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"DRAFTING OF DETAIL PROJECT REPORT ON RIGID & FLEXIBLE PAVEMENT"

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Abstract - *Preparation of DPR aims elaborate detailed execution plan for a project and to evaluate the require capital for the project. My purpose of study of preparation of DPR (Detail Project Report) is to evaluate the information required before commencement of any road construction work.*

Nagpur division lies on the deccan upland & includes a mean altitude of 310.50m on top of M.S.L. rock strata covered with silt deposition resulting from the flood plain of the Kanhan Stream. In some places because of the granular sand soil increases. In low laying areas that are poorly drained the soil is sediment clay with poor porosity. The standard annual precipitation is about 1200 millimeter.

The east a part of Nagpur receives additional precipitation than the west. the standard various rainy days is sixty to sixty five throughout the district. monsoon Topographic survey are done precisely with the instruments like auto levels and surveyor's instrument (Dumpy Level) for leveling survey. The soil investigations were done with the help of IRC: SP: twenty-2002 and IRC: SP: Seventy Two-2007. The potential sources of borrow areas for soil and quarry sites are going to be known. Within the situation of up gradation of road, 3 day, twenty four hour traffic volume count has been conducted. The Classified Volume Count survey has been dispensed in accordance with the necessities of the TOR and relevant codes (IRC: SP: 19-2001, IRC: SP: 20, IRC: SP: 72-2007).The surveys are dispensed by trained enumerators manually underneath the observation of Engineering Supervisor.

***Key Words*: Project report, estimated cost of both rigd and flexible pavement.**

1) INTRODUCTION

Road Connectivity, and its sustained availability, could be a key component of Development because it assures continuing access to economic and social services and thereby generates increased agricultural incomes and productive employment opportunities. Its also as a result, a significant ingredient in ensuring sustainable poverty reduction which demands sustainable rural connectivity encompassing a high level of quality of construction followed by continuous post construction maintenance of the road asset and of the entire network.

DPR (Detailed Project Report) is a precisely elaborate founded for a project indicating overall programmed, totally different roles and responsibilities, activities and resources needed for the project. To be Precise, A DPR is a final, elaborated appraisal report on the project and a blue print for its execution and supreme operation. For Roads Detail Project Report (DPR) is to be prepared for every proposal after collecting necessary basic data. The DPR basically must to contain the following: Population of the habitation(s) connected. Population (Direct + Indirect) served by the planned road.

The design comprises geometric design i.e. the horizontal alignment and also the vertical profile, and also the design of appurtenances and structures, traffic control devices, roadside furniture and other project facilities. The highway design is relies on the IRC Codes and publications shown in Table.

2) OBJECTIVES OF STUDY

Rural Road property, and its sustained accessibility, is a key part of Rural Development because it assures continued access to economic and social services and thereby generates enlarged agricultural incomes it's conjointly as a result, a significant ingredient in making certain property impoverishment reduction that demands property rural property encompassing a high level of quality of construction followed by continuous post construction maintenance of the road quality and if truth be told of the whole network.

With the target of providing property, Government of our country had launched numerous Yojana to

produce unrestricted access to eligible unconnected habitations as a technique for impoverishment alleviation. However, a dire ought to consolidate rural roads network by upgradation of elect Through Routes and a few Major Rural Links (MRLs) was felt and consequently a new intervention.

To appreciate that projects are site specific.

To understand optimization of the schemes.

Planning a highway network for safe, efficient and fast movement of individuals and goods.

Keeping the general cost of construction and maintenance of the roads within the network to a minimum.

Planning for future development and anticipated traffic needs for a particular design period**.**

3) METHODOLOGY

Introduction

Planning and Basic Consideration: Key maps & Road Design Brief comes under the Planning and Basic Consideration.

Topographical Survey Data: Topographic surveys true to ground realties have been done using precision instruments like auto levels and using dumpy level for levelling survey.

Soil and Materials Survey Data: The soil and material investigations were done following the guidelines of IRC: SP: 20-2002 and IRC: SP: 72-2007 and other relevant IS codes. The potential sources of borrow areas for soil and quarry sites are identified road within the vicinity of the project road.

Traffic Survey: In the present scenario of up gradation of road, 3 day, 24 hr traffic volume count has been conducted on the already completed. The Classified Volume Count survey has been disbursed in accordance with the necessities of the TOR and relevant codes (IRC: SP: 19-2001, IRC:SP: 20, IRC: SP: 72-2007).The surveys are meted out by trained enumerators manually under the monitoring of Engineering Supervisor.

Geometric Design Standards: The geometric design standards for this project conform to guidelines as stated in IRC-SP 20:2002.

Pavement Designs: Considering the sub-grade strength , projected traffic and also the design life, calculates the general cost of the project pavement design for low volume PMGSY roads was meted out as per guidelines of IRC: SP: 72 – 2007, or IRC SP:77 "Design of Gravel Road" and IRC SP:62-2004 "Cement Concrete roads".

Specifications: 'The "Specification for Rural Roads" published by IRC on behalf of the Ministry of Rural Development, Govt. of India has been followed.

Alignment Design: The basic aim of Road design is to identify technically sound, environment-friendly and economically feasible road alignment. The ensuing sections deals with obligatory points, which control road alignment, design of cross-section, road geometric design & methodology, design of miscellaneous items.

Cost Estimate Construction Program: Unit rates shall be normally based on Schedule of Rates of respective departments. Rates adopted for the estimates are based on the (P.M.G.S.Y. LWE) "Schedule of Rates (SOR)" 2017 for District Gadchiroli (MH) from January 2017.

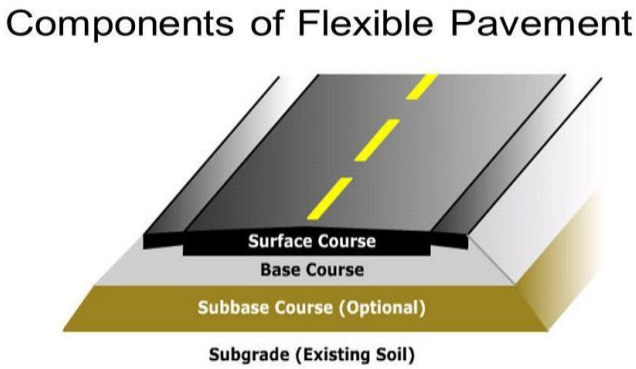
DESIGN CODES/SPECIFICATION

Sr. No	Description	Design Code
1	Guidelines for the Design of Flexible Pavements for Low Volume Rural Roads" (First Revision)	IRC:SP:72_2015
2	Guidelines for Design and Construction of Cement Concrete Pavements for Low Volume Roads" (First Revision)	IRC:SP:62_2014
3	Geometric Designs & standards	IRC-SP 20:2002
4	Traffic Survey	IRC: SP;72_2007, IRC: SP; 20, IRC; SP; 19_2001
5	Safety Measures	IRC; 67_2001

SITE PHOTOGRAPHS

UPGRADATION OF MDR-02 TO SHIVANI APPROACH ROAD, TALUKA- KURKHEDA, DISTRICT- GADCHIROLI

PAVEMENT COMPOSITION



4) ADOPTED GEOMETRIC DESIGN STANDARDS

Terrain

The classification of terrain was selected as per the criteria Pian/Rolling/Hilly/Steep.

Terrain classification	Cross slope	
Plain	3.50%	More than 1 in 10

Design Speed

Road classification	Plain Terrain	
	Ruling	Min
Rural Roads (Other District Road and Village Road)	50	40

Right of Way (ROW)

The requirement of ROW for this road is as follows (as per IRC-SP 20:2002):

Road classification	Plain and Rolling Terrain			
	Open Area		Built-up Area	
	Normal	Range	Normal	Range
Rural roads (ODR and VR)	15	12-20	10	10-15

Roadway Width

Terrain Classification Roadway Width (m)

Plain 6.000/7.500

Carriageway Width

The width of carriageway for road is 3.00/3.750

Shoulders

The width of proposed shoulder 1.500/1.875

Sight Distance

The safe stopping sight distance is applicable within the geometric design.

Design Speed (km-hr)	SSD(m)
20	20
30	30
40	45
50	60

Camber & Super elevation: A required camber for this rural road is given below. The utmost super elevation is 7.0% for this project road.

Side slope: Side slope for this rural road where embankment height

is lesser than 3.0m is given in table below

Condition	Slope (H:V)	
	Embankment in Clay Soil	2:1

Extra Widening of Pavement

The additional Widening of Pavement at Curve as per IRC guideline is given below

Radius of Curve (m)	=20	21-60	>60
Extra Widening for 3.75m wide single lane carriageway, (m)	0.900	0.600	Nill

PAVEMENT CRUST PROPOSAL
CHAINAGE:- 0-250 & 700-1200 METER

Sr. No.	Description of Layer	Layer and thickness proposed		
		Existing Carriageway	Widening	Proposed Roadway
		3.00		6.00
1	Existing crust thickness including G.S.B.(Sub base)	275		
	Proposed Crust			
2	**Sub base Course**			
	c) G.S.B. Layer (Locally available material)			
3	**Base Course**			
	b) W.B.M. Grade II Layer			
	c) W.B.M. Grade III Layer			
4	**Bituminous Course**			
	a) MPM	50		
	Total Crust	**325**		

PAVEMENT CRUST PROPOSAL
CHAINAGE:- 1200-1500 METER

Sr. No.	Description of Layer	Layer and thickness proposed		
		Existing Carriageway	Widening	Proposed Roadway
		3.75		7.50
1	Existing crust thickness including G.S.B.(Sub base)	0		
	Proposed Crust			
2	**Sub base Course**			
	c) G.S.B. Layer (Locally available material)	125		
3	**Base Course**			
	b) W.B.M. Grade II Layer			
	c) W.B.M. Grade III Layer	150		
4	**Bituminous Course**			
	a) MPM	50		
	Total Crust	**325**		

5. CONCLUSIONS

Spot level at 30m interval taken by exactness with instrument Auto level and an additional spot level taken at location wherever required in topography. Cross sections were taken at thirty meter interval and at nearer interval in snakelike portion or curves of this road. All physical characteristic of the road\ were recorded. This projected Route in Block Kurkheda is serving the population 295, from Sakra Tola & Ushirpar Villages having WBM/BT surface is in low profile. this a rural road connecting rural habitation to Main near Market centre, Health centre and Education centre etc. it's a necessity to provide all weather property to those villages and to spice up riding quality of existing roads. The general cost of the DPR is calculated & cost per kilometer length of the road also calculated.

REFERENCES

[1] IRC: SP: 72-2015: Guidelines for the Design of Flexible Pavements for Low Volume Rural Roads" (First Revision)

[2] IRC: SP: 62-2014: Guidelines for Design and Construction of Cement Concrete Pavements for Low Volume Roads" (First Revision)

[3] IRC-SP 20:2002: Rural Roads Manual for Geometric Designs & standards.

[4] IRC: SP: 19-2001: Manual for Survey, Investigation and Preparation of Road Projects (Second Revision)

[5] IRC: 67-2001: Code of Practice for Road Signs.

[6] Guidelines for the Planning & Design Of Flexible Pavements.

[7] AASHTO guide for design of pavement structure, 1993, American association of state highway and transportation officials, Washington DC.

[8] Schedule of Rates PMGSY.