Barasat -I	Dubgaria to Mallikpara (upto Jafrabad) (Part- A)	2.719	No	Nil	1	Nil	Nil
			Barasat -I	Dubgaria (From Jafrabad) to Mallikpara (Part- B)	1.237					
64	North 24	WB-01- ADB 88	Barasat -I	Mondalganthi Bamanpara	3.695	No	EP-7 (LHS),	7	Nil	POND-5

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
	Parganas			(Muruli) to Parjapur			EP-3 (RHS), HP-1 (RHS)			
65	North 24 Parganas	WB-01- ADB 45	Barasat -I	Joypul to Gopalpur	3.185	No	EP-2 (LHS), TAP-2 (RHS)	Nil	Nil	POND-7
66	North 24 Parganas	WB-01- ADB 67	Habra - I	Kharo Mathpara to Chirsthanpara	5.242	No	Nil	Nil	Nil	Nil
67	North 24 Parganas	WB-01- ADB117	Habra - I	Ichspur Kolupsrs to Sarai Paschim	3.034	No	Nil	Nil	Nil	Nil
68	North 24 Parganas	WB-01- ADB116	Habra - I	Raghabpur Colony to Kumro Bijoypur	2.174	No	Nil	Nil	Nil	Nil
69	North 24 Parganas	WB-01- ADB115	Habra - I	Kumargram Panchyet to Ankhola	1.937	No	EP-5 (RHS), TP-3 (LHS), TF-1 RHS)	6	Nil	Nil
70	North 24 Parganas	WB-01- ADB109	Gaighata	Paschimpara to Amkola	3.887	No	EP-1 (LHS), TF-1 (LHS)	7	Nil	Nil
71	North 24 Parganas	WB-01- ADB 99	Habra - II	Nurpur to Buzruk Digha (Asudi Dakshin)	2.172	No	EP-2	1	Nil	Pond-1
72	North 24 Parganas	WB-01- ADB 64	Sandeshkhali - I	Gazikhali Nazat Ferry Ghat to Patharghata FP School connected to 24 PGS (S)	11.276	No	Nil	1	Nil	Nil
73	North 24 Parganas	WB-01- ADB 60	Barasat -II	Beliaghata to F Malrampur Purba	4.808	No	EP-3 (LHS), EP-7 (RHS), HP-2 (RHS)	7	Nil	POND-11, BHERI-3
Grand Total of 73 roads of North 24 Parganas District					**428.797**					
74	Darjeeling	WB-07-ADB 17	Garubathan	Sombaray South to Kumami Munsi Line	8.443	No	EP-6(LHS)	No	No	No
75	Darjeeling	WB-07-ADB 21	Garubathan	Upper Fagu to Sherpa Tar	7.671	No	EP-20(LHS) EP-10(RHS)	No	No	No
76	Darjeeling	WB-07-ADB 16	Kalimpong - I	Relly Road Kazi Compound to Bagrakote (Uttar Fulbari)	11.442	No	No	No	No	No
77	Darjeeling	WB-07-ADB 20	Kalimpong - I	Pedong to Pitamchen via Lingsey	7.208	No	EP-1 (LHS), TP-1 (LHS), EP-3 (RHS), TP-2(RHS)	No	No	No
78	Darjeeling	WB-07-ADB 24	Rangli Rangliot	6 th Mile of SH 12 to Teesta Bazar via Takda	11.085	No	EP-11(LHS), TF-1(LHS)	2	No	No
79	Darjeeling	WB-07-ADB 25	Mirik	Dhudhia New Bridge to Panighatta	1.433	No	No	No	No	No

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
80	Darjeeling	WB-07-ADB 22	Darjeeling Pulbazar	Darjeeling to Majutar (Samtikalyan)	11.393	No	EP- 2 (LHS), TP- 3(LHS), TF- 2(LHS), EP- 38 (RHS), TP-1(RHS), TF-2(RHS)	12	No	No
81	Darjeeling	WB-07-ADB 23	Darjeeling Pulbazar	Kaijalay to Goke via Kolbong	6.130	No	EP- 21(LHS) EP- 9 (RHS), TF- 1(RHS)	No	No	No
82	Darjeeling	WB-07-ADB 19	Kueseong	Ambotia via Baseri to Namsu Bridge	8.325	No	EP-5 (LHS), Resting place-1(LHS) EP-1 (RHS), Resting place-4(RHS)	No	No	No
Grand Total of 9 roads of Darjeeling District					**73.130**					
83	Jalpaiguri	WB-10-ADB 30		T04 at NH31 at Mallikshova to T05 at PWD road near Duramari	14.591	No	EP-57(LHS) EP-55 (RHS), TP-1(RHS), TF-1(RHS)	No	No	No
84	Jalpaiguri	WB-10-ADB 31	Jalpaiguri Sadar	T02 at Jalpaiguri at Jalpaiguri Haldibari road to T05 at pucca road at Panga Saheb Bari	6.473	No	EP-9 (LHS), HP-6 (LHS) EP-14 (RHS), TP-2 (RHS)	No	No	No
85	Jalpaiguri	WB-10-ADB 32	Kalchini	T08 at NH31 at Bomdong Bazar to T01 at Gudambari High School	7.113	No	EP-29(LHS), TP-7(LHS), EP-17 (RHS), TP-5 (RHS)	2	No	No
86	Jalpaiguri	WB-10-ADB 33	Maynaguri	T10 at SH 12A near Maynaguri road to T05 at Balapara	12.616	No	EP-28(LHS), TP-1(LHS), EP- 42 (RHS), HP-1(RHS)	15	No	Pond-3 (RHS)
87	Jalpaiguri	WB-10-ADB 34	Alipurduar – II	NH-31C near Chaltatala to Alipurduar Volka PWD Rd.	5.295	No	EP-15(LHS), EP-14 (RHS)	47	No	Pond-1 (RHS)
88	Jalpaiguri	WB-10-ADB 35	Alipurduar – II	T18 at Alipurduar Kumargram road to T01 at NH-31C via. Taleswarguri	1.911	No	EP-15(LHS), TP- 4(LHS), HP-1(LHS) EP-14(RHS), TF-1(RHS), HP-4(RHS)	6	No	No

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
89	Jalpaiguri	WB-10-ADB 36	Jalpaiguri Sadar	T05 at PWD road near Charakdangi to T03 at Jalpaiguri Siliguri Road at Panga Bottala	6.492	No	EP-20 (LHS) (LHS), TF-14 (LHS), EP-17(RHS), TF-12(RHS)	No	No	No
91	Jalpaiguri	WB-10-ADB 38	Kumargram	T12 at NH 31C at Telipara Choupathi to T06 at Pacca road at Gajendhani	4.314	No	EP-18(LHS), HP-1(LHS) EP-38 (RHS), HP-1(RHS)	1	No	No
92	Jalpaiguri	WB-10-ADB 39	Alipurduar – II	T01 at Taleswarguri to T01 at Samuktala	4.774	No	EP-22(LHS), TP-4(LHS), HP-1(LHS) EP-26 (RHS), TP- 4(RHS),	No	No	No
93	Jalpaiguri	WB-10-ADB 40	Jalpaiguri Sadar	T03 at Siliguri Jalpaiguri road at Golghumti to T01 at PWD road near Joram	18.591	No	EP-155 (LHS),TF-3 (LHS), EP-148 (RHS), TF-1(RHS),	1	No	No
94	Jalpaiguri	WB-10-ADB 41	Alipurduar – II	T18 at Samuktala to T01 at Tufanganj road	5.511	No	EP-12 (LHS), TP-7(LHS), TF-4 (LHS), EP-14 (RHS), TP-2 (RHS), TF-2 (RHS)	38	No	Pond-1(RHS)
95	Jalpaiguri	WB-10-ADB 42	Alipurduar – II	T18 at NH31C to T7 at Parakota GP Office	6.779	No	EP-23 (LHS) EP-25 (RHS)	106	PHE-1	Pond-1(RHS)
96	Jalpaiguri	WB-10-ADB 43	Malbazar	R7 at NH31C at Mal to R8 at NH31 near Lataguri	11.56	No	EP- 34 (LHS), TF-1(LHS), EP- 55 (RHS), TF-5 (RHS), HP-1(RHS)	No	LHS-Masjid-1	No
97	Jalpaiguri	WB-10-ADB 44	Dhupguri	T04 at NH31C at Banarhat to T06 at PWD road at Dakshin Salbari	15.162	No	EP- 52 (LHS),TF-1(LHS), EP-28 (RHS), TP-	1	No	No

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
							1(RHS)			
Grand Total of 15 roads of Jalpaiguri District					**129.174**					
98	Paschin Medinipur	WB-20-ADB 41	Naryangarh	Gopinathpur to Kotaijiageria	11.876	No	EP-53 (LHS), TF-5(LHS) EP-63 (RHS), TF-6 (RHS)	No	No	Pond-1 (LHS) pond-1(RHS)
99	Paschin Medinipur	WB-20-ADB 55	Naryangarh	Makrampur to Nayapukur - Keshiary Block	11.242	No	EP-45 (LHS),, TP-18 (LHS), EP-47(RHS), TP-10 (RHS)	No	No	No
100	Paschin Medinipur	WB-20-ADB 58	Jhargram	Jhargram to Manikpara (T 01)	15	No	No	No	No	No
101	Paschin Medinipur	WB-20-ADB 59	Kharagpur - II	Rambhadrapur to Asudchak	24.446	No	No	No	No	No
102	Paschin Medinipur	WB-20-ADB 56	Binpur- II	Belpahari to Chakadoba	3.317	No	EP-15 (LHS) EP-12 (RHS)	No	No	No
103	Paschin Medinipur	WB-20-ADB 57	Medinipur Sadar	Pachkhuri to Raghunathpur	12.698	No	EP-30 (LHS), TP-23 (LHS), EP-62 (RHS), TP-5(RHS)	No	No	No
104	Paschin Medinipur	WB-20-ADB 42	Chandrakona – I	Srinagar to Dinapur	6.531	No	EP-28 (LHS) EP-37 (RHS)	No	No	No
105	Paschin Medinipur	WB-20-ADB 43	Chandrakona – II	Atghara to Pinglash	12.52	No	EP-24 (LHS) EP-41(RHS)	No	No	No
106	Paschin Medinipur	WB-20-ADB 44	Datan-II	Gokulpur to Srikrishnapur	5.242	No	EP-2 (LHS) EP-1(RHS)	No	No	No
107	Paschin Medinipur	WB-20-ADB 45	Datan-II	Jahalda to Bhatpara	6.186	No	EP-31(LHS) EP-34(RHS)	No	No	No
108	Paschin Medinipur	WB-20-ADB 46	Pingla	Pingla to Kalukhanra	2.993	No	No	No	No	No
109	Paschin Medinipur	WB-20-ADB 47	Pingla	Pratapchak to Barakhelna	5.405	No	TF-1 (LHS)	No	No	No
110	Paschin Medinipur	WB-20-ADB 48	Sankrail	Jangalkurchi to Murakati	19.763	No	EP-34 (LHS) EP-31(RHS)	No	No	No
111	Paschin Medinipur	WB-20-ADB 49	Sankrail	Rohini to Harapariya	7	No	EP-9 (LHS) EP-20 (RHS)	No	No	No
112	Paschin Medinipur	WB-20-ADB 50	Debra	Fatebar to Radhamohanpur	8.819	No	EP -35 (LHS) EP -30 (RHS)	127	No	No
113	Paschin	WB-20-ADB 51	Daspur -II	Marishgata to Ajurya	9.573	No	EP-29 (LHS)	No	No	No

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
	Medinipur						EP-23 (RHS), TF-2 (RHS)			
114	Paschin Medinipur	WB-20-ADB 52	Daspur -II	Ranichak Paschimpara to Jotghaneshyan	14.767	No	EP-32 (LHS) EP-33 (RHS)	No	No	No
115	Paschin Medinipur	WB-20-ADB 53	Daspur -II	Chaksultan to Uttarbar	11.441	No	EP-36 (LHS) EP-29 (RHS)	No	No	No
116	Paschin Medinipur	WB-20-ADB 54	Daspur -II	Dubrajpur to Jot Ghanashyam	26.29	No	EP-23 (LHS), EP-19 (RHS)	No	No	No
Grand Total of 19 roads of Paschim Medinipur District					**215.109**					
117	Bankura	WB-03-ADB 45	Bankura -II	Bikna to Ailtha	8.417	No	EP-4 (LHS), EP-4 (RHS)	2	Nil	Nil
118	Bankura	WB-03-ADB 46	Bankura -II	Kanchanpur to Nabanda	8.098	No	EP-5 (LHS), EP-9 (RHS)	1	TEMPLE-2 (LHS), TEMPLE-1 (RHS)	POND-5, WELL-1
119	Bankura	WB-03-ADB 47	Joypur	Belia to Shyamnagar	9.742	No	EP-5 (LHS), EP-3 (RHS), TF-2 (RHS), HP-1 (RHS)	23	Nil	Pond-2 (RHS), Pond-2 (LHS)
120	Bankura	WB-03-ADB 48	Taldanga	Katpara to Chanchurya	5.867	No	Nil	Nil	Nil	Nil
Grand Total of 4 roads of Bankura District					**32.124**					
121	Burdwan	WB-05-ADB 19	Ausgram-I	Joykrishnapur to Gobindapur	7.843	No	Nil	Nil	Nil	Nil
122	Burdwan	WB-05-ADB 18	Purbasthali -II	Uttar Laxmipur - Tamaghata Ferryghat	3.207	No	EP-3 (LHS), EP-1 (RHS), HP-1 (RHS),	11	Nil	Nil
Grand Total of 2 roads of Burdwan District					**11.050**					
123	Purba Medinipur	WB-19-ADB 19	Panskura - II	Uttar Bindabanchak - Uttar Narayan Pakuria	7.718	No	EP-2 (LHS), EP-1 (RHS), TP-1 (LHS),	Nil	Nil	Nil
Grand Total of 1 roads of Purba Medinipur District					**7.718**					
124	Malda	WB-11-ADB 27	Englishbazar	Atgama to Mobarakpur	7.503	No	EP-2 (LHS), TF-1(LHS) EP-4 (RHS), HP-1(RHS)	No	No	No
125	Malda	WB-11-ADB 28	Kaliachak - II	Balugram to Panchanandapur-I Colony	6.175	No	EP-4 (LHS), TF-2 (LHS) , HP-3 (LHS), EP-3 (RHS), TF-1(RHS),	2	No	No

Sl No.	District	Package	Block	Name of Road	Length (km)	Passing through Forest Area	Need for Utility shifting* (EP, TP, HP etc.)	No. of trees affected	Religious & community Structures	Presence of Water Body (River/Lake)
							HP-4(RHS)			
126	Malda	WB-11-ADB 29	Kaliachak -III	Baburbona to Baribona	8.692	No	EP-7(LHS), TF-2 (LHS), EP-4(RHS), TF-3(RHS), HP-1(RHS)	No	No	No
Grand Total of 3 roads of Malda District					**22.370**					
127	Purulia	WB-16-AD 17	Jhalda	Barahan Kol to Simni Road	6.441	No	No	No	No	No
Grand Total of 1 road of Purulia District					**6.441**					
128	Uttar Dinajpur	WB-15-ADB 21	Itahar	Uzani - Pakaibari	4.171	No	EP-35 (LHS), HP-1(LHS) EP- 24 (RHS)	8	No	No
Grand Total of 1 road of Uttar Dinajpur District					**4.171**					
Grand Total of 130 Roads					**930.084**					

Appendix 5.1: Environmental Management Plan

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
I	**Design and Preconstruction Stage**					
1.	Climate Change Consideration and Vulnerability screening	o Compliance to climate change vulnerability check point given under EARF and adoption of necessary mitigative measures as may be required o Efforts shall be made to plant additional trees for increasing the carbon sink. The tree may be planted with help of PRI	All through the alignment of each rural road	Design costs.	PIU, Design consultants	PIU, WBSRRDA
2.	Finalization of alignment	o The road will be part of district core network and will comply with PMGSY guidelines o Subproject shall not disturb any cultural heritage designated by the government or by the international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance. o Subproject will not pass through any designated wildlife sanctuaries, national park, notified Eco sensitive areas or area of international significance such as protective wet land designated under Wetland Convention, and reserve forest area.. o Subproject to comply with local and National legislative requirements such as forest clearance for diversion of forestland and ADB's Safeguard Policy Statement 2009. o Alignment finalization considering availability of right of way and in consultation with local people. o ROW may be reduced in built up area or constricted areas to minimize land acquisition as per PMGSY Guidelines. o Adjust alignment to the extent feasible to avoid tree cutting, shifting of utilities or community structure. o The road shall follow natural topography to avoid excessive cut and fill.	All through the alignment of each rural road	Design costs	PIU, Design consultants	PIU, WBSRRDA
3.	Land acquisition	o Land acquisition, compensation packages, resettlement and rehabilitation, poverty alleviation programs for affected people and all other related	All through the alignment of each rural road	Land to be made available and necessary	PIU	PIU, WBSRRDA, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		issues are addressed through Social Impacts and Resettlement & Rehabilitation report.		costs if any to be borne by the state		
4.	Clearing of vegetation and removing trees	o All efforts shall be taken to avoid tree cutting wherever possible. o Requisite permission from forest department shall be obtained for cutting of roadside trees. o Provision of Compensatory Afforestation shall be made on 1:3.ratio basis o Permission shall be taken for diversion of any forest land if involved. Provision shall be made for additional compensatory tree plantation. o The vegetative cover shall be removed and disposed in consultation with community.	All through the alignment of each rural road ***(Enter chainages where tree cutting and diversion of forest land is required & proposed plantation location if details are available)***	Costs for Forestry clearance for diversion of forest land, obtaining tree cutting permit to be borne by state. Costs for compen-satory foresta-tion to be borne by state or by PRI – NREGA	Forestry clearance and permit to be obtained by the PIU. Compensatory plantation to be carried out in coordination with PRI under schemes such as NREGA or local Forestry Department	PIU, PIC, TSC
5.	Shifting of utilities and common property resources	o The road land width shall be clearly demarcated on the ground. o All efforts will be made to minimize shifting of utilities and common property resources o Utility and community structure shifting shall be planned in consultations and concurrence of the community o Required permissions and necessary actions will be taken on a timely basis for removing and shifting utility structures and common property resources before road construction activities begin.	***(Enter chainages where shifting of utility structures and common property resources are required. Enter total numbers of each structure required for shifting/removal)***	Costs to cover shifting and reconstruction of common property resources must be included under project costs.	PIU, contractor, utility agencies (Internal procedures to be discussed and agreed between the above parties)	PIU, PIC, TSC
6.	Design and planning of embankment construction	o The alignment design shall consider options to minimize excessive cuts and fills. o The cut off material shall be planned to be used for embankment to minimize borrow earth requirement. o The design shall be as per relevant IRC provisions for cut and fill, slope protection and drainage. o The top soil of the cut and fill area shall be used for embankment slope protection	All through the alignment of each rural road ***(Enter the chainages that are prone to floods)***	Part of Project Cost	PIU, Design Consultants	PIU, WBSRRDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		o Embankment will be designed above High Flood Level (HFL) in flood prone areas where feasible.				
7.	Hydrology and Drainage	o Provision of adequate cross drainage structure shall be made to ensure smooth passage of water and maintaining natural drainage pattern of the area. o The discharge capacity of the CD structure shall be designed accordingly. o Provision of adequate drainage structures shall be made in water stagnant/logging areas. o The construction work near water body shall be planned preferably in dry season so that water quality of the water channel is not affected due to siltation and rain water runoff. o Provision of additional cross drainage structure shall be made in the areas where nearby land is sloping towards road alignment on both the sides. o Provision of concrete road construction in habitat area with drainage of both side of the road shall be made as per the design provision and with adequate slope to prevent any water logging.	Near all drainage crossings, nalas, rivers, streams and ponds. ***(Enter chainages where earthern/structural cross drains, longitudinal drains, streams, ponds and rivers exist)***	Included in project costs.	PIU, Design consultants	PIU, WBSRRDA
8.	Establishment of Construction Camp, temporary office and storage area	o Construction camp sites shall be located away from any local human settlements and forested areas (minimum 0.5 km away) and preferably located on lands, which are not productive (barren/waste lands presently). o Similarly temporary office and storage areas shall be located away from human settlement areas and forested areas (minimum 0.5 km). o The construction camps, office and storage areas shall have provision of adequate water supply, sanitation and all requisite infrastructure facilities. o The construction camps, office and storage areas shall have provision of septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use. o All construction camps shall have provision of rationing facilities particularly for kerosene/LPG so that	For all roads	To be included in contractor's cost	Contractor	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		dependence on firewood for cooking is avoided to the extent possible. o The construction camps, office and storage areas shall have provision of health care facilities for adults, pregnant women and children. o Personal Protective Equipments (PPEs) like helmet, boots, earplugs for workers, first aid and fire fighting equipments shall be available at construction sites before start of construction. An emergency plan shall be prepared to fight with any emergency like fire. o Provision shall be made for domestic solid waste disposal in a controlled manner. The recyclable waste shall be sold off and non-saleable and biodegradable waste shall be disposed through secured land filling. o Provision of paved area for unloading and storage of fuel oil, lubricant oil, away from storm water drainage.				
9.	Traffic Management and Road Safety	o Identify the areas where temporary traffic diversion may be required. o Prepare appropriate traffic movement plan approved by respective PIU for ensuring continued safe flow of traffic, pedestrians and all road users during construction. o Wherever, cross drainage structure work require longer construction time and road is to be blocked for longer duration, the PIU/DPR consultant shall define appropriate measures for traffic diversion before the start of the construction. o Adequate signboards shall be placed much ahead of diversion site to caution the road users. The road signs should be bold and retro reflective in nature for good visibility both during the day and night. o It is proposed for the respective PIU to discuss with the railways division/department for providing adequate safety measures at unmanned railway crossing where	As proposed under DPR and determined by contractor and approved by PIC/PIU/ ***(Enter the chainages which may require traffic diversions where possible)***	To be included in contractor's cost	Contractor	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		applicable. Adequate clearly visible sign shall be provided on both sides of the railway crossing All measures for traffic control and safety in accordance with IRC codes:99-1988 will be followed				
II.	**Construction Stage**					
10.	Sourcing and transportation of construction material	**Borrow Earth:** o The borrow earth shall be obtained from identified locations and with prior permission of landowner and clear understanding for its rehabilitation. o The re-habilitation plan may include the following: ▪ Borrow pits shall be backfilled with rejected construction wastes and will be given a vegetative cover. If this is not possible, then excavation sloped will be smoothed and depression will be filled in such a way that it looks more or less like the original ground surface. ▪ Borrow areas might be used for aquaculture in case landowner wants such development. o The Indian Road Congress (IRC):10-1961 guideline should be used for selection of borrow pits and amount that can be borrowed. o Borrowing earth from agricultural land shall be minimized to the extent possible. Further, no earth shall be borrowed from already low-lying areas. o A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal). o Borrowing of earth will not be done continuously through out the stretch. o Ridges of not less than 8m widths will be left at intervals not exceeding 300m. o Small drains will be cut through the ridges, if necessary, to facilitate drainage. o The slope of the edges will be maintained not steeper than 1:4 (vertical: Horizontal).	***(Enter chainage or probable locations of borrow areas.*** ***Enter name and location of identified quarries.)***	To be included under contractors costs	Contractor	PIC, PIU, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		o The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside. o Fly ash will be used in road embankment as per IRC guidelines wherever thermal power plant is located within 100 km of the road alignment. **Aggregate :** o The stone aggregate shall be sourced from existing licensed quarries o Copies of consent/ approval / rehabilitation plan for use of existing source will be submitted to PIU. o Topsoil to be stockpiled and protected for use at the rehabilitation stage **Transportation of Construction Material** o Existing tracks / roads are to be used for hauling of materials to the extent possible. o Prior to construction of roads, topsoil shall be preserved and shall be used for other useful purposes like using in turfing of embankment. o The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation. In any case, the transportation links are to be inspected at least twice daily to clear accidental spillage, if any.				
11.	Loss of Productive Soil, erosion and land use change	o The top soil from the productive land (borrow areas, road widening areas etc.) shall be preserved and reused for plantation purposes. o It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion. o Cut and fill shall be planned as per IRC provisions and rural road manual. o All steep cuts shall be flattened and benched. o Shrubs shall be planted in loose soil area. o IRC: 56 -1974 recommended practice for treatment of embankment slopes for erosion control shall be taken into consideration. o It shall be ensured that the land taken on lease for access road, construction camp and temporary office of	All though the alignment of each project road	To be included under contractors costs	Contractor	PIU / WBSRRDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		the storage facilities is restored back to its original land use before handing it over back to land owner.				
12.	Compaction and Contamination of Soil	o To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route. o The productive land shall be reclaimed after construction activity. o Fuel and lubricants shall be stored at the predefined storage location. o The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils. o All efforts shall be made to minimize the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal. o To avoid soil contamination at the wash-down and re-fuelling areas, “oil interceptors” shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized re-refiners.	All though the alignment of each project road	To be included under contractors costs	Contractor,	PIU, PIC, TSC
13.	Construction Debris and waste	o Excavated materials from roadway, shoulders, verges, drains, cross drainage will be used for backfilling embankments, filling pits, and landscaping. o Unusable debris material should be suitably disposed off at pre-designated disposal locations, with approval of the concerned authority. o The bituminous wastes shall be disposed in secure manner at designated landfill sites only in an environmentally accepted manner. o For removal of debris, wastes and its disposal MOSRTH guidelines should be followed. Unproductive/wastelands shall be selected with the consent of villagers and Panchayat for the same. The dumping site should be of adequate capacity. It should be located at least 500 m away from the	All though the alignment of each project road	To be included under contractors costs	Contractor	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		residential areas. Dumping sites should be away from water bodies to prevent any contamination of these bodies.				
14.	Air and Noise Quality	○ Vehicles delivering loose and fine materials like sand and aggregates shall be covered. ○ Dust suppression measures like water sprinkling, shall be applied in all dust prone locations such as unpaved haulage roads, earthworks, stockpiles and asphalt mixing areas. ○ Mixing plants and asphalt (hot/spot mix) plants shall be located at least 0.5 km away and in downwind direction of the human settlements. ○ Material storage areas shall also be located downwind of the habitation area. ○ Hot mix plant shall be fitted with stack of adequate height (30 m) or as may be prescribed by SPCB to ensure enough dispersion of exit gases. Consent to establish and operate shall be obtained from State Pollution Control Board and comply with all consent conditions. ○ Diesel Generating (DG) sets shall also be fitted with stack of adequate height (as per regulation height of the stack of open to air DG set shall be about 0.5 m for 5 KVA and about 0.7 m for 10 KVA DG sets, above top of sound proofing enclosure of the DG set). Low sulphur diesel shall be used in DG sets and other construction machineries where available. Construction vehicles and machineries shall be periodically maintained.	Throughout the project road section	To be included under contractors costs	Contractor	PIU, WBSRRDA
15.	Tree plantation	○ Compensatory Afforestation shall be made on 1:3.ratio basis ○ Additional trees shall be planted wherever feasible. ○ Follow up maintenance of planted saplings will be carried out for a minimum of 3 years	***(Enter the number of trees requird for planting and location of plantation site if available)***	Costs to be covered by state or PRI under schemes such as NREGA	PIU to coordinate compensatory forestation with PRI under schemes such as NREGA or local Forestry Department	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
16.	Ground Water and Surface Water Quality and Availability	○ Requisite permission shall be obtained for abstraction of groundwater from State Ground Water Board/Central Ground Water Authority if applicable. ○ The contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected. ○ Water intensive activities shall not be undertaken during summer period to the extent feasible. ○ Provision shall be made to link side drains with the nearby ponds for facilitating water harvesting if feasible ○ Where ponds are not available, the water harvesting pits shall be constructed as per the requirement and rainfall intensity. ○ Preventive measures like slope stabilisation, etc shall be taken for prevention of siltation in water bodies.	Throughout the project road	To be included under contractors costs	Contractor	PIU, PIC, TSC
17	Occupational Health and Safety	○ The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers. ○ Workers' exposure to noise will be restricted to less than 8 hours a day. Workers duty shall be regulated accordingly. ○ Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas. ○ Domestic solid waste at construction camp shall be segregated into biodegradable and non-biodegradable waste.	In all project roads	Costs to be borne by Contractor	Contractor	PIC, PIU, TSC
III	**Post Construction and Operation Stage**					
18.	Air and Noise Quality	○ Awareness sign board shall be provided for slow driving near the habitat areas to minimize dust generation due to vehicle movement. Speed limitation and honking restrictions may be enforced near sensitive locations.	Throughout the project section at the location determined by contractor and approved by PIU	construction cost	Contractor,	PIC, PIU, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/numbers	Costs	Responsible for Implementing	Responsible for Monitoring
19.	Site restoration	○ All construction camp/temporary office/material storage areas are to be restored to its original conditions. ○ The borrow areas rehabilitation will be ensured as per the agreed plan with the landowner. ○ Obtain clearance from PIU before handling over the site to WBSRRDA. ○ PIC to undertake survivability assessment and report to PIU the status of compensatory tree plantation at a stage of completion of construction with recommendation for improving the survivability of the tree if required	All locations of construction camps/temporary office/ material storage, and borrow areas	To be borne by the contractor	Contractor	PIU, PIC, TSC
20.	Hydrology and Drainage	○ Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points before the monsoon season. ○ Rejuvenation of the drainage system by removing encroachments/ congestions shall be regularly conducted	At project road locations with drainage structures	To be covered under road maintenance costs.	PIU	PIU, WBSRRDA
21	Community Safety	○ Directional sight board shall be installed on all sharp curves and bends ○ At a main road, intersection or crossing “STOP” sign and ‘T-intersection’ warning sign shall be installed on the village road.	Throughout the project section at the location determined by contractor and approved by PIU	construction cost	Maintenance Contractor, PIU	PIC/PIU

Appendix 5.2: Environmental Monitoring Plan

I. ENVIRONMENTAL MONITORING DURING DESIGN AND PRE-CONSTRUCTION STAGE

Monitoring Responsibility: PIU with Support from PIC
Monitoring Frequency: Once prior to start of construction
Road Name with Block and District Name:……..
Road Length: ……
Report No.: …….

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
1..	Climate Change Consideration and Vulnerability screening	○ Compliance to climate change vulnerability check point given under EARF and adoption of necessary mitigative measures as may be required ○ Efforts shall be made to plant additional trees for increasing the carbon sink. The tree may be planted with help of PRI (Panchayati Raj Institution)	All through the alignment of each rural road		
2..	Finalization of alignment	○ The road will be part of district core network and will comply with PMGSY guidelines ○ Subproject shall not disturb any cultural heritage designated by the government or by the international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance. ○ Subproject will not pass through any designated wildlife sanctuaries, national park, notified Eco sensitive areas or area of international significance such as protective wet land designated under Wetland Convention, and reserve forest area.. ○ Subproject to comply with local and National legislative requirements such as forest clearance for diversion of forestland and ADB's Safeguard Policy Statement 2009. ○ Alignment finalization considering availability of right of way and in consultation with local people. ○ ROW may be reduced in built up area or constricted areas to minimize land acquisition as per PMGSY Guidelines. ○ Adjust alignment to the extent feasible to avoid tree cutting, shifting of utilities or community structure. ○ The road shall follow natural topography to avoid excessive cut	All through the alignment of each rural road		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		and fill.			
3.	Land acquisition	○ Land acquisition, compensation packages, resettlement and rehabilitation, poverty alleviation programs for affected people and all other related issues are addressed through Social Impacts and Resettlement & Rehabilitation report.	All through the alignment of each rural road		
4.	Clearing of vegetation and removing trees	○ All efforts shall be taken to avoid tree cutting wherever possible. ○ Requisite permission from forest department shall be obtained for cutting of roadside trees. ○ Provision of Compensatory Afforestation shall be made on 1:3.ratio basis ○ Permission shall be taken for diversion of any forest land if involved. Provision shall be made for additional compensatory tree plantation. ○ The vegetative cover shall be removed and disposed in consultation with community.	All through the alignment of each rural road ***(Enter chainages where tree cutting and diversion of forest land is required & proposed plantation location if details are available)***		
5.	Shifting of utilities and common property resources	○ The road land width shall be clearly demarcated on the ground. ○ All efforts will be made to minimize shifting of utilities and common property resources ○ Utility and community structure shifting shall be planned in consultations and concurrence of the community ○ Required permissions and necessary actions will be taken on a timely basis for removing and shifting utility structures and common property resources before road construction activities begin.	***(Enter chainages where shifting of utility structures and common property resources are required. Enter total numbers of each structure required for shifting/removal)***		
6.	Design and planning of embankment construction	○ The alignment design shall consider options to minimize excessive cuts and fills. ○ The cut off material shall be planned to be used for embankment to minimize borrow earth requirement. ○ The design shall be as per relevant IRC provisions for cut and fill, slope protection and drainage. ○ The top soil of the cut and fill area shall be used for embankment slope protection Embankment will be designed above High Flood Level (HFL) in flood prone areas where feasible.	All through the alignment of each rural road ***(Enter the chainages that are prone to floods)***		
7.	Hydrology and Drainage	○ Provision of adequate cross drainage structure shall be made to ensure smooth passage of water and maintaining natural	Near all drainage crossings, nalas, rivers,		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		drainage pattern of the area. o The discharge capacity of the CD structure shall be designed accordingly. o Provision of adequate drainage structures shall be made in water stagnant/logging areas. o The construction work near water body shall be planned preferably in dry season so that water quality of the water channel is not affected due to siltation and rain water runoff. o Provision of additional cross drainage structure shall be made in the areas where nearby land is sloping towards road alignment on both the sides. o Provision of concrete road construction in habitat area with drainage of both side of the road shall be made as per the design provision and with adequate slope to prevent any water logging.	streams and ponds. ***(Enter chainages where earthern/structural cross drains, longitudinal drains, streams, ponds and rivers exist)***		
8.	Establishment of Construction Camp, temporary office and storage area	o Construction camp sites shall be located away from any local human settlements and forested areas (minimum 0.5 km away) and preferably located on lands, which are not productive (barren/waste lands presently). o Similarly temporary office and storage areas shall be located away from human settlement areas and forested areas (minimum 0.5 km). o The construction camps, office and storage areas shall have provision of adequate water supply, sanitation and all requisite infrastructure facilities. o The construction camps, office and storage areas shall have provision of septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use. o All construction camps shall have provision of rationing facilities particularly for kerosene/LPG so that dependence on firewood for cooking is avoided to the extent possible. o The construction camps, office and storage areas shall have provision of health care facilities for adults, pregnant women and children. o Personal Protective Equipments (PPEs) like helmet, boots, earplugs for workers, first aid and fire fighting equipments shall be available at construction sites before start of construction. An emergency plan shall be prepared to fight with any emergency	For all roads		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		like fire. o Provision shall be made for domestic solid waste disposal in a controlled manner. The recyclable waste shall be sold off and non-saleable and biodegradable waste shall be disposed through secured land filling. o Provision of paved area for unloading and storage of fuel oil, lubricant oil, away from storm water drainage.			
9.	Traffic Management and Road Safety	o Identify the areas where temporary traffic diversion may be required. o Prepare appropriate traffic movement plan approved by respective PIU for ensuring continued safe flow of traffic, pedestrians and all road users during construction. o Wherever, cross drainage structure work require longer construction time and road is to be blocked for longer duration, the PIU/DPR consultant shall define appropriate measures for traffic diversion before the start of the construction. o Adequate signboards shall be placed much ahead of diversion site to caution the road users. The road signs should be bold and retro reflective in nature for good visibility both during the day and night. o It is proposed for the respective PIU to discuss with the railways division/department for providing adequate safety measures at unmanned railway crossing where applicable. Adequate clearly visible sign shall be provided on both sides of the railway crossing All measures for traffic control and safety in accordance with IRC codes:99-1988 will be followed	As proposed under DPR and determined by contractor and approved by PIC/PIU/ ***(Enter the chainages which may require traffic diversions where possible)***		
10.	Grievance Redress	o Maintaining records of all environment related grievances raised, if any, and the actions taken to address them through the village level grievance redress committee (GRC) and PIU as applicable	All project roads.		

NOTE: Each report must enclose Photograph to the maximum possible action points, even if work is in progress.

II. ENVIRONMENTAL MONITORING DURING CONSTRUCTION STAGE

Monitoring Responsibility: PIU with Support from PIC
Monitoring Frequency : Once during construction after completion of about 50% of construction
Project Details:…….
Road Stretch Name : …….
Monitoring Report Quarter No.: ……..

Sl. No.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
1.	Sourcing and transportation of construction material	**Borrow Earth:** o The borrow earth shall be obtained from identified locations and with prior permission of landowner and clear understanding for its rehabilitation. o The re-habilitation plan may include the following: ▪ Borrow pits shall be backfilled with rejected construction wastes and will be given a vegetative cover. If this is not possible, then excavation sloped will be smoothed and depression will be filled in such a way that it looks more or less like the original ground surface. ▪ Borrow areas might be used for aquaculture in case landowner wants such development. o The Indian Road Congress (IRC):10-1961 guideline should be used for selection of borrow pits and amount that can be borrowed. o Borrowing earth from agricultural land shall be minimized to the extent possible. Further, no earth shall be borrowed from already low-lying areas. o A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal). o Borrowing of earth will not be done continuously through out the stretch. o Ridges of not less than 8m widths will be left at intervals not exceeding 300m. o Small drains will be cut through the ridges, if necessary, to facilitate drainage. o The slope of the edges will be maintained not steeper than 1:4 (vertical: Horizontal).	***(Enter chainage or probable locations of borrow areas.*** ***Enter name and location of identified quarries.)***		

Sl. No.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		○ The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside. ○ Fly ash will be used in road embankment as per IRC guidelines wherever thermal power plant is located within 100 km of the road alignment. **Aggregate :** ○ The stone aggregate shall be sourced from existing licensed quarries ○ Copies of consent/ approval / rehabilitation plan for use of existing source will be submitted to PIU. ○ Topsoil to be stockpiled and protected for use at the rehabilitation stage **Transportation of Construction Material** ○ Existing tracks / roads are to be used for hauling of materials to the extent possible. ○ Prior to construction of roads, topsoil shall be preserved and shall be used for other useful purposes like using in turfing of embankment. ○ The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation. In any case, the transportation links are to be inspected at least twice daily to clear accidental spillage, if any.			
2.	Loss of Productive Soil, erosion and land use change	○ The top soil from the productive land (borrow areas, road widening areas etc.) shall be preserved and reused for plantation purposes. ○ It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion. ○ Cut and fill shall be planned as per IRC provisions and rural road manual. ○ All steep cuts shall be flattened and benched. ○ Shrubs shall be planted in loose soil area. ○ IRC: 56 -1974 recommended practice for treatment of embankment slopes for erosion control shall be taken into consideration. ○ It shall be ensured that the land taken on lease for access road, construction camp and temporary office of the storage facilities is restored back to its original land use before handing it over back to land owner.	All though the alignment of each project road		

Sl. No.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
3.	Compaction and Contamination of Soil	o To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route. o The productive land shall be reclaimed after construction activity. o Fuel and lubricants shall be stored at the predefined storage location. o The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils. o All efforts shall be made to minimize the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal. o To avoid soil contamination at the wash-down and re-fuelling areas, “oil interceptors” shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized re-refiners.	All though the alignment of each project road		
4.	Construction Debris and waste	o Excavated materials from roadway, shoulders, verges, drains, cross drainage will be used for backfilling embankments, filling pits, and landscaping. o Unusable debris material should be suitably disposed off at pre-designated disposal locations, with approval of the concerned authority. o The bituminous wastes shall be disposed in secure manner at designated landfill sites only in an environmentally accepted manner. o For removal of debris, wastes and its disposal MOSRTH guidelines should be followed. Unproductive/wastelands shall be selected with the consent of villagers and Panchayat for the same. The dumping site should be of adequate capacity. It should be located at least 500 m away from the residential areas. Dumping sites should be away from water bodies to prevent any contamination of these bodies.	All though the alignment of each project road		
5.	Air and Noise Quality	o Vehicles delivering loose and fine materials like sand and aggregates shall be covered. o Dust suppression measures like water sprinkling, shall be applied	Throughout the project road section		

Sl. No.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		in all dust prone locations such as unpaved haulage roads, earthworks, stockpiles and asphalt mixing areas. o Mixing plants and asphalt (hot mix) plants shall be located at least 0.5 km away and in downwind direction of the human settlements. o Material storage areas shall also be located downwind of the habitation area. o Hot mix plant shall be fitted with stack of adequate height (30 m) or as may be prescribed by SPCB to ensure enough dispersion of exit gases. Consent to establish and operate shall be obtained from State Pollution Control Board and comply with all consent conditions. o Diesel Generating (DG) sets shall also be fitted with stack of adequate height (as per regulation height of the stack of open to air DG set shall be about 0.5 m for 5 KVA and about 0.7 m for 10 KVA DG sets, above top of sound proofing enclosure of the DG set). Low sulphur diesel shall be used in DG sets and other construction machineries where available. Construction vehicles and machineries shall be periodically maintained.			
6.	Tree plantation	o Compensatory Afforestation shall be made on 1:3.ratio basis. o Additional trees shall be planted wherever feasible. o Follow up maintenance of planted saplings will be carried out for a minimum of 3 years	***(Enter the no. of trees requird for planting and location of plantation site if available)***		
7.	Ground Water and Surface Water Quality and Availability	o Requisite permission shall be obtained for abstraction of groundwater from State Ground Water Board/Central Ground Water Authority if applicable. o The contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected. o Water intensive activities shall not be undertaken during summer period to the extent feasible. o Provision shall be made to link side drains with the nearby ponds for facilitating water harvesting if feasible o Where ponds are not available, the water harvesting pits shall be constructed as per the requirement and rainfall intensity. o Preventive measures like slope stabilisation, etc shall be taken for prevention of siltation in water bodies.	Throughout the project road		

Sl. No.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
8.	Occupational Health and Safety	○ The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers. ○ Workers' exposure to noise will be restricted to less than 8 hours a day. Workers duty shall be regulated accordingly. ○ Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas. ○ Domestic solid waste at construction camp shall be segregated into biodegradable and non-biodegradable waste.	In all project roads		
9.	Grievance Redress	○ Maintaining records of all environment related grievances raised, if any, and the actions taken to address them through the village level grievance redress committee (GRC) and PIU as applicable	All project roads.		

NOTE: Each report must enclose Photograph to the maximum possible action points, even if work is in progress.

III. ENVIRONMENTAL MONITORING DURING OPERATION STAGE

Monitoring Responsibility: PIU with Support from PIC
Monitoring Frequency: Once, one month after completion of construction
Project Details :…….
Road Stretch Name: …….
Monitoring Report No.: ……..

Sl. No.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
1.	Air and Noise Quality	o Awareness sign board shall be provided for slow driving near the habitat areas to minimize dust generation due to vehicle movement. Speed limitation and honking restrictions may be enforced near sensitive locations.	Throughout the project section at locations determined by contractor/ approved by PIU		
2.	Site restoration	o All construction camp/temporary office/material storage areas are to be restored to its original conditions. o The borrow areas rehabilitation will be ensured as per the agreed plan with the landowner. o Obtain clearance from PIU before handling over the site to WBSRRDA. o PIC to undertake survivability assessment and report to PIU the status of compensatory tree plantation at a stage of completion of construction with recommendation for improving the survivability of the tree if required	All locations of construction camps/temporary office/ material storage, and borrow areas		
3.	Tree plantation	o Follow up maintenance of planted saplings will be carried out for a minimum of 3 years o Data on plantation survivability to be collected	***(Enter the number of trees requird for planting and location of plantation sites)***		
4.	Hydrology and Drainage	o Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points before the monsoon season. o Rejuvenation of the drainage system by removing encroachments/ congestions shall be regularly conducted	At project road locations with drainage structures		
5	Community safety	o Directional sight board shall be installed on sharp curves/bends o At a main road, intersection or crossing “STOP” sign and ‘T-intersection’ warning sign shall be installed on the village road.	Throughout the project section at locations determined by contractor/ approved by PIU		
6	Grievance Redress	o Maintaining records of all environment related grievances raised, if any, and the actions taken to address them through the village level grievance redress committee (GRC) and PIU as applicable	All project roads.		

NOTE: Each report must enclose Photograph to the maximum possible action points, even if work is in progress.

APPENDIX 6.1: List of Persons for Public Consultation

WBSRRDA and Gram Panchyat Officials:

District	Name	Designation
North 24 parganas	Mr.Kalyan Das	Ex.Engineer, PIU/WBSRDA N.24 Pargnas
	Mr. Sudip Mukherjee	Asst. Engineer PIU/WBSRDA N.24 Pargnas
	Mr. Biswaranjan Sarkar	Sub Assit. Engineer, PIU/WBSRDA N.24 Pargnas
	Mr. Biplab Sarkar	Sub Assit. Engineer, PIU/WBSRDA N.24 Pargnas
	Mr. Suprobhat Nath	Sub Assit. Engineer, PIU/WBSRDA N.24 Pargnas
	Mr. N. Molla	Upa-Prodhan, Chandpur, Gram Panchayet
	Mr. Ashok Naskar	Prodhan. Patharghata, Gram Panchayet
	Md. Isha	Prodhan, Kotra, Gram Panchayet
	Mr. Prabir Samanta	Prodhan, Bodai, Gram Panchayet
	Mr. Arshed Ali	Prodhan, Dadpur, Gram Panchayet
	Mr. Abdul Hai Mondal	Pradhan, Chakla Gram Panchayet
	Mr. Govinda Mondal	Prodhan, Sarapul-Nirman Gram Panchayet
	Mr. Swapan Sapui	Upa-Pradhan, Govindapur, Gram Panchayet
	Mr. Najrul Islam Mondal	Prodhan, Nimdaria, Gram Panchayet
Bankura	Mr. Bankim Sarkar	Sub Assit. Engineer, WBSRDA, Bankura
	Mr. Pradip Lohar	Prodhan, Shyamnagar, Gram Panchayet
Purulia	Mr. Partha Bauri	Assistant Engineer, WBSRDA, Purulia
	Mr. Mukta Ruidas	Prodha, Chakka, Gram Panchayet
	Mr. Rasmoni Mahato	Prodhan, Majidi, Gram Panchayet
Purba Medinipore	Mr. G.S. Pathik	Assistant Engineer, WBSRDA, Purba Medinipore
	Mr. Surajit Mait	Prodhan, Sagarbar Gram Panchayet,
	Mr. Sukumar Sahu	Prodhan, Bhogpur Gram Panchayet
	Mr. Sajal Maity	Prodhan, Siddha-I Gram Panchayet
Burdwan	Mr. Shyamal Sarkar	Executive Engineer, Burdwan, Zila Parishad
	Mr. Chandan Biswas	Prodhan, Majida, Gram Panchayet
Pashim Medinipore	Mr. Pulak Saha	Asstt Engg. WBSRDA, West Midnapur
	Mr. Sarkar, Asstt Engg	NH Div, West Midnapur
	Mr. Gour Singh	Pradhan, Gram Raj, GP
	Mr Salaram Tudu	Pradhan, Kunarpur, GP,
	Mr. Kantu Roy	Pradhan, Khushli GP
Jalpaiguri	Mr D Das Shikdar	Sub Asst. Engineer, WBSRDA, Jalpaiguri Div.
	Mr Prallad Debnath	Executive Asst., Samuktala GP
	Mr Monoranjan Barman	Pradhan, Parokata, GP
	Mr Rahabeam Kisku	Pradhan, Samuktala GP
Darjeeling	Mr Naresh Chetri	Sub Asst. Engineer, WBSRDA (GTA), Darjeeling
	Mrs Ranjana Subha,	Exe. Asstt. /Sec.-in-Charge. Kaijalay GP
Malda	Mr.Debasish Das	Sub Asst. Engineer, WBSRDA, Malda,
	Mh. Tarek Ali	Pradhan, Milki GP
	Mh. Seikh, Akimuddin	Upopradhan, Binodhpur, GP
	Mh. Abdul Matim	Siksha Karmadhaksha, Malda ZilaParishad

Villagers:

District	Block	Road Name	Name of villagers
North 24 Parganas	Rajarhat	T-06_Dakshin Nayabad to Patharghata Bazar	Sudip Chakraborty
			Shyamal Mondal
			Soma Mondal
			Naren Naskar
			Dipankar Mondal
			Sunil Mondal
			Habibur Rahman
			Shila Mondal
			Manan Molla
			Yakub Ali Molla
			Sudip Chakraborty
North 24 Parganas	Barasat-I	T10_Kalianai Purbapara To Kilispur Paschimpara	Md. Satar Gazi
			Ariful Islam
			Rafiuddin
			Sadhan Das
			Maskura Bibi
			Manirul Hai
			Naim
			Saiful Islam
			Deden Das
			Abdul Kalam Molla
North 24 Parganas	Amdanga	T09_Mathura To Bodai Purba	Kakali Bag
			Raju Jana
			Munna Khalid
			Ajit Samanto
			Habibul Gazi
			Md. Arif Mondal
			Nabkumar Maity
			Shibani Mondal
			Uttam Mondal
			Niranjan Banik
North 24 Parganas	Barasat II	T-10_Teghoria Dakshin To Balipur Dakshin	Nur Alam
			Monojit Ghosh
			Tazmera Bibi
			Tapas Biswas
			Khadija Bibi
			Gautam Ghosh
			Juman Ali
			Jannat Ali
			Anil Ghosh
			Hamid Sardar
			Rashid Ali
North 24 Parganas	Barasat II	T-09_Teghoria Dakshin To Sankargachi Purba	Majit Ali
			Ismile
			Rajina Bibi
			Sariful
			Mosena Bibi
			Ahid Box
			Jamaluddin
			Akbar Ali

District	Block	Road Name	Name of villagers
North 24 Parganas	Deganga	T-13_Mollapara To Uttar Chakla	Md. Abdul Hakim
			Sajet Ali
			Saiful Islam
			Anwar Ali
			Golam Hossain
			Nazrul Islam
			Saheda Bibi
			Alauddin
North 24 Parganas	Swarupnagar	T-08_Taranipur Purba To Sarapul Bazar	Safiulla Mondal
			Kabatulla Mondal
			Salma Khanam
			Aziz Sardar
			Khairul Mondal
			Abdul Chamad Gharami
			Rokya Bibi
			Lakshaman Sardar
North 24 Parganas	Barasat-I	T-11 Nimdaria To Ramnagar More	Rajaul Gazi
			Tairun Bibi
			Monjur Mondal
			Shadul
			Johar Mondal
			Babur Ali
			Sana Khatun
Bankura	Joypur	T08_Belia to shyamnagar	Dilip Roy
			Manik Dey
			Sanjoy Bagdi
			Ashis Goswami
			Santosh Chakraborty
			Ajit Diyasi
			Sahdeb Kundu
			Mintu Das
Purulia	Jha;da II	Barhankol to Simni	Kalpana Majhi
			Kajal Murmu
			Rupali Mahato
			Anil Pal
			Vimal Murmu
			Uttam Mondal
			Panchanan Mondal
			Arjun Murmu
Purba Medinipore	Panskura II / Kolaghat	T04_Uttar Brindaban Chack to Uttar Narayan Pakuria	Rajib Bera
			Sk. Taimul
			Dilip Kumar Sahu
			Sk. Asgar Ali
			Sk. Shobha
			Pintu Dinda
			Alak Mantri
Burdwan	Purbasthali II	Uttar Lakshmipur to Tamaghata Bazar	Sadhan Mondal
			Jamirul Shekh
			Rasina Bibi
			Babu Mallick
			Ram Charan Sarkar

District	Block	Road Name	Name of villagers
Pashim Medinipore	Naryangarh	Gopinathpur to Kotaijiageria	Swapan Kumar Das
			Subol Maity
			Purna Chanda Das
			Lakshmi Kanta Bera
			Sidheswar Roy
			Aparna Bera
			Sudarshan Samanta
Pashim Medinipore	Pingla	Pratapchak to Barakhelna	Subol Dey
			Shekh Abdul
			Pradip Datta
			Mithun Manna
			Mahadeb Barman
			Ajit Atta
			Dipa Bhuia
			Banamali Singh
Jalpaiguri	Alipurduar II	T18 at NH31C to T7 at Parakota GP Office	Tarani Barman
			Subrata Biswas
			Susanta Das
			Ranjit Das
			Dulal Barman
			Khoka Dakua
			Sunil Das
Jalpaiguri	Alipurduar II	T01 at Taleswarguri to T01 at Samuktala	Luis Hasda
			Lolo Mandi
			Ludong Durung,
			Lapsap Tudu
			Solemon Soren
Uttar Dinajpur	Itahar	Uzani to Pakabari	Dipant Limpo
			Santa Chetri
			Mina Kala
			Sharmila Chetri
			Shyam Thapa
			Megha Rai
			Pramila Subba
Malda	Englishbazar	Atgama to Mobarakpur	Sanatan Mondal
			Mh. Saiful
			Begam Faridabibi
			Ranjit Karmakar
			Mh. Rafikul Seikh
			Sarnali Ghosh
			Amit Pramanik
			Jagai Mondal