



**GUJARAT STATE RURAL ROAD DEVELOPMENT AGENCY (GSRRDA)**  
**Roads and Buildings Department**  
**Government of Gujarat**

**ENVIRONMENTAL AND SOCIAL MANAGEMENT  
FRAMEWORK FOR  
GUJARAT RURAL ROADS (MMGSY) PROJECT**

**Environmental and Social  
Management Framework for MMGSY  
(Under AIIB Loan Assistance)**

**May 2017**



**LEA Associates South Asia Pvt. Ltd., India**

## Table of Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	General.....	1
1.1.1	Rationale and Background .....	1
1.1.2	MMGSY Proposed Improvements.....	2
1.1.3	Purpose of ESMF.....	3
1.1.4	Execution of ESMF.....	3
1.1.5	Structure of the Report.....	4
<b>2</b>	<b>LEGAL FRAMEWORK.....</b>	<b>6</b>
2.1	Environmental Rules and Regulations.....	6
2.2	Tribal Development Scheme of GoG .....	7
2.3	Social Legal Framework.....	8
2.4	AIIB Safeguard Policy.....	9
2.5	Other Legislation Applicable for MMGSY .....	10
2.6	Clearance Requirements .....	11
2.6.1	Environmental Clearance.....	11
2.6.2	Forest Clearance.....	12
2.6.3	Consents from Gujarat Pollution Control Board (GPCB).....	13
2.7	Summary of Clearance Requirements .....	14
<b>3</b>	<b>SOCIAL MANAGEMENT FRAMEWORK.....</b>	<b>16</b>
3.1	Objectives and Provisions of SMF .....	16
3.2	Potential Impacts .....	16
3.3	Land Securing and Guideline for Minimizing Adverse Social Impacts.....	17
3.3.1	Guidelines for Land Securing .....	18
3.4	Entitlement Provisions.....	20
3.5	Community Participation Framework (CPF).....	20
3.6	Social Monitoring Plan .....	22
<b>4</b>	<b>PROCEDURE FOR CONDUCTING ESIA .....</b>	<b>24</b>
4.1	Introduction.....	24
4.2	Environmental and Social Baseline Data .....	25
4.3	Public Consultation for ESIA .....	26
4.4	Mitigation and Monitoring Plan .....	29
<b>5</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN (EMP) .....</b>	<b>30</b>
5.1	EMP in Bid Documents .....	35
5.2	Environmental Monitoring Plan .....	35
5.2.1	Monitoring Parameters and Standards .....	35
5.2.2	Monitoring Plan for Environmental Conditions .....	36
5.2.3	Environmental Monitoring Locations.....	37
5.3	Monitoring and Post Auditing .....	37
<b>6</b>	<b>SMART OPERATIONAL MANUAL .....</b>	<b>39</b>
<b>7</b>	<b>ESMF IMPLEMENTATION MECHANISM .....</b>	<b>40</b>
7.1	Implementation of ESMF .....	40
<b>8</b>	<b>GRIEVANCE REDRESS MECHANISM.....</b>	<b>42</b>
<b>9</b>	<b>CAPACITY BUILDING AND TRAINING.....</b>	<b>44</b>
<b>10</b>	<b>ESMF IMPLEMENTATION BUDGET .....</b>	<b>45</b>
	<b>ANNEXURES .....</b>	<b>46</b>
	ANNEXURE 1-1: Typical Cross Sections Proposed for MMGSY .....	47
	ANNEXURE 2-1: Form 'A' Forest Clearance.....	53
	ANNEXURE 3-1: Memorandum of Understanding-Individual Encroacher .....	59
	ANNEXURE 3-1a Memorandum of Understanding- Community Encroacher.....	61
	ANNEXURE 3-2: Rural Roads - Environment Checklist for Bridges Longer than 15 m.....	63

ANNEXURE 3-3: Format for Recording Transect Walk & Consultations with the Affected Persons .....	65
ANNEXURE 3-4: Format for Documenting & Displaying Details of Project Affected Person .....	69
ANNEXURE 3-5 Community Consultation Format.....	70
ANNEXURE 4.1: Environmental and Social Baseline.....	72
ANNEXURE 4-2: Details of Community Consultation .....	79
ANNEXURE 5-1: No Objection Certificate Water Resource .....	108
ANNEXURE 5-2: Environmental Monitoring Formats .....	109
ANNEXURE 6-1: SMART Operational Manual.....	118

## List of Figures

Figure 2-1: Forest Clearance Procedures.....	13
Figure 4-1: The EIA processes in sequences of application .....	24
Figure 7-1: ESMF Implementation Mechanism.....	40
Figure 8-1: Grievance Redress Mechanism .....	43

## List of Tables

Table 1-1: Type of Roads Proposed under the MMGSY.....	2
Table 2-1: Environmental Legislations / Regulations applicable to MMGSY .....	6
Table 2-2: National and AIIB Policies: Relevance and Applicability for Gujarat Rural Roads (MMGSY) Project .....	8
Table 2-3: Comparison of EIA notification and AIIB Policy .....	9
Table 2-4: Clearance Requirements .....	14
Table 3-1: Different Scenarios of Land Securing, Modalities and Entitlement Provisions .....	18
Table 4-1: Possible Impacts on Physical Environment.....	27
Table 4-2: Possible Impact on Social and Cultural Environment .....	28
Table 5-1: Environmental Management Plan.....	30
Table 5-2: Ambient Air Quality Standards (National).....	36
Table 5-3: Ambient Noise Quality Standards (National).....	37
Table 5-4: National Standard of Water .....	37
Table 6-1: Operation Manual for Good Environmental Practices .....	39
Table 7-1: Institutional Responsibilities .....	40
Table 9-1: Training Modules for Environmental and Social Management Framework .....	44
Table 10-1: ESMF Budget.....	45

## Abbreviations

AAQM	: Ambient Air Quality Monitoring
AIIB	: Asian Infrastructure Investment Bank
BT	: Black Top
CPF	: Community Participation Framework
CPCB	: Central Pollution Control Board
CRZ	: Coastal Regulatory Zone
DFO	: District Forest Officer
ECoP	: Environmental Code of Practice
EIA	: Environmental Impact Assessment
EMF	: Environmental Management Framework
EMP	: Environmental Management Plant
ESIA	: Environmental and Social Impact Assessment
ESMP	: Environmental and Social Management Plant
ESMF	: Environmental and Social Management Framework
EMRI	: Emergency Management and Research Institute
GoG	: Government of Gujarat
GoI	: Government of India
GPCB	: Gujarat Pollution Control Board
GRC	: Grievance Redress Committee
GSRRDA	: Gujarat State Rural Road Development Agency
TPPF	: Tribal Population Planning Framework
IMD	: Indian Meteorological Department
MDR	: Major District Road
MGNREGA	: Mahatma Gandhi National Rural Employment Guarantee Act
MMGSY	: Mukhya Mantri Gram Sadak Yojana
MoEF & CC	: Ministry of Environment Forest and Climate Change
LA	: Land Acquisition
NOC	: No Objection Certificate
NPF	: Notified Protected Forest
ODR	: Other District Road
OM	: Operational Manual
PMGSY	: Pradhan Mantri Gram Sadak Yojana
PMC	: Project Management Consultant
RCC	: Reinforced Cement Concrete
R & BD:	Roads and Building Department (Govt. of Gujarat)
SEIAA	: State Environment Impact Assessment Authority
SEAC	: State Expert Appraisal Committee
SMF	: Social Management Framework
ST	: Schedule Tribe
VR	: Village Road

# 1 INTRODUCTION

---

## 1.1 General

1. Government of Gujarat (GoG) through Roads and Buildings Department (R&BD) is extending its rural road network to the villages and habitations through a flagship programme named *Gujarat Rural Roads* (Mukhya Mantri Gram Sadak Yojana (MMGSY)) *Project*. Under MMGSY<sup>1</sup>, habitations having less than 500 populations, which were not previously covered under Pradhan Mantri Gram Sadak Yojana (PMGSY<sup>2</sup>) will be connected. In such improved rural accessibility development endeavour R&BD, GoG is partnering with Asian Infrastructure Investment Bank (AIIB) to take the MMGSY forward. Accordingly, GoG has planned for an estimated total investment of INR 10,000<sup>3</sup> crores in three years (FY2016-17 to FY 2019-20) and has apportioned a budget for INR 2,500 crores for the year 2016-17.

### 1.1.1 Rationale and Background

2. With AIIB's support MMGSY aims at improving the rural road connectivity (by providing all weather connectivity) to villages and hamlets across all the 33 districts in Gujarat benefitting about 8 million people. The primary beneficiaries are the people living in the rural areas who are the users of the rural roads. The project is expected to provide all-weather road access, economic benefits and enhanced social services accessibility to the rural population. Seventeen (17) percent of such population are categorised under below poverty line and about 46 percent beneficiaries are women. The Scheme also benefits the service providers such as public transport operators, educational institutions, medical institutions, local markets and traders.

**Box – 1 : The World Bank** has published a report *“Institutional Development and Good Governance in the Highway Sector - Learning from Gujarat”*. The report emphasize on international best practice in Gujarat for reforms in highway sector. Some of the applauds for Gujarat road sector in the reports are as follows-

- *“The current plan road network size of 74,111 km is among the highest in terms of network density per sq km in India’s states and is among the best managed networks among all the Indian states. The annual road sector allocation has grown from USD 30 million in 1995-1996 to an impressive USD 610 million in 2010-11, currently the second largest among all the Indian states”*.
- *“There were three main drivers of reforms in the Gujarat Road Sector: vision, necessity, and exposure to international best practices.”*
- *“The reforms undertaken in the Gujarat road sector during the late 1990s-mid 2000s had a major impact on a number of critical areas, in particular, administrative costs, maintenance backlog, maintenance funding, and efficiency of service delivery.”*

3. Gujarat has a total number of 17,843 villages and 16,402 hamlets aggregating to 34,245 settlements, of which 26,802 (78%) villages / hamlets have been already connected under PMGSY.

---

<sup>1</sup> MMGSY: Mukhya Mantri Gram Sadak Yojana – the state government’s scheme for rural road construction

<sup>2</sup> PMGSY: Pradhan Mantri Gram Sadak Yojana – the central government scheme for rural road construction

<sup>3</sup> Allocation by GoG for the project: FY 2016-17 INR 2,500 Crore and INR 3,750 Crore each for FY 2017-18 and FY 2018-19.

Of the remaining 7,443 settlements, 3,757 were found eligible under the norms of PMGSY and of the rest 3686, about 71% has been already connected through asphalt roads. Now ***the balance 29% (1,060 numbers of settlements) has been decided to be taken up under MMGSY.*** Within the total number of settlements chosen to connect under MMGSY, 4% are located in fifth schedule areas, inhabited by Scheduled Tribe population. Some of the noticeable features of MMGSY include:

- Construction and maintenance of non-plan roads;
- First connectivity to villages and hamlets;
- Construction of missing links and missing structures;
- Approaches to schools and colleges;
- Upgradation to black top surface;
- Resurfacing of villages / other district roads;
- Upgradation of existing causeway /deep to high level bridge; and
- Widening of village / other district roads.

### 1.1.2 MMGSY Proposed Improvements

4. The proposed improvement under the MMGSY shall include

- Construction and resurfacing of non-plan roads;
- Up-gradation of existing, earthen, Metal and Asphalt roads;
- Widening of MDR/ODR (Major District Roads/ Other District Roads);
- Construction of Missing structures; and
- Up gradation of existing causeways

5. The typical cross sections that are being suggested for the Plan Roads<sup>4</sup> and Non – Plan Roads<sup>5</sup> under MMGSY are given in the **Annexure 1-1**.The following **Table 1-1** depicts the type of roads proposed under the MMSGY.

**Table 1-1: Type of Roads Proposed under the MMGSY**

Sl.no	Type of road	Existing	Proposed
<b>a)</b>	<b>Non Plan Roads</b>		
1.	Connectivity to villages and Hamlets	Earthen surface	BT road
2.	Construction of roads in Tribal Areas	Earthen surface	BT road
3.	Approach to School/Colleges	Earthen surface	RCC road
4.	Resurfacing or Maintenance of Existing Roads	Asphalt	Asphalt
<b>b)</b>	<b>Plan Roads</b>		
1.	Upgradation	Metal	BT road
2.	Upgradation of Causeway/deep	Causeway/deep	Slab drain or Bridge
3.	Widening of roads	Asphalt	Asphalt

Source: Project Management Consultants, MMSGY

<sup>4</sup> Plan Roads are the roads that provide the first connectivity

<sup>5</sup> Non Plan Roads: Second and Third connectivity roads to villages (any road below first connectivity, the roads covered by PMGSY and other schemes)

### 1.1.3 Purpose of ESMF

6. The aim of this ESMF is to guide the Gujarat State Rural Road Development Agency (GSRRDA), in planning and execution of safeguard measures during project implementation. The ESMF includes the Guideline for implementing safeguard measures and a generic ESMP. The Framework provides guidance for conducting an Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA), preparation of Environmental Management Plan (EMP) and Social Management Plan (SMP). Components of the ESMP (EMP & SMP) will be applied during project implementation to facilitate compliance with the requirements specified in the AIIB Policy and Government of India (GoI) rules and regulations.

7. This ESMF shall be applicable to all upgradation components for plan and non-plan roads proposed to be taken up under MMGSY. The proposed road upgradation work would be concentrated along the existing alignments; there are some roads which pass through or would be adjacent to the environmentally sensitive areas. This ESMF shall assist GSRRDA, in identification, assessment and management of environmental and social concerns at all stages of the project.

### 1.1.4 Execution of ESMF

8. The ESMF is an overarching tool developed at the macro level to provide guidance for construction of rural road connectivity subproject at the village level. The ESMF will provide environmental safeguard tools that will (a.) help to assess local impacts in a comprehensive manner; (b.) identify appropriate mitigation measures to address the impacts; (c.) locations specific guidance to address the environmental and social dynamics; and, (d.) Environmental Code of Practice (ECoP) for environmental and social safeguard during construction activities.

**Box -2: The Independent Evaluation Group (IEG), Washington** prepared a report for evaluation of the World Bank funded Gujarat State Highway Project. The IEG appreciated the efforts made by R&BD, GoG for successful implementation of the project with exemplary efficiency. The report observed that-

*“The Gujarat Project has helped the state’s roads agency (Roads and Building Department) to improve its capacity for the planning and maintenance of road infrastructure. **The progress made in various aspects of institutional development – planning, procurement, data collection and analysis using a Road Management System, contract management and quality control, and environmental and social safeguards – has been largely mainstreamed into the Roads and Building Department.** Administrative efficiency has shown steady and impressive improvement. Physical targets under the project for road improvement and related outcomes were achieved in a highly cost-effective and efficient manner and have been demonstrably sustained beyond project completion. Several state governments and road agencies have shown interest in learning from Gujarat’s experience from the project.”*

9. The tools have been prepared in line with the environmental and social rules and regulations adopted by the Government of India (GoI) and the AIIB’s Environmental and Social Framework (ESF). It also provides a generic ESMP based on rapid assessment of environmental and social conditions relevant to rural road construction. This will help in the management of environmental and social programs in a comprehensive, systematic and planned manner with regular documentation.

10. The project has been assigned category “B” in accordance to AIIB’s Environmental and Social Framework (ESF) and Environmental and Social Standards (ESS). The anticipated impacts



are limited, temporary in nature and entirely reversible. As required by AIIB's ESF, for category 'B' projects, an Environmental and Social Management Framework (ESMF) including Environmental and Social Management Plan (ESMP) needs to be developed.

11. With reference to AIIB's Environmental and Social Framework, the ESS 1 (Environmental and Social Assessment and Management) will be applicable to assess the localised social and environmental impacts of the project. The ESS 2 (Involuntary Resettlement) will not be applicable; as such there will be no Land Acquisition (LA) and no displacement of people. ESS 3 (Indigenous Peoples) will be applicable since the project will be involved in districts having sizable Schedule Tribe (ST) population.

12. This ESMF is a living document, and thus it needs to be updated and revised as necessary to incorporate the changes based on the status of the prevailing laws, as well as revisions that might arise due to MMGSY project development process. The ESMF shall be reviewed by the GSRRDA staff annually. For further updates and modifications of the ESMF, a check list shall be prepared, with dates detailing each revision status. A data sheet shall be maintained in order to show that records are maintained for all the changes that have been carried out.

13. The recommended approach for the end users of the ESMF is detailed, as follows:

- Assess localised impacts and determine mitigation measures based on the guidance provided in the ESMF.
- Follow the Environmental Code of Practices for Environmental and Social Safeguards during implementation.
- Follow safety plan during construction.
- Ensure effective community participation to execute project implementation.

### 1.1.5 Structure of the Report

Chapter No.	Title	Coverage
1	Introduction	This chapter provides project background, brief description and objectives of the project, proposed MMGSY interventions and purpose of the ESMF document.
2	Legal Framework	This chapter details the relevant environmental rules and regulations that are applicable for MMGSY, which are developed by the Government of India (GoI) and Government of Gujarat (GoG). It also highlights the applicable AIIB's ESF which have to be adopted during the project preparation and implementation.
3	Procedure for Conducting EIA	This chapter details various stages of conducting the Environmental Impact assessment (EIA). It further details the screening and scoping exercises that are to be carried out at the preliminary stages of the project, identification of the Impacts and preparation of the Environmental management Plan (EMP).
4	Social Management Framework	This chapter deals in details the potential social impacts and the different scenarios for securing land and a Community Participation Framework for effective consultations, conflict resolution and information dissemination.



<b>Chapter No.</b>	<b>Title</b>	<b>Coverage</b>
5	Environmental and Social Management Plan (ESMP)	This contains a Generic Environmental and Social Management Plan and appropriate Environmental Clauses that are to be included in the Bid Document for effective implementation of the ESMP.
6	SMART Operational Manual	This chapter briefs the good engineering practices that are to be adopted by the Contractor while executing the project to minimise/mitigate the anticipated Environmental and Social Impact
7	Implementation Mechanism	This chapter defines the roles and responsibilities in protecting the Environment and Social measures that are to be protected by the agencies (GSRRDA, PMC and Contractor) involved in executing the MMGSY.
8	Grievance Redress Mechanism	This chapter details the roles and responsibilities of the GRC in addressing the grievances arise during implementation of the subproject.
9	Capacity Building and Training	This chapter details the training modules suggested for the Implementing and executing agencies in safeguarding the Environmental and Social measures suggested in the EMP.

## 2 LEGAL FRAMEWORK

### 2.1 Environmental Rules and Regulations

14. In order to understand the extent of the environmental and social Impact Assessment for the proposed improvement works, applicable laws, legislation and policies have been reviewed. A summary of environmental legislations / regulations relevant to MMGSY is furnished through **Table 2-1**.

**Table 2-1: Environmental Legislations / Regulations applicable to MMGSY**

Policy/Act/Rule	Year	Purpose	Responsible Institution	Applicability (Yes/No)
Environment (Protection) Act.	1986	To protect and improve the overall environment	MoEF	Yes
Notification on Environment Impact Assessment of Development projects (and amendments) (referred to as the Notification on Environmental Clearance)	2006 2009 2011	To provide environmental clearance to new development activities following environmental impact assessment.	MoEF	No
Wildlife Protection Act	1972	To protect wild animals and birds through the creation of National Parks and Sanctuaries	MoEF	Yes
Coastal Regulation Zone (CRZ) notification	2011	To provide for protection of the fragile coastal belt, through development controls and regulations	SCZMA	Yes
Forest (Conservation) Act	1980	To protect and manage forests, to check deforestation by restricting conversion of forest areas into non-forest areas	Forest department, GoG/ MoEF	Yes
The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act	2006	To recognise and vest the forest rights and occupation in forest land in forest dwelling STs and other traditional forest dwellers	Forest Department, GoG & Dept of Tribal Development, GoG	Yes
Government of Gujarat, Gazette dated 5 <sup>th</sup> July, 1973, declaring notified protected forest (NPF) along the state and national highways <sup>6</sup> .	1973	To protect and preserve the existing green cover across the state of Gujarat	Forests Department, GoG	No
Biological Diversity Act	2000	Disclosure of species survey or collection activities to the National Biodiversity Authority	MoEF	Yes
Water (Prevention and Control of Pollution) Act (and subsequent amendments)	1974	To provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water.	CPCB	Yes, as per the EPA, 1986

<sup>6</sup> As per the Gujarat Government Gazette dated 5th July, 1973, the corridors which had been declared as State Highways before 1980 will have 9.75m width (Black Top) as R&BD land and corridors that have been declared after 1980 as State Highways will have the actual (existing) width of the black top as R&BD land. The remaining land as per the records which denotes the RoW shall be declared as Notified Protected Forest (NPF).

Policy/Act/Rule	Year	Purpose	Responsible Institution	Applicability (Yes/No)
Air (Prevention and Control of Pollution) Act (and subsequent amendments)	1981	To provide for the prevention, control and abatement of air pollution, and for the establishment of Boards to carry out these purposes.	CPCB	Yes, as per the EPA, 1986
Noise Pollution (Regulation and Control) rules 2000	2001	Noise pollution regulation and controls	CPCB	Yes, as per the EPA, 1986
Central Motor Vehicle Act	1988	To control vehicular air and noise pollution. To regulate development of the transport sector, check and control vehicular air and noise pollution.	Ports and Transportation Department, GoG	Yes, for all the vehicles used for construction purposes
Central Motor Vehicle Rules	1989			
The Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act	2010	To amend the Ancient Monuments and Archaeological Sites and Remains Act, 1958, including declaration of regulated and prohibited areas around the monuments.	Department of Archaeology, GoG,	Yes, If there are ASI identified sites/ chance find along the MMGSY roads
			National Monuments authority	

Source: GoI, MoEF and GoG

## 2.2 Tribal Development Scheme of GoG

15. A comprehensive tribal development programme was initiated by the Government of Gujarat, termed as Vanbandhu Kalyan Yojana or Chief Minister's ten-point programme. The programme was launched in 2007 and aims at ensuring high quality social and civil infrastructure and sustainable employment such that the income of every tribal family doubles in five years. The programme also envisions mainstreaming of primitive tribal groups (PTGs), quality education and access to quality health services, own house for each tribal family, safe drinking water, basic facility such as roads, bus-stand and energy network, development of tribal towns, opportunity for irrigated farming and skill development and civic amenities for migrant tribal families. The programme covers 43 Integrated Tribal Development Plan (ITDP) Talukas. The ten-point programmes set forth to fulfil the vision of:

- Employment opportunities for 5 lakh families;
- Quality of education and higher education;
- Economic development;
- Health;
- Housing;
- Safe drinking water;
- Irrigation;
- Universal electrification;
- All-weather road connectivity; and
- Urban development

## 2.3 Social Legal Framework

16. Applicable Acts and Policies relevant in the context of the project have been reviewed and their relevance to the project is outlined in **Table 2-2**. R&BD-GoG will ensure that project activities implemented are consistent with the following regulatory/legal framework.

**Table 2-2: National and AIIB Policies: Relevance and Applicability for Gujarat Rural Roads (MMGSY) Project**

Sl. No.	Acts and Policies	Relevance to this project	Applicability
1	Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Gujarat Amendment) Act, 2013	The Act aims to establish the law on land acquisition, as well as the rehabilitation and resettlement of those directly affected by the land acquisition in Gujarat	Applicable to all sub-project roads
2	The Fifth Schedule under Article 244(1) of Constitution	<ul style="list-style-type: none"> <li>The article defines “Scheduled Areas” as such areas as the President may by order declare to be Scheduled Areas after consultation with the Governor of that State. The criteria for declaring any area as a “Scheduled Area” under the Fifth Schedule are; (a) preponderance of tribal population, (b) compactness and reasonable size of the area, (c) a viable administrative entity such as a district, block or Taluka, and (d) economic backwardness of the area as compared to the neighbouring areas.</li> <li>In Gujarat, 43 talukas in 12 districts have been declared as “Scheduled Area” under the Presidential Order CO. 109 dated 31/12/1977</li> </ul>	Applicable to all sub projects located in Fifth Scheduled Area
3	Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996	One of the important provisions of this act states “the Gram Sabha or the Panchayats at the appropriate level shall be consulted before making the acquisition of land in the Scheduled Areas for development projects and before re-settling or rehabilitating persons affected by such projects in the Scheduled Areas.	Applicable to sub-project roads located in Fifth Schedule Areas
4	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	This law provides for recognition of forest rights to Scheduled Tribes in occupation of the forest land prior to 13.12.2005 and to other traditional forest dwellers who are in occupation of the forest land for at least 3 generations i.e. 75 years, up to maximum of 4 hectares. These rights are heritable but not alienable or transferable.	Applicable to sub-project roads located in Fifth Schedule Areas and recognized forest areas
5	AIIB Environmental and Social Management Framework	The ESF of AIIB aims at facilitating achievement of development outcomes, through a system that integrates sound environmental and social management into project decision making process and implementation ESF articulates ESS for (i) environmental and social impact assessment, (ii) Involuntary Resettlement, and (iii) Indigenous Peoples	Applicable to sub-project roads. ESS-3: Indigenous Peoples applicable only for sub-projects roads located in Fifth Schedule Areas
7	The Right to Information Act, 2005	The Act provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority.	Applicable to all sub-project roads

Source: GoI, AIIB and GoG

## 2.4 AIIB Safeguard Policy

17. In addition to the national and state policies, acts and rules, the AIIB policy on environmental and social safeguards need to be adhered to in the present assignment. AIIB recognizes that environmental and social sustainability is a fundamental aspect of achieving development outcomes consistent with its mandate to support infrastructure development and interconnectivity. The Environmental and Social Framework of AIIB (2016), includes an Environmental and Social Policy and Environmental and Social Standards. The Environmental and Social Policy specifies that AIIB conduct environmental and social due diligence as an integral element of its appraisal of the project, and in a manner that is:

- Appropriate to the nature and scale of the Project; and
- Proportional to the level of the Project's potential environmental and social risks and impacts

18. The following **Table 2-3** depicts the outcome of the comparison between the AIIB safeguard policy and the MoEF&CC's EIA notification adopted by the GoI and GoG.

**Table 2-3: Comparison of EIA notification and AIIB Policy**

S. No.	Project Stage	AIIB ESF 2016	EIA notification adopted by the GoI and GoG	Comments
1	Project Screening and Categorization	<ul style="list-style-type: none"> <li>• Screening of each proposed project at the concept stage using potential environmental and social risks and impacts. Projects categorized as A, B, C and FI based on potential environmental and social risks and impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• As per the EIA notification dt 14th September 2016, project screening has been conducted to categorise the project as Category 'A' and Category 'B'</li> </ul>	<ul style="list-style-type: none"> <li>• Under the EIA notification, the rural roads are not categorised either as 'A' or 'B' type projects and hence it has been exempted from Environmental Clearance by GoI. However, the ESMF has been prepared as required by the AIIB</li> </ul>
2	Conduct Environmental and Social Assessment	<ul style="list-style-type: none"> <li>• Client to undertake an Environmental and Social Assessment of potential physical, biological, socio-economic and cultural risks and impacts from proposed project. The type of instrument and level of detail is determined on the basis of project screening and environmental and social categorization. Client to prepare Environmental and Social Management Plan (ESMP) as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental and Social Impact Assessment has to be performed for both Category 'A' and Category 'B' projects. The assessment shall quantify the anticipated impacts on physical environment, biological environment and social environment.</li> </ul>	<ul style="list-style-type: none"> <li>• The rural roads are exempted from the Environmental Clearance and hence the proposed MMGSY does not require for Environmental Impact Assessment to be conducted as per the EIA notification. However, as per the provisions made under the ESMF, the MMGSY is categorised as category 'B' project and mandates ESIA.</li> </ul>
3	Assessment of Alternatives	<ul style="list-style-type: none"> <li>• Assessment of alternatives under Environmental and Social Standard 1: Environmental and Social Assessment and Management. Examination to avoid or minimize environmental impacts.</li> </ul>	<ul style="list-style-type: none"> <li>• In general the ToR for conducting the EIA suggested by the EAC for Category 'A' projects and State level EAC for Category 'B' mandates the Assessment of Alternatives (Alternative Analysis) to avoid / minimise the anticipated Environmental and Social Impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment of alternatives is not envisaged in the upgradation of the rural road projects, where the upgradation / improvements are proposed within the available RoW with minor realignment options.</li> </ul>
4	Prepare Environmental and Social	<ul style="list-style-type: none"> <li>• Development and implementation of an Environmental and Social</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to the AIIB Policy, the EIA manual for Category 'A' and Category 'B' projects</li> </ul>	<ul style="list-style-type: none"> <li>• As per the prepared ESMF, the MMGSY project shall have an ESMP (which</li> </ul>

S. No.	Project Stage	AIIB ESF 2016	EIA notification adopted by the GoI and GoG	Comments
	Management Plan (ESMP) with budget, schedule and institutional arrangements.	Management Plan (ESMP), which includes an Environmental Monitoring Plan. • ESMP to include budget, schedule and institutional arrangements.	calls for preparation of the EMP's for the anticipated impacts. The EMP's shall include the monitoring plan with budgetary provisions	will be strengthened with the help of an ESIA) provided with Budget provisions for effective implementation of the identified mitigation measures.
5	Public Consultation and Use of Project-Level Grievance Redress Mechanisms	• Client conducts meaningful consultation with Project-affected people to facilitate their informed participation in the consultations. Client continues consultation with stakeholders throughout the Project implementation as appropriate on environmental and social performance. • Client to establish a Project-level Grievance Redress Mechanism.	• Public consultation is mandatory for Category 'A' and 'B1' projects. But it has been exempted for category 'B2' projects.	• Public Consultation is a mandatory requirement for all projects. The provision for GRC is not mentioned in the EIA notification. However, for the MMGSY, the GSRRDA shall have a GRC to redress the grievance.
6	Information Disclosure	• Public disclosure of environmental and social documents, including ESMP, on AIIB website as per policy provisions. Regular disclosure of updated environmental and social information, in the same manner, along with information on any material changes in the Project.	• The Executive Summary of the EIA has to be disclosed in the website (In MOEF&CC website for Category 'A' projects and State Pollution Control Board Website for Category 'B' projects).	• Both AIIB and GSRRDA will disclose the Project Information including safeguard documents

## 2.5 Other Legislation Applicable for MMGSY

19. Environmental issues during road construction stage generally involve equity, safety and public health issues. The GSRRDA require complying with laws of the land, which include inter alia, the following:

**Workmen's Compensation Act 1923:** The Act provides for compensation in case of injury by accident arising out of and during the course of employment;

**Contract Labour (Regulation and Abolition) Act, 1970:** The Act provides for certain welfare measures to be provided by the Contractor to contract labour;

**Minimum Wages Act, 1948:** The Contractor is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act;

**Payment of Wages Act, 1936:** It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers;

**Equal Remuneration Act, 1979:** The Act provides for payment of equal wages for work of equal nature to Male and Female workers and not for making discrimination against Female employees;

**Child Labour (Prohibition and Regulation) A; 1986:** The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of



employment of children in all other occupations and processes. Employment of child labour is prohibited in Building and Construction Industry;

***Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979:*** The inter-state migrant workers, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, travelling expenses from home to the establishment and back, etc.;

***The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996:*** All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act; the employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation for Workers near the workplace, etc.;

***The Factories Act, 1948:*** The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours and rendering information-regarding accidents or dangerous occurrences to designated authorities;

***Hazardous Wastes (Management and Handling) Rules, 1989:*** Occupiers generating hazardous wastes given in the list shall take all practical steps to ensure that such wastes are properly handled, i.e. collection, reception, treatment, storage, and disposed of without any adverse effects to human health and environment (Rule 4 Such occupier shall apply for authorization in prescribed format to the State Pollution Control Board).

***Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996:*** The Rules provide for mandatory preparation of On-Site Emergency Plans by the industry and Off-Site Plans by the district collector and the constitution of four tier crisis groups at the centre, district, and local levels for the management of chemical disaster.

## 2.6 Clearance Requirements

### 2.6.1 Environmental Clearance

20. EIA notification of the MoEF dated 14<sup>th</sup> September 2006, categorizes all projects and activities into two categories<sup>7</sup> - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and natural and manmade resources. The project activities/ interventions like widening/ upgradation/ strengthening of the rural roads are not categorised either as Category 'A' or Category 'B'. This is due to the minimal Environmental and Social impacts that are envisaged and hence obtaining the Environmental Clearances is not

---

<sup>7</sup> All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, shall require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification; All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfill the General Conditions (GC) stipulated in the Schedule, will require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification.



mandatory for rural road's development projects. However, if the rural roads pass through the eco sensitive areas (like Wildlife Sanctuaries, CRZ, National parks etc.) then appropriate clearances has to be obtained from the competent authority for carrying out the proposed upgradation works in the Eco sensitive zone.

### **2.6.2 Forest Clearance**

21. Forest clearance is required for the rural roads which require forest land/ area under unavoidable condition for upgradation works (including realignment, curve improvement etc,) and for felling of avenue trees. As per the Forest act, Form 'A' (refer **Annexure 2-1**) needs to be filled by the GSRRDA and has to be submitted along with the necessary enclosures to the District Forest Officer (DFO), further stages of forest clearance procedures are shown through the **Figure 2-1**.

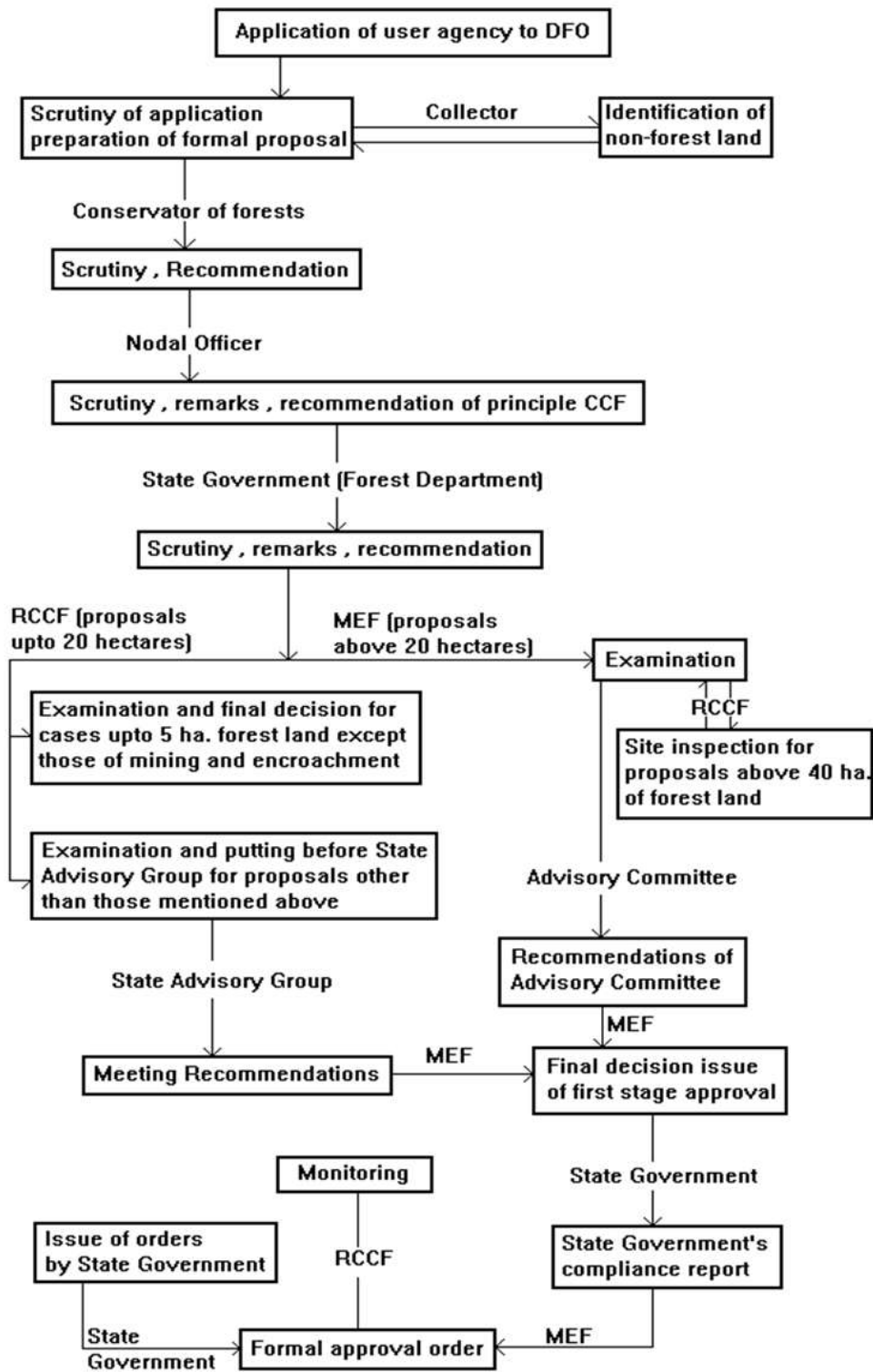


Figure 2-1: Forest Clearance Procedures

### 2.6.3 Consents from Gujarat Pollution Control Board (GPCB)

22. The project shall require obtaining consent from competent authorities such as the Gujarat Pollution Control Board (GPCB), for ‘*Consent to Establish*’ by submitting an online Common Application (as per Schedule-I), under Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981) and authorization under Hazardous Wastes (Management and Handling) Rules, 1989, as amended.

## 2.7 Summary of Clearance Requirements

23. **Table 2-4** summarizes the clearance requirements for the project, including the agency responsible for obtaining the clearances, the time period required.

**Table 2-4: Clearance Requirements**

Sl. No	Clearances	Acts	Approving Agency	Applicability to the Project	<sup>8</sup> Indicative Time Frame	Responsibility	
						Execution	Supervision
<b>PROJECT PREPARATION STAGE</b>							
1.	No Objection Certificate (NOC)/ Consent to Establish	<ul style="list-style-type: none"> <li>Water (Prevention and Control of Pollution) Act 1974,</li> <li>Air (Prevention and Control of Pollution) Act 1981</li> </ul>	Gujarat Pollution Control Board (GPCB)	Applicable	3-6 months	GSRRDA	
2.	Diversion of forest land for Non-forest use	<ul style="list-style-type: none"> <li>Forest Conservation Act (1980)</li> <li>Forest Conservation Rules (2003) and</li> <li>Guidelines issued to date Government of Gujarat, Gazette dt 5<sup>th</sup> July 1973</li> </ul>	Regional Office Western Zone, MoEF, Bhopal	Applicable (if the rural road requires Forest area for upgradation purposes )	9-12 months	GSRRDA	
3.	Permission for removal of avenue tree within the ROW	<ul style="list-style-type: none"> <li>Forest Conservation Act (1980)</li> <li>Forest Conservation Rules (2003) and Guidelines issued to date</li> </ul>	Forest Department, GoG	Applicable	3-6 month for each workout area	GSRRDA	
<b>PROJECT IMPLEMENTATION STAGE</b>							
4.	Permission for Withdrawal of surface water from Rivers, Nala, Water harvesting structure/ Reservoirs/ Ponds/ Irrigation canals	Gujarat Water Supply and Sewerage Board Act, 1978	Gujarat Water Supply and Sewerage Board	Applicable (If the contractor is extracting the surface water for construction purposes)	3 months	Contractor	GSRRDA/ PMC
5.	Permission for Sand Mining from river bed	Mines and Minerals (Development and Regulation) Act, 1957	Commissioner of Geology and Mining, GoG	Applicable	2 month	Contractor	GSRRDA/ PMC
6.	Hot mix plant, Crushers, Cement Batching Plant	Air (Prevention and Control of Pollution) Act. 1981	Gujarat Pollution Control Board (GPCB)	Applicable	3 months	Contractor	GSRRDA/ PMC
7.	Storage of Hazardous Chemicals	<ul style="list-style-type: none"> <li>Hazardous Waste (Management and Handling) Rules 1989; and</li> <li>Manufacturing Storage and Import of</li> </ul>	Gujarat Pollution Control Board (GPCB)	Applicable	3 months	Contractor	GSRRDA/ PMC

<sup>8</sup> The right of permission vests with the Competent Authority

Sl. No	Clearances	Acts	Approving Agency	Applicability to the Project	<sup>8</sup> Indicative Time Frame	Responsibility	
						Execution	Supervision
		Hazardous Chemicals Rules 1989					
8.	Disposal of Hazardous Waste	Hazardous Waste (Management and Handling) Rules 1989	Gujarat Pollution Control Board (GPCB)	Applicable	2 months	Contractor	GSRRDA/PMC
9.	Disposal of Construction Waste and liquid effluent from Labour camps	Water (Prevention and Control of Pollution) Act 1974	Gujarat Pollution Control Board (GPCB)	Applicable	2 months	Contractor	GSRRDA/PMC
10.	Certificate of Pollution Under Control (PUC's)	Central Motor Vehicles Act 1988	Transport Department (GoG)	Applicable	1 Month	Contractor	GSRRDA/PMC
11.	Employing the Labour	Executing Agency of Building and other construction act, 1996	Labour & Employment Department, GoG	Applicable	1 Week	Contractor	GSRRDA/PMC
12.	Registration of Workers	Labour welfare Acts.	Labour & Employment Department, GoG	Applicable	1 Month	Contractor	GSRRDA/PMC

# 3 SOCIAL MANAGEMENT FRAMEWORK

---

24. The purpose of preparing SMF is to facilitate smooth implementation of the rural road project involving the community and ensuring effective community partnership in planning, designing and execution. It is evident that the community is supporting of this project which has an immediate positive impact on their day to day life and also enhances their accessibility to the socio-economic spectrum of the State. However, the execution of the project will have some adverse impacts which are temporary and reversible in nature. The adverse impacts will be more pronounced in the case of construction of new link roads which will be built along defined alignments of government land. In some cases, the alignment of the new road, which has been left unattended for several years have encountered minor encroachments. The SMF will attempt to address methods of resolution in case the construction activities encounter such encroachments. Besides, the SMF provides a macro level guidance on social safeguard issues which are unforeseen but may be relevant if the project encounters such eventualities. This SMF is expected to facilitate consistent preparation of Community Participation Framework (CPF) for sub-projects under Gujarat Rural Roads (MMGSY) Project.

## 3.1 Objectives and Provisions of SMF

- To ensure effective community participation in planning, design and execution of projects;
- To build community consensus to resolve issues of encroachments and infringements along the alignments;
- To ensure that throughout its life, the project fully complies with the principles of environment and social framework of AIIB;
- To guarantee that adequate procedures exist for prior consultation of all affected persons assessment of damages and entitlements, handling complaints and disputes, and monitoring of the outcomes; and
- To lay down the standards for asset donations

## 3.2 Potential Impacts

25. After a series of consultations held with the community in various districts of the state it was quite evident the population is overwhelmingly in favour of construction of the roads. This is primarily due to the fact that the approach roads connects the villages to the mainstream of the state's economy and thus proves to be a major input in improvement of their day to day affairs. The community gains both socially and economically due to improvements in accessibility. It may be noted that apart from the significant positive benefits perceived by the community there are some adverse impacts as well. The advantages of the project as perceived by the stakeholders are (i) faster and easy access to local and regional market centres, enabling faster movement of people and goods; (ii) faster and consistent access to educational institutions and medical facilities, which will in turn facilitate sustainable development outcome; (iii) significant reduction in travel time; etc.

26. The key adverse impacts perceived are temporary disturbance due to rehabilitation of existing roads and impact of construction activities (dust, noise etc.) near the village. A Comprehensive Environmental Code of Practice (ECoP) has been developed to be adopted during construction activities. The ECoP includes components of public consultations and a community engagement to ensure that the users are aware of the project activities and have an opportunity to share their views in final design (alignment) and execution of the works. The ECoP also includes stipulations for safety and labour conditions to be followed during construction activities.

27. In some cases, new link roads will be constructed to connect the settlement with the main district roads or to establish connections between villages. The envisaged BT link roads are perceived to be key attribute of the project. Currently, these are in the form of earthen roads, with well-defined alignments and the land is owned by the government. Field reconnaissance indicated that in some cases, the width of the link roads has been narrowed down due to encroachment (expansion of agricultural fields). These encroachments are typically narrow strips of lands, in the ROW of the proposed roads. Consultations with the community revealed that the land owners are ready to cooperate with the construction activities and withdraw from the encroached land voluntarily. This phenomenon has also been widely prevalent during similar road construction projects (such as implementation of the PMGSY) in the state. There are possibilities of small structures (such as temples, mosques, etc.) in the edge of the alignments. Generally, a process of Public Consultation involving the user communities under the aegis of the Local Self- Government (Panchayats) has been envisaged to address the issue of clearing the alignment for road construction. Guidance on this matter, based on existing practices, is provided in the Community Participatory Framework (CPF) to address these issues.

#### Box -3 : Emergency Medical Service and Rural Connectivity in Gujarat

*The objective of the Ambulances of Emergency Management and Research Institute (EMRI) available on dialling 108 are to provide timely transportation to the patients who require advanced level of emergency medical treatment in higher levels of healthcare facility. With this facility EMRI has given special attention to pregnant women in rural areas. Out of total emergency cases seeking support for ambulance per day, almost 31% are related to pregnancies; of these 91% deliveries are taking place in the EMRI ambulances. The EMRI 108 services, since its inception in Gujarat in August 2007, saves at least one life every 14 minutes (Source: EMRI, Gujarat). The Consultations carried out in Fifth Schedule Areas shows that people have high level of appreciation for emergency medical services which has improved significantly with rural connectivity initiatives in Gujarat. The improvements in rural roads have been a huge attribute behind the success of the 108 services.*

### 3.3 Land Securing and Guideline for Minimizing Adverse Social Impacts

28. No land acquisition is anticipated in the Project as most of the project is about rehabilitation of existing roads and building new roads in defined alignments wherein the land already belongs to the Roads and Buildings Department. A conscious effort towards avoidance of land acquisition and minimization of adverse social impacts has to be taken up as an integral part of the entire project preparation and design in Gujarat Rural Roads (MMGSY) Project. However, in cases where new link roads are to be constructed, there could be possibility of encroachments or infringement with

existing structures. Wherever unavoidable, efforts to minimize impacts through design interventions have to be worked out for sub- projects. As a guideline, the following steps shall be followed:

- **Improvements to be planned within available RoW / land width:** following the requirements mentioned in the selection of roads in this document, the cross-section of the road shall be designed to accommodate within the available RoW / land width.
- **Adoption of Corridor of Impact approach:** The corridor of impact (CoI) is termed as the width required for the actual construction of the road, including carriageway, shoulder and embankments. The objective of social inputs to project design shall be to ensure that the corridor of impact is reduced, within acceptable design principles and standards, to minimize adverse social impacts.
- **Participatory Approach:** Building community consensus to secure land for ensuring construction of the link roads. Local self-governments as well as the community will be involved in developing a consensus to resolve issues of encroachments (refer **Annexure 3-1** MoU – individual / Community Encroacher) or infringement, if any.

### 3.3.1 Guidelines for Land Securing

29. The Project basically covers rehabilitation of existing roads, construction and resurfacing of non-plan roads, up gradation of existing, earthen, metal, asphalt roads, widening of MDR / ODR, related structures, up gradation of existing causeways. Gujarat Rural Roads (MMGSY) Project will not require any fresh land acquisition. However, while constructing new roads along defined alignments where the land is already owned by the Department, there might be instances of encroachments in the RoW. The encroachments are usually in the form of farm-lands extended to the approach roads owned by the government. In some other cases, it is in the form of temporary sheds with wooden / cement pillars extended to the roads or small shrines or other minor structures for cultural or religious purposes. Common facilities like hand-pumps or small water tanks generally used for irrigating farm fields also sometimes partly locates in the approach roads.

30. It is expected that the extent of potential impact in terms of land securing is minimal. Importantly, the SMF ensures provision of assistance for any lost assets, of those who are directly and adversely affected. GSRRDA shall be taking all necessary measures to screen and identify such locations and avoid any additional land securing through design interventions without jeopardizing the safety standards to be followed in rural roads. The various circumstances under which the road improvements require or do not require securing of additional land have been identified in during the social assessment and are presented in Table 3-1.

**Table 3-1: Different Scenarios of Land Securing, Modalities and Entitlement Provisions**

Sl. No.	Scenarios	Modalities	Entitlement Provisions
1.	Road improvement takes place along existing alignment	<ul style="list-style-type: none"> <li>▪ Additional land not required</li> </ul>	<ul style="list-style-type: none"> <li>▪ To the extent possible, the proposed development works shall be carried out within the available land width.</li> </ul>



Sl. No.	Scenarios	Modalities	Entitlement Provisions
2.	<p><b>New link road</b> having approach roads, where the government land <b>has minor encroachments or infringements</b> throughout the proposed road alignment</p> <p>Common Property Resources located within RoW [Community facilities such as community ponds, hand pumps, water tanks, places or structures for religious importance, crematorium or funeral grounds of cultural significance, etc.]</p>	<ul style="list-style-type: none"> <li>▪ Formulating community consensus to avail required land for road improvements through <b>Gift Deed where all the community agrees</b> for a signed resolution <b>to provide land.</b></li> <li>▪ In cases of <b>individual encroachment/</b> infringement, <b>GSRRDA enters into a MoU with encroachers / infringers.</b></li> <li>▪ Alternatively, the GSRRDA serves <b>advance notice to encroachers / infringers to remover standing crops / trees</b> within a stipulated period of 3 months.</li> </ul>	<ul style="list-style-type: none"> <li>▪ In the event of partial losses to structures or temporary impact on livelihood due to the proposed road development initiative, the affected people shall be informed by serving advance notice of one-to-three months, depending upon the severity of damage. Affected structure shall be compensated on the basis of R&amp;BD - Schedule of Rate (SoR).</li> <li>▪ In the case of affected Trees or Crops, These shall be compensated as per standard rates; the compensation for Timber Trees shall be assessed by Forest Department, Gujarat, and the compensation for standing crops shall be assessed by Agriculture, Co-operation &amp; Farmer Welfare Department, GoG</li> <li>▪ Common Property Resources having any unavoidable impact shall be adequately mitigated / relocated by the Gram Panchayat in consultation with the local community.</li> </ul>
3.	<p><b>Additional land owned by private individuals, and is required for (i) road, and (ii) RoW, which is unforeseen</b></p>	<ul style="list-style-type: none"> <li>▪ Direct acquisition of a patch of land having title-hold shall <b>follow the standard procedures of Right to Fair Compensation</b> and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013</li> </ul>	<ul style="list-style-type: none"> <li>▪ The titleholders who are losing land or whose livelihood is affected due to such securing of land, shall be dovetailed to various rural development programs such as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) or shall be given priority to any existing rural housing schemes of Central or State Government.</li> </ul>
4.	<p><b>Additional land owned by other Department</b> of Government of Gujarat, and <b>is required for (i) road, and (ii) RoW</b></p>	<ul style="list-style-type: none"> <li>▪ <b>Transfer of required</b> patches of land which is under the ownership of other Departments/ Government Functionaries of GoG, <b>by way of following existing standard procedures at Departmental level of GSRRDA / R&amp;BD</b></li> </ul>	

#### Box-4: Village-Connectivity Dynamics of White Revolution in Gujarat

*The milk and dairy product giant - Amul, a versatile brand of the Gujarat Co-operative Milk Marketing Federation Ltd. (GCMMF), is the largest food products marketing organisation of India. Over the last five and a half decades, dairy cooperatives in Gujarat have created an economic network that links more than 3.1 million village milk products with millions of consumers in India, is supported by an efficient logistic structure. Amul has been procuring 160 lakh litres of milk per day that comes from over 3.6 lakh farmers located across 18,500 villages of Gujarat.*

### 3.4 Entitlement Provisions

31. **Land:** To the extent possible, the proposed development works shall be carried out within the available land width. In the absence of adequate land width, the required patches of land shall be secured with community support. This could be in the form of direct acquisition following standard procedures of Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013 or in the form of Gift Deed / MoU.

32. The titleholders who are losing land or whose livelihood is affected due to such securing of land, shall be dovetailed to various rural development programs such as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) or give priority to any existing rural housing schemes of Central or State Government.

33. **Temporary Shelters/Shops and Livelihood:** In the event of partial losses to structures or temporary impact on livelihood due to the proposed road development initiative, the affected people shall be informed by serving advance notice of one-to-three months, depending upon the severity of damage. If in case of physical relocation is unavoidable, Gram Panchayat shall be encouraged to identify a suitable location either in government / Panchayat / Community land after proper consultation with project affected person.

34. **Agricultural Crops and Trees:** the land-owners or farmers shall be served with advance notice for 3-months for removal or cropping of standing crops which will be affected due to the proposed road development. These shall be compensated as per standard rates; the compensation for Timber Trees shall be assessed by Forest Department, Gujarat, and the compensation for standing crops shall be assessed by Agriculture and Co-operation & Farmer Welfare Department, Government of Gujarat.

35. **Common Property Resources:** these include community facilities such as community ponds, hand pumps, water tanks, places or structures for religious importance, crematorium or funeral grounds of cultural significance, etc. Any unavoidable impact on such resources shall be adequately mitigated by the Gram Panchayat in consultation with the local community. In a Panchayat level meeting involving the local community, resolution / consensus need to be passed indicating that the benefit accrued from the road is overriding the importance of existing encroachments and hence the encroachment needs to be cleared for the overall community benefit and sustainable development.

### 3.5 Community Participation Framework (CPF)

36. Community Participation Framework (CPF) provides guidance to ensure community participation during project preparation, design and implementation. The proposed sub-project road for improvement has been chosen based on set criteria which included reasonable weightage to 'community-demand'. MMGSY also ensures participation of community at subsequent stages including dissemination of information on sub-project roads, transect walk, consultation with affected persons, census and socio-economic survey of affected persons, and participation of local self-governing bodies.

37. **Selection of Roads:** In order to select candidate roads for new connectivity or new construction of MMGSY, the R&BD-GoG has primarily considered factors as population size of connecting habitations, connectivity to growth centres and demand from community. In the case of widening of MDR/ODR/VR through routes, the importance of roads, the places of social, economic and religious importance has been considered along with the expected growth of traffic. The importance of a specific road and its corresponding necessity to provide all-weather road has been deliberated while selecting roads for constructing road-related structures such as culverts and minor bridges (refer **Annexure 3-2** Environment checklist for bridges longer than 15 m).

38. **Dissemination of Information on Sub-Project Road:** Subsequent to the selection of road, the GSRRDA in coordination with the local self-governing bodies shall sensitize communities on the selected roads through brochures and informal meetings. This information shall include benefits and possible adverse impacts and proposed mitigation measures. Informal meetings provide open form for local community to express their views and concerns about the proposed sub-project road interventions.

39. **Screening of Selected Road – GSRRDA / DPR Consultant:** Social screening shall be carried out by the GSRRDA / DPR Consultant along the sub-project road chosen for improvement. This will enable finding out various forms of encroachments or infringements, possible impacts on common property resources, etc. The possible mitigation measures or steps to be taken to avoid or minimize such impacts shall be documented and shall be made available to local community while during the Transect Walk.

40. **Finalisation of Alignment and Transect Walk:** Transect walks shall be organised by the GSRRDA in co-ordination with the local self-governing bodies and also involving revenue and forest officials at the village level. The purpose transect walk (refer **Annexure 3-3** Format for Recording Transect Walk & Consultations with the Affected Persons) is to sensitise the community regarding necessary design requirements, a joint site inventory and verification of alignment, and identification of project affected persons (refer **Annexure 3-4** Format for Documenting & Displaying Details of Project Affected Person), if any. Transect walk will be also helpful in making a preparatory ground for securing of land, wherever such additional land is required or for consensus-based removal of encroachments and infringements. The date of transect walk shall be informed to the villagers in advance, at-least a week before the date of the scheduled visit. The views, concerns or grievances, if any, of the community shall be recorded and appropriately integrated into the road design.

41. **Consultation with Local Community:** Individuals and group consultations shall be carried out as in order to understand the needs and concerns of project affected persons and local community in general. The issues for discussion shall include potential project impacts, alternative design options, relocation of community property resources, etc., (refer **Annexure 3-5** for a sample copy of the Consultation Format). All the participants shall be informed in advance about the date, venue and time of the consultation and their presence to be noted in the form of an attendance sheet. The documentation of these consultations shall be appended to the CPF.

**Box-5: Conformity of Alignment vis-à-vis Existing Settlement**

*A sub-project road when passing through settlements on either side, attention shall be given towards identifying and mitigating typical issues. The waste-water from households that often discharged through lined/unlined side drains of existing roads shall be documented and appropriate mitigation measures shall be incorporated in the project design, so that the sub-project road does not create any problem related to water-clogging to the households. Similarly, raising the level of road in some locations results in intrusion of water to road-side residential structures, which shall be anticipated and the specific locations shall be identified during consultations with the road-side community.*

42. **Ascertaining Traditional and Tenurial Rights:** Sub-project roads, if traverse Fifth Schedule Areas or in case Sub-Projects have potential impact on lands involving traditional and tenurial rights, the securing of land will be in accordance with the provisions stated in the Tribal Population Planning Framework (TPPF) formulated for Gujarat Rural Roads (MMGSY) Project.

43. **Census and Socio-Economic Survey and Profiling of Affected Persons:** The census survey shall be carried out covering all the Project Affected Families (PAFs) in a sub-project, if any. The Census and Socio-Economic Survey shall be based on the final design duly approved by Government of Gujarat. The census will be conducted by the GSRRDA with the assistance of the Gram Panchayat, and will register and document the status of the potentially affected population. The census will provide a demographic overview of the population, and will cover the asset ownership and sources of livelihood. The categories of vulnerable PAPs established by the census will form a basis for assessing the vulnerable persons eligible for entitlements provisioned in this SMF. A format of census and socio-economic survey schedule is given in **Annexure 3-4**.

44. **Participation of Local Self-Governing Bodies:** The local self-governing bodies in Gujarat plays vital role in the local community life. Infrastructure development initiatives in rural settings are always on the forefront among various development agendas of local self-governing bodies. The local self-governing bodies, including Gram Sabhas act as a platform for social audit of development interventions and largely functions on principles of transparency. Hence, involvement of local self-governing bodies shall be ensured at each stage of sub-project intervention such as design, planning and implementation.

### 3.6 Social Monitoring Plan

45. Internal monitoring of the implementation of SMF shall be carried out by the GSRRDA with support of Project Management Consultant. Towards enhancing the quality of SMF implementation, in addition to the internal monitoring by the GSRRDA, external monitoring shall be done by a third-party agency or Project Management Consultant (PMC) for technical as well as environmental/social aspects. The role of third-party agency/PMC towards external monitoring of social safeguards shall include the following:

- Conduct periodic monitoring of SMF implementation to provide early alert to redress any potential problems; and,
- Conduct mid-term, annual and end term monitoring to assess target achievements and slippages with respect to implementation of SMF.

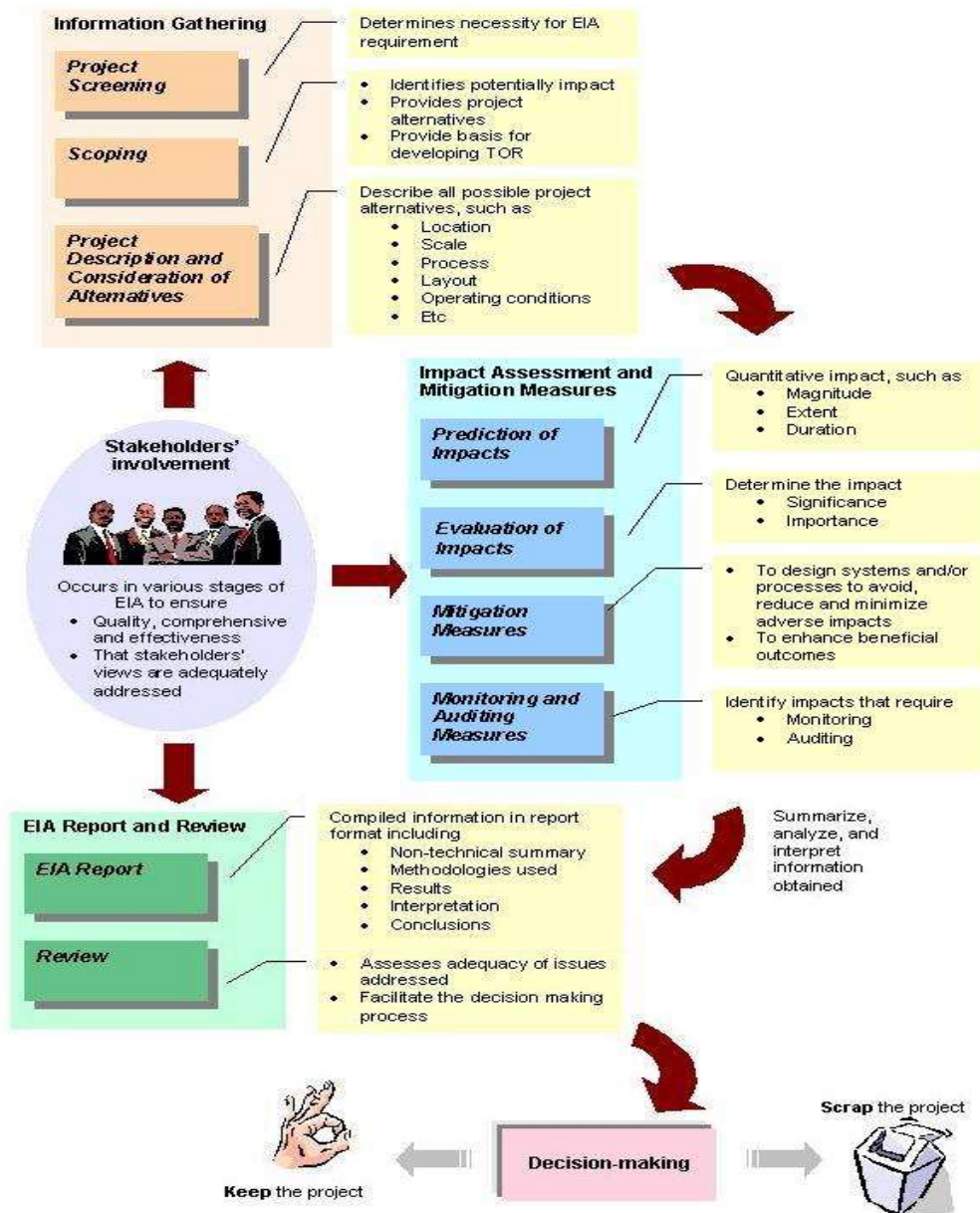
- Grievance redressal mechanisms – its functioning and processes along with complaints received and resolved shall be monitored.

46. The SMF contains indicators and benchmarks for achievement of the objectives under the community participation framework. The results of this monitoring shall be summarized in reports which shall be submitted to the GSRRDA on a regular basis. Provision shall be made for participatory monitoring involving the PAPs.

# 4 PROCEDURE FOR CONDUCTING ESIA

## 4.1 Introduction

47. The Environmental and Social Management Framework (ESMF) requires and Environmental and Social Impact Assessment to be conducted to strengthen the generic ESMP. The procedure for conducting the ESIA is given in a schematic diagram below:



**Figure 4-1: The EIA processes in sequences of application**

Source: *The manual in perspective, EIA Training Resource Manual, United Nations Environment Programme, 2002*

48. Given that the project has been assigned Category 'B' due to its limited and reversible impact the EIA has been designed to capture the localised environmental and social issues arising during implementation. Public Consultation is a critical component of the project implementation,



as it will reinforce the existing public support for the project and also help in consensus building for any unforeseen bottleneck that might emerge. However, the application of the ECoP designed for the project will be a mandatory feature of the project. The ESIA will provide better insight into the environmental and social issues envisaged in the generic ESMP and therefore provide better guidance in project implementation.

49. The following features will be verified while conducting the ESIA

(i). Environmental factors:

- Sensitive areas, natural habitats, protected areas
- Felling of trees outside the protected areas
- Clearance of vegetative cover
- Damages to productive agricultural land
- Cuts across perennial streams or surface water bodies
- Vulnerability to natural hazards, landslides/slips and
- Environmental features as marshy areas, sand dunes etc.

(ii). Social factors:

- Land availability
- Impact on structures
- Impact on livelihood
- Impacts on Tribal population
- Impacts on common property resources, and

50. The analysis of the data will include detailed study on selected sub-project locations, consultations with key stakeholders, formal discussions with implementation agencies in the State with special emphasis on Fifth Schedule areas and their experience of implementing similar projects in the state.

## 4.2 Environmental and Social Baseline Data

51. The environmental sensitive locations like major water bodies (rivers, lakes, ponds, swamp area and wetlands); biodiversity hotspots (national parks, sanctuaries and reserved forest) and flora and fauna with respect to Gujarat are enclosed in **Annexure 4-1** in this report for clarification/guidance.

52. The ESIA will generate data on (1) environmental/ biodiversity sensitivity of the construction sites, (2) varying geo-spatial distribution of sub projects and (3) socially vulnerable communities.

53. Baseline data shall include but not limited to following:

- Primary data shall define characteristics of the existing natural environment including soil, water, air, noise, land use, cultural properties and flora & fauna
  - Monitoring to be carried at critical locations.



- Identification of residential, commercial, industrial and forest areas for monitoring
  - Air and Noise Monitoring at settlements, school and hospitals etc.
  - Water Monitoring at river/streams/ponds and ground water sources near settlements.
  - Tree inventory to be carried out, in consultation with the Forest Department.
  - Inventory of Cultural Property Resources shall be done along with measurements, details and photographs; consultation shall be done for gathering public opinion.
- Secondary Data to define meteorology, geology, seismicity, quarries, borrow areas, disposal sites etc.
    - Details of quarry and borrow areas that are likely to be used shall be collected (Photographs, measurements and public opinion) and a comprehensive plan for extracting material shall be prepared.
    - Meteorological data from IMD, Topo-sheets and maps from Survey of India, geological and soil data from Geological survey of India.
    - Social data including ownership pattern, identification of tribal, vulnerable social groups, land estimates etc.
54. A generic framework of environmental and social impacts is presented in **Table 4-1** and
55. **Table 4-2** respectively. The field survey will help to verify the impacts indicated in the Tables. The field level data thus generated through the ESIA will be used to finalise the generic ESMP through Stakeholder Consultation workshop.

### 4.3 Public Consultation for ESIA

56. Individuals and group consultations shall be carried out as in order to understand the needs and concerns of project affected persons and local community in general. The issues for discussion shall include potential project impacts, alternative design options, relocation of community property resources, etc. All the participants shall be informed in advance about the date, venue and time of the consultation and their presence to be noted in the form of an attendance sheet.
57. As part of the assignment, community consultations were carried out in villages. Information regarding Community Consultations was intimated well in advance to Gram Panchayats, stating an overview about the Consultations, its scope, objectives, etc. The letter sent from GSRRDA-R&BD is given in **Annexure 4-2**. On scheduled date, the Consultations were carried out and Minutes of the Meeting along with Photographs, Written Suggestions from the Villagers, and Copy of Attendance Sheet of Participants is also annexed.

**Table 4-1: Possible Impacts on Physical Environment**

	Pre-construction Phase		Construction Phase					Operation	Indirect effects of operation or Induced development
Environmental Component Affected	Project Activities								
	Removal of structures (encroachment)	Removal of Tress & Vegetation	Earthworks including Quarrying	Laying of Pavement	Vehicle & Machine Operation & Maintenance	Concrete & Crusher Plants	Sanitation & Waste (labour campus)	Project Operation	
<b>Air</b>	Dust generation during dismantle operation	Reduced buffering of air and noise pollution, hotter, drier microclimate	Dust Generation	Asphalt odour	Noise, dust pollution	Noise, soot, odour, dust pollution	Odour, smoke	Noise, dust pollution	Other pollution
<b>Land</b>	Generation of debris	Erosion and loss of top soil	Erosion and loss of top soil	Contamination of soil	Contamination by fuel and lubricants compaction	Contamination compaction of soil	Contamination from wastes	Spill from accidents, Deposition of lead	Change in cropping pattern
<b>Water</b>	Siltation due to loose of earth	Siltation due to loose of earth	Alteration of drainage, Break in continuity of ditches, Siltation, Stagnant water pools in quarries	Reduction of ground water recharge area	Contamination by fuel and lubricants	Contamination by leakage of fuel	Contamination from wastes overuse	Spill contamination by fuel, lubricants	Increased contamination of ground water
<b>Noise</b>	Noise pollution	Noise pollution	Noise pollution	Noise Pollution	Noise pollution	Noise pollution		Noise pollution	Noise pollution
<b>Flora</b>			Lowered productivity, Loss of ground for vegetation		Removal of vegetation	Lower productivity, Use as fuel wood	Felling trees for fuel	Impact of pollution on vegetation, Lowered productivity, Toxicity of vegetation	
<b>Fauna</b>		Disturbance, Habitat loss	Disturbance		Disturbance	Disturbance	Poaching	Collision with traffic	Distorted habitat

**Table 4-2: Possible Impact on Social and Cultural Environment**

Social Component Affected	Pre-construction Phase			Construction Phase					Operation	
	Project Activity								Direct	Indirect Induced development
	Land securing	Damage to Structures (encroachment)	Impact on Tress & Vegetation	Earthworks including Quarrying	Laying of Pavement	Vehicle & Machine Operation & Maintenance	Asphalt and crusher plants	Labour Camps	Project Operation	-
<b>Agricultural Land</b>		Depreciation in land economic value	Damage to standing crops	Damage to productive land	-	-	Dust on agricultural land, reduce productivity	-	-	Conversion of agricultural land
<b>Building &amp; Built Structures</b>	-	Damage of structures, debris generation, noise & air pollution	-	Noise, vibration may damage to structures	-	Noise, vibration may damage to structures	Dust accumulation on building & structures	-	Vibration & noise	Change in building use & characteristics
<b>People &amp; Community</b>	-	Temporary loss of livelihood	Loss of shade & community trees, loss of fuel wood & fodder.	Noise & air pollution	Odour & dust	Noise & air pollution, collision with pedestrians, livestock & vehicles	Air & noise pollution and discomfort	Community clashes with migrant labours	Noise pollution, risk of accident	Induced pollution
<b>Cultural Assets</b>	-	Damage to structures	Impact on sacred trees	Noise, vibration may cause damage to structure	-	Damage from vibration & air pollution	Dust accumulation	-	Damage from vibration & air pollution	-
<b>Utilities and Amenities</b>	-	Interruption in supply	-	-	-	Damage to utilities & amenities	Dust accumulation on water bodies	Pressure on exiting amenities	-	-
<b>Labour's Health &amp; Safety</b>	-	-	-	Increase of stagnant water & disease	Asphalt odour and dust	Collisions with vehicles, pedestrians & livestock	Impact on health due to inhale of dust	Increase in communicable diseases		-

#### **4.4 Mitigation and Monitoring Plan**

58. Mitigation measures are selected to reduce or eliminate the severity of any predicted adverse environmental effects and improve the overall environmental performance and acceptability of the project. Where mitigation is deemed appropriate, the impacts would be addressed in the following order of priority, to:

- Eliminate or avoid adverse effects, where reasonably achievable.
- Reduce adverse effects to the lowest reasonably achievable level.
- Regulate adverse effects to an acceptable level, or to an acceptable time period.
- Create other beneficial effects to partially or fully substitute for, or counter-balance, adverse effects.

# 5 Environmental Management Plan (EMP)

59. The EMP should be developed so as to mitigate the impacts assessed during EIA process and also the likely impacts during the construction and operational phase. The avoidance, mitigation and management measures for generic construction activities are to be included in the EMP. A generic EMP has been presented in **Table 5-1** below for reference as sample guide.

**Table 5-1: Environmental Management Plan**

Project Stage/Activity	Potential Negative Impacts	Mitigation Measures	Location	Responsible Agency	
				Implementation	Monitoring
<b>A. Location</b>					
Location of construction camps and contractor facilities	<ul style="list-style-type: none"> <li>Inappropriate location such as close proximity to eco-sensitive zones, biodiversity hotspots and human settlements</li> <li>Environmentally unsound use of community resources such as forestry products by workers</li> </ul>	<ul style="list-style-type: none"> <li>Location of construction camps at least 500m away from community areas/religious structures, and away from drinking water sources (<i>refer OM – 1 Construction and Labour Camps</i>)</li> <li>The construction camps shall be located at least 1000m (1km) away from eco-sensitive zones (the boundaries of the Community reserve, Biodiversity hotspots) and 500m away from the settlements.</li> <li>The camps must be located such that the drainage from and through the camps shall not affect any domestic or public water supply.</li> </ul>	Construction camp sites	Contractor	GSRRDA/PMC
Location of quarry sites	<ul style="list-style-type: none"> <li>Location in unstable areas or in sensitive areas legally and otherwise</li> </ul>	<ul style="list-style-type: none"> <li>Only stable areas and existing or new government approved sites may be considered (<i>refer OM – 3 Quarry Management</i>)</li> <li>Consent from GPCB (Consent to establish (CTE) and Consent to operate (CTO)) is required for stone crushers and quarry sites if setting up a new unit for this project,</li> <li>In case sourced from third party then it shall be ensured that the construction materials are procured from approved/licensed quarry sites and stone crushers</li> </ul>	All parts of project area	Contractor	GSRRDA/PMC
Location of borrow pits	<ul style="list-style-type: none"> <li>Location in unstable areas or on agricultural land</li> </ul>	<ul style="list-style-type: none"> <li>Location in area with stable soil and preferably away from agricultural land (<i>refer OM-2 Borrow Areas</i>)</li> <li>The GSRRDA shall inspect every borrow area location prior to issuing approval for use of such sites.</li> </ul>	All parts of project area	Contractor	GSRRDA/PMC
Crushers, Hot-mix Plants & Batching Plants	<ul style="list-style-type: none"> <li>Delays in processing clearances, causing delays in initiation of construction</li> </ul>	<ul style="list-style-type: none"> <li>Processing of clearances/permits on a timely basis and keeping in mind the time requirements for these clearances (<i>refer OM-7 Construction Plants &amp; Equipment Management</i>)</li> </ul>	All camps or plant location	Contractor	GSRRDA/PMC

Project Stage/Activity	Potential Negative Impacts	Mitigation Measures	Location	Responsible Agency	
				Implementation	Monitoring
		<ul style="list-style-type: none"> <li>The contractor shall follow all stipulated conditions for pollution control as suggested by the GPCB in the consent/ NoC for establishing and operating the Hot-mix and Batching Plant.</li> </ul>			
<b>B. Planning/Project Design</b>					
Pavement	<ul style="list-style-type: none"> <li>Water leakage/seepage through pavement and damage of road caused</li> <li>By poor quality design</li> </ul>	<ul style="list-style-type: none"> <li>Quality designs vis-a-vis layer thicknesses and material content</li> </ul>	All parts of project road	GSRRDA	R&BD
Determination of ROW width	<ul style="list-style-type: none"> <li>Unnecessary widening leading to unnecessary geometric cuts, soil erosion, and destruction of plant and water resources</li> </ul>	<ul style="list-style-type: none"> <li>Cross sections for the project road shall be worked out to minimize resettlement impacts, and the proposed designs shall be accommodated within the RoW that is available clear of any encroachments and encumbrances.</li> </ul>	All parts of project road	GSRRDA	R&BD
Drainage structures	<ul style="list-style-type: none"> <li>Poor drainage caused by poorly designed/ specified drainage structures, e.g., unlined drains</li> <li>Damage to cross-drainage structures because of inadequacy to support water flows, leading to damage to road</li> </ul>	<ul style="list-style-type: none"> <li>Drains lined with cement mortar only</li> <li>Drainage structures designed in accordance with anticipated levels of water flows</li> </ul>	All parts of project road	GSRRDA	R&BD (Design wing)
Geometric cuts	<ul style="list-style-type: none"> <li>Excessive excavation leading to unnecessarily large volumes of earthworks, and generation of excessive dust and</li> <li>Sediments deposited in nearby water bodies</li> </ul>	<ul style="list-style-type: none"> <li>Designs to be based on scientific basis</li> </ul>	Sharp curves where geometric adjustment is required	GSRRDA	R&BD
Alignment/ road passing through sensitive areas (sanctuaries , Forests areas)	<ul style="list-style-type: none"> <li>Potential impact to the ecosystem (Both biotic and abiotic) and migratory birds.</li> </ul>	<ul style="list-style-type: none"> <li>Noise generating construction activities shall be temporarily suspended during the migratory season (October till January). Hence the impact on the presence of forest area shall be managed with no harmful impacts to the avifauna (<i>refer OM-9 Forests and Other Natural Habitats</i>).</li> <li>Proper care should be taken for disposal of construction based waste and leachate generated from it.</li> </ul>	Corridor of Impact	GSRRDA	Forest and Environment Department, GoG
<b>C. Construction</b>					
Establishment and shifting of construction camps	<ul style="list-style-type: none"> <li>Deforestation and poaching by laborers</li> <li>Improper waste disposal</li> <li>Disturbance to aesthetic beauty</li> <li>Disturbance to nearby settlements</li> <li>Unfriendly use of community resources such as non-timber forestry products by construction workers</li> <li>Leaving dirty and waste material after</li> </ul>	<ul style="list-style-type: none"> <li>Provision of cooking fuel to contractors' staff</li> <li>References to the illegality of cutting trees, hunting and fishing, and other prohibited activities in community areas to be included in contract documents</li> <li>Provision of proper waste disposal facilities and health &amp; safety facilities</li> <li>Prior information to nearby communities of camp establishment</li> </ul>	All parts of project road	Contractor	GSRRDA

Project Stage/Activity	Potential Negative Impacts	Mitigation Measures	Location	Responsible Agency	
				Implementation	Monitoring
	shifting from one camp site to another	<ul style="list-style-type: none"> <li>Ensure clean area left behind when shifting camp</li> </ul>			
<b>Stockpiling of construction materials</b>	<ul style="list-style-type: none"> <li>Obstruction of drainage, disturbance/ safety hazard to road users, etc</li> <li>Dust generation from stock pile area</li> </ul>	<ul style="list-style-type: none"> <li>Due consideration shall be given for material storage and construction sites such that it doesn't cause Obstruction of drainage, disturbance/ safety hazard to road users, etc</li> <li>Stockpiles shall be covered to protect from dust and erosion</li> </ul>	All parts of project road	Contractor	GSRRDA
<b>Removal of vegetation and uprooting of trees</b>	<ul style="list-style-type: none"> <li>Negative changes in micro-level wildlife habitat/environment</li> <li>Soil erosion</li> <li>Scarring of landscape</li> </ul>	<ul style="list-style-type: none"> <li>Design shall be prepared to minimise the loss of avenue trees.</li> <li>If impacts on trees become unavoidable, compensatory tree plantation shall be carried out</li> </ul>	All parts of project road	Contractor	GSRRDA
<b>Cutting of hill slope and earth removal from borrow areas</b>	<ul style="list-style-type: none"> <li>Soil erosion and landslides</li> <li>Scarring of landscape because of improper disposal of debris</li> <li>Dust pollution</li> <li>Disruption of local drainage</li> <li>Siltation in nearby water bodies and consequent negative effects on aquatic ecology</li> <li>Noise and disturbance to nearby communities</li> </ul>	<ul style="list-style-type: none"> <li>Confine cutting activities to dry season (<i>refer OM-5 Slope Stability and Erosion Control</i>)</li> <li>Use standard method</li> <li>Disposal of debris at proper sites or reuse material for construction</li> <li>Proper restoration of borrow areas</li> <li>Provision of appropriate drainage structures/facilities</li> <li>Confine construction activities to daytime</li> </ul>	Hilly terrain and borrow areas	Contractor	GSRRDA
<b>Quarrying / Borrow pits Operations</b>	<ul style="list-style-type: none"> <li>Landslides (rock slides/falls)</li> <li>Scarring of landscape</li> <li>Disturbance to wildlife and nearby communities from blasting</li> </ul>	<ul style="list-style-type: none"> <li>Adequate safety precautions shall be ensured during transportation of quarry material from quarries to the construction site (<i>refer OM-2 Borrow area, OM-3 Quarry Management</i>).</li> <li>Vehicles transporting the material shall be covered to prevent spillage.</li> <li>Operations to be undertaken by the Contractor as per the direction and satisfaction of the GSRRDA/PMC</li> <li>All borrow areas shall be restored to the original condition, immediately upon completion of the use of such a source</li> </ul>	Quarry sites	Contractor	GSRRDA
<b>Crushing of stone and transport of stone/materials</b>	<ul style="list-style-type: none"> <li>Dust pollution affecting construction laborers and local vegetation</li> <li>Air pollution from machinery and vehicle exhausts</li> <li>Noise pollution and disturbance to nearby wildlife and communities</li> </ul>	<ul style="list-style-type: none"> <li>Water sprinkling of stone crushing site</li> <li>Proper covers for vehicles transporting stone and materials</li> <li>Regular maintenance of machinery and vehicles</li> <li>Confine stone crushing and transportation activities to daytime</li> </ul>	Stone crushing sites and all parts of project road	Contractor	GSRRDA
<b>Road surfacing activities</b>	<ul style="list-style-type: none"> <li>Air pollution from smoke and gaseous emissions affecting health of workers</li> </ul>	<ul style="list-style-type: none"> <li>Provide masks to workers exposed to dust and smoke</li> <li>Manage movement of vehicles during road surfacing work</li> </ul>	All parts of project road	Contractor	GSRRDA
<b>Construction of line and cross drainage structures</b>	<ul style="list-style-type: none"> <li>Disruption of local stream/river courses and aquatic hydrology</li> </ul>	<ul style="list-style-type: none"> <li>Provision of appropriate drainage facilities and river/stream diversion structures</li> </ul>	All parts of project road	Contractor	GSRRDA



Project Stage/Activity	Potential Negative Impacts	Mitigation Measures	Location	Responsible Agency	
				Implementation	Monitoring
<b>and bridges</b>	<ul style="list-style-type: none"> <li>Increased sediments in rivers or streams</li> </ul>				
<b>Operation of machinery and equipment and general activities of laborers</b>	<ul style="list-style-type: none"> <li>Spillage/ leakage of chemicals and oil and contamination of soil and water resources</li> <li>Injury to workers/others</li> <li>Respiratory problems from dust and machinery emissions</li> <li>Hearing problems due to high level of noise</li> </ul>	<ul style="list-style-type: none"> <li>Proper storage and handling of chemicals and oil (<i>refer OM-7 Construction Plants &amp; Equipment Management</i>)</li> <li>Provision of workers with construction hats, face masks, earplugs, gloves, etc.</li> <li>Provision of well-equipped first aid kits and health facilities at construction camp and work sites</li> </ul>	All parts of project road	Contractor	GSRRDA
<b>Water sourcing for domestic usage or construction work</b>	<ul style="list-style-type: none"> <li>Misuse of community water resources</li> </ul>	<ul style="list-style-type: none"> <li>Independent arrangements to be made for water requirements so that supplies to nearby communities remains unaffected (<i>refer OM-4 Water for Construction &amp; refer Annexure 5-1 NoC format for water resource</i>)</li> </ul>	Construction camps	Contractor	GSRRDA
<b>Material Handling at Site</b>	<ul style="list-style-type: none"> <li>Exposure of workers to dust and heat</li> <li>Worker's safety in handling and storage of material</li> </ul>	<ul style="list-style-type: none"> <li>All workers employed on mixing asphaltic material, cement, lime mortars, concrete etc., shall be provided with protective footwear and protective goggles (<i>refer OM-8 Labour and Worker's Health and Safety</i>).</li> <li>Workers, who are engaged in welding works, shall be provided with welder's protective eye-shields.</li> <li>Workers engaged in stone breaking activities shall be provided with protective goggles and clothing and shall be seated at sufficiently safe intervals.</li> </ul>	All parts of project road	Contractor	GSRRDA
<b>Disposal of Construction Waste / Debris / Cut Material</b>	<ul style="list-style-type: none"> <li>Location impacts (including change in topography, landscaping etc.,)</li> </ul>	<ul style="list-style-type: none"> <li>The waste generated shall be reused in the construction activities to the maximum extent possible. Cut and fill material shall be balanced so as not to have requirement for disposal. Remaining material if any shall be disposed off safely at the disposal sites (<i>refer OM-6 Waste Management and Debris Disposal</i>).</li> <li>Safe disposal of the extraneous material shall be ensured in the pre-identified disposal locations. In no case, any construction waste shall be disposed around the sub-project locations indiscriminately.</li> <li>Cut material generated because of cutting of slopes shall be utilized for construction of retaining walls, embankments and as filling material.</li> </ul>	All parts of project road	Contractor	GSRRDA
<b>Safety Measures During Construction</b>	<ul style="list-style-type: none"> <li>Accident impacts</li> </ul>	<ul style="list-style-type: none"> <li>Personal Protective Equipment (PPE's) for workers on the project and adequate safety measures for workers during handling of materials at site shall be taken up (<i>refer OM-8 Labour and Worker's Health and Safety</i>)</li> <li>The contractor has to comply with all regulations regarding</li> </ul>	All parts of project road	Contractor	GSRRDA

Project Stage/Activity	Potential Negative Impacts	Mitigation Measures	Location	Responsible Agency	
				Implementation	Monitoring
		occupational health and safety			
<b>Chance finds of archaeological Property / remains</b>	<ul style="list-style-type: none"> <li>Damage to archaeological Property / remains in the performance of project activities</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor shall immediately upon discovery of a chance find of archaeological Property / remains stop the work and inform GSRRDA/PMC of such discovery and carry out the GSRRDA/PMC instructions for dealing with the same, awaiting which all work will be stopped</li> <li>The GSRRDA/PMC shall seek direction from the Archaeologist at the Department of Archaeology before instructing the Contractor to recommence work on the site.</li> </ul>	All parts of project road	Contractor	GSRRDA
<b>D. Operation</b>					
<b>Maintenance of Drainage</b>	<ul style="list-style-type: none"> <li>Clogging of drains and silt fence near water bodies</li> <li>Damage of drainage structures and consequent disruptions to traffic, failure to enable proper drainage, and increased sedimentation</li> </ul>	<ul style="list-style-type: none"> <li>GSRRDA shall ensure that all drains (side drains and all cross drainages) are periodically cleared especially before monsoon season to facilitate the quick passage of rainwater.</li> <li>GSRRDA shall ensure that all the sediment traps/ silt fence set up at the water bodies are cleared once in every three months.</li> </ul>	All parts of project road	GSRRDA	GSRRDA
<b>Road Safety and Maintenance of Assets</b>	<ul style="list-style-type: none"> <li>Encroachment within RoW limits</li> <li>Removal and /or obstruction to road safety and other signage within RoW</li> </ul>	<ul style="list-style-type: none"> <li>No advertisement/hoardings shall be allowed within the Right of Way limits of the project road.</li> <li>Regular maintenance and cleaning of signage boards</li> <li>Regular pruning of trees etc obstructing vision of signage on road</li> </ul>	All parts of project road	GSRRDA	GSRRDA
<b>General functioning of Road</b>	<ul style="list-style-type: none"> <li>Damage to riding surface and structure of road—formation of potholes, water seepage, and poor drainage</li> <li>Excessive landslides, erosion caused by improper maintenance of bioengineering works, wall construction</li> </ul>	<ul style="list-style-type: none"> <li>Periodic inspection and maintenance of roads at regular interval</li> </ul>	All parts of project road	GSRRDA	GSRRDA

## 5.1 EMP in Bid Documents

- Preparation of EMP cost estimates (EMP Budget) that needs to be incorporated in the Bid Documents
- Environmental Management Plan, EMP along with the SMART Operational manual that has to be incorporated in the Bid document's work requirements
- Penalty Clauses for not complying with EMP requirements to be incorporated. Indicative penalty clauses proposed in the upgradation project are presented below

### *Clause for Nonconformity to EMP - Protection of the Environment*

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

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

## 5.2 Environmental Monitoring Plan

### 5.2.1 Monitoring Parameters and Standards

61. Environmental monitoring is defined as “an activity undertaken to provide specific information on the characteristics and functions of environmental and social variables in space and time”.

62. The environmental monitoring programme will be devised to ensure that the envisaged purpose of the project is achieved and results in the desired benefit to the target population. To ensure the effective implementation of the EMP, it is essential that an effective environmental

monitoring programme be designed and carried out. Broad objectives of the monitoring programme will be

- To evaluate the performance of mitigation measures proposed in the EMP
- To suggest improvements in the management plans, if required
- To satisfy the statutory and community obligations

### 63. Types of Environmental Monitoring

<b>Baseline Monitoring/ Impact Assessment</b>	A survey should be conducted on basic environmental parameters in the area surrounding the proposed project before construction begins (pre-audit study). Subsequent monitoring can assess the changes in those parameters over time against the baseline
<b>Impact Monitoring</b>	The biophysical and socio-economical (including public health) parameters within the project area, must be measured during the project construction and operational phases in order to detect environmental changes, which may have occurred as a result of project implementation
<b>Compliance Monitoring</b>	This form of monitoring employs a periodic sampling method, or continuous recording of specific environmental quality indicators or pollution levels to ensure project compliance with recommended environmental protection standards

64. The monitoring programme contains monitoring plan for all performance indicators, reporting formats and necessary budgetary provisions. Monitoring plan for performance indicators and reporting system is presented in the following sections.

### 5.2.2 Monitoring Plan for Environmental Conditions

65. The Environmental monitoring of the parameters involved and the threshold limits specified are discussed below

- **Ambient Air Quality Monitoring (AAQM)**

66. The air quality parameters viz: Sulphur Dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>), Particulate Matter PM<sub>10</sub> and PM<sub>2.5</sub> shall be regularly monitored at identified locations from the start of the construction activity. The air quality parameters shall be monitored in accordance with the National Ambient Air Quality Standards as given in **Table 5-2**.

**Table 5-2: Ambient Air Quality Standards (National)**

S. No	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
1.	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Annual* 24 hours**	50 80	20 10	<ul style="list-style-type: none"> <li>• Improved West and Gaeke</li> <li>• Ultraviolet fluorescence</li> </ul>
2.	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Annual* 24 hours**	40 80	30 80	<ul style="list-style-type: none"> <li>• Modified Jacob &amp; Hochhieser (Na-Arsenite)</li> <li>• Chemiluminescence</li> </ul>
3.	PM <sub>10</sub> µg/m <sup>3</sup>	Annual* 24 hours**	60 100	60 100	<ul style="list-style-type: none"> <li>• Gravimetric</li> <li>• TOEM</li> <li>• Beta attenuation</li> </ul>
4.	PM <sub>25</sub> µg/m <sup>3</sup>	Annual* 24 hours**	40 60	40 60	<ul style="list-style-type: none"> <li>• Gravimetric</li> <li>• TOEM</li> <li>• Beta attenuation</li> </ul>

\*Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals

\*\*24 hourly or (8 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

- **Noise Quality Monitoring**

67. The noise levels shall be monitored at designated/ sensitive locations (including Schools, Hospitals etc.) in accordance with the Ambient Noise Quality standards given in **Table 5-3**.

**Table 5-3: Ambient Noise Quality Standards (National)**

Area Code	Category of Zones	Limits of Leq in dB(A) Day*	Limits of Leq in dB(A) Night*
A	Industrial	75	70
B	Commercial	65	55
C	Residential	55	45
D	Silence Zone **	50	40

\* Daytime shall mean from 6.00am to 10.00 pm and Night shall mean from 10.00 pm to 6.00 am

\*\*Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicles horns, loud speakers and bursting of cracking are banned in these zones.

- **Water Quality Monitoring**

68. Water quality parameters such as pH, BOD, Coliform count, Total Dissolved Solids, Oil and Grease etc., shall be monitored at surface waterbodies (including lake, pond, open well etc.) located along the project road during the construction stage as per standards prescribed by Central Pollution Control Board and Indian Standard Drinking water specifications IS 10500, 1991, presented in **Table 5-4**.

**Table 5-4: National Standard of Water**

Sl. No	Parameters	IS:2296 (Class C)	Method to be Adopted
1.	pH	6.5-8.5	pH meter
2.	BOD (3 days 27 <sup>0</sup> C)	3.0	DO-Azide modification of Wrinkler's method
3.	Dissolved oxygen	4	Azide Modification of Wrinkler's method
4.	Total Dissolved Solids	1500	Gravimetric Analysis
5.	Oil and Grease	0.1	Partition – Gravimetric method
6.	Detergents	1.0	Spectrophotometer
7.	Total Coliform (MPN/100 ml)	5000	Multiple Tube Fermentation Technique

### 5.2.3 Environmental Monitoring Locations

69. In addition of the critical locations selected during design stage, the environmental monitoring will also be done at the construction camp site and any other plant site during construction stage. List of critical locations for carrying out monitoring should be presented in EIA report

### 5.3 Monitoring and Post Auditing

70. Construction monitoring, including field inspections and surveys, should be carried out by an environmental expert (to be hired by GSRRDA on regular or contractual basis) to ensure that environmental protection requirements are being met. The monitoring and reporting is to be in line with the reporting system developed for the project and is presented as **Annexure 5-2**. It is important to plan and budget for environmental construction monitoring as part of the project.

71. Post construction monitoring is used to identify environmental changes resulting from the implementation of the project. In the context of EIA, post construction monitoring programs are carried out to achieve the following results:

- To ensure that the facility is meeting all environmental regulatory requirements, and that commitments made in the EIA document and/or the conditions of approval are being met;
- To test impact hypotheses, and to verify the predictions and assessment of environmental effects, thus contributing to better assessments in the future;
- To evaluate the performance effectiveness of mitigation;
- To compare actual and predicted changes to the environment, so that immediate actions can be taken to mitigate unanticipated impacts;
- To strengthen confidence by both government and the public in the EIA process, the decisions made the road design etc.

72. The monitoring programs to be carried out during the construction and operation of the undertaking are normally described in the EIA document.

## 6 SMART OPERATIONAL MANUAL

73. Operation manual for good construction practices have been prepared to guide the GSRDA in preparing the project specific Environmental Code of Practice (ECoP) for the Contractor. The list of good environmental practices is presented in the **Annexure 6-1** for reference and implementation into the Environmental Management Plans for the specific projects.

**Table 6-1: Operation Manual for Good Environmental Practices**

Sl. No	Operation Manual	Activities	Remarks
1.	OM-1	Construction and Labour Camps	The scope of this guideline pertains to the siting, development, management and restoration of construction and labour camps to avoid or mitigate impacts on the environment
2.	OM-2	Borrow Areas	The scope of this guideline is to includes measures that are required during project planning and design stage, pre-construction, construction stage and post construction stage
3.	OM-3	Quarry Management	This guideline pertains to the measures that are to be taken to address environmental concerns in quarry areas.
4.	OM-4	Water for Construction	The scope of this guideline is to include the procurement of water required for construction of roads
5.	OM-5	Slope Stability and Erosion Control	The scope of this guideline is to include measures to minimize the adverse environmental impacts due to slope instability and soil erosion.
6.	OM-6	Waste Management and Debris Disposal	This guidance describes procedures for handling, reuse and disposal of waste materials during road construction
7.	OM-7	Construction Plants & Equipment Management	This guideline describes the activities during the project stages where pollution control measures are required.
8.	OM-8	Labour and Worker's Health and Safety	This Guideline describes the hazards and measures that needs to be taken to mitigate the impacts
9.	OM-9	Forests and Other Natural Habitats	This guideline envisages measures that are to be undertaken during blacktopping / widening of road sections passing through natural habitats

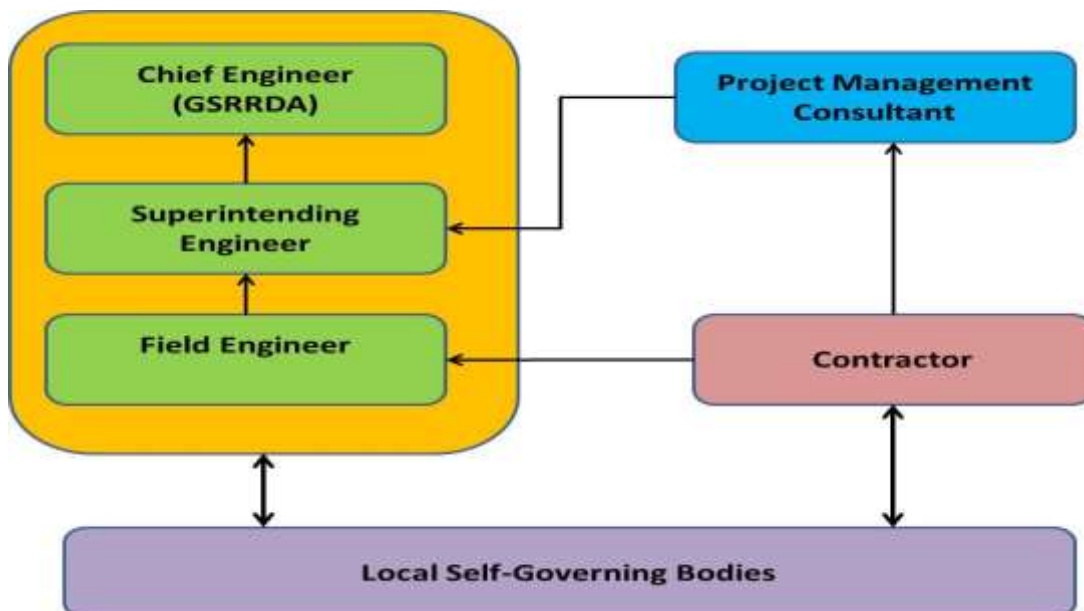


# 7 ESMF IMPLEMENTATION MECHANISM

## 7.1 Implementation of ESMF

74. The Environmental Management Plan, EMP process does not stop once a project (planning and design) got approval for implementation. During implementation of project GSRRDA, Project management Consultant, PMC and Contractor will be responsible for ensuring that the environmental commitments made to regulatory agencies, lending agencies and other stakeholders during the EIA process are met. To execute EMP is a cumulative responsibility of all three parties involved, indicative responsibility mechanism has been presented in

75. **Table 7-1**, as developed for upgradation projects.



**Figure 7-1: ESMF Implementation Mechanism**

**Table 7-1: Institutional Responsibilities**

System	Designation	Responsibilities
Coordinating/ Facilitating Agency	Chief Engineer (GSRRDA)- Panchayat	<ul style="list-style-type: none"> <li>• Overview of the project implementation</li> <li>• Ensure timely budget for the EMP</li> <li>• Coordination with different state level committee, to obtain Regulatory Clearances</li> <li>• Participate in state level meetings</li> <li>• Monthly review of the progress</li> </ul>
	Superintending Engineer - GSRRDA	<ul style="list-style-type: none"> <li>• Overall responsible for EMP implementation</li> <li>• Reporting to various stakeholders (AIIB, Regulatory bodies) on status of EMP implementation</li> <li>• Coordination with GSRRDA Staff (Field Engineers)</li> <li>• Responsible for obtaining Regulatory Clearances</li> <li>• Review of the progress made by Contractor</li> <li>• Ensure that BOQ items mentioned in EMP are executed as per Contract provisions</li> <li>• Responsible for coordination support in overall</li> </ul>

System	Designation	Responsibilities
		implementation of SMF (includes following each and every stage mentioned in Community Participation Framework, engage with community, inter-departmental coordination for the smooth implementation of SMF, guide PMC in periodic monitoring of SMF implementation)
	Field Engineers (GSRRDA)	<ul style="list-style-type: none"> <li>• Assisting SE in overall implementation of EMP</li> <li>• Review of periodic reports on EMP implementation and advising SE in taking corrective measure.</li> <li>• Conducting periodic field inspection of EMP implementation</li> <li>• Assisting SE to reporting various stakeholders (AIIB, Regulatory bodies) on status of EMP implementation</li> </ul>
Implementing/ Monitoring Agency	Environmental and Social Officer (Project Management Consultants (PMC))	<ul style="list-style-type: none"> <li>• Responsible for supervision of effective implementation of EMP measures by the Contractor</li> <li>• Review progress reports and periodic reporting to GSRRDA about the status of EMP implementation</li> <li>• Work in close coordination with Field Engineers (GSRRDA) and Contractor</li> <li>• Preparing environmental and Social training program and conducting the same for field Engineers and Engineers of Contractor</li> <li>• PMC shall be responsible for facilitating and on-ground implementation of SMF</li> <li>• Capacity building and training to GSRRDA functionaries / Local Self Governing bodies involved with the implementation of SMF</li> <li>• Periodic monitoring of SMF implementation</li> </ul>
Contractor	Engineer – in charge (Contractor)	<ul style="list-style-type: none"> <li>• Responsible for ensuring the implementation of EMP as per provision in the Contract/ bid document.</li> <li>• Discuss the various environmental/ social issues and environmental/ social mitigation, enhancement and monitoring actions with all concerned directly or indirectly</li> <li>• Assist the Contractor to ensure social and environmentally sound and safe construction practices are adopted</li> <li>• Conduct periodic environmental and safety training for engineers, supervisors and workers along with sensitization on social issues that may be arise during the construction stage of the project</li> <li>• Assist the GSRRDA on various environmental monitoring and control activities including pollution monitoring; and</li> <li>• Prepare and submit monthly reports to GSRRDA on the status of implementation safeguard measures</li> </ul>
Panchayat	Local Self-Governing Bodies	<ul style="list-style-type: none"> <li>• Responsible for mobilising local community and ensuring community support for the Gujarat Rural Roads (MMGSY) Project</li> <li>• Coordinate with GSRRDA / PMC for identification of project affected persons and, if necessary arrange for dovetailing them with rural development schemes</li> <li>• In consultation with Field Engineer and Contractor organize Public Consultation before commencement of works</li> <li>• Field surveillance with Contractor to check appropriateness of alignment</li> <li>• Engage with Stakeholders and organize community level meetings for conflict resolution</li> <li>• Facilitating relocation of community resources as and when necessary</li> </ul>

## 8 GRIEVANCE REDRESS MECHANISM

---

76. Grievance Redress Mechanism is part and parcel of any project administration, especially when the major stakeholders are public community that too with diverse social and economic characteristics engaged simultaneously taking part in formal as well as informal sector. Grievance redress mechanism ensures accountability, responsiveness, and user-friendliness. In fact, the grievance redress mechanism of an organization is the gauge to measure its efficiency and effectiveness as it provides important feedback on the working of the administration.

77. **Grievance Redress Committee:** The project proposes to establish a Grievance Redress Committee (GRC) to hear the complaints of project affected persons and resolve the same. The process will promote settlement of disputes and reduce litigation. GRC will be set up at the block level with Block Development Officer as head. The following persons will be the members of GRC:

- The Taluka Development Officer of respective Taluka (Block), Department of Panchayats, Rural Housing and Rural Development, GoG;
- The Deputy Executive Engineer, GSRRDA; and
- Representative from Social Sector/Local NGO (not involved with implementation) /Person conversant with similar issues and he/she should be widely respected and having problem solving skills.

78. The broad functions of GRC shall be the following:

- Record the grievances of Complainants / PAPs, if any, categorize and prioritize them and provide solution to their grievances related to any of the provisions set forth in SMF.
- The GRC may undertake site visit, ask for relevant information from GSRRDA / GSRRDA and other government and non-government agencies, etc., in order to resolve the grievances.
- Fix a time frame for resolving the grievances within the stipulated time period of 30 days.
- Inform Complainants / PAPs through GSRRDA about the status of their case and their decision to PAPs for compliance.

79. The Environmental and Social Officer of PMC shall provide all necessary help to complainants in presenting in his/her case before the GRC. The GRC shall respond to the grievance within 15 days. The GRC will normally meet once in a month and if the situation so demands, it shall meet more frequently. A specific grievance shall be resolved within a time period of 30 days. The decision of the GRC shall not be binding to PAPs. This means the decision of the GRC does not insist PAPs taking recourse to court of law, if he/she so desires.

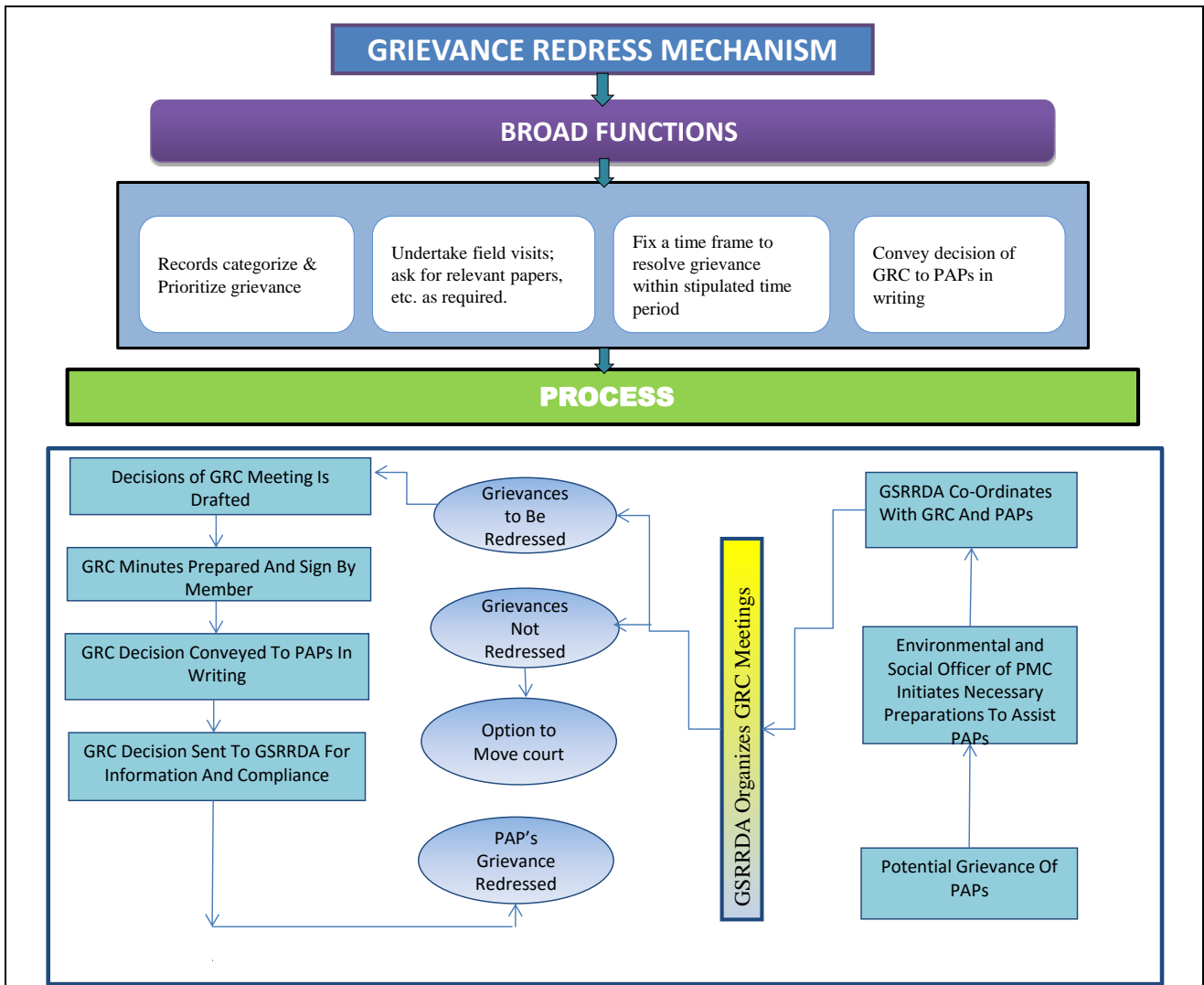


Figure 8-1: Grievance Redress Mechanism

## 9 CAPACITY BUILDING AND TRAINING

80. The Environmental and Social officer of the PMC will provide the basic training required for environmental and social awareness. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Programme and the requirements of the project. The entire training would cover basic principles of environmental and social assessment and management; mitigation plans, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in **Table 9-1** below.

**Table 9-1: Training Modules for Environmental and Social Management Framework**

S. No.	Training Program	Duration	Target Group	Responsibility
1.	Sensitization workshop on basic concept of environmental regulations and statutory requirements as per Government of India and AIB policy on environmental considerations in planning, design and implementing projects	½ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
2.	Environmental components impacted in construction and operation stages, activities causing pollution during construction and operation stages	½ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
3.	Environmental management, environmental provisions, implementation arrangements, methodology of assessment, good engineering practices to be integrated into contract/ bid documents	¼ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
4.	Environmental considerations in planning, designing and implementing Rural Roads	½ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
5.	Improved Co-ordination with other departments, statutory permissions – procedural requirements	½ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
6.	Roles and responsibilities of officials/ contractors/ consultants towards protection of environment implementation arrangements monitoring mechanisms	½ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
7.	Monitoring and reporting system to the target audience such as Engineers and staff of implementing agencies (GSRRDA)	½ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
8.	Orientation of contractors at the time of issuing work orders on the implementation of SMF	½ Working Day	GSRRDA (including field engineers) and Contractors	Environmental and Social officer of the PMC
9.	Need and type of Information, education, communication and awareness campaigns to be carried out to mitigate social impacts associated with infrastructure development	½ Working Day	Contractors/ Women Labours and GSRRDA	Environmental and Social officer of the PMC
10.	Overview of Land Securing and Entitlement Provisions <ul style="list-style-type: none"> <li>• Direct Acquisition</li> <li>• Gift Deed / MoU</li> <li>• Relocation of Common Property Resources</li> </ul>	½ Working Day	GSRRDA and Revenue Official	Environmental and Social officer of the PMC
11.	Overview of AIB Social Safeguards - Policy triggers, Requirements and compliance	½ Working Day	GSRRDA	Environmental and Social officer of the PMC
12.	Training on key elements of SMF	½ Working Day	GSRRDA and Revenue Official	Environmental and Social officer of the PMC

# 10

## ESMF IMPLEMENTATION BUDGET

81. Indicative budget for the Implementation of the ESMF is presented in the following **Table 10-1**, which will be revised subsequently.

**Table 10-1: ESMF Budget**

Sl. No.	Category	Quality	Units	Rate	Amount (in Rs)
1.	<b>Environmental Baseline Monitoring</b>				
	<i>Pre-construction</i>				
	Air Quality	2 samples at the time of Construction	40	5,000	200,000.00
	Noise Monitoring		40	2,000	80,000 .00
	Water Quality		20	5,000	100,000.00
	<i>Construction</i>				
	Air Quality	4 samples per year (during Construction Period)	80	5,000	400,000.00
	Noise Monitoring		80	2,000	160,000.00
	Water Quality		40	5,000	200,000.00
2.	Compensatory Afforestation	As per forest department estimation	LS		100,000.00
3.	Compensation for Agriculture Crops, Trees, etc.,	Rs 10,000/- acre for 200 acres	200	10,000	2,000,000.00
4.	Compensation for Structures (private, community property resources, etc.,)	As per the R&BD - SoR (for an average of 100 structures)	100	20,000	2,000,000.00
5.	Capacity Building and Training	Quarterly Training Program	4	250,000	1,000,000.00
6.	Third Party Monitoring	Quarterly monitoring	4	250,000	1,000,000.00
	<b>TOTAL</b>				<b>7,240,000.00</b>

# ANNEXURES

---



### ANNEXURE 1-1: Typical Cross Sections Proposed for MMGSY

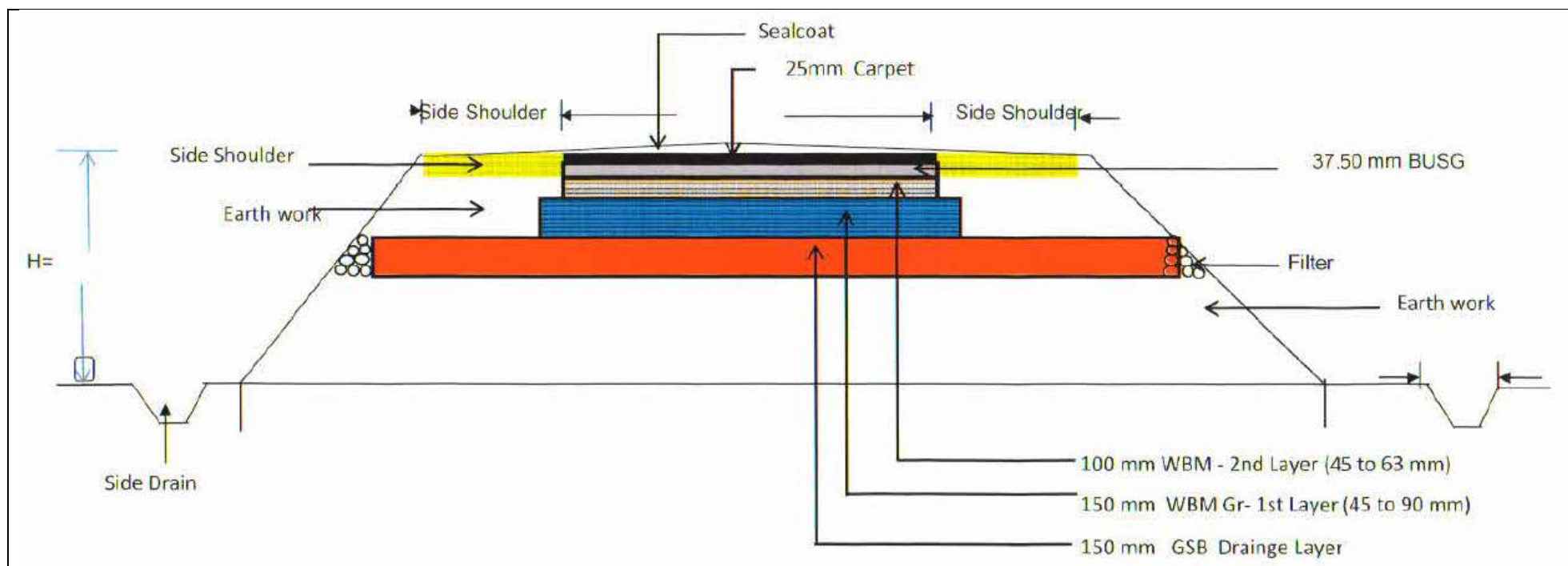


Figure 1: Typical Cross section – Plate 1

Type of road	Existing	Proposed	Cross section
<b>Non Plan Roads</b>			
Connectivity to villages and Hamlets	Earthen surface	BT road	Plate 1
Construction of roads in tribal Areas	Earthen surface	BT road	Plate 1
Construction	Earthen	BT road	Plate 1

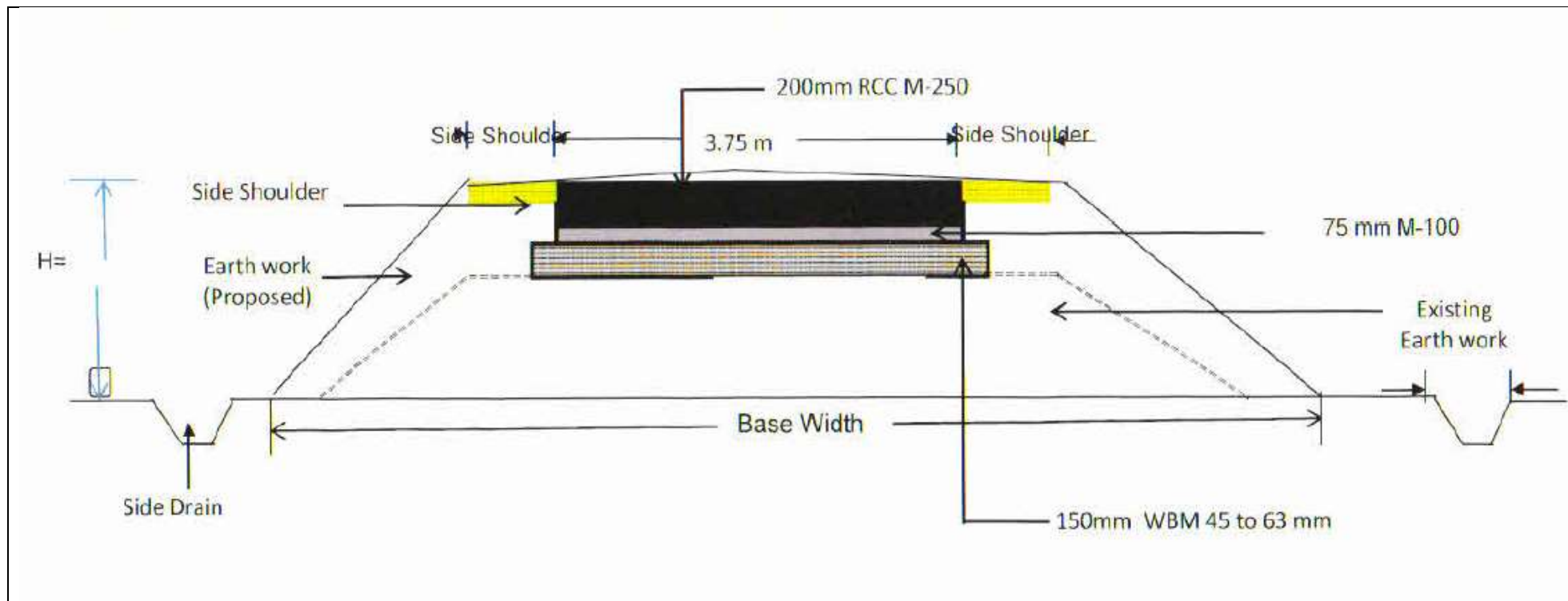


Figure 2: Typical Cross section – Plate 1A

Type of road	Existing	Proposed	Cross section
<b>Non Plan Roads</b>			
Approach to School/Colleges	Earthen surface	RCC road	Plate 1A

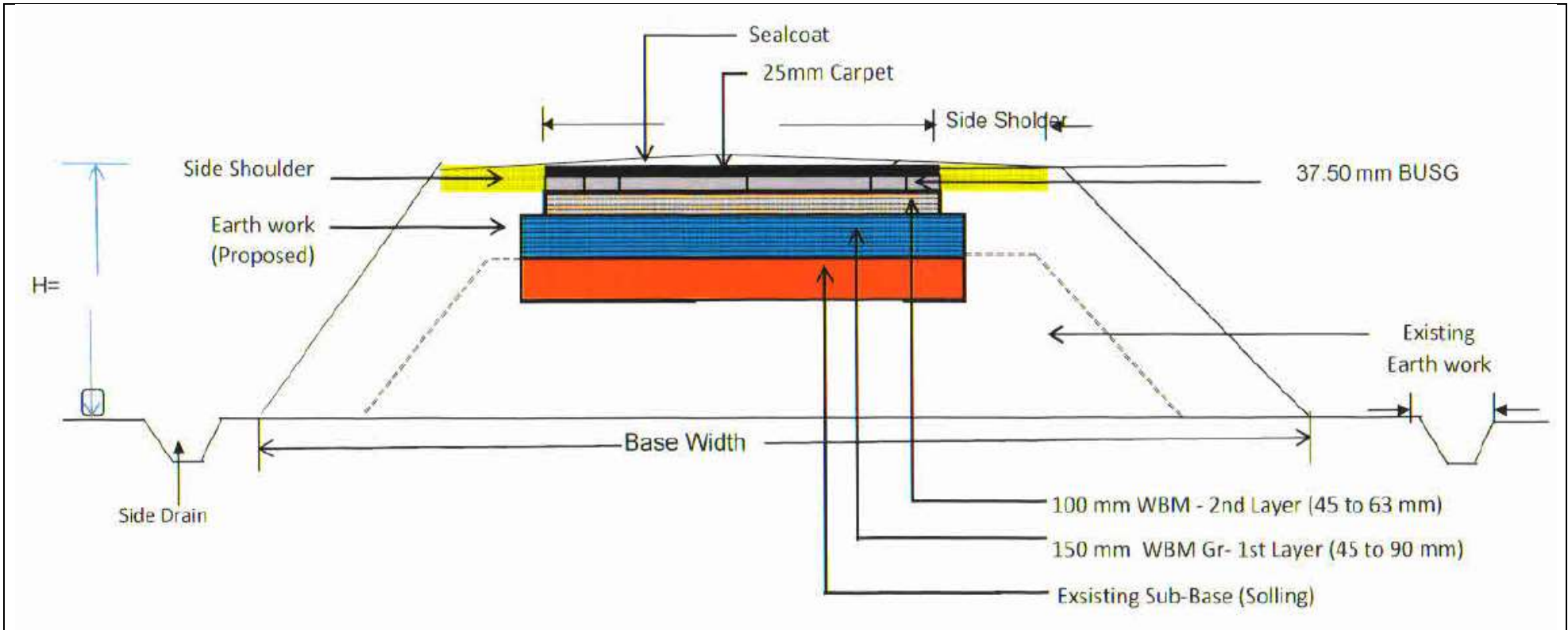
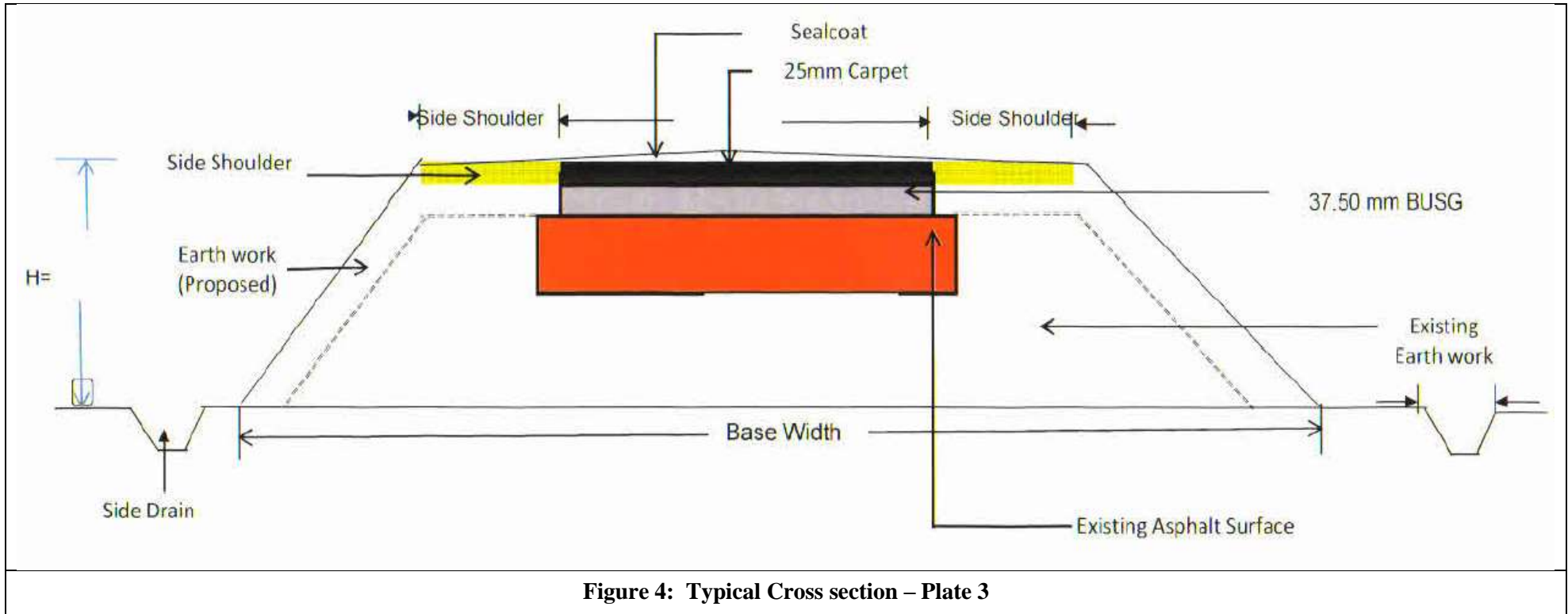


Figure 3: Typical Cross section – Plate 2

Type of road	Existing	Proposed	Cross section
<b>Plan Roads</b>			
Upgradation	Metal	BT road	Plate 2



Type of road	Existing	Proposed	Cross section
<b>Non Plan Roads</b>			
Resurfacing or Maintenance of Existing Roads	Asphalt	Asphalt	Plate 3

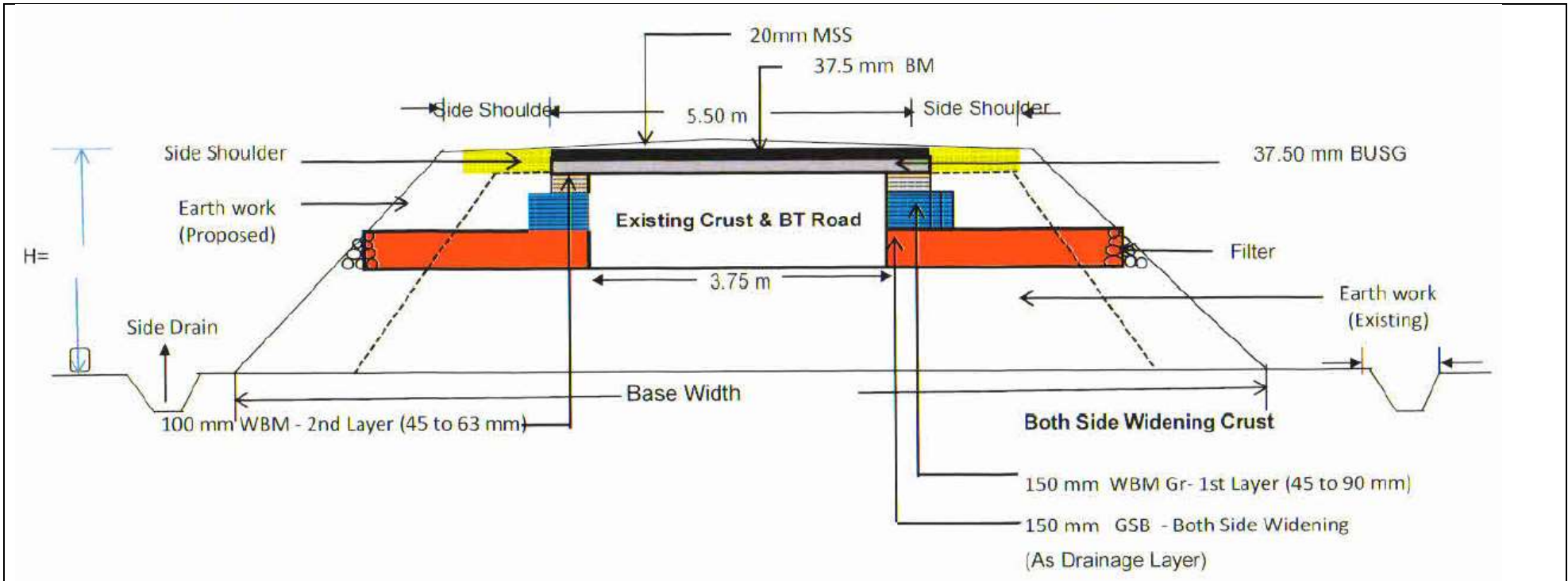


Figure 5: Typical Cross section – Plate 4

Type of road	Existing	Proposed	Cross section
<b>Plan Roads</b>			
Widening of roads	Asphalt	Asphalt	Plate 4



## ANNEXURE 2-1: Form 'A' Forest Clearance

7

### APPENDIX

(See Rule 6)

### FORM – 'A'

#### Form For Seeking Prior Approval Under Section 2 of The Proposals By The State Governments and Other Authorities

#### PART-I

(To be filled up by user agency)

1. Project details:
  - (i) Short narrative of the proposal and project/scheme for which the forest land is required.
  - (ii) Map showing the required forest land, boundary of adjoining forest on a 1:50,000 scale map.
  - (iii) Cost of the project:
  - (iv) Justification for locating the project in forest area.
  - (v) Cost-benefit analysis (to be enclosed).
  - (vi) Employment likely to be generated.
2. Purpose-wise break-up of the total land required:
3. Details of displacement of people due to the project, if any:
  - i. Number of families.
  - ii. Number of Scheduled Castes/Scheduled Tribe families
  - iii. Rehabilitation plan. (to be enclosed)
4. Whether clearance under Environment (Protection) Act, 1986 required? (Yes/ No).
5. Undertaking to bear the cost of raising and maintenance of compensatory afforestation and/or penal compensatory afforestation as well as cost for protection and regeneration of Safety Zone, etc. as per the scheme prepared by the State Government (undertaking to be enclosed).



6. Details of Certificates/documents enclosed as required under the instructions.

Date: \_\_\_\_\_  
letters)  
Palce: \_\_\_\_\_

**Signature**  
(Name in Block  
Designation  
Address (of User Agency)

State serial No. of proposal \_\_\_\_\_

(To be filled up by the Nodal Officer with date of receipt)

**PART-II**

**(To be filled by the concerned Deputy Conservator of Forests)**

State serial No. of proposal \_\_\_\_\_

7. Location of the project/Scheme:

- i. State/Union Territory
- ii. District.
- iii. Forest Division
- iv. Area of forest land proposed for diversion (in ha.)
- v. Legal status of forest
- vi. Density of vegetation.
- vii. Species-wise (scientific names) and diameter class-wise enumeration of trees (to be enclosed. In case of irrigation / hydel projects enumeration at FRL, FRL-2 meter & FRL-4 meter also to be enclosed.)
- viii. Brief note on vulnerability of the forest area to erosion.
- ix. Approximate distance of proposed site for diversion from boundary of forest.
- x. Whether forms part of National Park, wildlife sanctuary, biosphere reserve, tiger reserve, elephant corridor, etc. (If so, the details of the area and comments of the Chief Wildlife Warden to be annexed).



- ii. Forest area of the district.
  - iii. Total forest area diverted since 1980 with number of cases.
  - iv. Total compensatory afforestation stipulated in the district/division since 1980 on
    - (a) forest land including penal compensatory afforestation,
    - (b) non-forest land.
  - v. Progress of compensatory afforestation as on (date) \_\_\_\_\_ on
    - (a) forest land
    - (b) non-forest land.
13. Specific recommendations of the DCF for acceptance or otherwise of the proposal with reasons.

Date: \_\_\_\_\_  
Place: \_\_\_\_\_

**Signature**  
Name  
(Official Seal)

**PART-III**

**(To be filled by the concerned Conservator of Forests)**

14. Whether site, where the forest land involved is located has been inspected by concerned Conservator of Forests (Yes/No). If yes, the date of inspection & observations made in form of inspection note to be enclosed.
15. Whether the concerned Conservator of Forests agree with the information given in Part-B and the recommendations of Deputy Conservator of Forests.
16. Specific recommendation of concerned Conservator of Forests for acceptance or otherwise of the proposal with detailed reasons.

Date: \_\_\_\_\_  
Name  
Place: \_\_\_\_\_  
Seal)

**Signature**  
  
(Official

**PART-IV**

**(To be filled in by the Nodal Officer or Principal Chief Conservator of Forests or  
Head of Forest department)**

17. Detailed opinion and specific recommendation of the State Forest Department for  
acceptance of otherwise of the proposal with remarks.

(While giving opinion, the adverse comments made by concerned Conservator of  
Forests or Deputy Conservator of Forests should be categorically reviewed and  
critically commented upon).

Date: \_\_\_\_\_  
Designation  
Palce: \_\_\_\_\_  
Seal

**Signature**  
Name &  
Official

**PART- V**

**(To be filled in by the Secretary in charge of Forest Department or by any other  
authorised officer of the State Government not below the rank of an Under  
Secretary)**

18. Recommendation of the State Government:

(Adverse comments made by any officer or authority in Part-B or Part-C or Part-D  
above should be specifically commented upon)

Date: \_\_\_\_\_  
Designation  
Palce: \_\_\_\_\_  
Seal)

**Signature**  
Name &  
(Official

**INSTRUCTIONS (for Part-I):-**

1. The project authorities may annex a copy of the approved project/plan in addition to filling Col. 1 (i) e.g. IBM approved mining plan for major minerals/CMPDI plan with subsidence analysis reports, etc.
2. Map has to be in original duly authenticated jointly by project authorities and concerned DCF – Col. 1 (ii).
3. Complete details of alternative alignments examined especially in case of project like roads, transmission lines, railway lines, canals, etc. to be shown on map with details of area of forest land involved in each alternative to be given - Col. 1 (iii).
4. For proposals relating to mining, certificate from competent authority like District Mining Officer about non-availability of the same mineral in surrounding/nearby non-forest areas.
5. In case the same company/individual has taken forest land for similar project in the State, a brief detail of all such approvals/leases be given as an enclosure along with current status of the projects.
6. The latest clarifications issued by the Ministry under Forest (Conservation) Act, 1980 may be kept in mind. In case such information do not fit in the given columns, the same shall be annexed separately.

**GENERAL INSTRUCTIONS:-**

1. On receipt of proposal, Nodal Officer shall issue a receipt to the user agency indicating therein the name of the proposal, user agency, area in hectare, serial number and date of receipt.
2. If the space provided above is not sufficient to specify any information, please attach separate details/documents.
3. While forwarding the proposal to the Central Government, complete details on all aspects of the case as per Form prescribed above read with the clarifications issued by the Ministry of Environment and Forests, Government of India, New Delhi should be given. Incomplete or deficient proposals shall not be considered and shall be returned to the State Government in original.

## ANNEXURE 3-1: Memorandum of Understanding-Individual Encroacher

### MEMORANDUM OF UNDERSTANDING

*(in case signing is done individually)*

This memorandum of understanding is made on \_\_\_\_\_ day of \_\_\_\_\_ 2005 between Sri/Srimati \_\_\_\_\_ resident of \_\_\_\_\_ (hereinafter referred to as “the First Party”) and the Governor of (State) through Sri/Srimati \_\_\_\_\_ (designation) \_\_\_\_\_ (hereinafter referred to as “the Second Party”).

### THESE PRESENTS WITNESS AS FOLLOW:

1. That the First Party is landowners with transferable right of \_\_\_\_\_ acres of land bearing khasra Nos \_\_\_\_\_ in village \_\_\_\_\_ block \_\_\_\_\_, tehsil \_\_\_\_\_, district \_\_\_\_\_.
2. That the First Party has taken part in the transect walk conducted under the requirements of the Mukhya Mantri Gram Sadak Yojana (MMGSY) and has been made to understand the benefits of obtaining a rural road for the village under MMGSY.
3. That the First Party hereby grants to the Second Party, out of its free will, above said land for the construction and development of MMGSY rural road in the village \_\_\_\_\_ under \_\_\_\_\_ Panchayat for the benefit of the villagers and the public at large.
4. That the First Party would not claim any compensation against the above said grant of land.
5. That the Second Party agrees to accept the above grant of land for the purposes mentioned in Clause 3.
6. That the Second Party shall construct and develop the MMGSY road and take all possible precautions to avoid damage to land adjacent to MMGSY road.
7. That the First Party also assures the Second Party that the first party will not indulge in any willful act of damaging the MMGSY road or obstructing the movement of public and vehicles on the MMGSY road.
8. That both the Parties hereto agree that the MMGSY road so constructed/developed shall be public premises.
9. That the provisions of the MEMORANDUM OF UNDERSTANDING will come into force and effect from the date of signing of this deed.

IN WITNESS WHEREOF the Parties hereto have signed this deed on the day and the year first above written.

Signatures of the First Party

Signature for and on behalf of the Second Party

\_\_\_\_\_

\_\_\_\_\_

**Witnesses:**

**Witnesses:**

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_

(Signature, name and address)

(Signature, name and address)

Note: The witnesses will include the panchayat head and the Junior Engineer conducting the transect walk. More witnesses can be added – including NGOs, village elders etc.



## ANNEXURE 3-1a Memorandum of Understanding- Community Encroacher

### MEMORANDUM OF UNDERSTANDING

The memorandum of understanding is made on \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ between the persons listed below on the one part (hereinafter collectively referred to as “the First Party”) and the Governor of (State) through Sri/Srimati \_\_\_\_\_ (designation) \_\_\_\_\_ (hereinafter referred to as “the Second Party”).

1. That the First Party is the encroacher of Government land of the respective acres (**OR OTHER UNITS AS APPLICABLE**) of land as listed below in village \_\_\_\_\_, block \_\_\_\_\_, tehsil \_\_\_\_\_, district \_\_\_\_\_.
2. That the First Party has taken part in the transect walk conducted under the requirements of the Mukhya Mantri Gram Sadak Yojana (MMGSY) and has been made to understand the benefits of obtaining a rural road for the village under MMGSY.
3. That the First Party hereby will willingly leave their existing land as detailed in the list below for the construction and development of MMGSY rural road in the village \_\_\_\_\_ under \_\_\_\_\_ Panchayat, for the benefit of the villagers and the public at large on which they had encroached on to the Second Party.
4. The first party/would not claim any compensation in return since leaving their encroached land is not related to their existing livelihood.
5. That the Second Party agrees to clause 3.
6. That the Second Party shall construct and develop the MMGSY road and take all possible precautions to avoid damage to land adjacent to MMGSY road.
7. That the First Party also assures the Second party that the first party will not indulge in any wilful act of damaging the MMGSY road or obstructing the movement of public and vehicles on the MMGSY road.
8. That both the Parties hereto agree that the MMGSY road so constructed/developed shall be public premises.
9. That the provisions of the MEMORANDUM OF UNDERSTANDING will come into force and effect from the date of signing of this deed.

Sl. No.	Name	Area Encroached (m <sup>2</sup> )/Acre	Description of land granted for MMGSY Rural Road

*(add as many more who are giving up their claim on the above said land)*

IN WITNESS WHEREOF the Parties hereto have signed this deed on the day and the year first above written.

**Signatures of the First Party**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

(All the signatures of the First Party should be obtained)

**Signature for and on behalf of the Second Party**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Witnesses:**

1. \_\_\_\_\_
2. \_\_\_\_\_

3. \_\_\_\_\_
4. \_\_\_\_\_

(Signature, name and address)

(Signature, name and address)

Note: The witnesses will include the panchayat head and the Junior Engineer conducting the transect walk. More witnesses can be added – including NGO's, village elders etc.

## ANNEXURE 3-2: Rural Roads - Environment Checklist for Bridges Longer than 15 m

**STATE:**

Name of district:

Name of Road:

Bridge No.

**BATCH:**

Name of Block:

Package No.:

Length of Bridge:

<b>A: Climatic Condition</b>		
Temperature	High:	Low:
Rainfall Rainy Season	From:	To:
<b>B. Location of the Bridge and Generic Description of Environment</b>		
<i>Item No.</i>	<i>Item</i>	<i>Description and Field Notes</i>
1.	What is the type of water body where the bridge will be constructed/ rehabilitated? [ ] River/Stream [ ] Wetland	
2.	What is the approximate width of the water body? (Wetland, River/Stream)	
3.	What is the temporal flow pattern of the water body? [ ] Perennial [ ] Non-perennial	
4.	Type of terrain [ ] Plain [ ] Hilly	
5.	Dominant land use or vegetation covers where the bridge will be located. [ ] Forest [ ] Agricultural [ ] Grassland/shrubland [ ] Built-up [ ] Wetland [ ] Others (Specify _____)	

<b>C. Beneficial Uses of the Water Body</b>		
<i>Item No.</i>	<i>Item</i>	<i>Description and Field Notes</i>
6.	What are the beneficial uses of the water body to the nearby communities? [ ] Drinking and other domestic uses [ ] Agricultural (e.g. irrigation, animal bathing) [ ] Bathing and swimming [ ] Fishing [ ] Religious [ ] Transportation/navigation	
7.	Based on the answer in Item C.6 please specify and ask local people the locations of the following: i. Locations for collecting drinking water and bathing ghats _____ meters upstream/downstream LHS/RHS facing the direction of flow	

C. Beneficial Uses of the Water Body		
Item No.	Item	Description and Field Notes
	ii. Location of animal bathing/drinking a) (both sides) upstream/downstream LHS/RHS facing the direction flow b) List of animals drinking/bathing (e.g. buffalo, carabao, duck, goat)	
	iii. Location of fishing area meters upstream/downstream LHS/RHS facing the direction flow	
	iv. Location of irrigation off-take meters upstream/downstream LHS/RHS facing the direction flow	
	v. Location of each temples, shrines, and other places of worship within 100 meters up- and downstream of bridge, type of religious activity, and schedule. meters upstream/downstream LHS/RHS facing the direction flow, type of religious activities (worship, wedding, burial), and when activities are held	

D. Specific Description of the Bridge Environment				
Parameter/Component		Yes	No	Explanation
1.	Are there historical records or personal accounts of flooding caused by the water body (e.g. breach of embankment within 100 meters up- and downstream of the bridge)? Please explain the occurrence of flooding, the latest flooding, and high flood level.			
2.	Is there any visible riverbank erosion/scouring within 100 meters up- and downstream of the bridge?			
3.	Are there any utilities (electricity, telephone, water, water supply, drainage) that will be affected?			
4.	Are there any trees with dearth of 30 cm that will be cleared in the upgrading/construction of bridge approaches?			
5.	Is the water body known to be a faunal habitat, threatened flora, and wildlife breeding ground, or migration route?			
6.	Are there any community structures that will be affected in the upgrading/construction of the bridge approaches?			

**E. Public Consultation**

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the location of the bridge? <i>(Attach list of people met and dates)</i>			
2.	Any suggestion received in finalization of bridge design and location?			
3.	If suggestions received, were they incorporated into the design?			

## ANNEXURE 3-3: Format for Recording Transect Walk & Consultations with the Affected Persons

1.	Name of Road	:	
2.	Villages	:	
3.	Gram Panchayat	:	
4.	Block	:	
5.	District	:	
6.	Date; Time	:	
7.	Total Number of Participants in the Transect walk	:	
8.	Issues and suggestions raised by the Participants:		
(i)	Road alignment and design in general <small>[PIUs to consult prompt list in Annex 3(b)]</small>	:	•
(ii)	Road width and land availability	:	•

<i>Insert Photograph (Start Point)</i>	<i>Insert Photograph (End Point)</i>
<b>Start Point</b>	<b>End Point</b>

(iii)	Sensitive locations (forests, cultural properties, etc)	:	•
-------	---	---	---

Sl. No.	Chainage	Side	Sensitive Locations

<i>If applicable, please Insert Photograph (forests, cultural properties, etc)</i>	<i>If applicable, please Insert Photograph (forests, cultural properties, etc)</i>
<b>Caption of the Photograph</b>	<b>Caption of the Photograph</b>

iv)	Water-related issues [drainage lines, rivers and water crossings, irrigation water courses, other water bodies, etc.]	:	•
-----	---	---	---

Sl. No.	Chainage (in km)	Existing Culverts

<i>If applicable, please Insert Photograph [drainage lines, rivers and water crossings, irrigation water courses, other water bodies, etc.]</i>	<i>If applicable, please Insert Photograph [drainage lines, rivers and water crossings, irrigation water courses, other water bodies, etc.]</i>
<b>Caption of the Photograph</b>	<b>Caption of the Photograph</b>

(v)	<b>Road safety-related issues</b> [major junctions, curves, bends, etc.]	:	•
(vi)	<b>Other suggestions</b> [such as regarding cattle crossing, borrow-pits, etc.]	:	•
<b>9.</b>	<b>Major outcomes of the Transect Walk:</b>		
(i)	Changes to be incorporated in the Design	:	•

<i>Please Insert Photograph</i>	<i>Please Insert Photograph</i>
<b>Existing condition of the road</b>	

(ii)	Extent of land take and willingness /unwillingness of land owner / users for donation	:	• No additional land would be required for the proposed project.
(iii)	Environment issues to be resolved	:	• No trees located along the alignment would be affected due to the project.

<i>Please Insert Photograph</i>	<i>Please Insert Photograph</i>
<b>Chainage wise Caption of the Photograph</b>	<b>Chainage wise Caption of the Photograph</b>

(iv)	Other issues	:	•
------	--------------	---	---

<i>Please Insert Photograph</i>	• <i>Please Insert Photograph</i>
<b>Consultation with the local community</b>	

The road alignment will be finalized with the best efforts to address the above issues.

Countersigned	
(Signature & Name) Sarpanch/Secretary, Gram Panchayat (Name)	(Signature & Name) AE/JE, GSRRDA

**CHAINAGE WISE TRANSECT WALK FINDINGS**

Chainage		Existing Land Width*	Additional Land Required		Type of Impact		Remarks/Suggestions
From	To		LHS	RHS	LHS	RHS	
0+000	0+200						•
0+200	0+400						•
0+400	0+600						•
0+600	0+800						•
							•
							•
							•
							•





## ANNEXURE 3-4: Format for Documenting & Displaying Details of Project Affected Person

### (Socio Economic Survey)

District:

Tehsil:

Block:

Name of Subproject Road:

Road No.:

Total length (in km): ----- km

### Details of Project affected person (PAP)

S. No.	Village name	Name of the PAP	Vulnerable Category*						Total Land Holding Size/Plot Size (SQ M)			Type of Impact							Land (SQ M) (Size of Residual Holding)			Extent of Impact Structure (sq m)	Ownership (Titleholder, Squatter, Encroacher, Tenant)		
			Scheduled Caste	Scheduled Tribe	Below Poverty	HH becoming BPL	Female headed Household	Disabled Households losing structure (Resi, Commercial, R+C, boundary / Fence)	Agriculture	Residential	Commercial	Land**			Structure Size (Sq m)	Partial*** / Total			CPR, trees, crops (specify)	Agriculture	Residential			Commercial	
												Agriculture	Residential	Commercial		Agriculture	Residential	Commercial							Agriculture
1																									
		Total																							

\*Fill Yes /No in Vulnerable category

\*\* Fill Yes /No in type of Land

\*\*\* Fill "P" for partial

Responsible agency/Person: GSRRDA, Gram Panchayat (Sarpanch and other members)

## ANNEXURE 3-5 Community Consultation Format

---

### GUJARAT STATE RURAL ROAD DEVELOPMENT AUTHORITY ROADS AND BUILDINGS DEPARTMENT, GOVT. OF GUJARAT GUJARAT RURAL ROADS (MMGSY) PROJECT,

#### Introduction

- Government of Gujarat (GoG) through Gujarat State Rural Roads Development Authority (GSRRDA) of Roads and Buildings Department (R&BD) is extending its rural road network to the villages and habitations through this new flagship programme - Mukhya Mantri Gram Sadak Yojana (MMGSY).
- Under MMGSY, those habitations will be connected which are having less than 500 population and which were not previously covered under Pradhan Mantri Gram Sadak Yojana (PMGSY).
- R&BD-GoG is partnering with Asian Infrastructure Investment Bank (AIIB) to take the MMGSY forward. Accordingly, GoG has planned for an estimated total investment of INR 10,000 crores in three years and has apportioned a budget for INR 2500 crores for the year 2016-17.
- The key environmental and social issues associated with the Project have been studied through a rapid assessment of environmental and social scenario specific to Gujarat Rural Roads (MMGSY) Project and has been utilised in formulating this Social Management Framework. **The assessment included series of stakeholder consultations, on-site observations of completed/on-going and proposed sub-project locations and also through public consultations.**
- The ESMF provides guidance on development of an ESIA. The ESMF also provides a generic ESMP. On completion of ESIA, both the ESMF and ESMP will be updated.

#### Discussion Points – General

- Awareness and opinion about the project
- Consultation with all affected persons to identify the impact on their assets and assess their entitlements
- To discuss the issues of encroachments and infringements along the selected corridors and/or alignments
- Complaints, disputes, and monitoring of the outcomes

#### Discussion Points for Temporary Shelters/Shops and Livelihood:

- In the event of partial losses to structures or temporary impact on livelihood due to the proposed road development initiative, the affected people shall be informed by serving advance notice of one-to-three months, depending upon the severity of damage.

- In case of physical relocation is unavoidable, Gram Panchayat shall be encouraged to identify a suitable location either in government / Panchayat / Community land after proper consultation with project affected person.
- Type of crops cultivated in a year [average farm-gate price of various crops cultivated, marketing centers, area of cultivation]
- Details regarding cropping pattern [number of crops in a year, any share-cropping pattern, usual arrangement of share-cropping or contract farming]
- Dependence on Bore-wells or other irrigation facilities [arrangement for bore-well or other irrigation facilities] – Cost of Bore-well or other irrigation facilities – cost sharing pattern

**Discussion Points – Religious Structures / Common Property Resources**

- Extent of impact in terms of securing land – damage to structure – impact on other assets, etc.
- Age of the structure – important festivals/events of pilgrim/tourist attraction - period of such celebrations – pilgrim/tourist population
- Relocation of religious properties / common property resources – Involvement of Panchayats – Any community based organizations
- Any unavoidable impact on such resources shall be adequately mitigated by the Gram Panchayat in consultation with the local community.

**Participant Details [Road Name \_\_\_\_\_ Village \_\_\_\_\_; Date \_\_\_\_\_; Venue \_\_\_\_\_]**

Sl. No.	Name	Contact Number	Signature

## ANNEXURE 4.1: Environmental and Social Baseline

As the project corridors are spread all across the state of Gujarat, the environmental and social baseline has been assessed for the entire state. Information collected from secondary and primary sources has been utilized for evaluating the existing environmental and social condition.

### 1.1 Environmental Baseline

#### 1.1.1 Climate

Gujarat has a tropical climate with hot summers and cold winters. The year can be divided into: the winter season from November to February, the hot season from March to May, the south-west monsoon season from June to September and the intervening month of October. Gujarat receives its rainfall from the southwest monsoon [June to September]. The annual rainfall varies between 300mm in the North to 2500 mm in the South. The summer months are from April to June with temperatures ranging from 27°C to 42°C. Winters are better with a temperature variance of 14°C to 29°C. The relative humidity in all parts of the State is low.

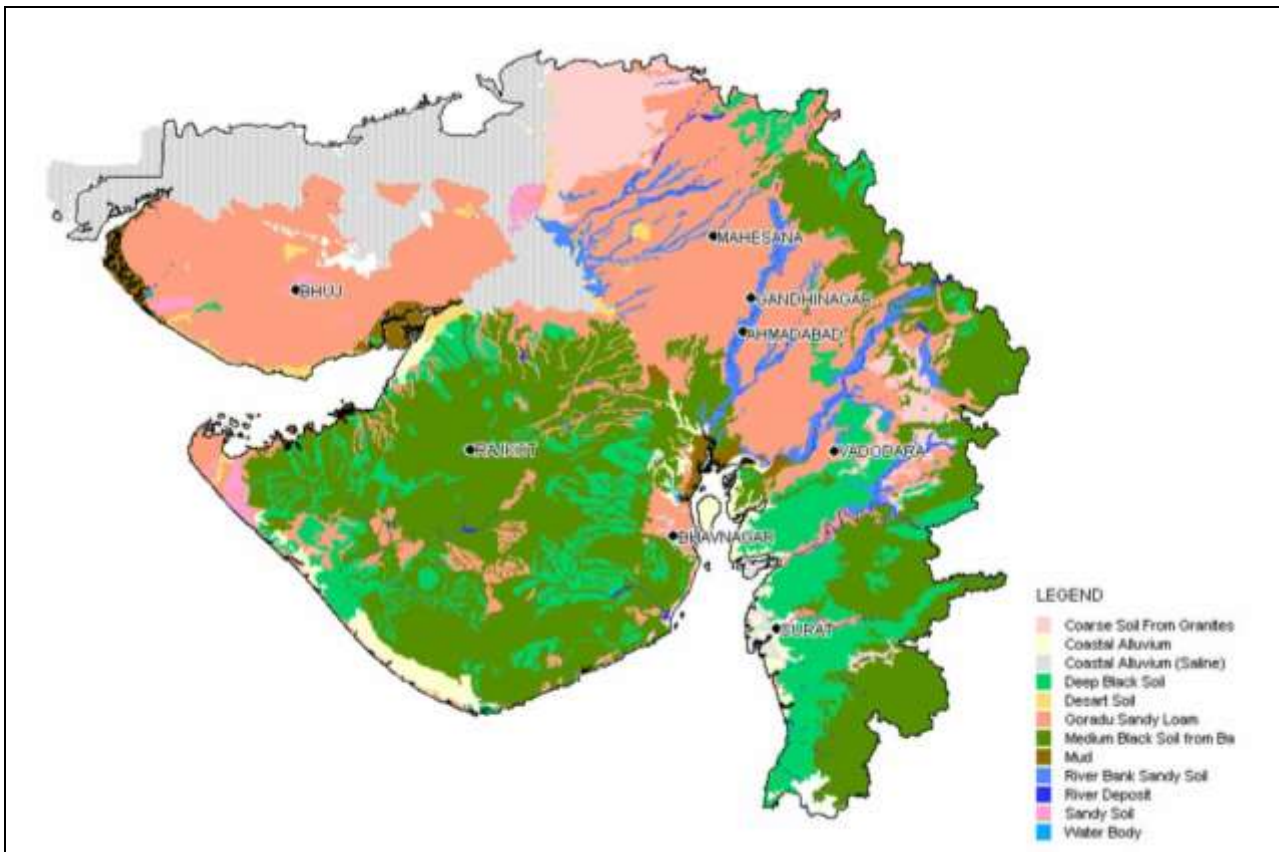
#### 1.1.2 Physiography

The state has been divided into five major physiographic divisions:

- **Alluvial Plains:** These extend in North Gujarat to Valsad in the south, and westwards to the little Rann and Banni area of Kachchh.
- **The Eastern hilly tract:** This tract lies between the altitude of 300-1400 m and forms a major divide.
- **Uplands of Kachchh and Saurashtra:** These are upland consisting of sandstone, shale and basalt rock with elevations of about 150-500 m sloping radically towards the coast, the Gimar hill forest is at an elevation of 1117 m.
- **The low-lying coastal tract** ranges in elevation from 3-25 m surrounding the Kachchh and Saurashtra uplands. These low-lying areas extend from Rann of Kachchh to little Rann of Kachchh and to the low-lying delta region of Bhadar, Bhogavo Sabarmati, Mahi, Dhadar, Narmada and Tapi rivers.
- **The Rann and little Rann of Kachchh** are a vast expanse of saline wilderness which extend into the saline Tracts around the Gulf of Khambhat. The general elevation of this tract varies between 1-4 m.

#### 1.1.3 Soil

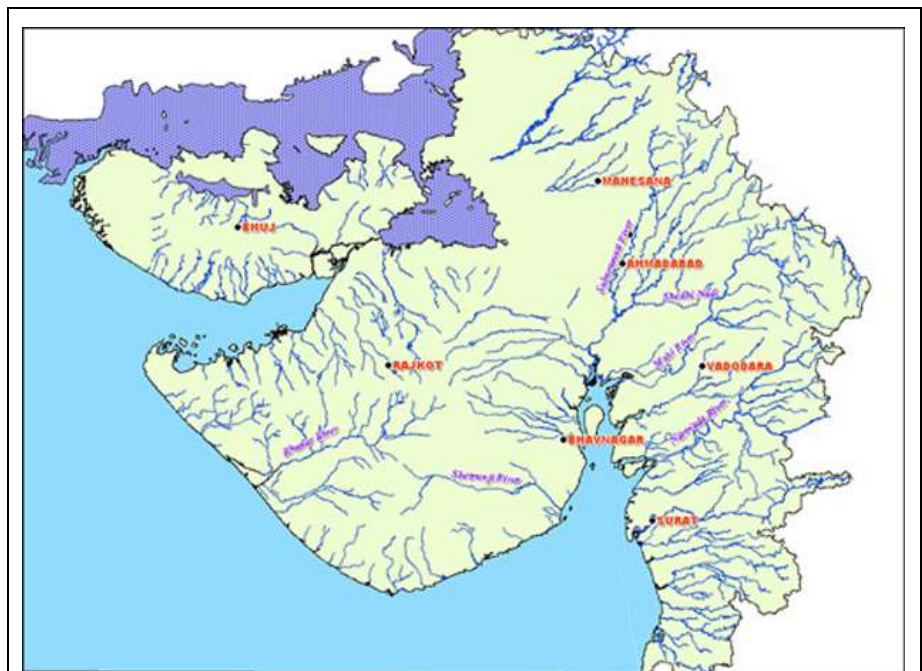
The predominant soil types in Gujarat are Brown Soil, Black Soil and alluvium. The region wise distribution of soil type for the state has been given in following **Figure 1**.



**Figure 1: Soil Map of Gujarat**

**1.1.4 Drainage**

The rivers Banas, Sabarmati, Mahi, Narmada and Tapi are the important drainage lines of the Gujarat plain draining into the Gulf of Khambatt while the rivers Bhadar, Ojat and Shetrunji are those of the Kathiawar peninsula draining into the Arabian sea. There are few seasonal and small rivers draining into the Gulf of Kachchh.



**Figure 2: Drainage Map of Gujarat**

**1.1.5 Floral**

**Forest Cover in Gujarat**

The Net Forest Cover in the state has increased by 3245 sq. km continuously from 1991 to 2001. The Details of forest cover of the state in 2001 as per the report of Forest Survey of India 2001 are shown in **Table 1**.

**Table 1: Present Status of Forest Cover in Gujarat in 2001**

Type of forest cover	Area in sq.km
Dense Forest	8,673
Open Forest	6,479
Sub Total	15,152 (7,7 % of total geographical area)
Scrub	2408
Total Area	<b>17,560</b>

Gujarat has about 17560 sq.km of land under forest. A large part of the forest cover which is economically exploitable is distributed in the districts of Dangs, Panchmahals, Bharuch, Surat, Valsad, Junagadh, Sabarkantha and Banaskantha. Dangs, Surat and Bharuch which are the three southern districts of the state, have a sizable area under forest. The districts of Panchmahals and Sabarkantha in northeast Gujarat and Junagadh in Saurashtra are other important areas of forest cover. The south and southeastern parts of the state support the growth of a tropical deciduous forest typified by teak, Shorearobusta for which the district of Valsad is well known

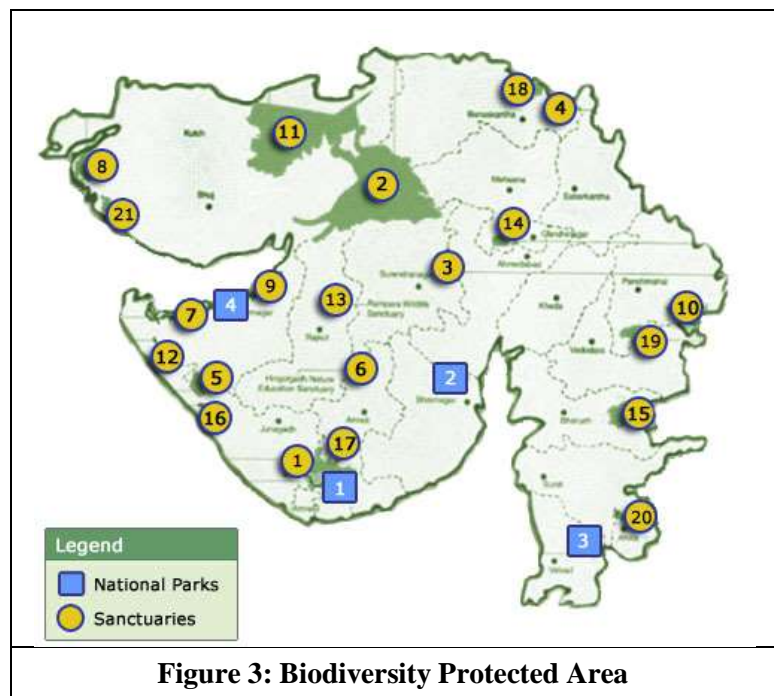
**1.1.6 Fauna**

Though, Gujarat has saved many known endangered and threatened species from getting extinct such as Asiatic Lion, Leopard, Indian Crocodile, The Wild-Ass, Indian Wolf, Black-buck, Chinkara, Great Indian Bustard, Lesser Florican, etc. populations of many species particularly Tiger and its associate species in south and eastern Gujarat and those of birds and plants, are declining.

Gujarat is home to several species of avian fauna, some of the most commonly occurring avian fauna family being herons, storks, spoonbills, flamingoes, grebes, pelicans, pheasants, quails, water hens, bustards, jacanas etc.

**1.1.7 Biodiversity (Protected Areas)**

The protected area (PA) network of the State of Gujarat comprises of 26 PAs including 22 Sanctuaries and 4 National Parks having total area of 16422.71 sq.km. (8.37%) and 479.67 sq.km.(0.24%), respectively. Though, the geographical area of Gujarat is only 5.9% of the total area of India, it contributes 11.37% (16902.38 sq. km.) area to the total PA (148532 sq.km) of the country. List of protected area is given in the Table 2.



**Figure 3: Biodiversity Protected Area**



**Table 2: List of Protected Areas**

Name of Park	Year of Estt	Area in Sq.Kms.	Location	Major Species
Gir National Park	1975	258.71	SasanGir, Dist : Junagadh	Lion, Leopard, Chital, Chausinga, Hyena, Sambar, Chinkara, Herpetofauna, Crocodiles and birds.
Black National Park	1976	34.08	Velavader, Dist : Bhavnagar	
Vansda National Park	1979	23.99	Vansda, Dist: Navasari	Leopard, Hyena Chital, Chausinga, Birds, Herpetofauna
Marine National Park	1982	162.89	Gulf of Kachchh, Dist : Jamnagar	Sponges, Corals, Jelly fish, Sea horse, Octopus, Oyster, Pearl oyster, Starfish, Lobster, Dolphin, Dugon, Waterfowls.
Name of Sanctuary	Year of Estt	Area in Sq.Kms.	Location	Major Species
Gir Wild Life Sanctuary	1965	1153.42	SasanGirDist: Junagadh, Amreli	Lion, Leopard, Chausinga, Chital, Hyena, Sambar, Chinkara, Herpetofauna, Crocodiles and birds
Wild Ass Sanctuary	1973	4953.7	Little Rann of Kachchh	Wild Ass, Chinkara, Blue bull, Houbara bustard, Wolf, Waterfowls, Herpetofauna
NalSarovar Birds Sanctuary	1969	120.82	NalSarovarDist:Amdavad&Surendranagar	Flamingos, Pelicans, Coot, ducks, waders, storks, Herons and other spp. of waterfowls, Herpetofauna
Jessore Bear Sanctuary	1969	120.82	NalSarovarDist:Amdavad&Surendranagar	Flamingos, Pelicans, Coot, ducks, waders, storks, Herons and other spp. of waterfowls, Herpetofauna
Barda Wild Life Sanctuary	1979	192.31	HingolghadhDist:Rajkot	Leopard, Blue bull, Hyena, wild boar, Jackal, Birds, Herpetofauna
Hingolghadh Sanctuary	1980	6.54	HingolghadhDist: Rajkot	Chinkara, Blue bull, Wolf, Hyena, Fox, Birds, Herpetofauna
Marine Sanctuary	1980	295.03	Gulf of KachchhDist: Jamnagar	Sponges, Corals, Jellyfish, Sea horse, Octopus,Oyster, Pearloyster, Starfish, Lobster, Dolphin, Dugong, waterfowls
Narayan SarovarSanctuary	1981	444.23	Narayan SarovarDist: Kachchh	Chinkara, Caracal, Desert Cat, Hyena, Desert Fox,Jackal, Birds, Herpetofauna
Khijadia Bird Sanctuary	1981	6.05	KhijadiaDist: Jamnagar	Indian Skimmer, Ibises, Painted stork, Cormorants, etc. App. 220 spp. of birds, Herpetofauna
Ratanmahal Sanctuary	1982	55.65	RatanmahalDist: Dahod	Sloth bear, Leopard, Hyena, Jackal, Chausinga, Civet Cat, Jungle cat, Birds, Herpetofauna
Kutch Desert Sanctuary	1986	7506.22	Great Rann of Kachchh	Chinkara, Hyena, Fox, Flamingo, Pelicans & other waterfowls, Herpetofauna
Gaga Wild Life Sanctuary	1988	3.33	Gaga Dis: Jamnagar	Great Indian Bustard, Wolf, Jackal, Birds, Herpetofauna
Rampara Sanctuary	988	15.01	RamparaDist: Rajkot	Blue bull, Chinkara, Wolf, Fox, Jackal, Birds, Herpetofauna
Thol Lake Bird Sanctuary	1988	6.99	TholDist: Mahesana	Cranes, Geese, Famingos, Sarus and app. 125 spp. of other waterfowls
Shoolpaneshwar Sanctuary	1982	607.7	Dist: Narmada	Sloth bear, Leopard, Rhesus macaque, Chausinga, Barking deer, Pangolin, Herpetofauna, birds including Alexandrian parakeet
Porbandar Birds Sanctuary	1988	0.09	PorbandarDist: Porbandar	Flamingos, Pelicans, Spoonbill and various bird spp.
Pania Wild Life Sanctuary	1989	39.63	Dist: Amreli	Lion, Chinkara, Leopard, Chital, Hyena, wild board, four horned antelope, pangolin, Blue bull, birds
BalaramAmbaji Sanctuary	1989	542.08	Dist: Banaskantha	Sloth bear, Leopard, Blue bull, Hyena, Wolf, Jungle cat, Birds, Herpetofauna
Jambuhoda Sanctuary	1990	130.38	JambughodaDist: Panchmahal	Sloth bear, Leopard, Jungle cat, Hyena, Wolf, Four Horned Antelope, Herpetofauna, Birds
Purna Wild Life Sanctuary	1990	160.84	Dist: Dangs	Leopard, Barking deer, macaques, Four horned antelope, Sambhar, Hyena, Herpetofauna, birds
Kutch Bustard Sanctuary	1992	2.03	Near NaliyaDist: Kachchh	Great Indian Bustard, Lesser Florican, Houbara bustard, Chinkara, Blue bull, Herpetofauna
Mitiyala Wildlife Sanctuary	2004	18:22	MitiyalaDist: Amerli	Lion, Leopard, Chital, Blue bull, Pangolin, Sambar,Chinkara, Herpetofauna, Birds

Source: Forest Department, GoG

## 1.2 Socio-Economic Baseline Profile

### 1.2.1 Demographic Profile

Gujarat is the 9th biggest state in the country in terms of population. It has a population of 60.04 million, as per 2011 census (refer **Table 5**), which is approximately 5% of total population of India.

In terms of area, the state stands at 6th position in the country, with 1,96,024 sq.km. Rural Population of Gujarat is 34.69million as against the urban population of 25.74 million, as per 2011 Census. The state's urban population is well above the national average of 31.16% as per 2011 census, taking the position of the state at 5th in terms of urbanization, amongst all the states of India.

**Table 3: Gujarat Population 2011 – Total, Urban and Rural**

Parameter	Population (in numbers)	Population (in Percentage)
Urban	2,57,45,083	42.5
Rural	3,46,94,609	57.5
<b>Total</b>	<b>6,04,39,692</b>	<b>100.0</b>

Source: Census 2011

### 1.2.2 Schedule Caste and Schedule Tribe Population

As per Census 2011, primarily, the predominant group amongst the social groups is that of ST community i.e. 14.8 percent of total population.

**Table 4: Schedule Caste and Schedule Tribe Population**

Population	Rural ST Population (number)	Urban ST Population (number)	Total Population (number)	Total SCT/ST population as % of Total Population
Total ST population	8021848	895326	8917174	14.8
Total SC population	2281573	1792874	4074447	6.7
Total Gujarat Population	3,46,94,609	2,57,45,083	6,04,39,692	

Source: Census 2011



**Table 5: District wise Population Profile - Urban, Rural, SC& ST and Total Population**

Sr No.	District	2011		2011		2011		2011		2011	
		Total Population (number)	Total Population (%)	Rural Population (number)	Rural Population (%)	Urban Population (number)	Urban Population (%)	SC Population (number)	SC Population (%)	ST Population (number)	ST Population (%)
1	Ahmadabad	70,45,313	11.66%	10,17,161	1.68%	60,28,152	9.97%	7,47,806	1.24%	88,911	0.15%
2	Amreli	15,14,190	2.51%	11,27,555	1.87%	3,86,635	0.64%	1,32,915	0.22%	7,322	0.01%
3	Anand	20,92,745	3.46%	14,57,758	2.41%	6,34,987	1.05%	1,04,465	0.17%	24,824	0.04%
4	Aravalli	10,39,918	1.72%	9,13,356	1.51%	1,26,562	0.21%	62,223	0.10%	2,13,913	0.35%
5	Banaskantha	31,20,506	5.16%	27,05,591	4.48%	4,14,915	0.69%	3,27,460	0.54%	2,84,155	0.47%
6	Bharuch	15,51,019	2.57%	10,26,060	1.70%	5,24,959	0.87%	62,235	0.10%	4,88,194	0.81%
7	Bhavnagar	23,93,272	3.96%	13,85,518	2.29%	10,07,754	1.67%	1,25,441	0.21%	8,039	0.01%
8	Botad	6,56,005	1.09%	4,46,463	0.74%	2,09,542	0.35%	43,270	0.07%	1,298	0.00%
9	Chhota Udaipur	10,71,831	1.77%	9,99,416	1.65%	72,415	0.12%	25,279	0.04%	8,56,862	1.42%
10	Devbhoomi Dwarka	7,52,484	1.25%	5,10,689	0.84%	2,41,795	0.40%	50,937	0.08%	9,687	0.02%
11	Dahod	21,27,086	3.52%	19,35,461	3.20%	1,91,625	0.32%	41,444	0.07%	15,80,850	2.62%
12	Gandhinagar	13,91,753	2.30%	7,91,126	1.31%	6,00,627	0.99%	1,08,608	0.18%	18,204	0.03%
13	Gir Somnath	12,17,477	2.01%	8,84,468	1.46%	3,33,009	0.55%	1,13,822	0.19%	17,761	0.03%
14	Jamnagar	14,07,635	2.33%	6,78,365	1.12%	7,29,270	1.21%	1,22,958	0.20%	14,500	0.02%
15	Junagadh	15,25,605	2.52%	9,52,202	1.58%	5,73,403	0.95%	1,51,971	0.25%	37,810	0.06%
16	Kachchh	20,92,371	3.46%	13,63,836	2.26%	7,28,535	1.21%	2,58,859	0.43%	24,228	0.04%
17	Kheda	20,53,769	3.40%	15,79,728	2.61%	4,74,041	0.78%	98,686	0.16%	37,310	0.06%
18	Mahesana	20,35,064	3.37%	15,20,734	2.52%	5,14,330	0.85%	1,62,288	0.27%	9,392	0.02%
19	Mahisagar	9,94,624	1.65%	8,88,637	1.47%	1,05,987	0.18%	50,862	0.08%	3,50,217	0.58%
20	Morbi	9,60,329	1.59%	6,01,909	1.00%	3,58,420	0.59%	65,698	0.11%	5,159	0.01%
21	Narmada	5,90,297	0.98%	5,28,425	0.87%	61,872	0.10%	8,733	0.01%	4,81,392	0.80%
22	Navsari	13,29,672	2.20%	9,20,535	1.52%	4,09,137	0.68%	35,464	0.06%	6,39,659	1.06%
23	Panch Mahals	16,42,268	2.72%	13,63,860	2.26%	2,78,408	0.46%	66,529	0.11%	3,74,413	0.62%
24	Patan	13,43,734	2.22%	10,62,653	1.76%	2,81,081	0.47%	1,23,408	0.20%	13,303	0.02%
25	Porbandar	5,85,449	0.97%	2,99,775	0.50%	2,85,674	0.47%	51,830	0.09%	13,039	0.02%
26	Rajkot	30,15,229	4.99%	11,27,575	1.87%	18,87,654	3.12%	2,35,749	0.39%	19,160	0.03%
27	Sabarkantha	13,88,671	2.30%	11,51,513	1.91%	2,37,158	0.39%	1,25,462	0.21%	3,28,243	0.54%
28	Surat	60,81,322	10.06%	12,32,109	2.04%	48,49,213	8.02%	1,58,115	0.26%	8,56,952	1.42%

Sr No.	District	2011		2011		2011		2011		2011	
		Total Population (number)	Total Population (%)	Rural Population (number)	Rural Population (%)	Urban Population (number)	Urban Population (%)	SC Population (number)	SC Population (%)	ST Population (number)	ST Population (%)
29	Surendranagar	15,85,268	2.62%	11,20,376	1.85%	4,64,892	0.77%	1,68,183	0.28%	21,151	0.03%
30	Tapi	8,07,022	1.34%	7,27,535	1.20%	79,487	0.13%	8,168	0.01%	6,79,320	1.12%
31	The Dangs	2,28,291	0.38%	2,03,604	0.34%	24,687	0.04%	992	0.00%	2,16,073	0.36%
32	Vadodara	30,93,795	5.12%	11,00,439	1.82%	19,93,356	3.30%	1,96,350	0.32%	2,93,039	0.48%
33	Valsad	17,05,678	2.82%	10,70,177	1.77%	6,35,501	1.05%	38,237	0.06%	9,02,794	1.49%
	<b>Total</b>	<b>6,04,39,692</b>	<b>100.00%</b>	<b>3,46,94,609</b>	<b>57.40%</b>	<b>2,57,45,083</b>	<b>42.60%</b>	<b>40,74,447</b>	<b>6.74%</b>	<b>89,17,174</b>	<b>14.75%</b>

Source: Census 2011

## ANNEXURE 4-2: Details of Community Consultation

### Prior Intimation Letter to Gram Panchayats Requesting to Arrange Community Consultation

તા. ૧૧.૦૧.૨૦૧૭ (ગુ.પ.વે.) (જ)-૨૦૧૭  
મુખ્ય ઈન્જનેર (પંચાયત) અને અધિક સચીવ શ્રી  
માર્ગ અને મકાન વિભાગ  
ગુજરાત ગ્રામ્ય માર્ગ વિકાસ એજન્સી  
નિર્માણભવન, ૨ જો માળ,  
સેક્ટર-૧૦,  
ગાંધીનગર - ૩૮૨૦૧૦  
૦૮-૦૩-૨૦૧૭

પ્રતિ  
ગ્રામ પંચાયત / સરપંચ શ્રી શ્રી પિયુષલાલ પટેલ /  
ગ્રામ : બીનાવ  
તાલુકો : ગાંધીનગર  
જિલ્લો : ગાંધીનગર

વિષય : માર્ગ અને મકાન વિભાગ નાં પંચાયત વિભાગ હસ્તગત, ગુજરાત ગ્રામ્ય માર્ગ વિકાસ ઓફીસરીટી (GSRRDA) દ્વારા હાથ ધરાયેલ મુખ્ય મંત્રી ગ્રામ સડક યોજના (MMSGY) અંતર્ગત લોક પરામર્શ (Public Consultation) કરવા સહકાર ખાતર.

ઉપર્યુક્ત વિષય અને સંદર્ભ પત્ર અન્વયે, જણાવવાનું કે; માર્ગ અને મકાન વિભાગ, ગુજરાત સરકાર નાં પંચાયત વિભાગ હસ્તગત, ગુજરાત રાજ્ય ગ્રામ્ય માર્ગ વિકાસ ઓફીસરીટી (GSRRDA) દ્વારા, મુખ્ય મંત્રી ગ્રામ સડક યોજના (MMSGY), એશીયન ઈન્ફ્રાસ્ટ્રક્ચર ઇન્વેસ્ટમેન્ટ બેન્ક (AIIB) નાં, સહયોગથી હાથ ધરાયેલ છે. આ યોજના અંતર્ગત, ૫૦૦ કે તેનાથી ઓછી વસ્તી ધરાવતા અને આ અગાઉ પ્રધાનમંત્રી ગ્રામ સડક યોજના માં સમાવિષ્ટ ન હોય તેવા ગામડાં અને વસાહતો (હેમ્લેટ્સ) ને જોડવા માં આવશે. જે માટે એશીયન ઈન્ફ્રાસ્ટ્રક્ચર ઇન્વેસ્ટમેન્ટ બેન્ક (AIIB) ની નીતિ અને જોગવાઈઓ ને અનુસરીને, લોક પરામર્શ કરવું જરૂરી છે.

આ લોક પરામર્શની કામગિરી ગુજરાત માં કરવામાં આવી રહી છે અને સમુદાય નાં મંતવ્યો અને સૂચનો એકત્ર કરવાની આવી રહ્યા છે, કે જેથી કરીને તેનો યોજના માર્ગ ની કામગિરી માં સમાવેશ કરી શકાય. GSRRDA પ્રતિનિધી - M/s LASA દ્વારા આ લોક પરામર્શ ની કામગિરી કરવામાં આવનાર છે. જે સભબ, માર્ગ અને મકાન વિભાગ અને ઉક્ત એજન્સીનાં પ્રતિનિધિઓ, આપશ્રી નાં વિસ્તાર નો સંપર્ક કરે, તો આ કામગિરી સભબ યોગ્ય સહકાર આપવા વિનંતી છે. આ લોક પરામર્શ તા. ૧૪ મે, ૨૦૧૭, રવિવાર નાં રોજ, ૧૨:૦૦ કલાકે ગાંધીનગર મુકામે યોજવાનું નિયત કરેલ છે.  
બીનાવ

નરેશ સિંઘાણી  
મુખ્ય ઈન્જનેર (પંચાયત) અને અધિક સચીવ  
માર્ગ અને મકાન વિભાગ  
ગુજરાત સરકાર

C. E. (Pan.) & A. S.  
R. & B. Dept.  
Sachivalaya, Gandhinagar.

From: Sangitaben Piyushbhai Patel /  
Sri Piyushbhai Patel  
Sarpanch - Unawa

Meeting & consultations fixed at 12:00 hrs, 14/05/17  
at Gram Panchayat Office Hall / Office,  
Unawa

~~Zinmum~~  
an. 11

9904069088 - Piyushbhai Patel  
9904288311 Ms. Daashna

Chief Executive Officer  
2<sup>nd</sup> Floor, Nirman Bhavan,  
Sector - 10 A,  
Gandhinagar - 382010  
079 23256877 - 78  
Date: 08-05-2017

To,  
The Village Sarpanch / Gram Panchayat *Mr. Jasvantbhai Trikambal Parmar*  
Village: *Rupal*  
Tehsil: *Gandhinagar*  
District: *Gandhinagar*  
Name of the road :

**Subject:** Community consultation for Asian Infrastructure Investment Bank (AIIB) funded Mukhya Mantri Gram Sadak Yojana (MMGSY) - Project to improve rural roads connective under Gujarat Road Rural Development Authority (GSRRDA) - Roads and Building Department (Panchyat), Government of Gujarat.

Refer to the above mentioned subject, it is to state that Government of Gujarat (GOG) through Roads and Building department (R & BD) extending its rural road network to the villages and habitation, hamlets through its new flagship program Mukhya Mantri Gram Sadak Yojana (MMGSY). Under MMGSY, those habitations will be connected which are having less than 500 population and which were not previously covered under Pradhan Mantri Gram Sadak Yojana (PMGSY). MMGSY aims at improving the rural road connectivity (by providing all weather connectivity) to 1,060 villages in all the 33 districts in Gujarat state benefitting about 8 million people. The primary beneficiaries are the people living in the rural areas who are the users of the rural roads.

In this respect, Public Consultations are being carried out across Gujarat in order to capture the views and suggestions from the community regarding the proposed sub-project interventions taken up in respective vicinity under MMGSY.

M/S LEA Associates South Asia Pvt. Ltd. (LASA) is carrying out a consultation on behalf of GSRRDA in your village *Rupal*. Hence, we request support and coordination from Gram Panchyat for facilitating the Consultation, scheduled on Sunday, 14<sup>th</sup> May, 2017 at *10:00* hrs. *Panchyat Office, Rupal.* (Venue).

*Copy Received*  
*Jay*



*Jay*  
Chief Executive Officer  
Gujarat Road Rural Development Authority (GSRRDA)  
Roads and Building Department (Panchyat)  
Government of Gujarat

Shri. Jashvantsinhji Trikamlal Parmar,  
Sarpanch, Rupel

Meeting of Consultation at 10:00 hrs, 14/05/2017  
at Panchayat Office, Rupel

Jashu

ચરણે સરપંચના પદે ઉપસ્થિત.

૯૭૪૭૮૩૨૬૯૮

૯૮૨૭૩૪૮૪૨૦

૯૭૨૩૬૧૮૦૬૧. Bhavatsinh



Chief Executive Officer  
2<sup>nd</sup> floor, Nirman Bhavan,  
Sector - 10 A,  
Gandhinagar - 382010  
079 23256877 - 78  
Date: 08-05-2017

To,  
The Village Sarpanch / Gram Panchayat  
Village : Uvassad  
Tehsil : Gandhinagar  
District : Gandhinagar  
Name of the road : 1)

**Subject:** Community consultation for Asian Infrastructure Investment Bank (AIIB) funded Mukhya Mantri Gram Sadak Yojana (MMGSY) – Project to improve rural roads connective under Gujarat Road Rural Development Authority (GSRRDA) - Roads and Building Department (Panchyat), Government of Gujarat.

Refer to the above mentioned subject, it is to state that Government of Gujarat (GOG) through Roads and Building department (R & BD) extending its rural road network to the villages and habitation, hamlets through its new flagship program Mukhya Mantri Gram Sadak Yojana (MMGSY). Under MMGSY, those habitations will be connected which are having less than 500 population and which were not previously covered under Pradhan Mantri Gram Sadak Yojana (PMGSY). MMGSY aims at improving the rural road connectivity (by providing all weather connectivity) to 1,060 villages in all the 33 districts in Gujarat state benefitting about 8 million people. The primary beneficiaries are the people living in the rural areas who are the users of the rural roads.

In this respect, Public Consultations are being carried out across Gujarat in order to capture the views and suggestions from the community regarding the proposed sub-project interventions taken up in respective vicinity under MMGSY.

M/S LEA Associates South Asia Pvt. Ltd. (LASA) is carrying out a consultation on behalf of GSRRDA in your village Uvassad. Hence, we request support and coordination from Gram Panchyat for facilitating the Consultation, scheduled on Sunday, 14<sup>th</sup> May, 2017 at 8 :00 hrs. Gram Panchyat Hall (Venue).  
(OR) at Bramhami Hall.

સરકાર ગુજરાત રાજ્ય



  
Chief Executive Officer  
Gujarat Road Rural Development Authority (GSRRDA)  
Roads and Building Department (Panchyat)  
Government of Gujarat

2. Gauriben Jagaji Thakor, Sarpanch, Uvassad.  
Meeting / Consultation fixed at 8:00 hrs. 14/05/2017  
at Gram Panchayat Hall / Bramhani Water Hall,  
Uvassad.

સાહેબજી યજ્ઞી ૨૧૫૭

૯૨૨૦૩૩૦૦૪૯ યજ્ઞી  
૯૨૪૦૩૦૬૩૯ યજ્ઞી



**Minutes of Meeting****COMMUNITY CONSULTATION: UVARSAID VILLAGE****Date: 14<sup>th</sup> May 2017****Venue: Brahmani Maa Community Hall, Uvarsad****Name of Roads**

1. Uvarsad - Ranjitpura
2. Uvarsad - Tarapur
3. Uvarsad - Kolavada
4. Uvarsad - ONGC to Karsanpura Road
5. Uvarsad - Sargasan

**Meeting was chaired by Mr. Thakor Khushalji Ravaji, representative of Sarpanch, Uvarsad Gram Panchayat**

**Participant Details**

<b>Category</b>	<b>Number of Participants</b>
Village community	23
Gram Panchayat Representatives	2
Roads and Buildings Department	3
ESMF Consultant	5
Contractor	1
<b>TOTAL</b>	<b>34</b>

**Consultation Summary**

The provision given under the MMGSY with respect to design, social and environmental safeguard requirements has been detailed by the ESMF Consultants to the community. Following the brief introduction, the purpose of having the consultation has been detailed to the community to have effective interaction to get their positive and negative feedback of the project. After paying attention, the local community has shown their support for the proposed MMGSY projects. Community opined that the link-road, Uvarsad – Sargasan, saves about 3km of travel to major district centre, which facilitates saving in fuel. Moreover, the road helps in promoting of education, business and employment, apart from giving good accessibility to their farm-lands and brick kiln.

Provision of Grievance Redress Committee and its composition details were discussed in detail with the villagers, encouraging them to forward their grievances related to road works, or any other issues come up in the road development initiatives.

However, few concerns are raised by the community, which were responded / clarified by R&BD Staff and ESMF Consultants. The concerns are related to:

- **Road Safety:** The wild vegetation grown on both sides of the road causing poor visibility to the road users and they have suggested to remove the vegetation at the time of implementing the project. It

has been informed by the Sarpanch to provide road safety measures like road safety railings at sharp curves and reflectors for road users at night.

- **Road Design:** Few of the participants raised issues with respect to the proposed design, because one of the project roads, “Uvarsad – Sargasan Road” has heavy vehicle movements due to the presence of the Brick kiln industries (for carrying bricks).
- **Drain Provisions:** It has been informed that there are some roads which have flooding issues, however, the roads wherein the community expressed their concern has not been taken up under MMGSY.
- **Impact on the Agriculture land:** The community has overwhelmingly welcomed the project, they have informed that, they are ready to give the land for the road-development, if further widening is required since it will help in improving brick kiln trade.

Key issues/ Perceptions of the community and the response provided by the R&BD Staff / ESMF Consultant has been summarised in **Table 1**.

**Table 1: Key Issues/ Perceptions discussed: Uvarsad**

<b>Key Issues/ Perceptions of community</b>	<b>Responses from R&amp;BD staff/ ESMF Consultants</b>
Visibility of the road is impaired due to the presence of the wild vegetation grown on both sides of the road	It is assured that the vegetation shall be removed to provide good road visibility for the users
Road total thickness should be checked for the heavy vehicle movement of Trucks carrying brick loads.	It is clarified that the proposed design has sufficient crust thickness to handle the heavy vehicle movement, which was designed based on traffic study.
Proper drains should be provided to avoid the problem of water logging during monsoon.	Side-drains will be provided, where ever the water logging related concerns shared by community.
Road Safety requirements at sensitive locations including the schools and Hospitals.	It is assured by the R&BD engineers that utmost safety measures such as raised footpath/ speed breakers will be provided.

Many of the participants have given their views and suggestions in writing, which is appended in local language, and the same also have been translated into the above Minutes of Meeting. Consultation Photographs are placed as under:

### Consultation Photographs: UVARSAD VILLAGE



### Consultation with the Road Users





### Opinion Expressed and Impact Perception of the Community: UVARSAD VILLAGE

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

#### Opinion Expressed and Impact Perception of the Community

- ઉપરોક્ત ગામના મુખ્ય નેતા સાથે સંસ્કૃતિ સંબંધી કુટુંબ જે સારું લાગેલું છે. તેનાથી નવું મુજબ કારણે થશે,
- (૧) સાંસ્કૃતિક કાર્યકર્તાઓ નવા સામગ્રી-સામગ્રી વિચારણા, જેવા નીચે કાર્યકર્તા કુટુંબ થશે. તેના કારણે સમુદાય-સંસ્કૃતિ નવા સ્વચ્છતા થશે.
- (૨) ગામના નેતા કાર્યકર્તાઓ સાથેના નીચે કાર્યકર્તા સમીક્ષામાં સંસ્કૃતિ, સામગ્રી, સંસ્કૃતિ વિશે નીચે કાર્યકર્તાઓ.
- (૩) સાંસ્કૃતિક સામગ્રી સંસ્કૃતિ સંસ્કૃતિ સાથે નીચે થશે.
- (૪) સાંસ્કૃતિક નેતાઓ સાથેના સમુદાય સમીક્ષા નીચે કાર્યકર્તાઓ.
- (૫) સંસ્કૃતિક સામગ્રી સંસ્કૃતિ કુટુંબ જેવા કુટુંબ નીચે સ્વચ્છતા કાર્યકર્તાઓ થશે.

**Attendance Sheet of Participants: UVARSAD VILLAGE**

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

**MMGSY GSRRDA R & BD (PANCHYAT) GOVT. OF GUJARAT  
ATTENDANCE SHEET FOR COMMUNITY CONSULTATION**

Name of the Village Dvarsad

Date:

Sr. No	Name	Sex M / F	Age	Occupation	Signature
1	મીનુજી યોગજી સિંહ	M	૪૦	વેદી	મીનુજી સિ
2	વેદી રામજી રામજી રામજી	M	૪૦	વેદી	R.P. Patel
3	સુરજી ભીલજી મીનુજી	M	૫૩	વેદી	Suresh
4	વેદી મીનુજી રામજી	M	૪૦	વેદી	M.S. Patel
5	ભીલજી રામજી. યી. યામી	M	૫૧	વેદી	Patel
6	વેદી સુરજી. ટી.	M	૨૫	વેદી	Suresh
7	યોગજી વેદી	M	૫૨	વેદી	Yogesh Patel
8	વેદી મીનુજી રામજી	M	૩૫	વેદી	Patel
9	સુરજી રામજી રામજી	M	૩૦	વેદી	Suresh Patel
10	વેદી રામજી	M	૫૯	વેદી	Patel

Gujarat State Rural Road Development Agency (GSRRDA)				Community Consultation	
Sr. No	Name	Sex M/F	Age	Occupation	Signature
11	શ્રી મનભાઈ/ઈલર/શાઈ પટેલ		૭૦	ખેતી	
12	વમલભાઈ ફરશીભાઈ પટેલ		૬૭	ખેતી	<i>P. Patel</i>
13	રાશીરૂપ શીરૂપ પટેલ		૫૩	ખેતી	<i>Ashtu</i>
14	અમરજી સંદેશભાઈ ઠાકોર		૩૨	ખેતી	<i>A.S. Thakor</i>
15	દામોદર મુરારીભાઈ ભાટ્ટ	M	૨૬	ભાડી	<i>M.B. Bhatt</i>
16	દામોદર દશરથભાઈ રાવળ		૪૪	ભાડી	<i>D. Ram</i>
17	દામોદર રમેશભાઈ ભાટ્ટ		૩૨	ખેતી	<i>Rama</i>
18	દેવેશભાઈ ભાટ્ટ		૪૨	ખેતી	<i>D. Bhatt</i>
19	Devalbhai		32	ભાડી	<i>Deval</i>
20	S.V. Thakor	m	55	ભાડી	<i>S.V.</i>
21	R.D. THAKOR		50	ખેતી/સરકારી	<i>R.D.</i>
22	R. R. Patel A.A.E		52	A.A.E R.R. Patel	<i>R.R. Patel</i>

Gujarat State Rural Road Development Agency (GSRRDA)		Community Consultation				
Sr. No	Name	Sex M/F	Age	Occupation	Signature	
23	MR. S. H. PRAJAPATI	M	38	AE (CR 9B) Chandwimaya		
24	ચરિત્રજી રાણી સુહાસ	M	85	ઉદ્યોગ		
25	Bhannik Shroff	M	33	ઉદ્યોગ		
26	Shubham + Thakor		44	વેપારી		
27	Vinod. G. Thakor		58	વેપારી		
28	Rasool G. G. G.		42	વેપારી		
29	વેપારી શ્રીમતી સુષીલા			વેપારી		
30	Ankur Modi	M	40	Consultant, Env. Eng. (IASA)		
31	P. ARUNA	F	41	Consultant, Social		
32	Hitesh Patel	M	29	Engineer		
33	K. PUSHPANATHAN	M	58	Env. Spl.		
34	DR. K. N. JAYAN	M	44	Social Specialist		



**Minutes of Meeting****COMMUNITY CONSULTATION: RUPAL VILLAGE****Date: 14<sup>th</sup> May 2017****Venue: Gram Panchayat Meeting Room, Rupal****Name of Roads**

1. Vasan to Rupal
2. Rupal to Golthara

**Meeting was chaired by Mr. Parmar Jasvantbhai Trikamlal, Sarpanch (President), Rupal Gram Panchayat**

**Participant Details**

<b>Category</b>	<b>Number of Participants</b>
Village community	23
Gram Panchayat Representatives	2
Roads and Buildings Department	3
ESMF Consultant	5
Contractor	2
<b>TOTAL</b>	<b>35</b>

**Consultation Summary**

The provision given under the MMSGY with respect to design, social and environmental safeguard requirements has been detailed by the ESMF Consultants to the community. Following the brief introduction, the purpose of having the consultation has been detailed to the community to have effective interaction to get their positive and negative feedback of the project.

Participants were supportive for the proposed road improvement and opined that road development will bring many benefits to the villages located alongside the road. The roads which were taken up under Gujarat Rural Roads (MMGSY) Project have adequate width and there are no encroachments of any sorts.

There is a famous Temple (*Vardayini Matha* Temple, Rupal) located within the village celebrates a unique Festival celebrated during October – November every year, in which about 1.5 million people participate from various places of Gujarat. During the Festival, a Symbolic Chariot is taken out from the middle of the village and reaches to the main Temple. The villagers takeout this Chariot through the village roads and stops at 27 different spots in the village; at each spot the devotees pour pure-ghee on the chariot.

During the consultation, the villagers opined that the movement of Chariot through the village roads will become very smooth once the road-construction is over and rendered all help towards the completion of civil works. The specific issues and perceptions of the community and the responses from ESMF Consultant / R&BD Staff are summarized in Table 2.



**Table 2: Key Issues / Perception of Community & Responses**

<b>Key Issues / Perception of Community</b>	<b>Responses from R&amp;BD Staff / ESMF Consultant</b>
There is adequate land width already available, and hence wider roads should be planned and constructed.	As per the MMGSY mandates, the width of the carriage way (black top) is 3.75m and 0.5m shoulder on either sides. Decision for additional widening, if required will be taken by the Government.
If, in the case of any individual household encroaches into the government land, the Gram Panchayat should issue notice to respective individual stating the ownership of land rests with Panchayat / R&BD.	Village roads are for the benefits of local community and hence it is suggested to have such encroachments be cleared with overall community participation. As majority of the villagers favour for road, those individual encroachers get motivated to remove or relocate from their encroachments.
Villagers asked about the selection criteria followed for choosing a particular road for improvement.	R&BD-GoG has primarily considered factors as population size of connecting habitations, connectivity to growth centres and demand from community. In the case of widening of roads and through routes, the importance of roads, the places of social, economic and religious importance has been considered along with the expected growth of traffic.
There should be provisions for pedestrians, may be in the form of raised foot-paths on side of the roads. Also the road-side trenches cause a problem for commuters, especially Cyclists.	The present configuration does not include raised foot-paths; instead there is provision of shoulders on either side. The leveling of shoulders will be carried out to have smooth travel for cyclists and pedestrians.
In Rupal – Golthara road, there is sharp curve which causes safety issues for vehicles as well as pedestrians. The fencing of a private farm-land and the shrubs grown into the road should be removed.	Curve improvement will be carried out within the available land-width. Shrubs will be removed to improve the visibility for commuters. Since the fencing is located beyond the RoW, the same need not be removed, however appropriate safety signboards will be provided, if required. Also road-side reflectors will be provided on the fence ensuring safety of commuters during night time.
There should be some provision to monitor the works of the Contractor. Villagers should know about the composition of mixture and whether the same is practiced as per the original design or not.	Adequate transparency will be ensured regarding work contracts. Quality Monitoring of works and Quality Audit are provisioned as part of MMGSY. Monitoring of road works involving respective local community will be encouraged. Specific information, if required could be obtained from R&BD Office, as per the provisions of Right to Information Act.
Rupal – Golthara road has problem of water logging during monsoon season, for which culverts or drains should be provided.	This has been taken up in the road-design by way of provided side drain.

With respect to encroachments, villagers were of the opinion that encroachment of any form should not be encouraged and the previous Chief Minister of Gujarat himself has shown great courage in removing many religious structures alongside major roads in Gujarat. The same system should be

followed in rural roads also so as to ensure safe and comfortable travel. On requirement of private land at any of the roads under MMGSY, either the project procedures or the routine procedures of the Government of Gujarat shall be followed.

Provision of Grievance Redress Committee and its composition details were discussed in detail with the villagers, encouraging them to forward their grievances related to road works, or any other issues come up in the road development initiatives.

Many of the participants have given their views and suggestions in writing, which is appended in local language, and the same also have been translated into the above Minutes of Meeting. Consultation Photographs are placed as under:

### Consultation Photographs: RUPAL VILLAGE



**Opinion Expressed and Impact Perception of the Community: RUPAL VILLAGE**

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

**Opinion Expressed and Impact Perception of the Community**

પરિલ રમ્બેલા (ભાઈ) જાનકલદેવાઈ  
 સુ - રૂપાલ, તા.બુ-ગાંધીનગર  
 તા - ૬/૨૪/૨૦૧૫  
 તા. ૨૪/૫/૨૦૧૬

વિષય - મુખ્યમંત્રી ગ્રામ સડક યોજના નો રૂપાલ ગાલેપરા  
 અવાજલતા શરૂ કરે પાડોળી લેવલ જાનવી રાજવાજાલો

- ૧) રૂપાલ વિષયના અભુસંધાનમાં જુગાવ કે રૂપાલ વાડી માધ્યમ  
 નોદર ખૂલનીયાકા છે. તો તે લેવરને ઘવાને રાખીને નવા શરૂ  
 કરવાની જાગવવા
- ૨) રૂપાલ વિષયના અભુસંધાનમાં રૂપાલ ગાલેપરા જતા જોડા  
 રસ્તા કે લોશિસ્તા પતા દોપ તેવી જગ્યા પર યોડે પાડોળી  
 નિમલનારે ગરનામા મુત્યા.
- ૩) રૂપાલ વિષયના અભુસંધાનમાં રૂપાલ જોડીક માતાએ  
 શ્રીંગ પતા દોવાવી વરસાદમાં શરૂ થોવાઈ નજમત  
 પુનાકો તેજું લેવલ જાનવી  
 અવાજલતા શરૂ કરે વલાકે રાક્ષકે રૂડી પતવાવા મુત્યા.

રમ્બેલા  
 પરિલ રમ્બેલા (ભાઈ) જાનકલદેવાઈ





**Attendance Sheet of Participants: RUPAL VILLAGE**

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

**MMGSY GSRRDA R & BD (PANCHYAT) GOVT. OF GUJARAT  
ATTENDANCE SHEET FOR COMMUNITY CONSULTATION**

Name of the Village Rupal

Date: 14/05/2017

Sr. No	Name	Sex M / F	Age	Occupation	Signature
1	પરેલ સંજય કુમાર સોજાવાળા	પુરુષ	૪૦	ખેતી	<i>[Signature]</i>
2	પરેલ મહમીદ સોજાવાળા	પુરુષ	૦૨	ખેતી	<i>[Signature]</i>
3	પરેલ દિલીશ, પીપરલાલ	11	૪૫	ગોઝરી	<i>[Signature]</i>
4	પરેલ વિજયકાંત સ	11	૪૮	ખેતી	<i>[Signature]</i>
5	પરેલ ચિત્તેશકુમાર જી.	11	૩૬	ગોઝરી	<i>[Signature]</i>
6	પરેલ પ્રવિણકાંત વાલા	11	૬૨	ખેતી	<i>[Signature]</i>
7	પરેલ રાજકાંત વાલા	11	૬૨	ખેતી	<i>[Signature]</i>
8	પરેલ અરુણકાંત સોજાવાળા	11	૫૭	ખેતી	<i>[Signature]</i>
9	પરેલ અરુણકાંત વાલા	11	૪૦		<i>[Signature]</i>
10	પરેલ સરજી કાંત વાલા	11	૪૦	ખેતી	<i>[Signature]</i>



Rupal

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

Sr. No	Name	Sex M / F	Age	Occupation	Signature
23	વડાપંચાયતી સમીતી	સ્ત્રી	૨૬	વહીવટી	[Signature]
24	ચંદ્ર સુખલા	સ્ત્રી	૩૮	વહીવટી	V. B. Patel
25	સુશીલા વેંકુ	સ્ત્રી	૪૦	વહીવટી	Shishu Patel
26	G.S. Patel		40		G.S. Patel
27	R.R. Patel	સ્ત્રી	૪૦	A.A.E. P.A.B. Panch Gandhinagar	[Signature]
28	વડા પંચાયતી	સ્ત્રી	૪૨	વહીવટી	[Signature]
29	MR. S.H. PRADIPATI	MALE	૩૬	A.E. (R&B). Gandhinagar	[Signature]
30	Rahul KUMAR MITRA	MALE	૨૪	શુદ્ધી	[Signature]
31	Nikhil Kumar Parmar	"	૨૪	"	[Signature]
32	ANKUR MODI	M	40	Consultant, Env. Engg (ASA)	[Signature]
33	P. ARUNA	F	41	Social worker	[Signature]
34	Hitesh Patel	M	29	Engineer	[Signature]



Rupal

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

Sr. No	Name	Sex M/F	Age	Occupation	Signature
35	K. Purnima Nandan	M	50	Em. Spl. LAsA	
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					



**Minutes of Meeting****COMMUNITY CONSULTATION: UNAVA VILLAGE****Date: 14<sup>th</sup> May 2017****Venue: Gram Panchayat Hall, Unava****Name of Roads**

1. Unava Mubarkpur,
2. Unava Pidharda,
3. Unava (Gogaji Farm) to Sharda Farmasi Upto Pethapur Mahudi

**Meeting was chaired by Representative of Ms. Patel Sangitaben Piyushabhai / Piyushbhai Patel, Sarpanch (President), Unava Gram Panchayat**

**Participant Details**

<b>Category</b>	<b>Number of Participants</b>
Village community	17
Gram Panchayat Representatives	3
Roads and Buildings Department	3
ESMF Consultant	5
Contractor	2
<b>TOTAL</b>	<b>30</b>

**Consultation Summary**

The participants are mostly farmers and traders. Participating in the discussion, the R&BD staff and the ESMF Consultant gave detailed information of the Government of Gujarat's initiatives for the development of rural areas in the state of Gujarat. Information has been given regarding the ongoing Gujarat Rural Roads (MMGSY) Project, supported by Asian Infrastructure Development Bank (AIIB), and implemented by Gujarat Rural Road Development Agency under Roads and Buildings Department.

Sarpanch opined that whichever land required for the proposed road project, Gram Panchayat takes initiative to provide encroachment-free road stretches to Contractor for smooth construction works. The villagers in Unava are generous and are ready to cooperate with Gram Panchayat for any sort of development works within the Village.

Provision of Grievance Redress Committee and its composition details were discussed in detail with the villagers, encouraging them to forward their grievances related to road works, or any other issues come up in the road development initiatives.

Key issues discussed and Perception of the Community and Responses from R&BD Staff / ESMF Consultant (LASA) by the stakeholders are summarized in Table below.

**Table 3: Key Issues / Perception Discussed: Unava**

<b>Key Issues Discussed / Perception of the Community</b>	<b>Responses from R &amp; BD Staff / ESMF Consultant</b>
Villagers enquired about the duration of road-construction. It is general perception that the Contractors delay the civil works causing difficulty to the local community.	MMGSY follows a specific work schedule to which the Contractors need to adhere. Moreover, there is strict monitoring from R&BD regarding quality of construction and compliance to work schedules.
Villagers required clarity regarding the timing of road construction. In fact, the road work started before monsoon; at that point of time, only gravelling was done and the second set of work began after few months. Are there any specific reasons for such delayed work?	Gravelling is done before monsoon and kept for settling of the same during rain, which is a natural compaction method. If monsoon is insufficient, the Contractor use own source of water for compaction.
In Unava to Mubarakpura road, water logging is a major issue and requires improving the height of road.	This issue has been already considered while preparing Detailed Project Reports. In few locations, road height will be increased and in some other locations, provision of side-drains is given.
Road side shrubs hamper the visibility of road users, thereby causing safety issues – this more severe in between Railway Culvert to Mubarakpura section.	Road side vegetation will be removed during road construction. Additionally, safety signboards will be provided ensuring road safety.
Road construction should be exactly as per the agreed contract, in the sense that the quality of work should not be diluted.	There is unique Quality Monitoring Mechanism adopted for implementation of Gujarat Rural Roads (MMGSY) Project, in which regular monitoring and supervision is envisaged. In addition to this, there is a provision of third-party quality monitoring / auditing to be carried out by a Third Party or Project Management Consultant.

Many of the participants have given their views and suggestions in writing, which is appended in local language, and the same also have been translated into the above Minutes of Meeting. Consultation Photographs are placed as under:

### Consultation Photographs: UNAVA VILLAGE



### Opinion Expressed and Impact Perception of the Community: UNAVA VILLAGE

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

#### Opinion Expressed and Impact Perception of the Community

તા. ૧૪/૦૫/૧૭

મે. સાહેબજી,

જાલગામના આજી જીઆરડીઆઈ

ઉનાવાળી મુંજાપટ્ટપુર થાપણી ને જાલગામની  
સાથ જોડવાનો સંકલ્પ છે

૧) આવી કામ થા ફૂલ થાય.

૨) સાથે સેલ્ફ હાવાવાળા મુંજાપટ્ટપુરના આજી  
સાથે આવી કામ જાલગામ

૩) સરકારના ઠાવણાના મુજબ સીધો રોડ થાય  
જોકે આને ઉંચાનામો ન થાય જોઈએ.

૪) આવી કામ થા ફાઈ રોડ થાય તો જામર  
રોડ વધારવાનું- જાલગામ થાકાવાળા  
સાથે જોડાયે.

૫) રોડર પ્રજાનો રોડ મળવા થાય તો  
કામ માટે પહેલાનો તકુલાક વાદ થા  
અને વસીલા આરિવલ્ડ મળાય

સાથે સમુદાયે માન આ

સરકારને વિનય કરવાનો થા રોડ  
કામ સહુ સહાય કરવાય.

આજી આપનો વિભાગ

જાલગામ મ. પરી

કાલેલ - ૧૫/૦૫/૧૭



### Attendance Sheet of Participants: UNAVA VILLAGE

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

#### MMGSY GSRRDA R & BD (PANCHYAT) GOVT. OF GUJARAT ATTENDANCE SHEET FOR COMMUNITY CONSULTATION

Name of the Village Unava

Date: 14.05.2017

Sr. No	Name	Sex M/F	Age	Occupation	Signature
1	પરેલ દીપ્તજીભાઈ વજીરાણી		50 વર્ષ	વેલ	દીપ્તજી.વજીરાણી
2	પરેલ જીમણભાઈ મહેતા	♂	54 વર્ષ	કામી	B. Patel
3	ગુર્જર હરીભાઈ રમેશભાઈ	♂	56 વર્ષ	વેલ	સુભાષ
4	પરેલ વાલ્મીકીભાઈ વજીરાણી	♂	50 વર્ષ	વેલ	B.B. Patel
5	પરેલ રમણભાઈ વજીરાણી	♂	50 વર્ષ	વેલ	મણી
6	પરેલ રમેશભાઈ મહેતા	♂	46 વર્ષ	વેલ	રમેશભાઈ મહેતા
7	પરેલ રમેશભાઈ સુભાષભાઈ વજીરાણી	♂	46	કામ	સુભાષ
8	પરેલ વાલ્મીકીભાઈ વજીરાણી	♂	45	કામ	વજીરાણી
9	પરેલ રમેશભાઈ મહેતા	♂	52	વેલ	A.M. Patel
10	પરેલ મણીભાઈ મહેતા	♂	52		

Village: Unawa

Gujarat State Rural Road Development Agency (GSRRDA)

Community Consultation

Sr. No	Name	Sex M/F	Age	Occupation	Signature
11	પરજી રાજેશ અમી	♂	40	રુઠાળ	R.A. Rajesh
12	દાસરામ મેઘ અમી	♂	૪૨	પંચ	D.S.P.
13	રાવલ પ્રદેપ ગામી	♂	37	મજૂરી	રાવલ પ્રદેપ.ગ.
14	પટેલ દિગ્ગજીવ સિદ્ધાન્ત	♂	૩૬	બંધ	P. Patel
15	પટેલ સંજીવન અમી	♂	૨૭	પંચ	સંજીવન
16	સરોજ સુભાષ અમી	♂	20	બંધ	કે.એ.સરોજ
17	પટેલ અણ્ણેશ્વર બેનરજી	♂	૪૪	બંધ	APL
18	સરોજ સુભાષ અમી	♂	૨૭	બંધ	K.B.T.
19	પટેલ સંજીવન અમી	♂	42	બંધ	સંજીવન.પટેલ
20	સાધુ રાજેશ અમી	♂	42	બંધ	સાધુ.રાજેશ
21	સાધુ રાજેશ અમી	♂	49	બંધ	સાધુ
22	પટેલ પ્રદેપ અમી	♂	35	બંધ	P. Patel





---

**ANNEXURE 5-1: No Objection Certificate Water Resource**

---

**(WATER RESOURCE)**

**No Objection Certificate**

This is to certify that the Gram Sabha has no objection to the use of the available water resources like boring, wells, ponds etc. falling in the village of .....  
..... of the development block /  
revenue circle ..... of the  
district....., for the construction of the proposed road  
..... under the  
MMGSY.

Signature (Gram Pradhan)

..... Gram Panchayat

## ANNEXURE 5-2: Environmental Monitoring Formats

### Format EM1: Selection of disposal site locations

From \_\_\_\_\_ To \_\_\_\_\_

(Give chainage and nearest settlements from both ends)

Criteria on which information for each site is to be collected	Site 1	Site 2	Site 3	Site 4
Area covered (m <sup>2</sup> )				
Total Material that can be dumped within the site (m <sup>3</sup> )				
Depth to which disposal is feasible (m)				
Distance of nearest watercourse (m)				
Nearest Settlement (m)				
Date/s of Community Consultation/s				
Whether the community is agreeable to siting of dumping site (Y/N)				
Date of Permission from Village Council President(VCP)				
Proposed future use of the Site				

Selected Site (tick any one column only)

Certified that the above information is correct to the best of my knowledge and belief.

#### Contractor

Signed:

Date:

Name & Designation:

Recommendation on the suitability of the site

Decision Taken (tick one):

Approved/Not Approved

#### PMC

Signed:

Date:

Name and Designation of Deciding Authority

#### Enclosures

(Tick as appropriate)

- 1            Maps of each location
- 2            Photographs
- a            Each disposal location
- b            Each community consultation
- 3            Photocopies of permissions from VCPs

**Format EM2: Construction Camp and Storage Area**

Construction Stage: Report - Date\_\_\_\_\_ Month\_\_\_\_\_ Year\_\_\_\_\_

(Site Layout of Construction camp and working drawings of dwelling units with allied facilities to be attached with format)  
Format to be submitted before target date (decided by GSRRDA) of establishing camps

Location of Camp (km\_\_\_\_\_ )

Sl. No	Item	Unit	Details	Remarks
<b>1</b>	<b>Detail of item camp</b>			
A	Size of Camp	mxm		
B	Area of Camp	sq.m		
C	Distance from Nearest Settlement			
D	Distance from Nearest Water Source	Type/Size/Capacity/Present Use/Ownership		
E	Date of camp being operational dd/mm/yy			
F	Present land use			
G	No other trees with girth > 0.3m.			
H	Details of Storage area(Availability of impervious surface)	mxm		
I	Availability of separate waste disposal from storage area	Cum		
<b>2</b>	<b>Details of top soil stacking</b>			
A	Quantity of top soil removed	Cum		
B	Detail of storage of topsoil	Describe stacking arrangement		
<b>3</b>	<b>Details of workforce</b>			
A	Total No of Labourers	nos		
B	Total no of Male Workers	nos		
C	No of Male Workers below 18 years of age	nos		
D	Total No of Female Workers	nos		
E	No of Female workers below 18 years of age	nos		
F	No of children	nos		
<b>4</b>	<b>Details of dwelling units</b>			
A	No of dwellings/huts	nos		
B	Minimum Size of Dwelling	mxm		
C	No of openings per dwelling	nos		
D	Minimum size of opening	mxm		
E	Walls	specifications		
F	Roofing	specifications		
G	Flooring	specifications		
H	Drinking Water Tank	specifications		
I	Capacity of Drinking water Tank	cum		
J	Size of Drinking Water Tank	mxmxm		
K	Total no of WC	nos		
L	No of Wcs for female workers	nos		
M	Minimum Size of WC	mxm		
N	Total No of Bathrooms for female workers	nos		
O	Size of septic tank for WC/Baths	mxmxm		
P	Capacity of Water Tank for WCs/ Bathrooms and general purpose			
Q	Fencing around camp	Y/N		
<b>5</b>	<b>Details of facilities</b>			
A	Availability of security guard 24 hrs a day	Yes/No		
B	Details of First Aid Facility	Yes/No		
C	Availability of Day Care Centre	Yes/No		
D	Availability of dust bins (capacity 60 ltr)	nos		

Certified that the furnished information is correct the quality of work is as per god practice and all relevant information as required is attached

**Contractor****PMC**

**Format EM3: Reporting for Borrow Areas**

Construction Stage Report: Date \_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_ Site Layout of Borrow Area and Proposed Borrow Area Redevelopment Plan to be attached with format. Format to be submitted before target date as (decided by GSRRDA) for establishing Borrow Areas Borrow Area No. BA \_\_\_\_\_  
Location of Borrow Area (Km \_\_\_\_\_)

Sl. No	Item	Unit	Details	Remarks by CSC, if any
<b>1</b>	<b>Details of Borrow Area</b>			
A	Date of Borrow Area becoming operational dd/mm/yy			
B	Current Landuse			
C	Distance from Nearest Settlement	Km		
D	No of settlements within 200m of Haul Road	No.		
E	No of settlements within 500m of Borrow Area	No.		
F	Total Capacity	cum		
G	No of Trees with girth more than 0.3 m	No.		
H	Length of Haul Road	km		
I	Width of Haul road	m		
J	Type of Haul Road	metal/dirt		
K	Size of Borrow Area	sqkm		
L	Area of Borrow Area	km x km		
M	Quantity Available	cum		
N	Distance of Nearest Water Source	Type/Size/Capacity/Present Use/Ownership		
O	Quantity of top soil removed	cum		
P	Detail of storage of topsoil			
Q	Daily/occasional use of the Borrow Area by the community, if any	-		
R	Probable reuse of Borrow pit-ask community	-		
S	Drainage channels/slope/characteristics of the area	-		
<b>2</b>	<b>Enhancement Elements</b>			
A	Quantity of top soil removed	sq.m		
B	Detail of storage of topsoil	sq.m		
C	Adjoining land use/Natural elements			
D	Near by catchment for storing water			
E	Erosion Control Programme			
F	Preventive measures for			
I	Leaching			
Ii	Mosquito Breeding			
Iii	Water run-off/contamination			
Iv	Any other environmental degradation			
<b>3</b>	<b>Details of workforce</b>			
A	Total No of Labourers	No.		
B	Total no of Male Workers	No.		
C	No of Male Workers below 18 years of age	No.		
D	Total No of Female Workers	No.		
E	No of Female workers below 18 years of age	No.		
<b>4</b>	<b>Details of redevelopment, Plan to be enclosed</b>			

Certified that the furnished information is correct the quality of work is as per good practice and all relevant information as required is attached

**Contractor**

**PMC**

**Format EM4: Tree Felling**

S.No	Links	Physical Target				Completion Target		Reason for Delay if any
		Total	Target	Target Achieved	% of task completed	Target Date	Date of Completion if task completed	
		Unit						
1		nos						
2		nos						
3		nos						
4		nos						

**Contractor**

**PMC**

### EM 5 Topsoil Conservation Monitoring

Contract \_\_\_\_\_

Report No. \_\_\_\_\_

Date \_\_\_\_\_

Location (Chainage)	Original Use of Topsoil removed	Measures for preventing spillage of topsoil on Haul Roads (Earthen/ Metalled)	Present Method of Storage	Anticipated period of Storage (Months)	Distance of nearest Water course (m)	Present Slope of Pile (V: H)	Whether silt fencing provided ?	Is any other covering/ measure provided ? If yes, what is it?	Improvements required	Extent of Compliance as on date of report

Certified that the above is true.

Signed \_\_\_\_\_

**Contractor**

Verified

Signed \_\_\_\_\_

**PMC**

**EM 6 Redevelopment of Borrow Areas**

Operation Stage: Report: Date \_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_

To be monitored by GSRRDA during operation period

Details of remarks to be appended wherever necessary.

Sl. No	Activity	Particulars	Drawbacks Identified			Improvements Required		
			Construction	Financial	Others (Ask Community)	Technical	Financial	Remarks/ Suggestions
1	Details of Borrow area and Surrounding Landuse							
2	End use of the borrow area							
3	Whether rehabilitation has been carried out in line with owners request							
4	Erosion Control Measures							
5	Number of trees planted							
6	Reuse of topsoil							
7	Preventive measures taken for -Mosquito Breeding -Water runoff/ contamination -Other Environmental Degradation							
8	Any problems faced by owner							
9	Any problems faced by the local community							
10	If it has been developed as a fish pond,							
a	Details of available catchment for storing water							
b	Economic Benefits/Utility							
11	If it has been developed as an orchard							
a	Details of suitability of soil and water.							
B	Type of Plantation							
c	Economic Benefits/Utility							
12	Any Other End use							
a	Particulars							
b	Economic Benefits/Utility							

**Contractor****PMC**



### EM 7 Checklist for Construction Safety

Sl. No.	Safety Issues	Yes	No	Non compliance	Corrective Action	Penalty	Remarks
<b>Safety during Construction Stage</b>							
1	Appointment of qualified Construction safety officers						
2	Approval for Construction Safety Management Plan by the Engineer.						
3	Approval for Traffic Management/control Plan in accordance with IRC: SP: 55-2001						
4	Maintenance of the existing road stretches handed over to the Contractor.						
5	Provision of Temporary Traffic Barriers/Barricades/caution tapes in construction zones						
6	Provision of traffic sign boards						
7	Provision for flags and warning lights						
8	Provision of metal drum/empty bitumen drum delineator, painted in circumferential strips of alternate black and white 100mm wide 2 coats fitted with reflectors 3 Nos of 7.5cm diameter						
9	Providing plastic crash barrier						
10	Provision of adequate staging, form work and access (ladders with handrail) for works at a height of more than 3.0 m						
11	Provision of adequate shoring / bracing / barricading / lighting for all deep excavations of more than 3.0 m depth.						
12	Demarcations (fencing, guarding and watching) at construction sites						
13	Provision for sufficient lighting especially for night time work						
14	Arrangements for controlled access and entry to Construction zones						
15	Safety arrangements for Road users / Pedestrians						
16	Arrangements for detouring traffic to alternate facilities						
17	Regular Inspection of Work Zone Traffic Control Devices by authorized contractor personnel						
18	Construction Workers safety - Provision of personnel protective equipment						
19	A. Helmets						
	B. Safety Shoe						
	C. Dust masks						
	D. Hand Gloves						
	E. Safety Belts						
	F. Reflective Jackets						
	G. Earplugs for labour						
20	Workers employed on bituminous works, stone crushers, concrete batching plants etc. provided with protective goggles, gloves, gumboots etc.						

Sl. No.	Safety Issues	Yes	No	Non compliance	Corrective Action	Penalty	Remarks
21	Workers engaged in welding work shall be provided with welder protective shields						
22	All vehicles are provided with reverse horns.						
23	All scaffolds, ladders and other safety devices shall be maintained in as safe and sound condition						
24	Regular health checkup for labour/ Contractor's personnel						
25	Ensuring the sanitary conditions and all waste disposal procedures & methods in the camps.						
26	The Contractor shall provide adequate circuit for traffic flow around construction areas, control speed of construction vehicles through road safety and training of drivers, provide adequate signage, barriers and flag persons for traffic control						
27	Provision for insurance coverage to the contractor's personnel						

**Contractor**

**PMC**

**Format EC1: Target Sheet for Pollution Monitoring**

Construction Stage: Report -                      Date\_\_\_\_\_                      Month\_\_\_\_\_                      Year\_\_\_\_\_

( Locations at which monitoring to be conducted as per EMP)

Sl. No	Chainage	Details of Location	Duration of Monitoring	Instruments Used	Completion Target		Reason for Delay if any
					Target Date	Date of Completion if task completed	
<b>Air Monitoring</b>							
1							
2							
3							
4							
5							
<b>Water Monitoring</b>							
1							
2							
3							
4							
5							
<b>Noise Monitoring</b>							
1							
2							
3							
4							
5							

Certified that the Pollution Monitoring has been conducted at all the locations specified in the EMP

**Contractor**

**PMC**

## ANNEXURE 6-1: SMART Operational Manual

### OM – 1: CONSTRUCTION AND LABOUR CAMPS

#### 1. INTRODUCTION

1. The scope of this guideline pertains to the siting, development, management and restoration of construction and labour camps to avoid or mitigate impacts on the environment. The area requirement for the construction camp shall depend upon the size of contract, number of labourers employed and the extent of machinery deployed. The following sections describe the siting, construction, maintenance, provision of facilities in the camps and finally rehabilitation of the construction and labour camps. These are described in three stages, pre-construction, construction and post-construction stage. The issues related to construction camps are similar in the case of road construction and hence have been taken together.

#### 2. PRE-CONSTRUCTION STAGE

2. Identification of site for construction and labour camps is the first task. The Contractor shall identify the site for construction camp in consultation with the individual owners in case of private lands and the concerned department in case of Government lands. The suitable sites shall be selected and finalized in consultation with the PIU/PMC. **Table 1-1** gives the lands that could be avoided for construction camps and conversely those that could be preferred.

**Table 1-1: Selection Criterion for Construction Camps.**

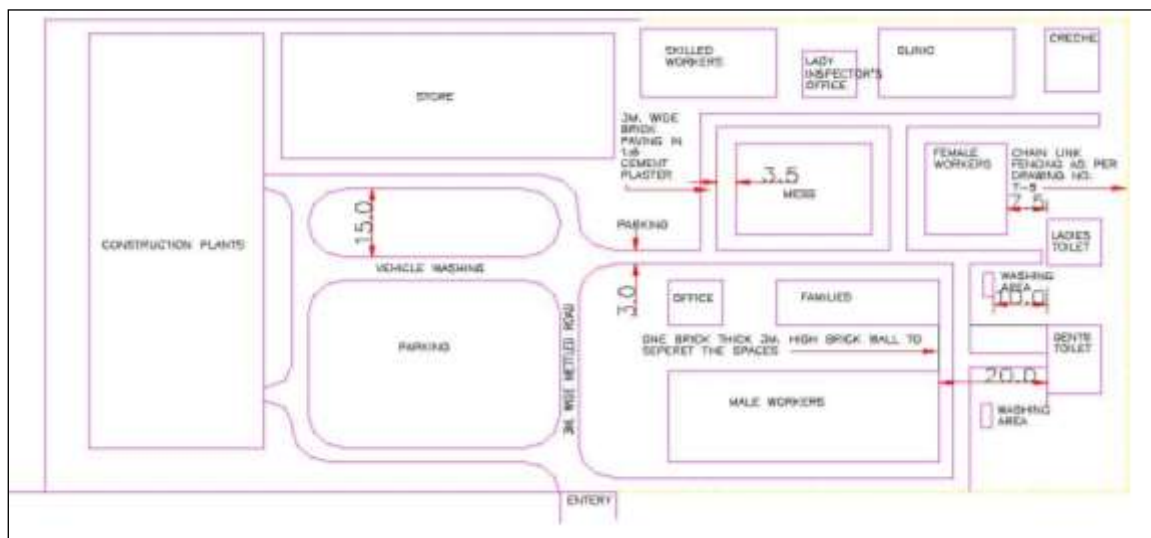
Avoid the following ...	Prefer the following ...
<ul style="list-style-type: none"> <li>• Lands close to habitations.</li> <li>• Irrigated agricultural lands.</li> <li>• Lands belonging to small farmers.</li> <li>• Lands under village forests. Lands within 100m of community water bodies and water sources as rivers.</li> <li>• Lands within 100m of watercourses.</li> <li>• Low lying lands.</li> <li>• Lands supporting dense vegetation.</li> <li>• Grazing lands and lands with tenure rights.</li> <li>• Lands where there is no willingness of the landowner to permit its use.</li> </ul>	<ul style="list-style-type: none"> <li>• Waste lands.</li> <li>• Waste Lands belonging to owners who look upon the temporary use as a source of income.</li> <li>• Community lands or government land not used for beneficial purposes.</li> <li>• Private non-irrigated lands where the owner is willing.</li> <li>• Lands with an existing access road.</li> </ul>

3. The contractor will work out arrangements for setting up his facilities during the duration of construction with the land owner/concerned department. These arrangements shall be in the form of written agreement between the contractor and the land owner (private/government) that would specify:

- a) photograph of the proposed camp site in original condition;
- b) activities to be carried out in the site;
- c) environmental mitigation measures to be undertaken to prevent land, air, water and noise pollution;
- d) detailed layout plan for development of the construction and labour camp that shall indicate the various structures to be constructed in the camp including temporary, drainage and other facilities (**Figure 1-1** gives a layout plan for a construction camp); and
- e) Restoration plan of camp site to previous camp conditions.

Arrangements with Land owners...
<p>The Contractor shall submit to PIU the following:</p> <ul style="list-style-type: none"> <li>• Written No Object Certification from respective land owner/Cultivator</li> <li>• Extent of land required and duration of the agreement</li> <li>• Photograph of site in original condition</li> <li>• Details of site after redevelopment after completion</li> </ul>

4. The arrangements will be verified by the Engineer -incharge to enable redressal of grievances at a later stage of the project.



**Figure 1-1: Layout Plan for Construction Camp**

## 2.2 Setting up of labour camp

5. The contractor shall provide, free of cost in the camp site, temporary living accommodation to all the migrant workers employed by him for complete construction/maintenance work is in progress. A minimum area of 6 sq.mts per person shall be provided. The rooms of labour shall be well lighted and ventilated. The facilities to be provided for the labour are discussed below:

### a) Drinking Water

6. Towards the provision and storage of drinking water at the construction camp, the contractor shall ensure the following provisions

- The contractor shall provide for a continuous and sufficient supply of potable water in the camps, in earthen pots or any other suitable containers.
- The contractor shall identify suitable community water sources for drinking. Only in the event of non-availability of other sources of potable water, the Contractor shall obtain water from an unprotected source only after the testing for its potability. Where water has to be drawn from an existing open well, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with dust proof trap door.
- Every water supply or storage shall be at a distance of not less than 15m from any wastewater / sewage drain or other source of pollution. Water sources within 15m proximity of toilet, drain or any source of pollution will not be used as a source of drinking water in the project.
- A pump shall be fitted to covered well used as drinking water source; the trap door shall be kept locked and opened only for cleaning or inspection, which shall be done at least once a month.

### b) Washing and Bathing Facilities

7. In every site, adequate and suitable facilities for washing clothes and utensils shall be provided and maintained for the use of contract labor employed therein. Separate and adequate bathing shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic conditions.

### c) Toilets Facilities

8. Sanitary arrangements, latrines and urinals shall be provided in every work place separately for male and female workers. The arrangements shall include:

- A latrine for every 15 females or part thereof (where female workers are employed).
- A latrine for every 10 males.
- Every latrine shall be under cover and so partitioned as to secure privacy, and shall have a proper door and fastenings.
- Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers “For Men Only” or “For

Women Only” as the case may be.

- The latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times and should have a proper drainage system;
- Water shall be provided in or near the latrines and urinals by storage in suitable containers.

#### **d) Waste Disposal**

- Disposal of sanitary wastes and excreta shall be into septic tanks.
- Kitchen waste water shall be disposed into soak pits/kitchen sump located preferably at least 15 meters from any water body. Sump capacity should be at least 1.3 times the maximum volume of wastewater discharged per day. The bottom of the pit should be filled with coarse gravel and the sides shored up with board, etc. to prevent erosion and collapse of the pit. New soak pits shall be made ready as soon as the earlier one is filled.
- Solid wastes generated in the kitchen shall be reused if recyclable or disposed off in land fill sites.

#### **e) Medical and First Aid Facilities**

9. Medical facilities shall be provided to the labour at the construction camp. Visits of doctor shall be arranged twice a month wherein routine check-ups would be conducted for women and children. A separate room for medical check-ups and keeping of first aid facilities should be built. The site medical room should display awareness posters on safety facilitation hygiene and HIV/AIDS awareness.

- First Aid Box will be provided at every construction campsite and under the charge of a responsible person who shall always be readily available during working hours. He shall be adequately trained in administering first aid-treatment. Formal arrangement shall be prescribed to carry injured person or person suddenly taken ill to the nearest hospital. The first aid box shall contain the following.
  - 6 small sterilized dressings
  - 3 medium size sterilized dressings
  - 3 large size sterilized dressings
  - 3 large sterilized burns dressings
  - 1 (30 ml) bottle containing 2 % alcoholic solution of iodine
  - 1 (30 ml) bottle containing salvolatile
  - 1 snakebite lancet
  - 1 (30 gms) bottle of potassium permanganate crystals
  - 1 pair scissors
  - Ointment for burns
  - A bottle of suitable surgical antiseptic solution

In case, the number of labour exceeds 50, the items in the first aid box shall be doubled.

#### **f) Provision of Shelter during Rest**

10. The work place shall provide four suitable sheds, two for meals and two for rest (separately for men and women). The height of the shelter shall not be less than 3.0m from the floor level to the lowest part of the roof. These shall be kept clean.

#### **g) Crèches**

11. In case 30 or more women workers are employed, there shall be a room of reasonable size for use of children under the age of six years. The room should have adequate light and realisation. A caretaker is to be appointed to look after the children. The use of the room shall be restricted to children, their mothers and the caretaker.

#### **2.1 Storage of Construction Material in Construction Camps**

12. For storage of Petrol/Oil/Lubricants, brick on edge flooring or sand flooring will be provided at the storage places of Petrol/Oil/Lubricants to avoid soil and water contamination due to spillage. These should be kept away from labour residential areas. The storage of cement shall be at Damp-proof flooring, as per IS codes. All materials shall be stored in a barricaded area. In case of electrical equipment, danger signs shall be posted. The batch mix plant is to be located away from the residential area and not in the wind direction. Separate parking areas for vehicles and also workshop areas need to be provided.



## 2.2 Firefighting arrangement

The following precautions need to be taken:

- Demarcation of area susceptible to fires with cautionary signage;
- Portable fire extinguishers and/or sand baskets shall be provided at easily accessible locations in the event of fire;
- Contractor shall educate the workers on usage of these equipment.

## 2.3 Interactions with host communities

13. To ensure that there is no conflict of the migrant labor with the host communities, the contractor shall issue identity cards to labourers and residents of construction camps.

## 3. CONSTRUCTION STAGE

14. Construction camps shall be maintained free from litter and in hygienic condition. It should be kept free from spillage of oil, grease or bitumen. Any spillage should be cleaned immediately to avoid pollution of soil, water stored or adjacent water bodies. The following precautions need to be taken in construction camps.

- Measures to ensure that no leaching of oil and grease into water bodies or underground water takes place.
- Wastewater should not be disposed into water bodies.
- Regular collection of solid wastes should be undertaken and should be disposed off safely.
- All consumables as the first aid equipment, cleaning equipment for maintaining hygiene and sanitation should be recouped immediately.
- The debris/scrap generated during construction should be kept in a designated and barricaded area.

15. The PIU/PMC will monitor the cleanliness of construction campsites and ensure that the sites are properly maintained throughout the period of the contract.

## 4. POST CONSTRUCTION STAGE

16. At the completion of construction, all construction camp facilities shall be dismantled and removed from the site. The site shall be restored to a condition in no way inferior to the condition prior to commencement of the works. Various activities to be carried out for site rehabilitation include:

- Oil and fuel contaminated soil shall be removed and transported and buried in waste disposal areas.
- Soak pits, septic tanks shall be covered and effectively sealed off.
- Debris (rejected material) should be disposed off suitably (Refer **OM-6** on “Waste Management and Debris Disposal”).
- Ramps created should be levelled.
- Underground water tank in a barren/non-agricultural land can be covered. However, in an agricultural land, the tank shall be removed.
- If the construction camp site is on an agricultural land, top soil can be spread so as to aid faster rejuvenation.
- Proper documentation of rehabilitation site is necessary. This shall include the following: –Photograph of rehabilitated site;
  - Land owner consent letter for satisfaction in measures taken for rehabilitation of site;
  - Undertaking from contractor; and
  - Certification from PIU/PMC.

17. In cases, where the construction camps site is located on a private land holding, the contractor would still have to restore the campsite as per this guideline. Also, he would have to obtain a certificate for satisfaction from the landowner.

## OM – 2: BORROW AREAS

### 1. INTRODUCTION

1. Embankment fill material is to be procured from borrow areas designated for the purpose. Borrow areas can cause significant adverse environmental impacts if appropriate mitigation measures are not taken. The scope of this guideline is to include measures that are required during project planning and design stage, pre-construction, construction stage and post construction stage. Borrow areas are related only to road construction activities.

### 2. PROJECT PLANNING AND DESIGN STAGE

2. Design measures must be implemented with a focus to reduce the quantity of material extracted and consequently decrease the borrow area requirement. Borrow area siting should be in compliance with IRC: 10-1961. The DPR shall contain (i) Guidelines for locating site of borrow areas and borrow material specifications.

### 3. PRE-CONSTRUCTION STAGE

3. The contractor shall identify the borrow area locations in consultation with the individual owners in case of private lands and the concerned department in case of government lands, after assessing suitability of material. The suitable sites shall be selected and finalized in consultation with the –PIU/PMC. Borrowing are to be avoided in the following areas:

- Lands close to toe line.
- Irrigated agricultural lands (In case of necessity for borrowing from such lands, the topsoil shall be preserved in stockpiles. The subsequent Guidelines detail the conservation of topsoil.
- Grazing land.
- Lands within 0.8km of settlements.
- Environmental sensitive areas such as Reserve Forests, Protected Forests, Sanctuary, wetlands. Also, a distance of 1000 m should be maintained from such areas.
- Designated protected areas / forests.
- Unstable side-hills.
- Water-bodies.
- Streams and seepage areas.
- Areas supporting rare plant/ animal species;
- Ensure soft rock is not prominent within the proposed depth of excavation as it will render rehabilitation difficult.

#### 3.1 Arrangements for Borrow Area

4. The Contractor will work out arrangements for borrowing with the land owner/concerned department of Commissioner of Geology and Mining, Govt. of Gujarat for necessary approval (Online application of Mining lease are available in the website: [http://cgm.ncode.in/LeaseHolder/AppPages/Quarry\\_Lease.aspx](http://cgm.ncode.in/LeaseHolder/AppPages/Quarry_Lease.aspx)).

5. The arrangements will include the redevelopment after completion of borrowing. The arrangements will be verified by the PIU/PMC to enable redressal of grievances at a later stage of the project. The PIU/PMC shall approve the borrow area after inspection of the site to verify the reclamation plan and its suitability with the contractor and landowner. The contractor shall commence borrowing soil only after the approval by the PIU/PMC. The contractor shall submit to the PIU/PMC the following before beginning work on the borrow areas.

- Written No-objection certificate of the owner/cultivator;
- Estimate extent of earth requires;
- Extent of land required and duration of the agreement;
- Photograph of the site in original condition; and
- Site redevelopment plan after completion.

6. The depth of excavation should be decided based on natural ground level of the land and its surroundings, as well as based on the rehabilitation plan. In case higher depth of excavation is agreed by

backfilling using unsuitable excavated soil (from roadway), in those cases filling should be adequately compacted except for topsoil, which has to be spread on the top most layer (for at least 20m thick).

7. The guidelines for location, depth, size and shape of the borrow areas are available in the following:

- Clause 305.2.2.2 of MoRTH specification for roads and bridge works of IRC;
- Guidelines for environmental impact assessment of highway projects, Indian Roads Congress, 1989: (IRC: 104-1988);
- IRC: 10-1961-Recommended practice for borrow pits for road embankments constructed by manual operations, as revised in 1989;
- IRC SP: 58-2001 guideline for use of fly ash in road construction;
- EIA manual of MoEF, 2001;
- MoEF notification on utilisation of fly ash dated 27 August, 2005.

### 3.2 Documentation of Borrow Pit

8. The contractor must ensure that following database must be documented for each identified borrow areas that provide the basis of the redevelopment plan.

- Chainage along with offset distance;
- Area (Sq.m);
- Photograph of the pit from all sides;
- Type of access/width/kutch/pucca etc from the carriageway;
- Soil type;
- Slope/drainage characteristics;
- Water table of the area or identify from the nearest well, etc;
- Existing landuse, for example barren/agricultural/grazing land;
- Location/name/population of the nearest settlement from borrow area;
- Present usage of borrow area; and
- Community facility in the vicinity of borrow pit.

### 3.3 Redevelopment Plans for Borrow Pits

9. The following checklist provides guidelines in order to ensure that redevelopment of borrow areas must comply with MoRTH, clause 305.2.2.2 and EMP requirement. Borrow areas can be developed as:

- Ponds (various types) (eg: Drinking Water only; Washing and for other Domestic Chores; Only for Cattle; Mixed Uses etc.) (a large pond can be divided into two parts - each having a defined use)
- Farmland submission
- Water Recharging Zones
- Pastureland
- Fish Ponds (pisciculture)
- Waste disposal Sites (depending upon the location, distance from settlements, pollution risks, safety, associated environmental risks and hazards, regulations/ permissions of appropriate authority and other such factors)
- Plantation Zones
- Recreational Zones (depending upon location, size, potential of the site, willingness of the local bodies to develop it)
- Wildlife Refuge and Drinking Area (applicable only in case of sensitive environs with appropriate planning and understanding including regulation of depth for safety of animals etc.)

10. The rehabilitation measures for the borrow areas shall be dependent on the following factors:

- Land use objectives and agreed post-borrowing activities;
- Physical aspects (landform stability, erosion, re-establishment of drainage);
- Biological aspects (species richness, plant density,) for areas of native re vegetation;
- Water quality and soil standards; and
- Public safety issues.

11. **Rehabilitation should be simple and maintenance free.** Depending on the choice of the individual land owner/community, the contractor shall prepare redevelopment plans for the borrow areas. The options can be: (i) Restoring the productive use of the land (ii) Development of detention ponds in barren areas.

**Option I: Suitable in locations with high rainfall and productive areas**

12. Topsoil must be placed, seeded, and mulched within 30 days of final grading if it is within a current growing season or within 30 days of the start of the next growing season. Vegetative material used in reclamation must consist of grasses, legumes, herbaceous, or woody plants or a combination thereof, useful to the community for the fuel and fodder needs.

13. Plants must be planted during the first growing season following the reclamation phase.

14. Selection and use of vegetative cover must take into account soil and site characteristics such as drainage, pH, nutrient availability, and climate to ensure permanent growth. The vegetative cover is acceptable if within one growing season of seeding, the planting of trees and shrubs results in a permanent stand, or regeneration and succession rate, sufficient to assure a 75% survival rate.

**Option II: In barren land, the borrow areas can be redeveloped into detention ponds.**

15. These will be doubled up as water bodies and also for removal of sediment from runoff flowing through the ponds. Design of the detention basin depends upon the particle size, settling characteristics, residence time and land area. A minimum of 0.02 mm size particle with a settling velocity of 0.02 cm/sec (assuming specific gravity of solids 2.65) can be settled in the detention basin.

Following parameters are to be observed while setting up a detention pond:

- Pond should be located at the lowest point in the catchment area. Care should be taken that the horizontal velocity should be less than settling velocity to prevent suspension or erosion of deposited materials.
- Minimum Effective Flow Path: 5 times the effective width
- Minimum Free Board: 0.15 m
- Minimum Free Settling Depth: 0.5 m
- Minimum Sediments Storage Depth: 0.5 m
- Maximum interior slope: 2H : 1V
- Maximum exterior slope: 3H : 1V

16. The inlet structure should be such that incoming flow should be distributed across the width of the pond. A pre-treatment sump with a screen should be provided to remove coarse sediments. Settled sediment should be removed after each storm event or when the sediment capacity has exceeded 33% of design sediment storage volume. Accumulated sediment must be disposed off in a manner, which will prevent its re-entry into the site drainage system, or into any watercourse.

**4. CONSTRUCTION STAGE**

17. No borrow area shall be operated without permission of the Engineer. The procurement of borrow material should be in conformity to the guidelines laid down in IRC: 10-1961. In addition, the contractor should adopt precautionary measures to minimise any adverse impacts on the environment. Checklists for monitoring borrow areas operation and management has been prepared (**Table 2-1**).

**Table 2-1: Checklist for Monitoring Borrow Area Operation and Management**

Attributes	Requirements
Access Road	Access road shall be used for hauling only after approved
Top soil preservation	To soil, if any, shall be stripped and stored at corners of the area before the start of excavation for material collection; Top soil should be reused / re-laid as per agreed plan; In case of riverside, borrow pit should be located not less than 15m from the toe of the bank, distance depending on the magnitude and duration of flood to be withstood. In no case shall borrow pit be within 1.5m from the Toe line of the proposed embankment.
Depth of excavation	For agricultural land, the total depth of excavation should be limited to 150cm including top 30 cm for top soil preservation; For river side borrow area, the depth of excavation shall be regulated so that the inner edge of any borrow pit, should not be less than 15m from the toe of the bank and bottom of the pit should not cut the imaginary line of 1:4 projected from the edge of the final section of the embankment. To avoid any embankment slippage, the borrow areas will not be dug continuously, and the size and shape of borrow pits will be decided by the Engineer.

<b>Attributes</b>	<b>Requirements</b>
Damage to surrounding land	Movement of man and machinery should be regulated to avoid damage to surrounding land. To prevent damages to adjacent properties, the Contractor shall ensure that an undisturbed buffer zone exists between the distributed borrow areas and adjacent land. Buffer zone shall be 3 m wide or equal to the depth of excavation whichever is greater.
Drainage control	The Contractor shall maintain erosion and drainage control in the vicinity of all borrow pits and make sure that surface drains do not affect the adjacent land or future reclamation. This needs to be rechecked by the PIU/PMC.
Dust Suppression	Water should be sprayed on kutchha haul road twice a day or as may be required to avoid dust generation during transportation of material; Depending on moisture content, 0.5 to 1.5% water may be added to excavated soil before loading during dry weather to avoid fugitive dust emission.
Covering material for transport material	Material transport shall be provided with tarpaulin cover
Personal Protective Equipment	Workers should be provided with helmet, gumboots and air mask and their use should be strictly enforced.
Redevelopment	The area should be redeveloped within agreed timeframe on completion of material collection as per agreed rehabilitation plan.

## 5. POST CONSTRUCTION STAGE

18. All reclamation shall begin within one month of abandonment of borrow area, in accordance with the redevelopment plan. The site shall be inspected by the PIU/PMC after implementation of the reclamation plan. Certificate of Completion of Reclamation is to be obtained by the Contractor from the landowner that “the land is restored to his satisfaction”. The final payment shall be made after the verification by PIU/PMC.

## 6. CHECKLIST FOR INSPECTION OF REHABILITATION AREA

19. Inspection needs to be carried out by the PIU/PMC for overseeing the redevelopment of borrow areas as per the plan. The checklist for the inspection by the PIU/PMC is given below.

- Compliance of post-borrowing activities and land use with the restoration plan;
- Drainage measures taken for inflow and outflow in case borrow pit is developed as a detention pond;
- Levelling of the bottom of the borrow areas;
- In case the borrow area is on private property, the contractor shall procure written letter from landowner for satisfaction on rehabilitation. In case of no rehabilitation is desired by the landowner, the letter should include statement “no responsibility of R&BD (GSRRDA) on contractor in the event of accident.
- Condition of the reclaimed area in comparison with the pre-borrowing conditions.

## OM – 3: QUARRY MANAGEMENT

### 1. INTRODUCTION

1. This guideline pertains to the measures to be taken to address environmental concerns in quarry areas. The general practice adopted is to procure materials from existing quarries operating with the requisite permits. The measures to be taken for operation and management for quarries during all stages of construction have been discussed in this Guideline.

### 2. PROJECT PLANNING AND DESIGN STAGE

2. The PIU shall provide in the DPR / bid document, a list of licensed quarries operating within the district and adjoining districts. In addition, the DPR shall contain the following: (i) Quantity of materials available in quarries (ii) Lead from the various existing quarries and (iii) Adequacy of materials for the project in these quarries. **Table 3-1** and **3-2** give the format for preparing a list of quarries.

**Table 3-1 Details of Sand Quarry**

Sample No.	Source of Sand	Name of quarry area	Site Identification/ Location			Approximate Quantity (cum)	Approximate basic cost of the material (Rs.)	Remarks
			Nearest Chainage (Km.)	Left/Right	Offset from nearest chainage (km)			

**Table 3-2 Details of Quarry Area for Aggregates**

Sample No.	Chainages (Km.)	Left/ Right	Name of Quarry Area	Name of Crusher	Lead from nearest chainage (Km.)	Basic cost of the material (Rs.)	Available land/terrain	Surrounding land Terrain	Remarks
------------	-----------------	-------------	---------------------	-----------------	----------------------------------	----------------------------------	------------------------	--------------------------	---------

3. In the event of non-availability of existing quarries, the Contractor shall open a new quarry in accordance with Mines and Minerals (Development & Regulation) Act, 1957 (Online application of Mining lease are available in the website: [http://cgm.ncode.in/LeaseHolder/AppPages/Quarry\\_Lease.aspx](http://cgm.ncode.in/LeaseHolder/AppPages/Quarry_Lease.aspx)).

4. The bid document shall include the exhaust quarry reclaim plan as per needs of the landowner / community.

### 3. PRE-CONSTRUCTION STAGE

5. The Contractor shall select an existing licensed quarry identified in DPR for procuring materials. The Contractor shall establish a new quarry with the prior consent of the PIU/PMC only in cases when: (i) Lead from existing quarries is uneconomical and (ii) Alternative material sources are not available. The Contractor shall prepare a Redevelopment Plan for the quarry site and get it approved by the PIU/PMC.

6. The construction schedule and operations plans to be submitted to the PIU/PMC prior to commencement of work shall contain a detailed work plan for procuring materials that includes procurement, transportation and storage of quarry materials.



## 4. CONSTRUCTION STAGE

### 4.1 Development of Quarry Area

7. To minimize the adverse impact during excavation of material following measures are need to be undertaken:

- Adequate drainage system shall be provided to prevent the flooding of the excavated area
- At the stockpiling locations, the Contractor shall construct sediment barriers to prevent the erosion of excavated material due to runoff.
- Construction of offices, laboratory, workshop and rest places shall be done in the up-wind of the plant to minimize the adverse impact due to dust and noise.
- The access road to the plant shall be constructed taking into consideration location of units and also slope of the ground to regulate the vehicle movement within the plant.
- In case of storage of blasting material, all precautions shall be taken as per The Explosive Rules, 1983.

### 4.2 Setting up of Crushers and other equipment

8. The following measures shall be undertaken for setting up of crushers are other equipment.

- The contractor shall obtain “No Objection Certificate (NoC)” from the Gujarat State Pollution Control Board.
- All vehicles must possess Pollution Under Control (PUC) Certificate and shall be renewed accordingly
- All machinery, equipments, and vehicles shall comply with existing CPCB noise and emission norms.
- The PIU/PMC must ensure that contractor shall submit the copy of NoC and PUC Certificate before the start of work.

### 4.3 Quarry operations

9. The followings precautions shall be undertaken during quarry operations. vii) Overburden shall be removed and disposed as per **Guideline 8** “Waste Management and Debris Disposal”.

- During excavation slopes shall be flatter than 20 degrees Guideline 8 on to prevent their sliding
- In case of blasting, the procedure and safety measures shall be taken as per The Explosive Rules, 1983
- The Contractor shall ensure that all workers related safety measures shall be done as per measures for, “Labour & Workers Health & Safety” (**OM-8**).
- The Contractor shall ensure maintenance of crushers regularly as per manufacturer’s recommendation.
- Stockpiling of the excavated material shall be done
- During transportation of the material, measures shall be taken as per **OM-7** “Construction Plants and Equipment Management” to minimize the generation of dust and to prevent accidents
- The Engineer-Incharge and the concerned authority shall review the quarry site for the management measures during quarry operation, including the compliance to pollution norms.

## 5. POST CONSTRUCTION STAGE

10. A quarry redevelopment plan shall be prepared by the Contractor. All haul roads constructed for transporting the material from the quarries to construction site shall be restored to their original state.

11. The PIU/PMC and the concerned authority shall be entrusted the responsibility of reviewing the quarry site for the progress of implementation of Redevelopment Plan.

12. The plan shall include:

- Photograph of the quarry site prior to commencement
- The quarry boundaries as well as location of the materials deposits, working equipment, stockpiling, access roads and final shape of the pit.
- Drainage and erosion control measures at site
- Safety measures during quarry operation
- Design for redevelopment of exhaust site.

**Two options for redevelopment of quarry areas are given below:**

**Option A: Vegetating the quarry to merge with surrounding landscape.** This is done by conserving and reapplying the topsoil for the vegetative growth.

**Option B: Developing exhausted quarries as water bodies.** The pit shall be reshaped and developed into pond, for harvesting rainwater. This option shall only be considered where the location of quarry is at the lowest point, i.e. surrounding areas/ natural drainage slopes towards it.

## OM – 4: WATER FOR CONSTRUCTION

### 1. INTRODUCTION

1. The scope of this guideline includes the procurement of water required for construction of roads. Except bituminous works, water is required during all stages of road construction such as Embankment Sub-Grade; Granular sub-base (GSB) and Water Bound Macadam (WBM). Management of water in various stages of construction is given in the following sections.

### 2. PROJECT PLANNING & DESIGN STAGE

2. The DPR for the road constructions shall contain the following information:

- Estimate of water requirement during different seasons based on construction schedule of various stages of construction.
- Identification of potential sources of water for construction,
- Arrangements to be worked out by the contractor with individual owners, when water is obtained from private sources, and
- Whether scarcity of water would have any impact on schedule of construction.

#### In water-scarce regions, provide the following additional information in Project Reports...

- Exploring possibilities for use of existing perennial sources, through interactions with water user groups as the villagers, relevant Government Departments, keeping in view that the water extraction does not infringe upon the usufruct rights of the existing water users.
- Identification of potable water source for domestic use of workers and for use in cement - based construction such as cement concrete roads, culverts and other cross drainage works.
- Identification of alternate water sources, water-harvesting techniques will be explored to avoid water extraction from the existing community sources.

3. In water scarce regions, if water-harvesting structures are to be constructed, suitable locations and mechanism for siting these structures will be identified. These are envisaged to be permanent water tanks for collection of stream water. Detailed drawings of water harvesting structures based on site conditions will need to be worked out and presented in the DPR. No extra payment shall be generally made for these works and the Contractor has to include the cost of these items in his offer while quoting his tendered rate.

4. Scheduling Construction in Water Scarce Areas: As part of the project preparation, the PIU/PMC shall conduct an assessment of water requirement and availability in water scarce regions. As far as possible, schedule for construction in these water scarce areas shall be prepared such that earthwork for embankment is carried out just before monsoon, so that water requirement for subsequent construction works such as granular sub-base and water bound macadam are met in monsoon and post monsoon season. Carrying out these activities even during the monsoon is possible as the rainfall may not be high enough to disrupt construction.

### 3. PRE-CONSTRUCTION STAGE

5. Prior to commencement of extraction of water for construction, the contractor shall work out arrangements as specified in the DPR.

**In water-scarce regions, provide the following additional information in Project Reports...**

- Exploring possibilities for use of existing perennial sources, through interactions with water user groups as the villagers, relevant Government Departments, keeping in view that the water extraction does not infringe upon the usufruct rights of the existing water users.
- Identification of potable water source for domestic use of workers and for use in cement - based construction such as cement concrete roads, culverts and other cross drainage works.
- Identification of alternate water sources, water-harvesting techniques will be explored to avoid water extraction from the existing community sources.  
from any septic tank/soak pit or other source of pollution.
- In case of water harvesting structures (if required), the Contractor shall in consultation with the residents, identify suitable locations for siting the structure and construct the same.
- In case of perennial sources, the Contractor shall adhere to all administrative procedures pertaining to procurement of water from such sources.

**CONSTRUCTION STAGE**

6. During construction, the Contractor shall be responsible to monitor the following:
- The arrangements worked out with the Panchayat/individual land owners for water extraction is adhered to;
  - Extraction of water is restricted to construction requirement and domestic use of construction workers;
  - Water requirement for curing of concrete shall be minimized by pooling of water over the concrete or by covering with wet gunny bags; and
  - The potable water used for drinking purposes of construction workers shall be as per the Indian Standard for Drinking Water IS: 10500, 1991.

## **OM – 5: SLOPE STABILITY AND EROSION CONTROL**

### **1. INTRODUCTION**

1. Stability of slopes is a major concern in locations of high embankment. In cases of high embankment, water retention at the embankment base initially causes toe failure and subsequently failure of the whole embankment. Soil erosion is consequent to high runoff on hill slopes. Embankments made up of silty and sandy soils get eroded, in the absence of vegetative cover, when the slopes are steep say more than 20 Degree.

2. The scope of this guideline includes measures to minimize the adverse environmental impacts due to slope instability and soil erosion. The adverse environmental impact can be: (i) Damage to adjacent land, (ii) Silting of ponds and lakes disturbing the aquatic habitat (iii) Erosion of rich and top fertile top layer of soil (iv) Contamination of surface water bodies and (v) Reduction in road formation width due to erosion of shoulders/berms.

### **2. PROJECT PLANNING AND DESIGN STAGE**

3. During the detailed project preparation phase, the following investigations shall be carried out prior to finalisation of alignment.

- Topographical;
- Hydrological;
- Geo-technical; and
- Geological Investigation (in case of roads in hill areas and areas of high seismic activity)

4. In addition to the slope stability analysis the alignment should be such that (i) steep as well as heavy cuts are avoided, (ii) Flora and fauna of the area are not disturbed and (iii) Natural drainage pattern is not obstructed.

5. For high embankments, geo-technical investigations (determination of C,  $\phi$ , density etc.) of the available material need to be done to check its suitability as fill material.

6. Following guidelines shall be followed in desert areas while using cohesion-less soils for embankment construction.

- The alignment should follow the natural ground level to the extent possible and the embankment shall be restricted to minimum to achieve ruling grades.
- Slope of the embankment should be 3 (H): 1(V) or flatter.
- The corners of the embankment should be rounded for better aerodynamic performance.

### **3. PRE-CONSTRUCTION STAGE**

7. Interceptor ditches are constructed along hilly slopes or areas with high rainfall to protect the road bench and hillside slope from erosion due to heavy rainfall and runoff. Interceptor ditches are very effective in the areas of high intensity rainfall and where the slopes are exposed. These are the structures designed to intercept and carry surface run-off away from erodible areas and slopes, thus reducing the potential surface erosion. The PIU/PMC must ensure that the layout and siting of ditches is as per specifications.

### **4. CONSTRUCTION STAGE**

8. When alternative material such as fly ash is used for embankment formation, it needs to be ensured that sufficient filter bed is provided along with the top cap. All tests as per IS: 2720 (Parts: 4, 5, 8 & 40) and IRC: SP: 20-2002 are to be conducted on the embankment to keep a check on the compaction achieved. Slope stabilisation techniques and erosion control measures such as vettiver grass, stone pitching, use of geotextile and turfing.

**Box-1: Detailed specifications for Vegetative cover***Description:*

The vegetative cover should be planted in the region where the soil has the capacity to support the plantation and at locations where meteorological conditions favours vegetative growth.

*Site Preparation:*

- To prevent the seeds from being washed away subsequent to sowing, the area should be protected with surface roughening and diversions.
- Soil samples should be taken from the site and analysed for fertiliser and lime requirements.

*Seed Application:*

- The seed should be sown uniformly as soon as preparation of the seedbed has been completed.
- No seed should be sown during windy weather. The best time for seeding would be during monsoon.

*Maintenance:*

During first six weeks, the planting should be inspected by the PIC, to check if the growth is uniform and dense. Appropriate moisture levels shall be maintained. There may be requirement of watering the plantings regularly during the dry seasons.

**5. POST CONSTRUCTION STAGE**

9. All the exposed slopes shall preferably be covered with vegetation using grasses, brushes etc. Locally available species possessing the properties of (i) good growth (ii) dense ground cover and (iii) deep root shall be used for stabilization.

10. In case of steep and barren slopes, in order to retain the seedling to the ground asphalt mulch treatment shall be given. Seedling are covered with asphalt emulsion and spread into a thin layer. The asphalt film gradually disintegrates and a carpet of green vegetation and deep-rooted species of grass and clovers, takes its place. Anchoring shall be carried out as per IRC: SP: 48-1998.

11. Regular inspection of check dams and repositioning/replacement of dislodged or stolen stones need to be carried out.

12. Repair and maintenance of eroded side drain inverts is to be done in order to arrest retrogradation of levels in side drains. Slopes of high embankment can give a fertile base for growth of vegetative cover / sodding.

13. In arid areas, in order to avoid the deposition of sand over or near the road surface, shrubs are to be planted at an appropriate distance from the formation. The shrubs should not be abutting the road and the distance for carrying out plantation shall be determined based on prevalent wind speeds as well as quantity of sand being carried amongst various other factors. There should be a clear gap between the roadway and shrubs to allow the wind to pick up its velocity and carry along with it any sand that is deposited.



## OM – 6: WASTE MANAGEMENT AND DEBRIS DISPOSAL

### 1. INTRODUCTION

1. This guidance describes procedures for handling, reuse and disposal of waste materials during road construction. The Guideline describes waste management measures in all stages of construction. Also, the Guideline discusses the measures to be taken for debris disposal.

### 2. PROJECT PLANNING AND DESIGN STAGE

2. As part of DPR preparation, the PIU/PMC shall carry out the following measures

- Finalize road design and alignment to minimize waste generation through balancing of cut and fill operations and minimizing excess cuts requiring disposal.
- Identify the type of wastes as well as sources of waste during construction and suggest options for possible reuse
- Provide guidelines to the contractor for locating waste disposal sites for non-toxic wastes
- Identify existing landfill sites if available for disposal of toxic materials.
- In case no existing landfill sites are available, identification of landfill site as well as identification of the clearance requirements.
- Identify sites of disposal of debris.

### 3. PRE-CONSTRUCTION STAGE

3. The contractor shall identify the activities during construction, that have the potential to generate waste and work out measures for reducing, reusing and proper disposing of the generated waste in the construction schedule to be submitted to the PIU/PMC. A sequential listing of the activities during road construction and the nature of wastes together with the possible options for reuse are specified in **Table 6-1**. For the disposal of excess cut and unsuitable (non-toxic) materials, the contractor shall identify the location for disposal in consultation with the community / concerned department. Any toxic materials shall be disposed in existing landfill sites that comply with legislative requirements. Prior to disposal of wastes onto private/community land, it shall be the responsibility of the Contractor to obtain a No-objection Certificate (NOC) from the land owner/community. The NOC shall be submitted to the PIU/PMC prior to commencement of disposal.

4. The Contractor shall educate his workforce on issues related to disposal of waste, the location of disposal site as well as the specific requirement for the management of these sites.

#### Practices to avoid – waste disposal ...

- Tipping of waste into stream channels, water bodies, forests and vegetated slopes
- Non-cleaning of wastes after day's work
- Leaching of wastes
- Littering in construction camps / sites
- Storing wastes on private land

### 4. CONSTRUCTION STAGE

5. The Contractor shall either reuse or dispose the waste generated during construction for roads depending upon the nature of waste, as specified in **Table 6-1**. The reuse of waste shall be carried out by the contractor only after carrying out the specific tests and ascertaining the quality of the waste materials used, and getting the same approved by the PIU/PMC. Wastes that were not reused shall be disposed off safely by the contractor. The contractor shall adopt the following precautions while disposing wastes:

- Bituminous wastes shall be disposed off in 60mm thick clay lined pits and covered with 30cm good earth at top, so as to facilitate growth of vegetation in long run.
- In case of filling of low-lying areas with wastes, it needs to be ensured that the level matches with the surrounding areas. In this case care should be taken that these low lying areas are not used for rainwater storage
- In case oil and grease are trapped for reuse in a lined pit, care shall be taken to ensure that the pit should be located at the lowest end of the site and away from the residential areas.

6. The waste management practices adopted by the Contractor, including the management of wastes at construction camps etc. shall be reviewed by the PIU/PMC and the Pollution Control Board (PCB) during the progress of construction.

## 5. POST CONSTRUCTION STAGE

7. On decommissioning of construction sites, the Contractor shall hand over the site free of all debris/wastes to the satisfaction of PIU/PMC. In case of any temporary disposal of wastes on private land, certificate of Completion of Reclamation is to be obtained by the Contractor from the landowner that “the land is restored to his satisfaction”. The same is to be submitted to the PIU/PMC before final payment is claimed.

**Table 6-1: Type of wastes and scope for reuse- road construction**

S. No	Activity	Type of waste	Scope for possible reuse	Disposal of waste
<b>I CONSTRUCTION WASTES</b>				
1.	Site Clearance and grubbing	Vegetative cover and top soil Unsuitable material in embankment foundation	Vegetating embankment slopes Embankment Fill	Low lying areas Land fill sites
<b>2. Earthworks</b>				
a)	Overburden of borrow areas	Vegetative cover and soil	Vegetating embankment slopes	
b)	Overburden of quarries	Vegetative cover and soil Granular material	Vegetating embankment slopes Embankment Fill, Pitching	
c)	Accidental spillages during handling	Dust		
d)	Embankment construction	Soil and Granular Material	Embankment Fill	
e)	Construction of earthen drains	Soil	Embankment Fill	
<b>3. Concrete structures Dust</b>				
a)	Storage of material	Dust, Cement, Sand Metal Scrap	Constructing temporary structure, embankment fill	Scrap Yard
b)	Handling of materials	Dust		
c)	Residual wastes	Organic matter Cement, sand Metal scrap	Manure, Revegetation Constructing temporary structure, embankment fill Diversion sign, Guard Rail	
<b>4 Reconstruction works</b>				
a)	Dismantling of existing pavement	Bitumen Mix, granular material Concrete Guard rail sign post, guard stone	sub-base Road Sub-base, reuse in concrete, fill material and as rip rap on roads Reuse for same	
b)	Dismantling of cross drainage structures	Granular material & bricks Metal scrap Pipes	Constructing temporary structure, embankment fill Diversion sign, Guard Rail Culvert Culvert	
<b>5 Decommissioning of sites</b>				
a)	Dismantling of temporary structures	Granular material and bricks	Constructing temporary structure, embankment fill	
6	Maintenance operation			
a)	Desilting of side drains	Organic matter and soil	Revegetation	
<b>II OIL AND FLUIDS</b>				
1	Construction machinery – maintenance and refueling	Oil and Grease	Incineration, Cooking, Illumination	
<b>2 Bituminous works</b>				
a)	Storage	Bitumen	Low Grade Bitumen Mix	
b)	Mixing and handling	Bitumen Bitumen Mix	Low Grade Bitumen Mix Sub-base, Paving access & cross roads	
c)	Rejected bituminous mix	Bitumen Mix	Sub-base, Paving access & cross roads	
<b>III DOMESTIC WASTES</b>				
1	Construction camps	Organic waste, Plastic and metal scrap Domestic effluent	Manure Irrigation	Scrap Yard

## **6. Disposal of Debris**

8. For the purpose of disposal of debris, dumping sites need to be selected. The criteria for selection of dumping sites include:

- No residential areas are located downwind side of these locations;
- Dumping sites are located at least 1000 m away from sensitive locations;
- Dumping sites do not contaminate any water sources, rivers etc; and
- Dumping sites have adequate capacity equal to the amount of debris generated;
- Public perception about the location of debris disposal site has to be obtained before finalizing the location;
- Permission from the Village Panchayat is to be obtained for the dumping site selected;
- Productive lands are avoided; and
- Available waste lands shall be given preference

## OM – 7: CONSTRUCTION PLANTS & EQUIPMENT MANAGEMENT

### 1. GENERAL

1. During execution of the project, construction equipment's, machinery and plants are likely to cause adverse impact on the environment. The impact can be due to the emissions, dust, noise and oil spills that concern the safety and health of the workers, surrounding settlements and environment as a whole. This guideline describes the activities during the project stages where pollution control measures are required.

### 2. PROJECT PLANNING AND DESIGN STAGE

2. Selection criteria for setting up a plant area and parking lot for equipment's and vehicles shall be done as per siting criteria for construction camp specified in Guideline on "Construction and Labour Camps".

### 3. PRE-CONSTRUCTION STAGE

3. The Contractor must educate the workers to undertake safety precaution while working at the plant / site as well as around heavy equipment's. Before setting up the crusher, hot-mix plant and generator, the Contractor shall acquire "No Objection Certificate (NOC)" from the Gujarat State Pollution Control Board for the same. The Contractor shall ensure all vehicles must possess Pollution under Control (PUC) Certificate, which and shall be renewed regularly. The Contractor must ensure that all machinery, equipment's, and vehicles shall comply with the existing Central Pollution Control Board (CPCB) noise and emission norms. The PIU/PMC must ensure that the Contractor shall submit a copy of the NOC and PUC Certificates before the start of work. The Contractor shall design the service road with protection measures as black topping at vulnerable points as in low lying areas.

### 4. CONSTRUCTION STAGE

4. The Contractor shall undertake measures as per **Table 7-1** to minimize -the dust generation, emissions, noise, oil spills, residual waste and accidents at the plant site as well as during transportation of material to construction site.

**Table 7-1: Measures at Plant Site**

Concern	Causes	Measures
Dust Generation	Vehicle Movement	<ul style="list-style-type: none"> <li>•Water sprinkling</li> <li>•Fine Materials shall be Transported in Bags or Covered by Tarpaulin during Transportation</li> <li>•Tail board shall be properly closed and sealed to be spill proof</li> </ul>
	Crushers	<ul style="list-style-type: none"> <li>• Regular Water Sprinkling to keep the dust below visibility level</li> </ul>
	Concrete-Mix Plant	<ul style="list-style-type: none"> <li>• Educate the workers to follow/adopt good engineering practices while material handling</li> </ul>
Emissions	Hot-Mix Plant	<ul style="list-style-type: none"> <li>•Site Selection as per Clause 6.5.2, Section 6.5, IRC's Manual for Construction &amp; Supervision of Bitumen Work</li> <li>•Regular maintenance of Dust Collector as per manufacture's recommendations</li> </ul>
	Vehicles	<ul style="list-style-type: none"> <li>• Regular maintenance as per manufacture's recommendation</li> </ul>
	Generators	<ul style="list-style-type: none"> <li>• Exhaust vent of long length and emission to confirm to PCB norms.</li> </ul>
	Heavy Load Vehicles	<ul style="list-style-type: none"> <li>• Exhaust silencer, Regular maintenance as per manufacture schedule</li> </ul>
Noise	Crushers	<ul style="list-style-type: none"> <li>• Siting as per guideline, "Construction and Labour Camps"</li> </ul>
	Generators	<ul style="list-style-type: none"> <li>• All generators should have mandatorily acoustic enclosures and confirms to PCB norms.</li> </ul>
Oil Spills	Storage and Handling	<ul style="list-style-type: none"> <li>• Good practice, guideline, "Waste Management and Debris Disposal"</li> </ul>
Residual waste	Dust Collector and Pits	<ul style="list-style-type: none"> <li>• Guideline, "Waste Management and Debris Disposal"</li> </ul>
Concrete waste	Concrete-Mix plant	<ul style="list-style-type: none"> <li>• Guideline, "Waste Management and Debris Disposal"</li> </ul>
Bitumen and bitumen mix	Hot-mix Plant	<ul style="list-style-type: none"> <li>• Guideline, "Waste Management and Debris Disposal"</li> </ul>
Safety	Stone chips	<ul style="list-style-type: none"> <li>• Guideline, "Waste Management and Debris Disposal"</li> </ul>
	Trajectory of Equipment's	<ul style="list-style-type: none"> <li>• No worker shall be present in the vicinity of the equipment's</li> </ul>
	Movable Parts of Equipment's	<ul style="list-style-type: none"> <li>• Caution Sign, awareness among workers</li> </ul>
	Plant Area / Site	<ul style="list-style-type: none"> <li>• Caution Sign, Safety Equipment's</li> </ul>
	Accidents / Health	<ul style="list-style-type: none"> <li>•First Aid Box, Periodic Medical Checkup Break down of</li> </ul>
	Break down of vehicles	<ul style="list-style-type: none"> <li>• Arrangement for towing and bringing it to the workshop</li> </ul>

5. During site clearance, all cut and grubbed materials shall be kept at a secured location so that it does not raise any safety concerns. During excavation, water sprinkling shall be done to minimize dust generation. Frequent water sprinkling shall be done on the haul roads to minimize dust generation. In case of loose soils, compaction shall be done prior to water sprinkling. Cautionary and informatory sign shall be provided at all locations specifying the type of operation in progress. The contractor must ensure that there is minimum generation of dust and waste while unloading the materials from trucks. The construction waste generated shall be disposed as per Guideline on, “Waste Management and Debris Disposal”. The equipment’s, which are required to move forward and backward, shall be equipped with alarm for backward movement. It shall be ensure that the workers shall remain away from the working areas at such times. Also, equipment’s at construction camp should be barricaded and kept away from residential quarters of workers.

6. The PIU/PMC shall carry out periodic inspections to ensure that all the pollution control systems are appropriately installed and comply with existing emission and noise norms.

#### 5. POST-CONSTRUCTION STAGE

7. The PIU/PMC shall ensure that all the haul roads are restored to their original state. In case any inner village road is damaged while transporting the procured material; the contractor shall restore the road to its original condition. The PIU/PMC must ensure that the decommissioning of plant shall be done in environmentally sound fashion and the area to bring its original state.

8. Designated area refers to paved surfaces and barren parcels of land, with adequate drainage and disposal system. It must be ensure that these are away from agriculture land, water body and other sensitive areas.

#### Safety Measures During Bitumen Construction Work...

- The Contractor shall ensure that bitumen storing, handling as well as mixing shall be done at hot-mix plant or designated areas<sup>1</sup> to prevent contamination of soil and ground water.
- Skilled labour shall be used while hand placing the pre-mixed bitumen material. The hand placing of pre-mixed bituminous material shall be done only in following circumstances:
  - For laying profile corrective courses of irregular shape and varying thickness
  - In confined spaces where it is impracticable for a paver to operate and
  - For filling potholes
- The Contractor shall provide safety equipments i.e. gumboots and gloves to the workers while handling bitumen.
- While applying Tack Coat, spraying of bitumen shall be done in the wind direction. The labour shall wear jacket while spraying the bitumen.
- All the bituminous work shall be done as per IRC’s Manual for Construction and Supervision of Bituminous Works.



## OM – 8: LABOUR AND WORKER’S HEALTH AND SAFETY

### 1. INTRODUCTION

1. The safety and health concerns of the workers and the community are impacted due to the hazards created during the construction of road. **Box: 1** gives the safety concerns during construction. This Guideline describes the hazards and measures that need to be taken to mitigate the impacts.

### 2. PROJECT PLANNING AND DESIGN STAGE

2. To address health and safety concerns, the DPR shall contain selection criteria for setting up:

- Construction Camps (as per guideline);
- Borrow Areas (as per guideline); and
- In case of opening new quarry areas (as per guideline).

3. To address the safety concerns to road user during operational phase, the DPR shall contain the following:

- Selection and location of regulatory as well as informatory signs as per IRC: 67-2001, depending upon the geometry of the road.

### PRE-CONSTRUCTION STAGE

4. In order to incorporate public health and safety concerns, the PIU/PMC and the Contractor shall disseminate the following information to the community:

- Location of construction camps, borrow areas and new quarry areas;
- Extent of work;
- Time of construction;
- Diversions, if any;
- Precaution measures in sensitive areas;
- Involvement of local labours in the road construction;
- Health issues - water stagnation, exposure to dust, communicable disease; and
- Mechanism for grievances.

### 3. CONSTRUCTION STAGE

5. During the progress of work, following are the safety requirements that need to be undertaken by the contractor at the construction site:

- Personal Protective Equipment’s (PPE) for the workers. **Table 8-1** gives the safety gear to be used by the workers during each of the construction activities.
- All measures as per bidding document shall be strictly followed.
- Additional provisions need to be undertaken for safety at site:
  - Adequate lighting arrangement;
  - Adequate drainage system to avoid any stagnation of water;
  - Lined surface with slope 1:40 (V:H) and provision of lined pit at the bottom, at the storage and handling area of bitumen and oil, as well as at the location of generator (grease trap); and
  - Facilities for administering first aid.

Health Concerns are adversely impacted.....	
<i>Public due to:</i>	
• Unhygienic conditions due to water logging (improper drainage of waste water), either by improper decommissioning of Construction Camps and parking lots, or improper disposal of construction wastes, leading to the breeding of vectors that are likely to impact the health of the general public	
• Interaction between workers and host community is likely to increase the risk of spread of communicable diseases.	
<i>Workers due to:</i>	
• Low quality drinking water as well as inappropriate storage of drinking water likely to cause water borne diseases among workers.	
• Absence of proper sanitary facility likely to act as a breeding ground for vectors raising health concerns among workers.	



**Table 8-1: Worker Safety Measures**

Sl. no.	Activity	Safety Requirement
1.	Setting out and levelling	<ul style="list-style-type: none"> <li>Luminous jackets;</li> <li>Helmets;</li> <li>Boots for protection against insect bite; and Dust Mask</li> </ul>
2.	Tree cutting	<ul style="list-style-type: none"> <li>Helmet Boots</li> <li>Luminous safety jackets</li> </ul>
3.	Reinforced yard/ carpentry/ reinforcement cutting/ bending work.	<ul style="list-style-type: none"> <li>Hand gloves</li> </ul>
4.	Shuttering work	<ul style="list-style-type: none"> <li>Goggles Hand gloves</li> </ul>
5.	Plant and Machinery	<ul style="list-style-type: none"> <li>Hand gloves</li> <li>Boots</li> <li>Helmets</li> <li>Dust Mask</li> </ul>
6.	Material handling	<ul style="list-style-type: none"> <li>Hand gloves</li> <li>Dust mask</li> </ul>
7.	Batching plant	<ul style="list-style-type: none"> <li>Goggles</li> <li>Hand gloves</li> <li>Dust mask</li> </ul>
8.	Weeding	<ul style="list-style-type: none"> <li>Goggles</li> </ul>
9.	Binding reinforcement	<ul style="list-style-type: none"> <li>Safety belt</li> <li>Boots</li> </ul>
10.	Manual concrete laying	<ul style="list-style-type: none"> <li>Gum boots</li> <li>Hand gloves</li> <li>Helmet</li> </ul>
11.	Piling	<ul style="list-style-type: none"> <li>Helmet</li> <li>Hand gloves, gumboots.</li> </ul>

6. The following measures need to be adopted by the contractor to address public safety concerns:

- The Contractor shall schedule the construction activities taking into consideration factors such as:
  - Sowing of crops;
  - Harvesting;
  - Local hindrances such as festivals etc.; and
  - Availability of labour during particular periods.
- All the cautionary signs as per IRC: 67-2001 and traffic control devices (such as barricades, etc) shall be placed as soon as construction activity get started and shall remain in place till the activities get completed.
- Following case specific measures need to be followed during the progress of the activity:
  - Incase of blasting, the Contractor must follow The Explosives Rules, 1983.
  - Incase of construction activity adjoining the water bodies, measures shall be taken as per measures suggested in Guideline on “Water Body”.
  - If construction of road is within the settlement, the contractor must ensure that there shall not be any unauthorized parking as well as storage of material, adjacent to road.
  - Approved chemicals should be sprayed to prevent breeding of mosquitoes and other disease-causing organisms, at all the water logging areas

7. The PIU/PMC shall carry out periodic inspections in order to ensure that all the measures are being undertaken as per the guideline.

#### 4. POST-CONSTRUCTION STAGE

8. During this stage a major concern is on road user safety. Following are the measures that need to be undertaken by the Engineer -Incharge to ensure safer roads:

- Inspection and maintenance of installed regulatory and inforamatory signs.
- Ensure that the location of signage does not obstruct the visibility
- Incase of hill roads, maintenance of parapet wall as well as of overtaking zones.

9. The PIU/PMC must ensure that during the maintenance operation of road, road materials are stored at a location such that they shall not create any risk to road users.

10. The construction site shall be cleaned of all debris, scrap materials and machinery on completion of construction for the safety of public and road users, as per the measures given in Guideline on “Construction and labour Camp” and “Waste Management and Debris Disposal.”

## OM – 9: FORESTS AND OTHER NATURAL HABITATS

### 1. INTRODUCTION

1. This guideline envisages measures to be undertaken during blacktopping / widening of road sections passing through natural habitats. These measures shall be undertaken in addition to the measures laid down in the other Guidelines.

2. Conservation of natural habitats is essential for long-term sustainable development. A precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development has been adopted for the project.

Natural Habitats means...
<ul style="list-style-type: none"> <li>• National Park</li> <li>• Reserve Forest</li> <li>• Sanctuaries</li> <li>• Notified Wetlands</li> <li>• Fisheries and Aquatic Habitats</li> </ul>

### 2. PROJECT PLANNING AND DESIGN

3. To minimize the adverse impact on the ecology of the natural habitats, selection of alignment should be as per guideline. An officer of at least the rank of a forest ranger shall be deputed for detailed inventory of ecological features along the road. The nature and type of impact on natural habitats due to road construction shall be identified. Magnitude of the impact to the extent feasible on the ecological features shall also be assessed.

Ecological Features...	Adverse Impacts...
<ul style="list-style-type: none"> <li>• Area of natural habitat;</li> <li>• Type and number of endangered species of flora and fauna;</li> <li>• Stream and water bodies;</li> <li>• Breeding ground and seasons;</li> <li>• Migration season of bird species; and</li> <li>• Animal crossing.</li> </ul>	<ul style="list-style-type: none"> <li>• Diversion of forest land;</li> <li>• Cutting of trees;</li> <li>• Trampling of vegetation;</li> <li>• Contamination of water due to the usage of water from the source within the natural habitat;</li> <li>• Loss of breeding grounds; and</li> <li>• Interruption to animal crossings during the construction.</li> </ul>

4. Impacts identified on the natural habitats shall be minimized to the extent required. Minimization shall be through precautionary measures or through appropriate mitigation measures. Following are the measures should be undertaken along the road passing through natural habitats:

- Constricting the road width to 6.0 m and embankment height to 0.5 m to minimize the extent of diversion of forest land and cutting of trees
- Drainage Structures shall be designed strictly in accordance with guideline on “Drainage”.
- Rumble strips shall be provided at every kilometer along the length of the natural habitat and invariably at the start and end of the natural habitat
- Signage (viz. speed limit, animal crossing, switch of headlight etc) shall be provided as per IRC: 67-2001 Code of Practice for road sign (first revision)

5. In addition to the above measures, specific impacts identified on site shall be mitigated as per the recommendation of the forest department / officer in charge of the identified natural habitat.

6. In case proposed alignment falls within the catchments of a water body or a stream, a flush causeway shall be constructed without impacting the drainage system. The length of the causeway shall be as per the existing water spread. The causeway shall be strictly in compliance with IRC:SP-20:2002. In no circumstances a water body within the natural habitat shall be cut across or filled for the purpose of laying the road.

### **3. PRE-CONSTRUCTION STAGE**

7. No Construction Camps, Stockyards, Concrete Batching or Hot Mix Plants shall be located within the natural habitat or within 500m from its boundary.
8. Contractor in consultation with forest ranger or any other concerned authority shall prepare a schedule of construction within the natural habitat. Due consideration shall be given to the time of migration, time of crossing, breeding habits and any other special phenomena taking place in the area for the concerned flora or fauna.

### **4. CONSTRUCTION STAGE**

9. Procurement of any kind of construction material (as quarry or borrow material) from within the natural habitat shall be strictly prohibited. No water resources within the natural habitat shall be tapped for road construction. Use of mechanized equipment shall be kept minimum within the natural habitat. Contractor must ensure that there will be no parking of vehicles machine and equipment within the natural habitat. Disposal of construction waste within the natural habitat shall be strictly prohibited and as far as possible reuse shall be undertaken as per **Table 6-1** type of waste of guideline, “Waste Management and Debris Disposal”.

### **5. POST CONSTRUCTION STAGE**

10. The road passing through the natural habitat shall be declared as a silence zone. Compensatory tree plantation within the available Right of Way shall be done in accordance with guideline, on “Tree Cutting and Afforestation”.