



SHREM FINANCIAL PRIVATE LIMITED

**Development of Betul - Sarni – Tekhnadhon-Junnardeo –
Parasia (SH-43) Road in the State of Madhya Pradesh on DBFOT
(Toll+Annuity) Basis**

TECHNICAL DUE DILIGENCE REPORT



FEBRUARY, 2021

SUBMITTED BY



RUKY PROJECTS PRIVATE LIMITED
Hyderabad – 500 072
www.rukyprojects.com



Development of Betul - Sarni – Tekhnadhon-Junnardeo – Parasia (SH-43) Road in the State of Madhya Pradesh on DBFOT (Toll+Annuity) Basis

This document has been issued and amended as follows:

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RU-DD Report-Betul-Sarni	02	February 2021	Technical Due Diligence Report



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Technical Consultant:
RUKY PROJECTS PRIVATE LIMITED
Flat No. 1403A, 14th Floor,
Manjeera Trinity Corporate,
JNTU-Hitech City Road, Kukatpally,
Hyderabad – 500072
www.rukyprojects.com

Contact Person of Consultant: Mr. C Ramanaiah
Email: ramana_c@rukypj.com
Tel: +91 40 4855 7777

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CHAPTER 1. INTRODUCTION

1.1 General

DBL Betul Sarni Tollways Limited (herein after referred to as the “Concessionaire”) had augmented the existing two lanes road “Betul-Sarni-Tikadhan-Junnardeo-Parasiya (SH-43) in the State of Madhya Pradesh, in accordance with the provisions of the Concession Agreement executed on July 11, 2013 with Madhya Pradesh Road Development Corporation (herein after referred to as the “MPRDC) on DBFOT Toll+ Annuity basis. The Project Highway starts at Km 0+000 (Kamani Gate at Betul) and ends at Km 124+100 (Bus stand Parasiya). The State Highway (SH - 43) connects Betul-Sarni-Tikadhan-Junnardeo-Parasiya.

Total length of the Project Highway is 124.100 Km. The Project road passes through Plain, rolling and hilly terrain, predominantly agriculture land and balance constitute Built up area. It also passes through forest area. Project Location map is given at Fig 1-1.

SHREM ROADWAYS PRIVATE LIMITED (SRPL) acquired DBL BETUL SARNI TOLL WAYS LIMITED vide agreement dated 26.03.2018.

SHREM FINANCE PRIVATE LIMITED (SFPL) appointed RUKY Projects Pvt. Ltd. as consultants for detailed Technical Due Diligence Services of the above Road Project to know-how the present condition of Carriageway and Structures, probable costs of Operations and Maintenance during balance Concession period, additional road safety requirements if any and to review the traffic potential and to estimate the projected Toll Collection etc.

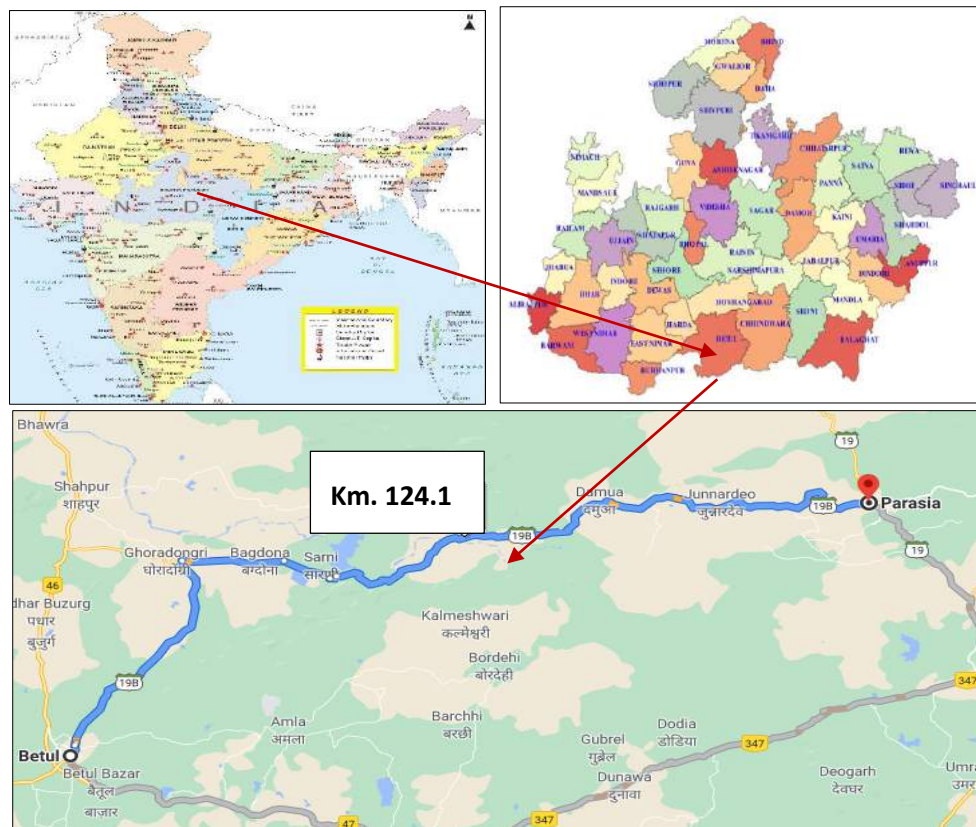


Figure 1.1: Project Location Map

1.2 Project Data

The details of the Project are listed in the following table.

Table 1.1: Salient features of the Project

S. No.	Particulars	Details
1	Name of the project	Construction of Betul - Sarni - Junnardeo – Parasia (SH-43), development, maintenance and management on design, build, finance, operate and transfer (DBFOT) Toll Plus Annuity Basis in the State of Madhya Pradesh.
2	Road Type	State Highway (SH)-43
3	Name of the Authority	Madhya Pradesh Road Development Corporation Limited
4	Name of the Concessionaire	DBL BETUL SARNI Toll ways Limited
5	Name of the EPC Contractor	Dilip Build con Limited
6	Design Length as per Schedule B	124.100 Kms.
7	Length omitted under negative Change in Scope	---
8	Actual Length Constructed	124.100 Kms.
9	Project Lane Configuration	2 Lane/4 Lane
10	Total Project Cost	Rs. 237.64 Cr
11	Nature of contract	BOT(Toll + Annuity)
12	Toll collected by	Concessionaire
13	Concession Period	15 years from the Appointed date
14	Appointed date	07.04.2014
15	Concession End Date	06.04.2029
16	Construction Period	730 days from the Appointed date.
17	Schedule Commercial Operation Date	April 05, 2016
18	Date of issuance of Provisional Certificate	May 12, 2015. (Annexure-7)
19	Commercial Operation Date	May 12, 2015.
20	Date of issuance of Completion Certificate	February 28, 2019. (Annexure-8)
21	Annuity Amount (every six months)	Rs 15.48 Cr
22	Total Number of Annuities payable	26 Nos.
23	First Annuity Payment Date	November 12, 2015
24	Total Number of Annuities Paid	11

1.3 Scope of consultancy services

The scope of work includes providing Due Diligence of the project road and providing estimate of the anticipated maintenance works. Scope of the work as defined in the consultancy work order is listed below:

- Review of various contractual documents
- Collection of historic/past toll revenue data
- Collection of historic/past classified Traffic data from toll plaza and to estimate the projected traffic to arrive at revenue projections.
- Carryout detailed assessment of pavement condition and propose maintenance plan along with BOQ.
- Review of latest BBD/BI test report
- Carrying out inventory & condition survey of all elements of road like embankment slope, plantation, road furniture, tolling system etc., of the project.
- Carrying out inventory & condition survey of all structures (Major Bridges, Minor Bridges, ROB, RE Wall, Flyovers, VUPs, PUPs, Culverts etc.), suggest any rehabilitation & maintenance requirements along with BOQ.
- Carryout review of tolling system to evaluate the efficiency and functionality of tolling system and to identify and give suggestions to improve if any setbacks in the system.
- Carryout out road safety audit on Project highway and provide suggestions for improvement.
- Assess and Provide BOQ and cost estimate for routine & periodic maintenance including O&M.
- Review of punch list items, NCR's to identify any uncompleted works as on date of submission of report.
- Review of validity of insurance and statutory compliances related to Project.
- Review of correspondences exchanged between parties on contract related issues and claims etc.
- Submission of detailed report on technical due diligence of the project.

CHAPTER 2. PROJECT DESCRIPTION & TECHNICAL DETAILS

2.1 Salient Features of the Project

The salient features of the Project as per schedule B and Schedule C of the CA including Change of scope are listed in the following Table.

Table 2.1: Salient Features

S. No.	Particulars	As per Schedule B of CA	As per COS*	As per Site
1	Total Length	124.10		124.10
2	Two lane length with earthen shoulder	93.100 Km	6.444 Km is converted into Paved Shoulder	86.656 Km
3	Two lane with paved shoulder	25.750 Km	Flexible pavement with paved shoulder for an additional length of 1.760 km	27.510 Km
4	Four Lane	5.250 Km	---	5.250 Km
5	Two lane Rigid Pavement	-	Rigid pavement with PQC in 10 m width for a length of 2.624 km and 2.06 km with 7 m concrete pavement over existing concrete base treated as DLC	4.684 Km
6	Major Junctions	05 Nos.	-	05 Nos.
7	Minor Junctions	10 Nos.	-	10 Nos.
8	Toll Plaza	02 Nos.	-	02 Nos.
9	Bus Bays/ Shelter	22 Nos.	-	22 Nos.
10	Truck Lay bye	02 Nos.	-	02 Nos.
11	Major Bridges	09 Nos.	-	09 Nos.
12	Minor Bridges	36 Nos.	-	36 Nos.
13	Pipe Culverts	252 Nos.	-16Nos., +9Nos.	245 Nos.
14	Slab/Box Culverts	33 Nos.	-1No., +4Nos.	36 Nos.

2.2 Typical Cross Section (TCS) Schedule

The Concessionaire has followed the Typical Cross Section Schedule during the Construction as shown below.

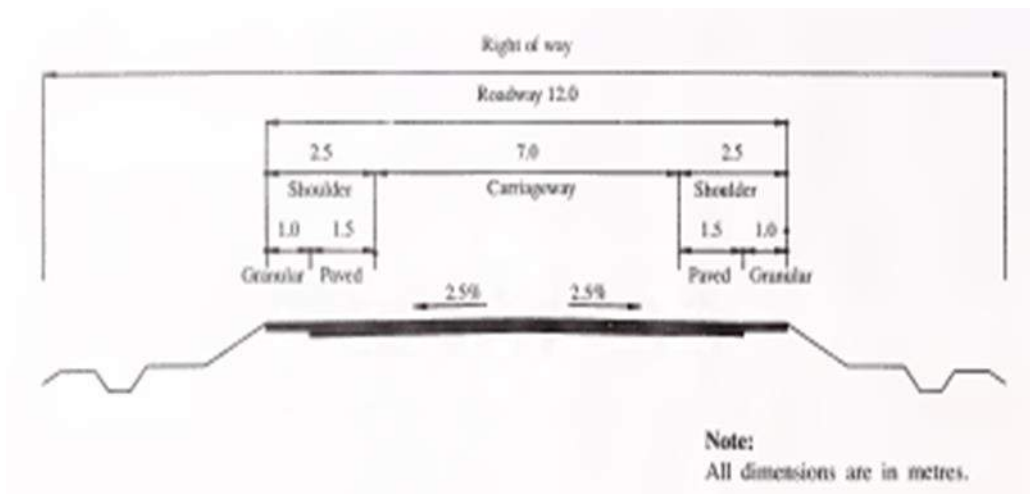


Figure 2.1: TCS 2.1 of Schedule D
Two Laning with Granular Shoulder. (Cross Section In Open Areas & Rural Areas having

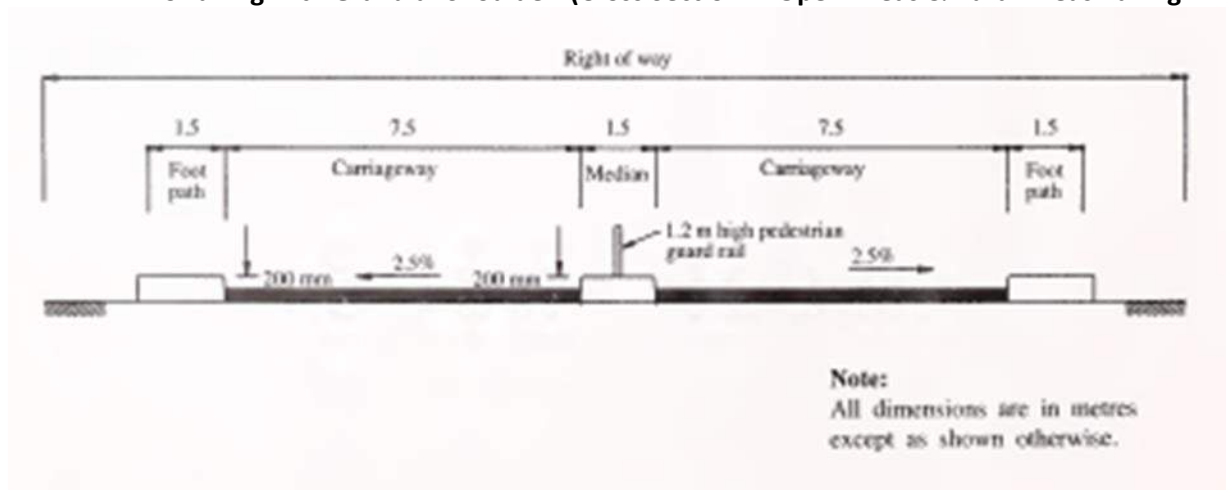


Figure 2.2: TCS 2.2 of Schedule D
Widening to 4 Lane divided Carriageway with footpath Built up area.

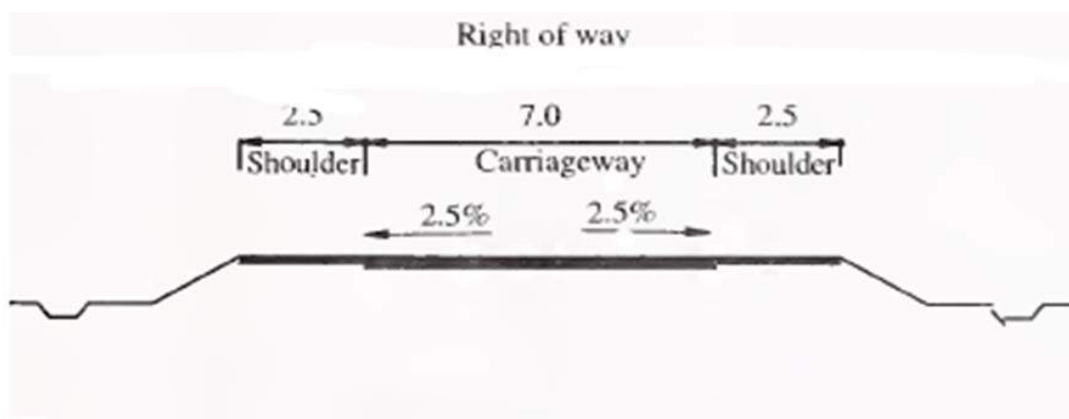


Figure 2.3: TCS 2.3 of Schedule D
The Carriageway shall be 7.0 m with Paved shoulder (In Built up Areas)

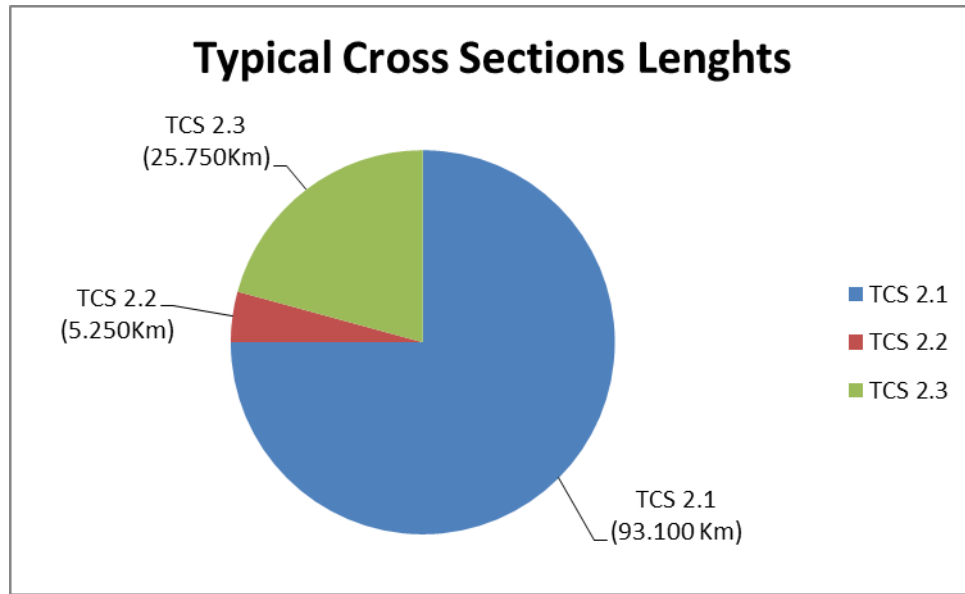


Figure 2.4: Pictorial Diagram of TCS Lengths.

TCS Schedule is provided below.

Table 2.2: TCS Schedule

S. No.	Chainage (km.)		Length (m)	Type of TCS
	From	To		
1	0+000	0+900	900	TCS.2.1
2	0+900	1+350	450	TCS.2.3
3	1+350	3+400	2050	TCS.2.1
4	3+400	4+000	600	TCS.2.3
5	4+000	20+650	16650	TCS.2.1
6	20+650	21+300	650	TCS.2.3
7	21+300	37+100	15800	TCS.2.1
8	37+100	38+300	1200	TCS.2.3
9	38+300	39+500	1200	TCS.2.3
10	39+500	40+900	1400	TCS.2.3
11	40+900	46+800	5900	TCS.2.1
12	46+800	48+800	2000	TCS.2.2
13	48+800	69+750	20950	TCS.2.1
14	69+750	70+500	750	TCS.2.3
15	70+500	70+700	200	TCS.2.3
16	70+700	85+800	15100	TCS.2.1
17	85+800	86+450	650	TCS.2.3
18	86+450	87+750	1300	TCS.2.1
19	87+750	88+800	1050	TCS.2.3
20	88+800	91+000	2200	TCS.2.1
21	91+000	92+000	1000	TCS.2.3

S. No.	Chainage (km.)		Length (m)	Type of TCS
	From	To		
22	92+000	93+200	1200	TCS.2.1
23	93+200	93+950	750	TCS.2.3
24	93+950	94+850	900	TCS.2.1
25	94+850	95+950	1100	TCS.2.3
26	95+950	96+650	700	TCS.2.1
27	96+650	97+850	1200	TCS.2.3
28	97+850	99+400	1550	TCS.2.1
29	99+400	100+500	1100	TCS.2.3
30	100+500	101+100	600	TCS.2.3
31	101+100	103+000	1900	TCS.2.1
32	103+000	103+300	300	TCS.2.3
33	103+300	105+600	2300	TCS.2.3
34	105+600	107+400	1800	TCS.2.1
35	107+400	107+900	500	TCS.2.3
36	107+900	108+400	500	TCS.2.1
37	108+400	109+400	1000	TCS.2.3
38	109+400	109+500	100	TCS.2.3
39	109+500	109+700	200	TCS.2.3
40	109+700	110+500	800	TCS.2.3
41	110+500	110+600	100	TCS.2.1
42	110+600	111+550	950	TCS.2.3
43	111+550	112+700	1150	TCS.2.3
44	112+700	114+000	1300	TCS.2.1
45	114+000	115+600	1600	TCS.2.3
46	115+600	115+700	100	TCS.2.1
47	115+700	116+000	300	TCS.2.3
48	116+000	116+700	700	TCS.2.3
49	116+700	118+200	1500	TCS.2.1
50	118+200	119+100	900	TCS.2.3
51	119+100	119+700	600	TCS.2.1
52	119+700	120+750	1050	TCS.2.3
53	120+750	120+850	100	TCS.2.1
54	120+850	124+100	3250	TCS.2.2

2.3 Road Side Drainage

- To facilitate quick disposal of storm water from the Carriageway and to avoid accumulation of drainage from side drains are constructed along the main carriage way on both flanks as specified in Schedule B of the CA in strict adherence to the Standard Specifications set forth in Schedule D of the CA.

The Concessionaire has provided RCC covered drains with footpath in built up areas while earthen drains in open and rural areas.

2.4 Service Roads

Service roads are not provided along the entire stretch of the project road as per provisions of Schedule B of the CA.

2.5 Bypass/Realignment

Bypass/Realignment are not provided along the entire stretch of the project road as per provisions of Schedule B of the CA.

2.6 Intersections

As per provisions of Schedule B of the CA, 5 Major Intersection and 10 Minor Intersections are provided. Details are given below.

Table 2.3: Summary of Junctions

S. No.	Chainage (Km.)	Type of junction	Type of Cross Road
1	0+000	X	Major
2	21+000	T	Minor
3	21+200	X	Major
4	24+150	X	Minor
5	24+200	X	Minor
6	30+000	X	Major
7	30+500	T	Minor
8	33+600	T	Minor
9	93+300	T	Minor
10	102+600	X	Major
11	114+750	T	Minor
12	119+500	X	Minor
13	121+700	X	Minor
14	122+750	T	Minor
15	124+050	X	Major

2.7 Grade Separated Structures and underpasses:

There are no Grade separated structures in the Project, as per provisions of Schedule B of the CA.

2.8 Road Over Bridge:

There are no Road Over Bridge in the Project, as per provisions of Schedule B of the CA.

2.9 Summary of the carriageway and Pavement Details:

Table 2.4: Summary of Carriageway and Pavement Details

S. No.	Description	Flexible (Kms.)	Rigid (kms.)	TCS Type
1	2 Lane with Earthen shoulder	93.100	---	Fig 2.1 of Schedule D
2	2 Lane with Paved shoulder	25.750	---	Fig 2.3 of Schedule D

S. No.	Description	Flexible (Kms.)	Rigid (kms.)	TCS Type
3	4 Lane	5.250	---	Fig 2.2 of Schedule D
4	Total Length	124.100	---	
5	TYPE OF ALIGNMENT			
6	New Alignment	---	---	
7	Realignment	---	---	
8	Strengthening	---	---	
9	Reconstruction	124.100	---	
10	Total Length of the Project	124.100	---	

2.10 Summary of Structures:

Table 2.5: Summary of Structures

S. No.	Description	Major Bridges	Minor Bridges	Hume Pipe Culverts	Box/Slab Culverts
1	Retained	5	9	34	23
2	Widening	-	1	61	6
3	Reconstruction	4	26	157	4
4	New	-	-	-	-
5	Improvement	-	-	-	-
6	Total	9	36	252	33

2.11 Toll Plazas:

As per Schedule C of the CA provisions, two Toll Plazas have been constructed at Km. 31+000 and 111+950. Salient features of Toll Plaza are provided below.

- Each side comprises of, two normal lane and one extra wide lane.
- The lane width in normal lanes is 3.2 m and extra lane is of 4.5 m width.
- Single canopy is provided to cover the toll lanes.
- Toll plaza has been constructed as per standards set forth in Schedule D of CA having facilities like lighting, water supply and firefighting Arrangements.
- C.C. Cameras are installed and monitored in administrative building.

2.12 Bus Bays/Shelters and truck lay byes

As per the provisions of Schedule C of the CA, 22 Nos. Bus shelters and 2 Nos. Truck lay byes are provided in the entire length of Project. Details such as Chainage Location and Name of Village are listed in the following table.

Table 2.6: Truck lay byes Details

S. No.	Location (Km.)	Side	Remarks
1	44+000	LHS	Before Sarni
2	105+000	RHS	Near Junnardev

Table 2.7: Bus Bays/Shelters Details

S. No.	Location (Km.)	Location	S. No.	Location (Km.)	Location
1.	1+125	Godhana	12.	95+400	Kautia
2.	3+700	Chiklar	13.	97+250	Dugariya
3.	20+975	Ranipur	14.	100+250	Dawala
4.	37+700	Saliya	15.	103+300	Junnardeo (Jamai)
5.	39+600	Bagdona (Sarni)	16.	107+650	Jamkunda
6.	48+150	Sarni	17.	110+100	Nzarpur
7.	70+225	Rampur	18.	111+650	Gudi
8.	86+125	Madi	19.	114+800	Ekalhara
9.	88+275	Damua	20.	116+200	MajipaniBamodi)
10.	91+500	Ghodawadi	21.	118+650	Chandameta
11.	93+575	Neemdhana	22.	122+475	Parasiya

2.13 Other Project Facilities Provided as per Schedule C of the CA

- Roadside furniture: Sign boards, KM stones, road marking and object/hazard markers are provided in accordance with IRC-SP: 73-2007.
- Traffic safety devices: W beam crash barriers, parapet walls are provided as per the provisions of Schedule C of the CA.
- Landscaping: provided at toll plaza location and being maintained
- Tree plantation: Tree plantation is provided on both sides, for the full length of project corridor and being maintained.
- Medical Aid Post: Provided at toll plaza location and operational.
- Highway Lighting: Highway lighting is provided at Toll Plaza location and is functional.



W Beam MCB at approaches at Km.13+500



Toll Plaza board at Km. 31+000



Km. 104+000



MNB approaches at Km.4+300

Figure 2.5: Representative Photographs of Project Facilities

CHAPTER 3. ROAD INVENTORY & PAVEMENT CONDITION

3.1 General

Road Inventory and pavement condition surveys were carried out by a team of Engineers and the features noted at site are presented below.

3.2 Road Inventory

Inventory of the project road was carried out physically and is summarized in the following table. Couple of representative photographs are given below to have a clear picture of the Project.

Table 3.1: Road Inventory

S. No.	Features	Remarks
1	Terrain	Plain rolling Terrain
2	Land Use	Agriculture and forest
3	Villages	31 Nos.
4	Two lane length	114.166Km
5	Four Lane	5.250 km
6	Two lane Rigid Pavement	4.684 km
7	Earthen shoulder	1.0 m to 1.5m Width on site
8	Bypasses	Nil
9	Embankment	Average height of 0.8 m
10	Junctions	15 Nos.
11	Toll Plaza	Km.31+000 & Km.111+950
12	Sign boards	Sign boards are provided as per requirement
13	Road Markings	Lane markings are provided as per requirement
14	Bus Bays /shelters	22 Nos.
15	Truck Lay bye	2 Nos.
17	Street Lighting	Highway lighting provided as per requirement

3.3 Pavement Condition

Pavement Condition survey was carried out on the Project road, based on observations supplemented with simple measurements. The criteria adopted for the classification of condition of the pavement is as per 4.2.1 of IRC 81-1997.

Table 3.2: Pavement Condition Classification

Classification	Pavement condition
Good	No cracking, rutting less than 10mm
Fair	No cracking or cracking confined to single crack in the wheel track with rutting between 10mm and 20mm.
Poor	Extensive cracking and/or rutting greater than 20mm sections with cracking exceeding 20% shall be treated as failed.

Pavement surface condition assessment is a key component of infrastructure asset management. The information is used across a wide range of business processes which includes: Monitoring the performance of the road; Predicting future Pavement Conditions and assessing long term needs; Identifying rehabilitation and maintenance treatment options; investigate causes of pavement deterioration and evaluating specific treatment options; The purpose of the pavement condition survey is to provide a more accurate and detailed investigation of the pavement deterioration in order to assist in determining appropriate rehabilitation treatments.

3.4 Pavement Condition Survey:

The survey on general Pavement Condition was primarily undertaken by means of slow drive- over survey, and supplemented with measurements where ever necessary. Pavement assessment was done with the help of simple instruments using measuring tape, Straight edge. It was carried out to quantify pavement deficiency on a representative basis. Aspects of pavement condition assessment include surface defects, rut depth, cracking, potholes, patched areas, shoulder conditions etc. An overall assessment of performance serviceability of the road was also done to rate the existing pavement and shoulder condition qualitatively. The Pavement Condition is measured under the following sub-heads:

- Shoulder- (Composition/Condition)
- Riding Quality (Good/Fair/Poor/Very Poor)
- Pavement Condition-
 - Cracking (% of surface area)
 - Ravelling (%of surface area)
 - Potholes (%of surface area)
 - Patching (%of surface area)
 - Rut depth (Moderate 10 to 20 mm & Severe >20 mm)
 - Pavement edge drop (mm)
- Road Side Drain (Non-Existing/ Partially Functional/ Functional)

Upon verification of the Pavement Condition in the above said manner, it is observed that the Pavement condition of Project road is good. The field measurements of the Pavement Condition survey are tabulated in the standard proforma as per IRC: SP 19 and is given in **ANNEXURE 1**. The summary of Pavement Condition is given below.

Table 3.3: Pavement condition summary

From (km.)	To (km.)	Length (kms)	Condition
0+000	124+100	124.100	Good



Km. 15+000



Km. 33+000



Km.50+900



Km. 104+000

Figure 3.1: Representative Photographs of Pavement Condition

CHAPTER 4. INVENTORY AND REVIEW OF STRUCTURES

4.1 General Assessment and Condition of the Existing structures

Inspection of existing structures on the project road was carried out, detailed inventory and condition is examined during the site visit as per the guide lines provided in IRC SP: 52-1999 & IRC SP: 35-1990.

4.2 Inventory of Structures

There are 09 Nos Major Bridge, 36 Nos Minor Bridges, 245 Nos Pipe culverts, 36 Slab/Box culverts are there along this project road.

Table 4.1: List of Structures

S. No.	Type of Structure	Numbers
1	Major bridges	09 No's
2	Minor Bridge	36No's
3	Pipe culverts	245 No's
4	Slab/Box Culverts	36 No's.

For major bridges the type of superstructure is RCC Solid slab for some structures and RCC / PSC I Girder for some structures with wall type abutments and Wall type / circular type piers resting on open foundations. There are 36 minor bridges in which some are RCC solid slab type bridges with wall type abutments or piers resting on open foundations. Also, there are some RCC box type minor bridges. Detailed inventory and condition survey of bridges are given in **ANNEXURE 2**. The culverts observed along the project road are mainly of two types viz. pipe culverts and RCC slab/box culverts. Structural condition of most of the culverts is fair except in few locations. Detailed inventory and condition survey of box culverts are given in **ANNEXURE 3**.

4.3 Details of Major Bridges

In Betul-Sarni-Parasia Road, there are total 09 major bridges. Type of superstructure is Solid slab, RCC I Girder and PSC I Girder with wall type abutment, wall type piers and circular piers resting on open foundations. The superstructure is seated on elastomeric bearings. Expansion joints are of Buried type. Crash barrier has been provided on both sides of the deck.

Table 4.2: List of Major Bridges

S. No.	Chainage (Km.)	Span	Total Length of Bridge (m)
1	14+700	3 x 30.0	90.00
2	17+000	9 x 15.0	135.00
3	17+860	3 x 30.0	90.00
4	31+950	5 x 20.0	100.00
5	58+850	2 x 28.2 + 1 x 33.0	89.40
6	67+750	7 x 20.0	140.00
7	69+600	6 x 12.0	72.00

S. No.	Chainage (Km.)	Span	Total Length of Bridge (m)
8	75+950	2 x 12.5 + 2 x 21.7	68.40
9	86+950	6 x 12.0	72.00

The condition of the superstructure and substructure is good. Certain minor maintenance operations such as quadrant pitching, reflector plates, drainage spouts and strip seal expansion joints are to be carried out.



Km. 14+700



Km. 17+860



Km. 58+850



Km. 67+750

Figure 4.1: Representative photographs of Major Bridges

4.4 Details of Minor Bridges

In Betul-Sarni-Parasia Road there are 36 minor bridges. The type of superstructure for minor bridges are RCC box type and RCC Solid slab and the substructure is of RCC/PCC conventional wall type supported on open foundations. Expansion joints are buried type and bearings are tar paper or neoprene bearings. RCC crash barriers are provided on all structures.

Table 4.3: Inventory of Minor Bridges

S. No.	Chainage (Km.)	Span(m)	Total Length of Bridge (m)	Description
1	4+300	1 x 10.00	10.00	MNB has RCC solid slab superstructure

S. No.	Chainage (Km.)	Span(m)	Total Length of Bridge (m)	Description
				supported on conventional PCC/RCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
2	6+380	2 x 15.00	30.00	MNB has RCC solid slab superstructure supported on conventional PCC/RCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
3	11+050	2 x 7.70	15.40	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
4	12+060	3 x 10.00	30.00	MNB has RCC solid slab superstructure supported on conventional PCC/RCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
5	12+400	3 x 13.10	39.30	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
6	12+670	3 x 13.10	39.30	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
7	13+000	3 x 13.50	40.50	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
8	13+850	5 x 10.00	50.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
9	14+050	5 x 11.55	57.75	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
10	14+360	5 x 11.00	55.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
11	18+610	1 x 10.00	10.00	MNB is RCC box type minor bridge.
12	20+465	3 x 11.40	34.20	MNB is RCC box type minor bridge.
13	31+000	2 x 8.00	16.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
14	33+000	2 x 7.00	14.00	MNB is RCC box type minor bridge.

S. No.	Chainage (Km.)	Span(m)	Total Length of Bridge (m)	Description
15	41+400	2 x 6.00	12.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
16	46+860	2 x 9.00	18.00	MNB has RCC Grid slab superstructure supported on conventional RCC/PCC wall type abutments and RCC column type piers resting on open foundations. Buried type expansion joints.
17	50+080	2 x 3.00	6.00	MNB is RCC box type minor bridge.
18	50+850	2 x 7.00	14.00	MNB is RCC box type minor bridge.
19	63+500	3 x 11.00	33.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
20	64+150	2 x 3.00	6.00	MNB is RCC box type minor bridge.
21	65+300	1 x 7.60	7.60	MNB is RCC box type minor bridge.
22	66+160	1 x 6.60	6.60	MNB is RCC box type minor bridge.
23	66+375	5 x 7.00	35.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
24	72+850	5 x 6.50	32.50	MNB has RCC solid slab superstructure supported on conventional CRM wall type piers and abutments resting on open foundations. Buried type expansion joints.
25	81+500	1 x 10.00	10.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
26	83+300	1 x 6.00	6.00	MNB is RCC box type minor bridge.
27	89+100	1 x 10.00	10.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
28	90+050	3 x 6.50	19.50	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
29	92+150	2 x 6.30	12.60	MNB is RCC box type minor bridge.
30	93+530	2 x 10.00	20.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
31	99+100	1 x 10.00	10.00	MNB has RCC solid slab superstructure

S. No.	Chainage (Km.)	Span(m)	Total Length of Bridge (m)	Description
				supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
32	99+850	3 x 10.00	40.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
33	101+225	4 x 10.00	40.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
34	107+010	2 x 10.00	20.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
35	115+150	2 x 7.50	15.00	MNB has RCC solid slab superstructure supported on conventional RCC/PCC wall type piers and abutments resting on open foundations. Buried type expansion joints.
36	116+241	1 x 6.10	6.10	MNB is RCC box type minor bridge.



Km. 4+300



Km. 13+850



Km. 50+850



Km. 65+300



Km. 72+850



Km. 92+150

Figure 4.2: Representative photographs of Minor Bridges

4.5 Details of Culverts

The culverts observed along the project road are mainly of two types viz. RCC Slab/Box culverts and Pipe culverts. The condition of culverts is generally good. For some of the pipe culverts vegetation and vent cleaning is required. In general, the condition of all the structures is found satisfactory. The detailed condition of the same are given in the following sections. Detailed inventory and condition survey of box culverts are given in **ANNEXURE 3** and pipe culverts are given in **ANNEXURE 4**.

General description of the Slab/Box Culverts

There are 36 Nos. of slab / Box culverts in the project stretch. The details of the culverts are as given below.

Table 4.4: List of Slab/Box Culverts

S. No.	Chainage (Km.)	Span	S. No.	Chainage (Km.)	Span
1	3+360	1 x 4.0	19	40+190	1 x 2.0
2	4+780	1 x 4.0	20	41+180	1 x 2.5
3	7+530	1 x 5.7	21	47+650	1 x 3.3
4	23+199	1 x 2.0	22	47+680	1 x 3.0
5	30+770	1 x 1.0	23	47+925	1 x 4.60
6	32+285	1 x 2.0	24	48+315	1 x 4.0
7	32+500	1 x 2.3	25	49+015	1 x 3.0
8	33+250	1 x 2.0	26	49+265	1 x 4.0
9	33+355	1 x 3.0	27	72+275	1 x 4.6
10	33+890	1 x 3.0	28	76+200	2 x 4.0
11	34+000	1 x 3.0	29	84+300	1 x 5.6
12	34+600	1 x 3.0	30	84+690	1 x 4.0
13	34+800	1 x 5.9	31	90+785	1 x 4.5
14	35+515	1 x 2.0	32	91+375	1 x 3.0
15	36+200	1 x 5.7	33	96+565	1 x 2.5
16	37+040	1 x 2.0	34	97+660	1 x 4.0
17	38+825	1 x 3.0	35	117+475	1 x 3.0
18	39+710	1 x 2.0	36	120+010	1 x 3.0

The general condition of above slab culverts is good. Maintenance is to be carried out before monsoon for vent clearance, Protection works etc.



Km.34+800



Km.90+785

Figure 4.3: Representative photos of Box Culverts

General description of the Pipe Culverts

There are 245 Nos. of pipe culverts in the project stretch. The details of the culverts are as given below.

Table 4.5: List of Pipe Culverts

S. No.	Chainage (km.)	Span (m)	S. No.	Chainage (km.)	Span (m)
1	0+150	1 x 1.20	124	60+540	1 x 1.00
2	1+770	1 x 1.20	125	60+990	1 x 0.90
3	2+019	1 x 1.20	126	61+090	1 x 1.20
4	2+625	1 x 1.20	127	61+230	2 x 1.20
5	2+876	1 x 1.20	128	61+615	2 x 1.20
6	3+500	1 x 1.20	129	62+360	1 x 1.20
7	5+008	1 x 1.20	130	62+750	1 x 1.20
8	5+793	1 x 1.20	131	63+120	3 x 1.20
9	6+650	1 x 0.90	132	64+040	2 x 1.20
10	6+770	1 x 1.20	133	65+000	2 x 1.20
11	6+885	1 x 1.20	134	65+070	2 x 1.20
12	6+920	1 x 1.20	135	66+900	2 x 1.20
13	7+210	1 x 1.20	136	67+310	2 x 1.20
14	8+014	1 x 1.20	137	67+450	1 x 1.20
15	8+130	1 x 1.20	138	67+550	1 x 1.20
16	8+420	1 x 0.90	139	67+640	1 x 1.20
17	10+750	1 x 1.20	140	68+050	1 x 1.20
18	10+825	1 x 1.20	141	69+165	2 x 1.20
19	11+250	1 x 1.20	142	69+500	2 x 1.00

S. No.	Chainage (km.)	Span (m)	S. No.	Chainage (km.)	Span (m)
20	11+390	1 x 1.20	143	69+860	1 x 0.90
21	11+425	2 x 1.00	144	69+920	1 x 1.20
22	11+586	1 x 0.90	145	70+250	1 x 1.20
23	15+540	1 x 1.20	146	70+480	2 x 1.20
24	15+665	1 x 1.20	147	70+815	1 x 0.90
25	16+435	1 x 1.20	148	71+010	1 x 1.20
26	16+525	1 x 1.00	149	71+150	2 x 1.20
27	17+350	1 x 1.20	150	71+240	1 x 1.20
28	19+425	2 x 1.20	151	71+450	1 x 1.20
29	19+950	1 x 1.00	152	71+680	1 x 1.20
30	21+000	1 x 1.00	153	71+850	1 x 1.20
31	21+700	1 x 1.20	154	72+210	1 x 1.20
32	21+970	1 x 1.20	155	72+300	1 x 1.20
33	22+255	1 x 1.20	156	72+425	1 x 1.20
34	22+980	1 x 1.20	157	74+550	1 x 1.20
35	23+160	1 x 1.00	158	74+610	1 x 1.20
36	23+400	1 x 1.20	159	74+850	1 x 1.20
37	24+350	1 x 1.20	160	75+000	1 x 1.20
38	24+850	1 x 1.20	161	75+050	1 x 1.20
39	24+970	1 x 1.20	162	75+075	1 x 1.20
40	25+265	1 x 1.20	163	75+190	1 x 1.20
41	25+775	1 x 1.20	164	75+420	1 x 1.20
42	26+700	1 x 0.90	165	75+510	1 x 1.20
43	26+800	2 x 1.20	166	76+850	1 x 1.20
44	27+040	1 x 0.90	167	77+240	2 x 1.20
45	27+100	2 x 1.20	168	77+300	2 x 1.20
46	27+315	2 x 1.20	169	77+360	1 x 1.20
47	27+635	3 x 0.90	170	77+460	1 x 1.20
48	27+900	2 x 1.20	171	77+580	1 x 1.20
49	28+380	1 x 1.20	172	77+725	1 x 1.20
50	28+560	1 x 1.20	173	77+825	1 x 1.20
51	28+790	1 x 1.20	174	77+900	1 x 1.20
52	29+850	1 x 1.20	175	78+060	1 x 1.20
53	30+090	1 x 1.20	176	78+160	1 x 1.20
54	30+375	1 x 0.90	177	78+250	1 x 1.20
55	32+600	1 x 1.20	178	78+375	1 x 1.20
56	32+740	1 x 1.20	179	78+650	1 x 1.20
57	33+700	1 x 1.20	180	78+860	1 x 1.20
58	34+450	1 x 1.20	181	78+990	1 x 1.20
59	35+010	1 x 1.20	182	80+375	1 x 1.20

S. No.	Chainage (km.)	Span (m)	S. No.	Chainage (km.)	Span (m)
60	35+275	1 x 1.20	183	80+590	1 x 1.20
61	35+740	1 x 1.20	184	80+750	1 x 1.20
62	35+910	1 x 1.20	185	80+860	1 x 1.20
63	35+990	1 x 1.20	186	81+640	1 x 1.20
64	36+930	1 x 1.20	187	81+920	1 x 1.20
65	39+175	1 x 1.20	188	82+200	2 x 0.90
66	40+760	1 x 1.20	189	83+190	1 x 1.20
67	41+010	1 x 1.20	190	83+460	1 x 1.20
68	43+800	1 x 1.20	191	83+760	1 x 1.20
69	43+840	1 x 1.20	192	83+900	1 x 1.20
70	44+615	1 x 1.20	193	84+200	1 x 1.20
71	46+610	1 x 1.20	194	84+940	1 x 1.20
72	49+575	1 x 1.20	195	85+520	2 x 1.20
73	49+770	1 x 1.20	196	85+600	1 x 1.20
74	50+340	2 x 1.20	197	85+725	1 x 1.20
75	50+625	2 x 1.00	198	85+850	1 x 1.20
76	50+700	1 x 1.20	199	86+400	2 x 0.90
77	51+110	2 x 1.00	200	86+580	1 x 1.20
78	51+350	1 x 1.20	201	87+435	1 x 1.20
79	51+560	1 x 1.00	202	87+950	1 x 1.20
80	51+960	1 x 0.90	203	88+200	1 x 1.00
81	52+300	1 x 1.20	204	88+325	2 x 1.00
82	52+320	1 x 1.00	205	88+500	3 x 1.00
83	52+450	1 x 1.20	206	88+600	2 x 1.20
84	52+490	1 x 1.20	207	88+700	1 x 1.00
85	52+540	1 x 1.20	208	88+915	2 x 1.00
86	52+880	4 x 1.20	209	89+580	1 x 1.00
87	52+965	1 x 1.20	210	93+015	2 x 1.00
88	53+125	2 x 1.20	211	94+860	2 x 1.00
89	53+270	2 x 0.90	212	96+960	2 x 1.20
90	53+460	2 x 1.20	213	97+050	1 x 1.00
91	53+500	3 x 1.20	214	99+350	1 x 1.20
92	53+710	1 x 1.20	215	99+550	1 x 1.00
93	53+800	2 x 1.00	216	99+650	1 x 1.00
94	54+010	2 x 0.90	217	99+750	1 x 1.00
95	54+100	2 x 1.00	218	100+210	1 x 1.00
96	54+400	2 x 1.20	219	100+400	1 x 1.00
97	54+450	1 x 1.20	220	100+620	1 x 1.00
98	54+515	2 x 1.00	221	100+950	1 x 1.20
99	54+610	2 x 1.20	222	101+050	1 x 0.90

S. No.	Chainage (km.)	Span (m)	S. No.	Chainage (km.)	Span (m)
100	54+700	1 x 1.20	223	102+585	2 x 1.20
101	54+870	3 x 1.20	224	103+575	2 x 1.20
102	54+990	1 x 0.90	225	104+240	2 x 1.00
103	55+260	3 x 1.20	226	104+400	1 x 1.00
104	55+550	1 x 1.00	227	104+600	1 x 1.20
105	55+660	4 x 0.90	228	105+650	2 x 1.00
106	55+850	2 x 0.90	229	109+575	1 x 1.20
107	56+000	3 x 0.90	230	110+025	1 x 1.20
108	56+220	3 x 0.90	231	112+700	1 x 1.20
109	56+360	2 x 0.90	232	113+160	2 x 1.00
110	56+450	3 x 1.00	233	113+400	1 x 1.00
111	56+600	1 x 0.90	234	114+470	2 x 1.00
112	56+690	2 x 1.20	235	115+040	1 x 1.20
113	56+860	1 x 1.20	236	115+615	1 x 1.00
114	56+950	1 x 1.20	237	116+290	1 x 1.00
115	57+070	2 x 1.20	238	116+450	1 x 1.00
116	57+590	2 x 1.20	239	117+350	1 x 1.20
117	57+700	3 x 0.90	240	118+385	1 x 1.00
118	57+980	1 x 0.90	241	119+300	1 x 1.00
119	58+240	1 x 0.90	242	119+560	1 x 1.00
120	58+350	1 x 0.90	243	120+650	1 x 1.00
121	58+550	1 x 0.90	244	121+385	1 x 1.20
122	59+660	2 x 0.90	245	122+150	1 x 1.20
123	60+440	1 x 0.90			

The general condition of above pipe culverts is good. Maintenance is to be carried out before monsoon for vent clearance, Protection works etc.



Km.74+550



Km.75+510

Figure 4.4: Representative photos of Pipe Culverts

CHAPTER 5. PAVEMENT DESIGN VALIDATION AND OVERLAY SCHEDULE

5.1 General

Review of Pavement design report includes providing insights on design life of pavement, crust thickness, history of overlays on the existing pavement, pavement condition and CA provisions for the upcoming renewal cycles.

5.2 Pavement design

The flexible pavement has low flexural strength and hence layers reflect the deformation of the lower layers / sub-grade on to the surface layer after the withdrawal of wheel load. In order to control the deflections in the sub-grade so that no permanent deflections result, the pavement thickness is so designed that the stresses on the sub-grade soil are kept within its bearing capacity. Loading of bituminous pavement requires the stiffest layers to be placed at the surface with successive weaker layers down to sub-grade.

The project road is already operational and the standards applicable during the design development phase of the project road are taken into account for this review. Therefore, the design of pavement has been validated based on IRC: 37-2012 publication while the current publication is IRC: 37-2018.

Review of Pavement Design

As per the pavement design approved in the project, the following conclusions are given

Table 5.1: Flexible Pavement Design summary

S. No.	Description/ Pavement layer	Design Parameters
1	Sub Grade CBR (%)	7%
2	Design Life (Years)	10 years for BT 15 years for Granular
3	Actual Traffic	7.8 MSA for 10 Years & 14.4 MSA for HS-1 3.5 MSA for 10 Years & 6.4 MSA for HS-2
4	Design Traffic (MSA)	10 MSA for HS-1 & HS-2 14.4 MSA for Granular
5	Surface course (BC)	40 mm
6	Binder course (DBM)	60 mm
7	Base course (WMM)	250 mm
8	Sub Base course (GSB)	230 mm

5.3 Validation of Pavement design

The new pavement shall be designed in accordance with the IRC:37. “Guidelines for the Design of Flexible Pavements”. Rigid pavement shall be designed in accordance with the method prescribed in IRC:58. “Guidelines for the Design of Plain Jointed Rigid Pavements for Highways”.

Pavement design validation is carried out as per actual traffic from COD. As per IRC 37, Vehicle Damage Factor (VDF), Distribution of commercial vehicles and growth rate values are 3.5, 0.75 and 5% respectively. Summary is given below.

Table 5.2: Flexible Pavement Design Traffic Validation (TP-1)

FY Year	AADT in Vehicles					CVPD (Veh.)	MSA	CMSA	Year	Remarks
	Car	LCV	BUS	2-AT	MAV					
2016	945	188	62	78	180	508	0.49	0.49	2	Actual
2017	1077	198	66	69	186	519	0.50	0.98	3	Actual
2018	1181	214	63	75	239	591	0.57	1.55	4	Actual
2019	1265	236	63	66	248	613	0.59	2.14	5	Actual
2020	1428	247	61	63	214	584	0.56	2.70	6	Actual
2021	1499	259	64	66	225	614	0.59	3.29	7	Projected
2022	1574	272	67	69	236	644	0.62	3.90	8	Projected
2023	1653	286	70	73	248	676	0.65	4.55	9	Projected
2024	1736	300	74	77	260	710	0.68	5.23	10	Projected
2025	1822	315	77	80	273	746	0.71	5.95	11	Projected
2026	1913	331	81	84	287	783	0.75	6.70	12	Projected
2027	2009	347	85	89	301	822	0.79	7.48	13	Projected
2028	2110	365	90	93	316	863	0.83	8.31	14	Projected
2029	2215	383	94	98	332	907	0.87	9.18	15	Projected

Table 5.3: Flexible Pavement Design Traffic Validation (TP-2)

FY Year	AADT in Vehicles					CVPD (Veh.)	MSA	CMSA	Year	Remarks
	Car	LCV	BUS	2-AT	MAV					
2016	324	45	15	9	14	84	0.08	0.08	2	Actual
2017	792	116	36	20	27	199	0.19	0.27	3	Actual
2018	807	109	35	14	25	183	0.18	0.45	4	Actual
2019	829	116	35	13	80	244	0.23	0.68	5	Actual
2020	857	107	38	10	21	176	0.17	0.85	6	Actual
2021	899	113	40	11	22	185	0.18	1.03	7	Projected
2022	944	118	42	11	23	195	0.19	1.21	8	Projected
2023	992	124	44	12	24	204	0.20	1.41	9	Projected
2024	1041	130	46	12	26	214	0.21	1.61	10	Projected
2025	1093	137	48	13	27	225	0.22	1.83	11	Projected
2026	1148	144	51	14	28	236	0.23	2.06	12	Projected
2027	1205	151	53	14	30	248	0.24	2.29	13	Projected
2028	1266	159	56	15	31	261	0.25	2.54	14	Projected
2029	1329	166	59	16	33	274	0.26	2.81	15	Projected

Based on the above actual traffic, estimated MSA at 10 years and 15 years are 5.23, 9.18 of TP1 respectively. Similarly estimated MSA at 10 years and 15 years of TP2 are 1.61, 2.81 respectively.

Traffic considered in pavement design is more than estimated traffic based on actual traffic. Hence the pavement design adopted is found in order.

Details of Pavement design for Rigid Pavement are as follows:

Table 5.4: Rigid Pavement Design for Toll Plaza

Description	Design/Adopted Thickness
CBR of sub grade	7 %
Design life in years	30
Pavement Quality Concrete (PQC) - mm	230
Dry Lean Concrete (DLC) - mm	150
Drainage Layer (GSB/CRM) - (mm)	150
Diameter of Dowel Bar (mm)	32
Length of Dowel Bar (mm)	450
Spacing of Dowel Bars (mm)	300
Diameter of Tie Bar (mm)	12 (Deformed)
Length of Tie Bar (mm)	640
Spacing of Tie Bars (mm)	605

The Pavement crust has been designed according to IRC specification and found in order, the adopted/ Constructed pavement layer thickness is adequately provided than actual/ designed thickness.

5.4 Overlay during operation and maintenance

The pavement has been designed to cater traffic of 10 MSA for a design life of 10 years for Bituminous layers (up to end of year 2024) and 14.4 MSA for 15 years for granular layers respectively (up to end of year 2029), whereas the actual traffic is 7.8 MSA and 14.4 MSA for HS-1 and 3.5 MSA and 6.4 MSA for HS-2 for 8 years and 15 years respectively. This implies that pavement will be structurally adequate to cater the future traffic with periodic renewal carried out under the maintenance program.

However, it is recommended to carry out traffic survey, pavement condition and pavement strength evaluation prior to end of concession period to evaluate the requirement of overlay.

5.5 Maintenance/ Overlay schedule

However, it is recommended to carry out traffic survey, pavement condition and pavement strength evaluation before the end of Stage-I of design life (as per pavement design report) and prior to the end of concession period to evaluate the requirement of overlay.

Routine maintenance - Every year

Periodic Renewal for Flexible Pavement – Next Proposed Periodic Renewal on or before 2022.

Periodic Maintenance for Rigid Pavement – Re-texturing shall be done at least once in 10 years from construction (as per IRC 58-2015).

CHAPTER 6. SAFETY AUDIT OF ROAD

6.1 General

Road Safety Audit (RSA) is defined as “the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users”.

Road Safety has multi- sectorial and multi- dimensional issues. It incorporates the development and management of road infrastructure, provisions of safer vehicles, legislations and law enforcements, mobility planning, provisions of health and hospital services, child safety, urban land use planning.

A Key feature of a road safety audit is the use of a team of professionals with varied expertise. The team shall include highway safety engineers, highway design engineers, maintenance personal, and law enforcement. Additional specialties shall be added to the team as needed.

Central Road Research Institute (CRRRI) has studied road safety elements extensively in the past and has come up with various manuals such as manual for safety in road design (1998), Road safety Audit Manual (2003) and Revised Road Safety Audit manual (2010). Indian Road Congress (IRC) has published Special publication SP-88, Manual on road Safety Audit. The methodology used for the design stage audit process is based on these manuals like Type Designs for Intersections on National Highways, 1992

Table 6.1: Referred IRC Publications

IRC : 35	Code of Practice for Road Markings
IRC : 38	Guidelines for Design of Horizontal curves for highways and Design tables
IRC : 67	Code of Practice for Road signs
IRC : 73	Geometric Design standards for rural highways (non-urban)
IRC:103	Guidelines for Pedestrian Facilities
IRC: SP-15	Ribbon Development along highways and its prevention
IRC: SP-23	Vertical curves for highways
IRC: SP-41	Guidelines on design of at-grade intersections in Rural and Urban areas
IRC: SP-55	Guidelines for safety in construction zones
IRC:SP- 88	Manual of Road Safety Audit

6.2 Road Safety Audit

During the site visit it is observed that all safety items are provided as shown in the following table

Table 6.2: Safety Items

S. No.	Item Description		Status	Condition
1	Sign Boards	Chevron signs	Available as per site requirement	Good
		Village sign Board	Available as per site requirement	Good

		Informatory Boards	Available as per site requirement	Good
		Object Hazard Markers at culverts	Available as per site requirement	Good
2	Road Marking	Studs & Lane Marking	Available as per site requirement	Fair
3	Metal Beam Crash Barriers	At High Embankments	Available as per site requirement	Good

This Project Section is part of an important corridor. It is the Concessionaire's duty and responsibility to provide safe road for the commuters by assuring safe and hindrance free movement for both Traffic and Pedestrians along urban locations & habitations.



S Curve board at Km. 13+000



Speed Limit board at Km. 76+000



W Beam at approaches at Km.13+300



Road safety at the Head wall of Structure at 74+850



Right Turn board at Km. 76+000



Left Turn board at Km. 75+510

Figure 6.1: Representative photos during road safety audit

6.3 Conclusion

Safety arrangements are done for road users along the project road and the same is found in conformity with project highway requirements and good industry practice. However, a continuous monitoring on safety arrangements is highly appreciated during the operation and maintenance period.

CHAPTER 7. TOLL PLAZA & HTMS

7.1 General

There are two toll Plazas on the project road at Km.31+000 and Km.111+950. Both Toll Plazas comprises of 6 lanes. Two lanes in each direction is operational and the third lane is used as bike lane and extra wide lane. The lane width in both the plazas is 3.20m. The width of islands provided is 1.8m. The single canopy is provided to cover the toll lanes. The lane is provided with tolling system from Rajdeep. Both Toll plazas are provided with G+1 floor building which houses control room, UPS and Pantry.

7.2 Tolling Equipment's

The equipment list was not made available at the toll plaza. But based on our visual observations we have listed down the equipment provided in the TMS.

Table 7.1: List of Tolling Equipment

S. No.	Description	Toll Plaza 1	Toll Plaza 2	Total
Lane and Booth Equipment				
1	RFID Readers	6	6	12
2	LPIC Cameras	6	6	12
3	Monitors	6	2	8
4	ICS Camera	6	6	12
5	Key Boards	6	6	12
6	PLC	6	6	12
7	Printers	4	4	8
8	Office Systems	2	1	3
9	Server	1	1	2
10	Office Printers	1	1	2
11	WIFI Routers	1	1	2
12	Barrier Gates	2	1	3
13	Fire wall	1	1	2
14	Switch	1	1	2
15	Booth Cam-1	1	1	2
16	Booth Cam-2	1	1	2
17	NVR	-	1	1
18	PTZ Cam-1	-	1	1
19	PTZ Cam-2	-	1	1

7.3 Control Room Equipment's

A server is provided in the control room for all plaza operations. Along with the server an three workstations are provided to manage the Audit and other purpose.

Table 7.2: Equipment provided at Control Room

S. No.	Description	Toll Plaza 1	Toll Plaza 2
Plaza room equipment			
1	TMS Server with monitor	1	1
2	Hard Disk	1	1
3	Joystick	1	1
4	PTZ Camera with pole	2	2
5	Incident Management Work Station	1	1
6	Intercom Master Unit	1	1
7	Computer	1	1
8	Printer	1	2
9	Scanner	1	1
10	42" TV	1	1
11	DVR	1	1
12	POS	1	1
13	Camera	1	1
UPS			
1	3 KVA	1	1
2	6 KVA	1	1
Generator			
1	62.5 KVA	1	1

7.4 Vehicles

The list of vehicles, which were observed at site, for operation of Highway and Toll Plaza are presented below.

Table 7.3: List of Vehicles

S. No.	Vehicle Type	Toll Plaza 1	Toll Plaza 2
1	Patrol Vehicle	Tata Genio – 1 No TVS Bike – 1 No	TVS Bike – 1 No
2	Ambulance	Maruthi Van – 1 No	Maruthi Van – 1 No



Toll Plaza at 31+000



Toll Building at 31+000



Toll Plaza at 111+950

Figure 7.1: Representative Photographs of Toll Plazas

CHAPTER 8. TRAFFIC CENSUS AND TOLL REVENUE

8.1 Traffic Census

In accordance with clause 22.1, the Concessionaire shall install, maintain and operate electronic/computerized traffic counters at each of the Toll Plazas and collect data relating to the number and types of vehicles using the Project Highway. A weekly statement of such data shall be compiled and furnished forthwith by the Concessionaire to MPRDC substantially in the form specified in Schedule N of CA.

Accordingly, the Concessionaire provided toll plaza wise details. Based on the data made available the summarized annual classified Traffic census details for the past five years are provided in Table 8.1 below. The Actual traffic data recorded below has been taken as a basis to calculate AACGR % (Average Annual Compound Growth Rate).

Table 8.1: Year wise Traffic (Vehicles) Details
(A) Sarni toll plaza

FY Year	Car	LCV	Bus	Truck	MAV	Total Traffic
Apr-Mar 2015-16	306322	60943	20158	25213	58261	470897
Apr-Mar 2016-17	392943	72099	24188	25124	68047	582401
Apr-Mar 2017-18	431063	78100	23165	27193	87311	646832
Apr-Mar 2018-19	461613	86128	22989	24218	90575	685523
Apr-Mar 2019-20	522599	90341	22184	23039	78317	736480
AACGR* (%)						12.04%

*AACGR- Annual Average Compound Growth Rate

(B) Parasia toll plaza

FY Year	Car	LCV	Bus	Truck	MAV	Total Traffic
Apr-Mar 2015-16	104837	14738	4865	2824	4653	131917
Apr-Mar 2016-17	288992	42299	13090	7384	9763	361528
Apr-Mar 2017-18	294637	39725	12855	5109	9265	361591
Apr-Mar 2018-19	302706	42351	12906	4796	29019	391778
Apr-Mar 2019-20	313535	39268	13865	3745	7702	378115
AACGR* (%)						30.12%

8.2 Actual Revenue Collection

In accordance with clause 19.5, “During the operation period, the Concessionaire shall furnish to MRPDC within 7 days of completion of each month, a statement of fee substantially in the form set forth in Schedule-M (Monthly fee statement)”. As per provisions of CA the concessionaire submitted monthly fee statement and the summary of form submitted under Schedule M during the financial year 2019-20 is given under as Table 8-2.

Table 8.2: Summary of 2019-20 Tollable traffic and revenue collected at Toll Plaza
(A) Sarni toll plaza

Description	Car	Car(pass)	LCV	Bus	Truck	MAV	Total
In Nos.	265147	19177	73415	22120	22385	78047	480291
Toll Revenue collection in Rs.	9280145	1534191	6447050	3993740	4844000	33779840	59878966

(B) Parasia toll plaza

Description	Car	Car(pass)	LCV	Bus	Truck	MAV	Total
In Nos.	169401	8239	30674	13483	3616	7624	233037
Toll Revenue collection in Rs.	5866790	659150	2684890	2385555	774265	3273160	15643810

The figures shown in Table 8-1 are Real time traffic data (AADT) on project road for the past five years and the growth rate is calculated to be 12.04% in TP-1 & 44.73% for TP-2. It is pertinent to note that the figures given in table 8-1 are inclusive of exempted /non tollable traffic.

The figures shown in Table 8-2 are actual tollable traffic based on which the toll revenue collected and is excluding of exempted/non tollable traffic. For the realistic estimate of the traffic growth and projected revenue calculation actual traffic based on which FY 2019-20 revenue collected (table 8-2) is considered as a base year traffic and the projected traffic growth rate is restricted to 5% even though the growth as per table 8-1 is >5%.

Based on the base year traffic and growth rate as explained above traffic projections from year 2019-20 to till end of Concession period toll plaza wise are calculated and summarized below in Table 8-3.

Table 8.3: Projected traffic
(A) Sarni toll plaza (Km. 31+000)

FY Year	AADT in Vehicles					CVPD* (Veh.)	AADT in PCU					CVPD* (PCU)	Remarks
	Car	LCV	BUS	2-AT	MAV		Car	LCV	BUS	2-AT	MAV		
	PCU Factor						1	1.5	3	3	4.5		
2020	779	201	61	61	214	537	779	302	182	184	962	1630	Actual
2021	818	211	64	64	225	564	818	317	191	193	1010	1711	Projected
2022	859	222	67	68	236	592	859	333	200	203	1061	1797	Projected
2023	902	233	70	71	248	622	902	349	210	213	1114	1887	Projected
2024	947	244	74	75	260	653	947	367	221	224	1170	1981	Projected
2025	994	257	77	78	273	685	994	385	232	235	1228	2080	Projected
2026	1044	270	81	82	287	719	1044	404	244	247	1289	2184	Projected
2027	1096	283	85	86	301	755	1096	425	256	259	1354	2293	Projected
2028	1151	297	90	91	316	793	1151	446	269	272	1422	2408	Projected
2029	1208	312	94	95	332	833	1208	468	282	285	1493	2528	Projected

(B) Parasia toll plaza (Km.111+950)

FY Year	AADT in Vehicles					CVPD* (Veh.)	AADT in PCU					CVPD* (PCU)	Remarks
	Car	LCV	BUS	2-AT	MAV		Car	LCV	BUS	2-AT	MAV		
	PCU Factor						1	1.5	3	3	4.5		
2020	487	84	37	10	21	152	487	126	111	30	94	361	Actual
2021	511	88	39	10	22	159	511	132	116	31	99	379	Projected
2022	537	93	41	11	23	167	537	139	122	33	104	398	Projected
2023	563	97	43	11	24	176	563	146	128	34	109	417	Projected
2024	592	102	45	12	25	184	592	153	135	36	114	438	Projected
2025	621	107	47	13	27	194	621	161	141	38	120	460	Projected
2026	652	113	50	13	28	203	652	169	149	40	126	483	Projected
2027	685	118	52	14	29	214	685	177	156	42	132	507	Projected
2028	719	124	55	15	31	224	719	186	164	44	139	533	Projected
2029	755	130	57	15	32	235	755	196	172	46	146	559	Projected

*CVPD: Commercial vehicle per day (LCV+BUS+2 AT+MAV)

8.3 Toll Revenue Calculations

The toll revenue for horizon year is calculated based on the input from the above data, actual toll rates collected on base year (2019-20), with Traffic growth, WPI growth and toll efficiency has been assumed 5%, 4% and 100% respectively and other inputs considered in revenue calculations is given in table 8-4

Table 8.4: Toll Revenue inputs

Particular	Toll plaza 1	Toll plaza 2
Location	Sarni (Km. 31+000)	Parasia (Km.111+950)
4 lane length in km	0	0
2 lane length in km	50.000	72.000
Agreement Date	20.05.2013	01.09.2015
Appointed Date	07-04-2014	07-04-2014
Concession period	15	15
Commercial operation date (PCOD)	11-11-2015	11-11-2015
Concession End Date	06-Apr-29	09-Apr-29
Traffic study year	2020	2020
Vehicle Type	AADT	AADT
Car/Jeep/Van	779	487
2-axle Bus	201	84
LCV/LGV	61	37
2A-Truck	61	0
MAV (2A-6A)	214	10
Growth Rate (%)	5%	5%

The split trip type based on the available toll data from Concessionaire is used to derive the annual toll collection for each plaza. The revenue estimated and presented below. Detailed toll revenue estimation is given in **ANNEXURE 4**.

Table 8.5: Toll Revenue Estimated (in Rs. lakhs)

Financial Year	Annual Revenue of TP1 @ Km.31+000	Annual Revenue of TP2 @ Km.111+950	Total	Remarks
2019-20	598.790	156.438	755.228	Actual
2020-21	648.244	167.138	815.382	
2021-22	715.863	179.803	895.666	
2022-23	778.869	191.789	970.658	
2023-24	837.216	217.503	1054.719	
2024-25	907.873	233.366	1141.239	
2025-26	998.826	249.405	1248.232	
2026-27	1078.940	267.095	1346.035	
2027-28	1158.106	299.347	1457.453	
2028-29	1267.038	319.374	1586.411	
2029-30	22.473	5.612	28.085	6 Days

CHAPTER 9. OPERATION AND MAINTENANCE

9.1 General

As per Article 17 of the Concession Agreement (CA), the Concessionaire will operate and maintain the Project road by itself or through O & M Contractors and comply with specification and standards, and other requirements set forth in the Agreement, Good Industry Practice, Applicable Laws, applicable permits and manufacturer guidelines and instructions with respect to toll system.

9.2 Inspection

Inspection system followed is illustrated as divided into the following 3 types.

- **Visual Inspection:** Visual inspections are done at frequent intervals, and are intended to determine any potential traffic hazards to the road user or hampering the aesthetics of the project stretch. Visual inspections are meant to identify defects that constitute an imminent or immediate hazard to the public.
- **Detailed Inspection:** Detailed Inspections often require some measuring instruments, are done less frequently and are intended more towards determining performance and behaviour of various elements. These inspections also indicate, need (if any) for thorough inspections. Detailed inspections are carried out primarily to establish programs of periodic or major maintenance tasks, and enhancement requirements not requiring urgent execution.
- **Thorough Inspection:** Thorough Inspections are aimed at finding the cause and remedy of specific problems and at specific locations. Specialist's inspections are required once in a while. Thorough Inspections shall be carried out with highly sophisticated instruments.

The inspection procedures will assist in identifying the need for replacement or renewal under planned program of maintenance and rehabilitation. The elements viz pavement, drainage, shoulders / slopes / Earthworks, structures and buildings are covered.

Maintenance program will be submitted to authority not later than 45 days prior to beginning of each accounting year during the operation period.

9.3 Operations

Traffic Flow Operation & Traffic Management Plan

Following are the obligations of the Concessionaire for the regular and emergency operations of the Project road and Project Facilities.

- Permitting smooth and uninterrupted flow of traffic during normal operating conditions.
- Functioning of the Toll System including charging and collecting the fees from the road user in accordance with the CA.
- carrying out preventive and periodic maintenance of the Project road;
- undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices;
- undertaking major maintenance such as resurfacing of pavements, repairs to structures, and repairs and refurbishment of tolling system and other equipment;
- Functioning of the lighting system;
- Functioning of the Patrolling System
- Functioning of rescue and medical aid services
- Ambulance as and when required

- Functioning of the Project Facilities
- Administrative, Operational and Maintenance Base Camp
- Truck Lay byes
- Pickup Bus stops / Bus Bays
- Protection of the environment and provision of equipment and materials therefore;
- Operation and maintenance of all communication, control and administrative systems necessary for the efficient operation of the Project road
- Complying with Safety Requirements in accordance with Article 18.

9.4 Operation of Toll Plaza

There are 2+1 lanes in each direction operating at toll plaza, middle lanes are used by Car/LCV for collecting toll and extra wide lanes are utilized by wide vehicles like Bus/Trucks/Tractors and toll exempted vehicles. The cash collected is deposited on daily basis to the escrow account. In case of ETC system Toll collection is connected with Network system and directly deposited into the Escrow account.

9.5 Maintenance of Project road

The maintenance methodology and yearly maintenance programme will guide the Maintenance team to undertake the routine & periodic maintenance works of the Project Facilities. This programme is the basic indicator of the intended works to be carried out by the Maintenance Team over a period of one year. Road maintenance can be carried out in four ways as listed below.

1. Preventive Maintenance
2. Routine Maintenance
3. Periodic Maintenance
4. Special repairs

Preventive Maintenance

Preventive maintenance is an organized, systematic process of applying a series of preventive treatments over the life of the pavement to minimize life cycle costs.

The strategy of applying periodic treatments at appropriate times in a pavement's life is economical than applying treatment at the end of pavement's life. Preventive maintenance is designed to retard pavement deterioration. Regular preventive maintenance will be carried out to ensure adherence to the Design Requirements and specifications throughout the Concession period. Preventive Maintenance shall include the activities related to each element and the system as a whole of the Project Preventive Maintenance for Structures is estimated by the consultant. The condition data collected from site was used to arrive at the appropriate treatments and quantities. Rates from Schedule of Rates (SOR) of MP, was used to arrive at the cost.

The flexible pavement is in good condition and hence doesn't require any immediate or preventive interventions.

Routine Maintenance:

Routine maintenance, which involves repairing of cracks, replacement of safety girders along the highway, clearance of debris following accidents, ensuring functionality of sign posts, maintenance of a security set-up, and such other activities.

Periodic Maintenance

In contrast to preventive maintenance treatments, periodic maintenance treatments are ideally applied on pavements to improve surface integrity and waterproofing, or to improve skid resistance, without increasing the strength of the pavement significantly. They are sometimes referred to as “functional overlays,” as they are intended to restore or enhance the ability of the roadway to serve its purpose (function), but do not increase the load-carrying capabilities. If the pavement failure is more and demands for a “structural overlay” they are intended to increase load-carrying capabilities of the project road.

The details of periodic maintenance schedule are given below.

Table -1: Schedule and status of for Periodic Maintenance

S No.	Scheduled Major Maintenance	Year	Status at site
1	1st Periodic Maintenance	2022	Executed
2	2 nd Periodic Maintenance	2028	scheduled
3	2 nd Periodic Maintenance	2029	scheduled

Special Repairs

The group of activities performed to restore the roadway following damage due to natural calamities such as heavy floods, sand storms, hurricanes, cyclones, earthquakes or landslides which shall be unpredictable. The affected Project road shall be rectified, and the system shall be restored to function as per Programme prepared in consultation with Independent Engineer. Typical activities include,

- Culvert and bridge repairs
- Retaining wall repairs and construction
- Construction of Diversions
- Floodway repairs; and
- Flood damage restoration works, etc.

9.6 Review of Test Reports:

Bump Integrator Test:

Maintenance of road is dependent on several factors, one of which is the condition of Pavement surface. As such Roughness is the measurement of the riding quality, which in turn is the effect of total surface deterioration. Bump Integrator (BI) is one of the equipment needed for roughness measurement. The roughness of pavement surface is designated as uneven index value and expressed as surface roughness from which the condition of the road can be assessed.

The test was conducted in the month of Oct 2020. As per Schedule K of the CA, If the value exceeds 3000mm in a KM, the stretch shall be rectified. No stretch exceeded the permissible limit of 3000 mm in the Project road.

Benkelman Beam Deflection (BBD):

The performance of flexible pavement is closely related to the elastic deflection of pavement under the wheel loads. The deformation or elastic deflection under a given load depends upon subgrade soil type, its moisture content and compaction, the thickness and the quality of pavement courses, drainage

conditions, pavement surface temperatures etc. BBD method is widely followed to evaluate the structural capacity of pavement and for estimation and design of overlay for strengthening of any weak pavement.

Concessionaire has conducted the test in Oct 2020. The test report has been verified and found within permissible limits as per IRC 81.

9.7 O&M Forecast

The O&M costs were estimated based on various parameters of CA, design reports and BBD/BI test results. The cost summary is given below, and detailed cost estimations are given in **ANNEXURE 5**.

Table 9.1: Proposed Plan for Future Operation & Maintenance Cost (In Crores)

Year	Routine maintenance (In crores)	Incidental maintenance (In crores)	Periodic / Major maintenance	Operational Expenses	Total cost per year
2020	0.780	0.322		1.73	2.83
2021	0.803	0.332		1.78	2.91
2022	0.827	0.342	9.69	1.83	12.69
2023	0.852	0.352	9.69	1.89	12.78
2024	0.878	0.363		1.94	3.18
2025	0.904	0.374		2.00	3.28
2026	0.931	0.385		2.06	3.38
2027	0.959	0.396		2.12	3.48
2028	0.988	0.408	6.82	2.19	10.40
2029	1.018	0.421	16.30	2.25	19.99
2030	0.017	0.007		0.04	0.06
Total	8.96	3.70	42.49	19.84	74.99

CHAPTER 10. REVIEW OF CONCESSION AGREEMENT

10.1 Scope of Work (Article 2)

Article 2 provides the scope of work, which includes the following.

- construction of the Project road on the Site set forth in Schedule-A and as specified in Schedule-B together with provision of Project Facilities as specified in Schedule-C, and in conformity with the Specifications and Standards set forth in Schedule-D of the CA
- operation and maintenance of the Project road in accordance with the provisions of Concession Agreement (CA)
- performance and fulfilment of all other obligations of the Concessionaire in accordance with the provisions of this CA and matters incidental

10.2 Letter of Award

After evaluation of the bids received, Authority will select one bidder considering their score in technical and financial bids. Further Authority will issue a Letter called LOA (Letter of Award) to the selected bidder requiring the execution of agreement within stipulated time. The issued LOA copy given in **ANNEXURE 6**.

10.3 Conditions precedent (Article 4)

Conditions precedent to be fulfilled by the Authority

- Providing adequate Right of Way
- Providing necessary approvals as per the CA

Conditions precedent to be fulfilled by the Concessionaire

Provide performance security to the Authority

- Executed and procured Escrow Agreement & Substitution Agreement
- Procured all applicable permits specified in Schedule E of the CA
- Executed financing Agreements and delivering 3 copies of Financial Package
- Delivered to the Authority confirmation in original of the correctness of their representations and warranties set forth in Agreement and a legal opinion from the legal counsel of the Concessionaire

10.4 Major Obligations of the Concessionaire (Clause 5.1)

- The Concessionaire shall obtain necessary permits in conformity with the applicable laws
- Procure appropriate rights for obtaining materials
- Perform and fulfil its obligations under financing Agreements
- To make reasonable efforts to facilitate the acquisition of land required for execution
- Transfer the Project road upon termination of the CA

10.5 Obligations relating to the Competing Roads (Clause 6.3)

Neither Authority nor any Governmental Instrumentality shall construct the Competing Road before 10th Anniversary of the Appointed Date.

10.6 Performance Security (Article 9)

- The Concessionaire shall submit the Performance security to the Authority within 180 days from the date of the Agreement,
- The Performance security shall remain in force and effect for a period of one year from the Appointed Date
- Performance Security shall be released upon the Concessionaire expending on Project Construction an Aggregate sum that is not less than 20% of the Total Project Cost.

10.7 Provisional Completion Certificate (Clause 14.3)

- Upon completion of works in accordance with the specifications and standards set forth in the Schedule B, C and D of CA and after determining the tests on completion successful the Independent engineer shall issue the Completion Certificate in the form set forth in Schedule J of the CA. Provisional Completion Certificate given in **ANNEXURE 7**.

10.8 Completion Certificate (Clause 14.4)

Upon completion of Punch list items appended to the Provisional Completion Certificate within 90 days of issuance of Provisional Complete Certificate, Completion Certificate shall be issued to the Concessionaire. Completion Certificate given in **ANNEXURE 8**

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10.9 Commercial Operation Date (COD) (clause 15.1)

- COD shall be the date on which the Provisional Completion Certificate is issued by the Independent Engineer.
- With COD the Project shall enter into commercial service and the Concessionaire is entitled to demand and collect Fee.

10.10 Change of scope (Article 16)

Change of scope, proposals were initiated during construction period and consented by the MPRDC. Details are given in **ANNEXURE 10**.

10.11 O&M Obligations of the Concessionaire (Clause 17.1)

- Permitting safe, smooth and uninterrupted flow of traffic on the Project road
- Collecting and appropriating the Fee
- Minimizing the disruption to traffic in the event of accidents.
- Undertaking routine maintenance including prompt repairs of pot holes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices
- Undertaking major maintenance such as resurfacing of pavements, repairs and refurbishments of tolling system and other equipment
- Preventing any un authorized use of the Project road.
- Protection of environment and provision of equipment and materials
- Complying with safety Requirements in accordance with the provisions of the CA.

10.12 Maintenance Requirements (Clause 17.2)

The Contractor shall procure that at all times during the Operations Period; the Project road conforms to the maintenance requirements set forth in Schedule K of the CA (the “**Maintenance Requirements**”).

10.13 Maintenance Manual (Clause 17.3)

No later than 180 (one hundred and eighty) days prior to the Scheduled Two Laning Date, the Contractor shall, in consultation with the Independent Engineer, evolve a repair and maintenance manual (the “**Maintenance Manual**”) for the regular and preventive maintenance of the Project in conformity with the Specifications and Standards, Maintenance Requirements, Safety Requirements and Good Industry Practice, and shall provide 5 (five) copies thereof to the Authority and 2 (two) copies to the Independent Engineer. The Maintenance Manual shall be revised and updated once every 3 (three) years and the provisions of this Clause shall apply, mutatis mutandis, to such revision.

10.14 Maintenance Programme (Clause 17.4)

- On or before COD and no later than 45 days prior to the beginning of each Accounting year during the Operation Period as the case may be the Concessionaire shall provide to the Authority and Independent Engineer its proposed annual programme of preventive, urgent and the schedule maintenance.
- The Concessionaire has been submitting the Annual Maintenance Programme regularly as per the above clause.

10.15 Damages for breach of Maintenance Obligations (Clause 17.8):

- In the event that the Contractor fails to repair or rectify any defect or deficiency set forth in the Maintenance Requirements within the period specified therein, it shall be deemed to be in breach of the Agreement and the Concessionaire shall be entitled to recover Damages, to be calculated and paid for each day of delay until the breach is cured, at the higher of the following.
- 0.5% (zero decimal five percent) of the Average Daily Fee, and
- 0.1% (zero point one per cent) of the cost of such repair or rectification as estimated by the Independent Engineer.

10.16 Monthly status reports (Clause 19.1)

During the Operation Period, the Contractor shall, no later than 7 (seven) days after the close of each month, furnish to the Concessionaire, the Authority and the Independent Engineer a monthly report stating in reasonable detail the condition of the Project including its compliance or otherwise with the Maintenance Requirements, Maintenance Manual, Maintenance Program and Safety Requirements, and shall promptly give such other relevant information as may be required by the Concessionaire, Independent Engineer or the Authority. In particular, such report shall separately identify and state in reasonable detail the defects and deficiencies that require rectification.

10.17 Monthly Fee Statement (Clause 19.5)

During the Operations Period, the Contractor shall furnish to the Concessionaire and the Authority, if required by the Contractor, within 7 (seven) days of completion of each month, a statement of Fee substantially in the format set out in the CA (“Monthly Fee Statement”).

10.18 Annuity (Clause 25.1.1)

The Authority agrees and undertakes to pay the Concessionaire for each annuity Payment period on each annuity payment date as set forth in schedule Y of the CA, the sum of Rs 15.48 Crores.

As per Clause 25.2.1, In case the COD is different from the Schedule Y, then the annuity payment schedule shall be suitably modified to be a period of 6 months from the preceding Annuity Payment date.

Table 10.1: Status of Annuity Payments

S. No.	Particulars	Payment Paid on
1	1st Annuity	15-Dec-15
2	2nd Annuity	12-May-16
3	3rd Annuity	23-Nov-16
4	4th Annuity	25-May-17
5	5th Annuity	5-Dec-17
6	6th Annuity	4-Jun-18
7	7th Annuity	29-Nov-18
8	8th Annuity	28-May-19
9	9th Annuity	14-Nov-19
10	10th Annuity	22-May-20
11	11th Annuity	12-Nov-20
12	12th Annuity	15-Dec-15
13	13th Annuity	12-May-16

10.19 Concession Fee (Article 26)

- In consideration of the grant of Concession the Concessionaire shall pay Concession Fee of Rs1.00 per year during the Concession Period
- Concession Fee shall be paid in advance within 90 days of the commencement of the Accounting Year.
- Yearly the Concessionaire is paying the Concession Fee to the MPRDC

10.20 Toll fee (Clause 27.1.1)

Toll Fees Shall be revised annually in accordance with Clause 27.2.1.

10.21 Change in Law (Article 41)

The Contractor acknowledges that the Contractor shall be responsible for any consequences arising from any Change in Law and the Contractor shall at its own costs and expenses, undertake the compliance with any such Change in Law, however, in the event any receivables are obtained by the Concessionaire from the Authority, towards the losses incurred by the Concessionaire on account of Change in Law, then the Contractor shall ensure that such receivables are passed to the Concessionaire.

CHAPTER 11. INSURANCE

11.1 Details of Insurance

As per clause 32.1 of the Concession Agreement (CA), the Concessionaire shall effect and maintain at its own cost during the Operation Period such insurances for such maximum sums as may be required under the Financing Agreements and the Applicable laws, and such insurances as may be necessary or prudent in accordance with Good Industry Practice. Accordingly, the following policies being maintained by the concessionaire copies of the same are provided in **Annexure-9**.

Accordingly, the Concessionaire has procured the following insurances for mitigating the risks.

Table 11.1: Insurance Details

Name of the Policy	Insurance Company	Policy No	Effective Period		Description of the Policy
			From	To	
Civil Engineering Completed Risk	National Insurance Company Ltd	3213004419 10001990	27.03.2020	26.03.2021	Road & Structure: Toll Building & Toll Booths, TMS, HTMS, Office & IT equipment, Electronic Equipment, Road Furniture, Fixtures, electrical Poles Lighting & Fittings, Sign boards & Safety Barrier
Employees Compensation Insurance Policy	HDFC Ergo General Insurance Company	3114203388 063900000	20.05.2020	19.05.2021	Employees Insurance of DBL & Sub-contractor engaged in DBL

CHAPTER 12. CONCLUSION

12.1 General

Based on detailed site inspection, review of various documents and reports as described in the preceding chapters technical over view of the Project is provided below.

12.2 Pavement Condition

The overall project pavement condition is good. Drainage system is effective along the project road. Shoulder condition is fair.

12.3 Condition of Structures

General condition of Bridges is good. No major structural defects were noticed. General condition of Culverts is good. Observed vegetation growth in vents of Box and Hume Pipe culverts and they are getting cleared during regular maintenance period.

12.4 Traffic Growth

Based on real time, traffic data was extracted from Schedule N of CA, the traffic growth observed is 12.04% in TP-1 & 44.73% for TP-2, whereas 5% growth as standard practice is considered while evaluating forecast of traffic volumes.

12.5 Project Facilities

Toll Plaza is located at Km.31+000 and 111+950 is operational. Toll Plaza is operated by ETC Toll collection system and connected by network system monitored in administrative building. Bus bays are in fair condition. Medical Aid posts found functional. Avenue plantation and landscaping at Toll Plaza is provided and being maintained. Highway lighting is provided at toll plaza locations and found functional.

12.6 Road safety

Pavement marking is in fair condition and number of sign boards are provided as per site requirement. The condition of sign boards & other road appurtenances like metal beam crash barriers is fair.

12.7 Maintenance

- The routine maintenance being carried out by O&M contractor effectively. Based on documents reviewed, time to time observations made by client/Authority, being complied and no outstanding NCR's are to be attended as on date.
- 1st Major maintenance (MM) /Periodic maintenance was scheduled in the year 2022 and 2nd MM is scheduled in 2028 & 2029.

12.8 Epilogue

The project is designed and constructed as per the stipulated specifications besides maintenance work, being carried out timely and effectively to keep the road in traffic worthy and safe at all times.

ANNEXURES

Annexure 1: Pavement Condition

Condition: G=Good, F=Fair, P=Poor & VP=Very poor

Rutting: M=Moderate & S=Severe

Drain: LD=Lined open Drain, ULD=Unlined Drain, CD=Covered

Drain, NO=No drain, PF=Partial Function, F= Functional

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Ravelling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
0+000	1+000								G		P+E	Fair	Fair	LD	F	
1+000	2+000								G		P+E	Fair	Fair	LD	F	
2+000	3+000								G	4	E	Fair	Fair	ULD	PF	
3+000	4+000								G		P+E	Fair	Fair	LD	F	
4+000	5+000								G	3	E	Fair	Fair	ULD	PF	
5+000	6+000								G	3	E	Fair	Fair	ULD	PF	
6+000	7+000								G		E	Fair	Fair	ULD	PF	
7+000	8+000								G	4	E	Fair	Fair	ULD	PF	
8+000	9+000								G	4	E	Poor	Fair	ULD	PF	
9+000	10+000								G		E	Fair	Fair	ULD	PF	
10+000	11+000								G		E	Fair	Fair	ULD	PF	
11+000	12+000								G		E	Fair	Fair	ULD	PF	
12+000	13+000								G		E	Fair	Fair	ULD	PF	
13+000	14+000								G	4	E	Fair	Fair	ULD	PF	
14+000	15+000								G	4	E	Fair	Fair	ULD	PF	
15+000	16+000								G		E	Fair	Fair	ULD	PF	
16+000	17+000								G	4	E	Fair	Fair	ULD	PF	
17+000	18+000								G	3	E	Fair	Fair	ULD	PF	
18+000	19+000								G	3	E	Fair	Fair	ULD	PF	

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Ravelling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
19+000	20+000								G		E	Fair	Fair	ULD	PF	
20+000	21+000								G		P+E	Fair	Fair	LD	F	
21+000	22+000								G		P+E	Fair	Fair	LD	F	
22+000	23+000								G	4	E	Fair	Fair	ULD	PF	
23+000	24+000								G	3	E	Fair	Fair	ULD	PF	
24+000	25+000								G	4	E	Fair	Fair	ULD	PF	
25+000	26+000								G	3	E	Fair	Fair	ULD	PF	
26+000	27+000								G	4	E	Fair	Fair	ULD	PF	
27+000	28+000								G		E	Fair	Fair	ULD	PF	
28+000	29+000								G	4	E	Fair	Fair	ULD	PF	
29+000	30+000								G		E	Fair	Fair	ULD	PF	
30+000	31+000								G	3	E	Fair	Fair	ULD	PF	
31+000	32+000								G	3	E	Fair	Fair	ULD	PF	
32+000	33+000								G	3	E	Fair	Fair	ULD	PF	
33+000	34+000								G		E	Fair	Fair	ULD	PF	
34+000	35+000								G		E	Fair	Fair	ULD	PF	
35+000	36+000								G		E	Fair	Fair	ULD	PF	
36+000	37+000								G	3	E	Fair	Fair	ULD	PF	
37+000	38+000								G		P+E	Fair	Fair	LD	PF	
38+000	39+000								G		P+E	Fair	Fair	LD	PF	
39+000	40+000								G		P+E	Fair	Fair	LD	F	

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Ravelling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
40+000	41+000								G		P+E	Fair	Fair	LD	F	
41+000	42+000								G	4	E	Fair	Fair	ULD	PF	
42+000	43+000								G	3	E	Fair	Fair	ULD	PF	
43+000	44+000								G		E	Fair	Fair	ULD	PF	
44+000	45+000								G	4	E	poor	Fair	ULD	PF	
45+000	46+000								G		E	Fair	Fair	ULD	PF	
46+000	47+000								G		P+E	Fair	Fair	LD	F	
47+000	48+000								G		P+E	Fair	Fair	LD	F	
48+000	49+000								G		P+E	Fair	Fair	LD	F	
49+000	50+000								G		E	Fair	Fair	ULD	PF	
50+000	51+000								G	3	E	Fair	Fair	ULD	PF	
51+000	52+000								G		E	Fair	Fair	ULD	PF	
52+000	53+000								G	3	E	Fair	Fair	ULD	PF	
53+000	54+000								G	3	E	Fair	Fair	ULD	PF	
54+000	55+000								G	4	E	Fair	Fair	ULD	PF	
55+000	56+000								G	3	E	Fair	Fair	ULD	PF	
56+000	57+000								G	4	E	Fair	Fair	ULD	PF	
57+000	58+000								G	4	E	Fair	Fair	ULD	PF	
58+000	59+000								G		E	Fair	Fair	ULD	PF	
59+000	60+000								G	3	E	Fair	Fair	ULD	PF	
60+000	61+000								G	4	E	Fair	Fair	ULD	PF	

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Ravelling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
61+000	62+000								G	3	E	Fair	Fair	ULD	PF	
62+000	63+000								G	3	E	Fair	Fair	ULD	PF	
63+000	64+000								G	3	E	Fair	Fair	ULD	PF	
64+000	65+000								G		E	Fair	Fair	ULD	PF	
65+000	66+000								G	4	E	Fair	Fair	ULD	PF	
66+000	67+000								G	3	E	Fair	Fair	ULD	PF	
67+000	68+000								G	3	E	Fair	Fair	ULD	PF	
68+000	69+000								G	4	E	Fair	Fair	ULD	PF	
69+000	70+000								G		P+E	poor	Fair	LD	F	
70+000	71+000								G		P+E	Fair	Fair	LD	F	
71+000	72+000								G		E	Fair	Fair	ULD	PF	
72+000	73+000								G	4	E	poor	Fair	ULD	PF	
73+000	74+000								G	4	E	Fair	Fair	ULD	PF	
74+000	75+000								G		E	Fair	Fair	ULD	PF	
75+000	76+000								G		E	Fair	Fair	ULD	PF	
76+000	77+000								G	3	E	Fair	Fair	ULD	PF	
77+000	78+000								G	3	E	Fair	Fair	ULD	PF	
78+000	79+000								G		E	Fair	Fair	ULD	PF	
79+000	80+000								G		E	Fair	Fair	ULD	PF	
80+000	81+000								G	4	E	poor	Fair	ULD	PF	
81+000	82+000								G	3	E	Fair	Fair	ULD	PF	

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Ravelling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
82+000	83+000								G		E	Fair	Fair	ULD	PF	
83+000	84+000								G	3	E	Fair	Fair	ULD	PF	
84+000	85+000								G		E	Fair	Fair	ULD	PF	
85+000	86+000								G		P+E	Fair	Fair	LD	F	
86+000	87+000								G		P+E	Fair	Fair	LD	F	
87+000	88+000								G		P+E	Fair	Fair	LD	F	
88+000	89+000								G		P+E	Fair	Fair	LD	F	
89+000	90+000								G	3	E	Fair	Fair	ULD	PF	
90+000	91+000								G		E	Poor	Fair	ULD	PF	
91+000	92+000								G		P+E	Fair	Fair	LD	F	
92+000	93+000								G		P+E	Fair	Fair	LD	F	
93+000	94+000								G		P+E	Fair	Fair	LD	F	
94+000	95+000								G		P+E	Fair	Fair	LD	F	
95+000	96+000								G		P+E	Fair	Fair	LD	F	
96+000	97+000								G		P+E	Fair	Fair	LD	F	
97+000	98+000								G		P+E	Fair	Fair	LD	F	
98+000	99+000								G	3	E	Fair	Fair	ULD	PF	
99+000	100+000								G		P+E	Fair	Fair	LD	F	
100+000	101+000								G		P+E	Fair	Fair	LD	F	
101+000	102+000								G		P+E	Fair	Fair	LD	F	
102+000	103+000								G		P+E	Fair	Fair	LD	F	

Chainage (Km.)		Pavement Condition						Riding Quality		Pavement Edge Drop (cm)	Shoulder		Embankment Condition (Good/Fair / Poor)	Road Side Drain		Remarks
From	To	Cracking (%)	Ravelling (%)	Potholing (%)	Bleeding (%)	Rutting	Patching (%)	Speed (km/hr)	Quality (G/F/P /VP)		Composition	Condition (Fair / Poor/ Damaged)		Type (LD/ULD/CD/NO)	Condition (PF/F)***	
103+000	104+000								G		P+E	Fair	Fair	LD	F	
104+000	105+000								G		P+E	Fair	Fair	LD	F	
105+000	106+000								G	3	E	Fair	Fair	ULD	PF	
106+000	107+000								G		E	Fair	Fair	ULD	PF	
107+000	108+000								G		P+E	Fair	Fair	LD	F	
108+000	109+000								G		P+E	Fair	Fair	LD	F	
109+000	110+000								G		P+E	Fair	Fair	LD	F	
110+000	111+000								G		P+E	Fair	Fair	LD	F	
111+000	112+000								G		P+E	Fair	Fair	LD	F	
112+000	113+000								G		P+E	Fair	Fair	LD	F	
113+000	114+000								G		E	Fair	Fair	ULD	PF	
114+000	115+000								G		P+E	Fair	Fair	LD	F	
115+000	116+000								G		P+E	Fair	Fair	LD	F	
116+000	117+000								G		P+E	Fair	Fair	LD	F	
117+000	118+000								G	3	E	Fair	Fair	ULD	PF	
118+000	119+000								G		P+E	Fair	Fair	LD	F	
119+000	120+000								G		P+E	Fair	Fair	LD	F	
120+000	121+000								G		P+E	Fair	Fair	LD	F	
121+000	122+000								G	3	E	Fair	Fair	ULD	PF	
122+000	123+000								G		E	Fair	Fair	ULD	PF	
123+000	124+100								G		E	Fair	Fair	ULD	PF	

Annexure 2: Condition of Structures

S. No.	Chainage (Km.)	Type of Structure	Sub structure	Super structure	Crash barrier	Wearing coat	Bearings	Quadrant Pitching	Toe wall	Aprons
1	4+300	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
2	6+380	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
3	11+050	Minor Bridge	Good	Good	Fair	Good	Good	Fair	-	Fair
4	12+060	Minor Bridge	Fair	Good	Good	Good	Good	Fair	-	Fair
5	12+400	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
6	12+670	Minor Bridge	Good	Good	-	Good	Good	Fair	-	Fair
7	13+000	Minor Bridge	Good	Fair	-	Good	Good	Fair	-	Fair
8	13+850	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
9	14+050	Minor Bridge	Good	Good	-	Good	Good	Fair	-	Fair
10	14+360	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
11	14+700	Major Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
12	17+000	Major Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
13	17+860	Major Bridge	Good	Good	-	Good	Good	-	-	Fair
14	18+610	Minor Bridge	Good	Fair	Good	Good	Good	Fair	-	Fair
15	20+465	Minor Bridge	Fair	Good	Good	Good	Good	Fair	-	Fair
16	31+000	Minor Bridge	Good	Good	-	Good	Good	Fair	-	Fair
17	31+950	Major Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
18	33+000	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
19	41+400	Minor Bridge	Fair	Good	Good	Good	Good	Fair	-	Fair
20	46+860	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
21	50+080	Minor Bridge	Good	Fair	Good	Good	Good	Fair	-	Fair
22	50+850	Minor Bridge	Good	Good	-	Good	Good	Fair	-	Fair
23	58+850	Major Bridge	Good	Good	-	Good	Good	Fair	-	Fair
24	63+500	Minor Bridge	Good	Good	-	Good	Good	Fair	-	Fair

S. No.	Chainage (Km.)	Type of Structure	Sub structure	Super structure	Crash barrier	Wearing coat	Bearings	Quadrant Pitching	Toe wall	Aprons
25	64+150	Minor Bridge	Good	Fair	Good	Good	Good	Fair	-	Fair
26	65+300	Minor Bridge	Good	Good	Fair	Good	Good	Fair	-	Fair
27	66+160	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
28	66+375	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
29	67+750	Major Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
30	69+600	Major Bridge	Good	Good	-	Good	Good	Fair	-	Fair
31	72+850	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
32	75+950	Major Bridge	Good	Good	-	Good	Good	Fair	-	Fair
33	81+500	Minor Bridge	Good	Good	-	Good	Good	Fair	-	Fair
34	83+300	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
35	86+950	Major Bridge	Good	Good	Good	Good	Good	-	-	Fair
36	89+100	Minor Bridge	Fair	Good	-	Good	Good	Fair	-	Fair
37	90+050	Minor Bridge	Good	Fair	Good	Good	Good	Fair	-	Fair
38	92+150	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
39	93+530	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
40	99+100	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
41	99+850	Minor Bridge	Good	Good	-	Good	Good	Fair	-	Fair
42	101+225	Minor Bridge	Fair	Good	-	Good	Good	Fair	-	Fair
43	107+010	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair
44	115+150	Minor Bridge	Good	Fair	Good	Good	Good	Fair	-	Fair
45	116+241	Minor Bridge	Good	Good	Good	Good	Good	Fair	-	Fair

Annexure 3: Condition of Box/Slab/Pipe Culverts

Condition of Box/Slab Culverts

S. No.	Chainage (Km.)	Box/Slab	Return wall	Quadrant pitching	Toe wall	Parapet wall
1	3+360	Good	Fair	Fair	Fair	Fair
2	4+780	Good	Fair	Fair	-	Fair
3	7+530	Good	Fair	Fair	Fair	Fair
4	23+199	Good	Fair	Fair	Fair	Fair
5	30+770	Good	Fair	Fair	Fair	Fair
6	32+285	Good	Fair	Fair	Fair	Fair
7	32+500	Good	Fair	Fair	Fair	Fair
8	33+250	Good	Fair	Fair	Fair	Fair
9	33+355	Good	Fair	Fair	Fair	Fair
10	33+890	Good	Fair	Fair	Fair	Fair
11	34+000	Good	Fair	Fair	Fair	Fair
12	34+600	Good	Fair	Fair	Fair	Fair
13	34+800	Good	Fair	Fair	Fair	Fair
14	35+515	Good	Fair	Fair	Fair	Fair
15	36+200	Good	Fair	Fair	Fair	Fair
16	37+040	Good	Fair	Fair	Fair	Fair
17	38+825	Good	Fair	Fair	Fair	Fair
18	39+710	Good	Fair	Fair	Fair	Fair
19	40+190	Good	Fair	Fair	Fair	Fair
20	41+180	Good	Fair	Fair	Fair	Fair
21	47+650	Good	Fair	Fair	Fair	Fair
22	47+680	Good	Fair	Fair	Fair	Fair
23	47+925	Good	Fair	Fair	Fair	Fair
24	48+315	Good	Fair	Fair	Fair	Fair
25	49+015	Good	Fair	Fair	Fair	Fair
26	49+265	Good	Fair	Fair	Fair	Fair
27	72+275	Good	Fair	Fair	Fair	Fair
28	76+200	Good	Fair	-	Fair	Fair
29	84+300	Good	Fair	Fair	Fair	Fair
30	84+690	Good	Fair	Fair	Fair	Fair
31	90+785	Good	Fair	Fair	Fair	Fair
32	91+375	Good	Fair	Fair	Fair	Fair
33	96+565	Good	Fair	Fair	Fair	Fair
34	97+660	Good	Fair	Fair	Fair	Fair
35	117+475	Good	Fair	Fair	Fair	Fair
36	120+010	Good	Fair	Fair	Fair	Fair

Condition of Pipe Culverts

S. No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
1	0+150	Good	Good	Fair	Fair
2	1+770	Good	Good	Fair	Fair
3	2+019	Good	Good	Fair	Fair
4	2+625	Good	Good	Fair	Fair
5	2+876	Good	Good	Fair	Fair
6	3+500	Good	Good	Fair	Fair
7	5+008	Good	Good	Fair	Fair
8	5+793	Good	Good	Fair	Fair
9	6+650	Good	Good	Fair	Fair
10	6+770	Good	Good	Fair	Fair
11	6+885	Good	Good	Fair	Fair
12	6+920	Good	Good	Fair	Fair
13	7+210	Good	Good	Fair	Fair
14	8+014	Good	Good	Fair	Fair
15	8+130	Good	Good	Fair	Fair
16	8+420	Good	Good	Fair	Fair
17	10+750	Good	Good	Fair	Fair
18	10+825	Good	Good	Fair	Fair
19	11+250	Good	Good	Fair	Fair
20	11+390	Good	Good	Fair	Fair
21	11+425	Good	Good	Fair	Fair
22	11+586	Good	Good	Fair	Fair
23	15+540	Good	Good	Fair	Fair
24	15+665	Good	Good	Fair	Fair
25	16+435	Good	Good	Fair	Fair
26	16+525	Good	Good	Fair	Fair
27	17+350	Good	Good	Fair	Fair
28	19+425	Good	Good	Fair	Fair
29	19+950	Good	Good	Fair	Fair
30	21+000	Good	Good	Fair	Fair
31	21+700	Good	Good	Fair	Fair
32	21+970	Good	Good	Fair	Fair
33	22+255	Good	Good	Fair	Fair
34	22+980	Good	Good	Fair	Fair
35	23+160	Good	Good	Fair	Fair
36	23+400	Good	Good	Fair	Fair
37	24+350	Good	Good	Fair	Fair
38	24+850	Good	Good	Fair	Fair
39	24+970	Good	Good	Fair	Fair
40	25+265	Good	Good	Fair	Fair

S. No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
41	25+775	Good	Good	Fair	Fair
42	26+700	Good	Good	Fair	Fair
43	26+800	Good	Good	Fair	Fair
44	27+040	Good	Good	Fair	Fair
45	27+100	Good	Good	Fair	Fair
46	27+315	Good	Good	Fair	Fair
47	27+635	Good	Good	Fair	Fair
48	27+900	Good	Good	Fair	Fair
49	28+380	Good	Good	Fair	Fair
50	28+560	Good	Good	Fair	Fair
51	28+790	Good	Good	Fair	Fair
52	29+850	Good	Good	Fair	Fair
53	30+090	Good	Good	Fair	Fair
54	30+375	Good	Good	Fair	Fair
55	32+600	Good	Good	Fair	Fair
56	32+740	Good	Good	Fair	Fair
57	33+700	Good	Good	Fair	Fair
58	34+450	Good	Good	Fair	Fair
59	35+010	Good	Good	Fair	Fair
60	35+275	Good	Good	Fair	Fair
61	35+740	Good	Good	Fair	Fair
62	35+910	Good	Good	Fair	Fair
63	35+990	Good	Good	Fair	Fair
64	36+930	Good	Good	Fair	Fair
65	39+175	Good	Good	Fair	Fair
66	40+760	Good	Good	Fair	Fair
67	41+010	Good	Good	Fair	Fair
68	43+800	Good	Good	Fair	Fair
69	43+840	Good	Good	Fair	Fair
70	44+615	Good	Good	Fair	Fair
71	46+610	Good	Good	Fair	Fair
72	49+575	Good	Good	Fair	Fair
73	49+770	Good	Good	Fair	Fair
74	50+340	Good	Good	Fair	Fair
75	50+625	Good	Good	Fair	Fair
76	50+700	Good	Good	Fair	Fair
77	51+110	Good	Good	Fair	Fair
78	51+350	Good	Good	Fair	Fair
79	51+560	Good	Good	Fair	Fair
80	51+960	Good	Good	Fair	Fair
81	52+300	Good	Good	Fair	Fair

S. No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
82	52+320	Good	Good	Fair	Fair
83	52+450	Good	Good	Fair	Fair
84	52+490	Good	Good	Fair	Fair
85	52+540	Good	Good	Fair	Fair
86	52+880	Good	Good	Fair	Fair
87	52+965	Good	Good	Fair	Fair
88	53+125	Good	Good	Fair	Fair
89	53+270	Good	Good	Fair	Fair
90	53+460	Good	Good	Fair	Fair
91	53+500	Good	Good	Fair	Fair
92	53+710	Good	Good	Fair	Fair
93	53+800	Good	Good	Fair	Fair
94	54+010	Good	Good	Fair	Fair
95	54+100	Good	Good	Fair	Fair
96	54+400	Good	Good	Fair	Fair
97	54+450	Good	Good	Fair	Fair
98	54+515	Good	Good	Fair	Fair
99	54+610	Good	Good	Fair	Fair
100	54+700	Good	Good	Fair	Fair
101	54+870	Good	Good	Fair	Fair
102	54+990	Good	Good	Fair	Fair
103	55+260	Good	Good	Fair	Fair
104	55+550	Good	Good	Fair	Fair
105	55+660	Good	Good	Fair	Fair
106	55+850	Good	Good	Fair	Fair
107	56+000	Good	Good	Fair	Fair
108	56+220	Good	Good	Fair	Fair
109	56+360	Good	Good	Fair	Fair
110	56+450	Good	Good	Fair	Fair
111	56+600	Good	Good	Fair	Fair
112	56+690	Good	Good	Fair	Fair
113	56+860	Good	Good	Fair	Fair
114	56+950	Good	Good	Fair	Fair
115	57+070	Good	Good	Fair	Fair
116	57+590	Good	Good	Fair	Fair
117	57+700	Good	Good	Fair	Fair
118	57+980	Good	Good	Fair	Fair
119	58+240	Good	Good	Fair	Fair
120	58+350	Good	Good	Fair	Fair
121	58+550	Good	Good	Fair	Fair
122	59+660	Good	Good	Fair	Fair

S. No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
123	60+440	Good	Good	Fair	Fair
124	60+540	Good	Good	Fair	Fair
125	60+990	Good	Good	Fair	Fair
126	61+090	Good	Good	Fair	Fair
127	61+230	Good	Good	Fair	Fair
128	61+615	Good	Good	Fair	Fair
129	62+360	Good	Good	Fair	Fair
130	62+750	Good	Good	Fair	Fair
131	63+120	Good	Good	Fair	Fair
132	64+040	Good	Good	Fair	Fair
133	65+000	Good	Good	Fair	Fair
134	65+070	Good	Good	Fair	Fair
135	66+900	Good	Good	Fair	Fair
136	67+310	Good	Good	Fair	Fair
137	67+450	Good	Good	Fair	Fair
138	67+550	Good	Good	Fair	Fair
139	67+640	Good	Good	Fair	Fair
140	68+050	Good	Good	Fair	Fair
141	69+165	Good	Good	Fair	Fair
142	69+500	Good	Good	Fair	Fair
143	69+860	Good	Good	Fair	Fair
144	69+920	Good	Good	Fair	Fair
145	70+250	Good	Good	Fair	Fair
146	70+480	Good	Good	Fair	Fair
147	70+815	Good	Good	Fair	Fair
148	71+010	Good	Good	Fair	Fair
149	71+150	Good	Good	Fair	Fair
150	71+240	Good	Good	Fair	Fair
151	71+450	Good	Good	Fair	Fair
152	71+680	Good	Good	Fair	Fair
153	71+850	Good	Good	Fair	Fair
154	72+210	Good	Good	Fair	Fair
155	72+300	Good	Good	Fair	Fair
156	72+425	Good	Good	Fair	Fair
157	74+550	Good	Good	Fair	Fair
158	74+610	Good	Good	Fair	Fair
159	74+850	Good	Good	Fair	Fair
160	75+000	Good	Good	Fair	Fair
161	75+050	Good	Good	Fair	Fair
162	75+075	Good	Good	Fair	Fair
163	75+190	Good	Good	Fair	Fair

S. No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
164	75+420	Good	Good	Fair	Fair
165	75+510	Good	Good	Fair	Fair
166	76+850	Good	Good	Fair	Fair
167	77+240	Good	Good	Fair	Fair
168	77+300	Good	Good	Fair	Fair
169	77+360	Good	Good	Fair	Fair
170	77+460	Good	Good	Fair	Fair
171	77+580	Good	Good	Fair	Fair
172	77+725	Good	Good	Fair	Fair
173	77+825	Good	Good	Fair	Fair
174	77+900	Good	Good	Fair	Fair
175	78+060	Good	Good	Fair	Fair
176	78+160	Good	Good	Fair	Fair
177	78+250	Good	Good	Fair	Fair
178	78+375	Good	Good	Fair	Fair
179	78+650	Good	Good	Fair	Fair
180	78+860	Good	Good	Fair	Fair
181	78+990	Good	Good	Fair	Fair
182	80+375	Good	Good	Fair	Fair
183	80+590	Good	Good	Fair	Fair
184	80+750	Good	Good	Fair	Fair
185	80+860	Good	Good	Fair	Fair
186	81+640	Good	Good	Fair	Fair
187	81+920	Good	Good	Fair	Fair
188	82+200	Good	Good	Fair	Fair
189	83+190	Good	Good	Fair	Fair
190	83+460	Good	Good	Fair	Fair
191	83+760	Good	Good	Fair	Fair
192	83+900	Good	Good	Fair	Fair
193	84+200	Good	Good	Fair	Fair
194	84+940	Good	Good	Fair	Fair
195	85+520	Good	Good	Fair	Fair
196	85+600	Good	Good	Fair	Fair
197	85+725	Good	Good	Fair	Fair
198	85+850	Good	Good	Fair	Fair
199	86+400	Good	Good	Fair	Fair
200	86+580	Good	Good	Fair	Fair
201	87+435	Good	Good	Fair	Fair
202	87+950	Good	Good	Fair	Fair
203	88+200	Good	Good	Fair	Fair
204	88+325	Good	Good	Fair	Fair

S. No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
205	88+500	Good	Good	Fair	Fair
206	88+600	Good	Good	Fair	Fair
207	88+700	Good	Good	Fair	Fair
208	88+915	Good	Good	Fair	Fair
209	89+580	Good	Good	Fair	Fair
210	93+015	Good	Good	Fair	Fair
211	94+860	Good	Good	Fair	Fair
212	96+960	Good	Good	Fair	Fair
213	97+050	Good	Good	Fair	Fair
214	99+350	Good	Good	Fair	Fair
215	99+550	Good	Good	Fair	Fair
216	99+650	Good	Good	Fair	Fair
217	99+750	Good	Good	Fair	Fair
218	100+210	Good	Good	Fair	Fair
219	100+400	Good	Good	Fair	Fair
220	100+620	Good	Good	Fair	Fair
221	100+950	Good	Good	Fair	Fair
222	101+050	Good	Good	Fair	Fair
223	102+585	Good	Good	Fair	Fair
224	103+575	Good	Good	Fair	Fair
225	104+240	Good	Good	Fair	Fair
226	104+400	Good	Good	Fair	Fair
227	104+600	Good	Good	Fair	Fair
228	105+650	Good	Good	Fair	Fair
229	109+575	Good	Good	Fair	Fair
230	110+025	Good	Good	Fair	Fair
231	112+700	Good	Good	Fair	Fair
232	113+160	Good	Good	Fair	Fair
233	113+400	Good	Good	Fair	Fair
234	114+470	Good	Good	Fair	Fair
235	115+040	Good	Good	Fair	Fair
236	115+615	Good	Good	Fair	Fair
237	116+290	Good	Good	Fair	Fair
238	116+450	Good	Good	Fair	Fair
239	117+350	Good	Good	Fair	Fair
240	118+385	Good	Good	Fair	Fair
241	119+300	Good	Good	Fair	Fair
242	119+560	Good	Good	Fair	Fair
243	120+650	Good	Good	Fair	Fair
244	121+385	Good	Good	Fair	Fair
245	122+150	Good	Good	Fair	Fair

Annexure 4: Toll Revenue Calculations

Toll Plaza-I & II:

1. Tollable Traffic considered for Toll Revenue in No.s (AADT)

Table-1: Details of Tollable Traffic (Base Year 2019-20)

Vehicle Type	Traffic (AADT)	Traffic (AADT)
	Km.31+000	Km.111+950
Car/Taxi/Van	779	487
LCV	201	84
Bus	61	37
Truck	61	10
MAV	214	21

2. Traffic Growth Rates

Table-2: Details of Growth rates adopted

Year	Car	LCV	BUS	Truck	MAV
2019-25	5.00	5.00	5.00	5.00	5.00
2025-30	5.00	5.00	5.00	5.00	5.00

3. Trip Distribution Ratio as per the Toll Data

Table-3: Details of Trip Distribution (Base Year 2019-20)

Vehicle Type	Single Trip	Local Pass	Total
Km.31+000			
Car/Taxi/Van	93%	7%	100%
LCV	100%	0%	100%
Bus	100%	0%	100%
Truck	100%	0%	100%
MAV	100%	0%	100%
Km.111+950			
Car/Taxi/Van	95%	5%	100%
LCV	100%	0%	100%
Bus	100%	0%	100%
Truck	100%	0%	100%
MAV	100%	0%	100%

4. Toll Rates :

Table-4: Details of Toll Fee (Base Year 2019-20)

Vehicle Type	Km.31+000	Km.111+950
Car/Taxi/Van	35	35
LCV	90	85
Bus	180	170
Truck	215	210
MAV	430	420

Toll Plaza-1 Revenue:

Years	Car/Jeep	Car/Jeep (local pass)	LCV	Bus	Trucks	MAV	Total in RS	Total in Lakh.	Cumulative (in Lacs)
2019-20	9280145	1534191	6447050	3993740	4844000	33779840	59878966	598.790	598.790
2020-21	9744152	1711582	6937718	4412940	5288456	36729593	64824441	648.244	1247.034
2021-22	11692983	1797161	7689304	4755524	5799674	39851608	71586253	715.863	1962.897
2022-23	12277632	1998020	8498704	5249366	6219225	43643939	77886886	778.869	2741.765
2023-24	12891513	2214472	8923639	5646270	6802277	47243439	83721610	837.216	3578.982
2024-25	13536089	2325196	9838312	6069740	7428086	51589835	90787259	907.873	4486.854
2025-26	15989505	2569953	10822143	6669656	8099471	55731904	99882633	998.826	5485.680
2026-27	16788981	2698451	11879762	7158764	8661934	60706107	107893998	1078.940	6564.620
2027-28	17628430	2975042	12473750	7843515	9425759	65464153	115810649	1158.106	7722.727
2028-29	20566501	3272546	13666891	8407268	10244312	70546238	126703758	1267.038	8989.765
2029-30	21594826	3436174	14948162	9187943	10938842	76605979	2247319	22.473	9012.238

Toll Plaza-2 Revenue:

Years	Car/Jeep	Car/Jeep (local pass)	LCV	Bus	Trucks	MAV	Total in RS	Total in Lakh.	Cumulative (in Lacs)
2019-20	5866790	659150	2684890	2385555	774265	3273160	15643810	156.44	156.438
2020-21	6225487	735364	2898693	2548287	835296	3470638	16713765	167.138	323.576
2021-22	6536761	772132	3212718	2750026	896994	3811718	17980350	179.803	503.379
2022-23	6863599	858430	3373354	2965569	983703	4134248	19178903	191.789	695.168
2023-24	8236319	951426	3728444	3277734	1076841	4479502	21750266	217.503	912.671
2024-25	8648135	998997	4110609	3527661	1153759	4897434	23336596	233.366	1146.037
2025-26	9080542	1104155	4316140	3884730	1259904	5295048	24940518	249.405	1395.442
2026-27	9534569	1159363	4747754	4173826	1373780	5720179	26709470	267.095	1662.537
2027-28	11262709	1278197	5211739	4482120	1469182	6230718	29934665	299.347	1961.883
2028-29	11825845	1406017	5472326	4915391	1598737	6719072	31937388	319.374	2281.257
2029-30	12417137	1476318	5995766	5270973	1737574	7240684	561180	5.612	2286.869

Toll Plaza-1&2 Total Revenue:

Years	Car/Jeep	Car/Jeep (local pass)	LCV	Bus	Trucks	MAV	Total in RS	Total in Lakh.	Cumulative (in Lacs)
2019-20	15146935	2193341	9131940	6379295	5618265	37053000	75522776	755.228	755.228
2020-21	15969639	2446946	9836411	6961227	6123752	40200231	81538206	815.382	1570.610
2021-22	18229744	2569293	10902022	7505550	6696668	43663326	89566603	895.666	2466.276
2022-23	19141231	2856450	11872058	8214935	7202928	47778187	97065789	970.658	3436.934
2023-24	21127832	3165898	12652083	8924004	7879118	51722941	105471876	1054.719	4491.652
2024-25	22184224	3324193	13948922	9597401	8581845	56487270	114123855	1141.239	5632.891
2025-26	25070047	3674108	15138283	10554386	9359375	61026952	124823151	1248.232	6881.123
2026-27	26323549	3857814	16627516	11332590	10035715	66426286	134603469	1346.035	8227.157
2027-28	28891139	4253240	17685489	12325635	10894941	71694871	145745315	1457.453	9684.610
2028-29	32392346	4678564	19139217	13322659	11843049	77265310	158641146	1586.411	11271.022
2029-30	34011963	4912492	20943928	14458916	12676416	83846664	2808499	28.085	11299.107

Annexure 5: O&M Costs
Routine Maintenance cost for 1 year

S. No.	Item		Unit	No	Frequency per year	Quantity	Rate	Amount	Remarks
1	General Cleaning in Carriageway & Shoulders Rural area	Monthly	Km	119.416	12	4	350	2,006,189	04 Nos of Labour
2	General Cleaning in Carriageway & Shoulders Urban area	Twice in a month	km	27.51	24	4	350	924,336	04 Nos of Labour
3	Watering in Median Plants	Once in Week	Km	27.51	52	1	1939	2,773,778	01 Nos of Labour
4	Watering in Avenue plants	Once in Week	Km	0	52	0	1939	-	
5	Median Maintenance (Grass cutting and plant trimming)	Once in Month	Km	27.51	12	0	21000	-	02 Nos of Labour - 2 x 350 = 700 x 30 = 2,52,000
6	ROW Cleaning	Half yearly	Km	59.708	2	5	350	208,978	5 Nos of labour per KM (50% of the Project length)
7	Cleaning of Culverts	Half yearly	Nos	281	2	2	650	730,600	3 Nos of Labour along with JCB or Excavator
8	Road Furniture Cleaning	Quarterly	Km	119.416	4	2	350	334,365	02 Nos of Labour
9	Maintenance of Bus shelters	Monthly	Nos	22	6	2	350	92,400	2 Nos/ Bus shelter/month
10	General Cleaning in Building & Facilities	Daily	Nos	4.00	6	60	350	504,000	02 Nos of Labour for 30 days
11	Bridges	Half yearly	Nos	36	2	2	350	50,400	02 Nos of Labour for removal of vegetation/Structure
								7,625,046	
	EQUIPMENT SUPPLY							-	
1	TRUCK TIPPER 6-8 CUM CAPACITY	Monthly	Nos	1	12	1	10000	10,000	(2000000 is the cost of vehicle, considering 10% Rental per year) including maintenance

S. No.	Item		Unit	No	Frequency per year	Quantity	Rate	Amount	Remarks
2	Water Tanker Cap 12 KL for Median	Monthly	Nos	5.3	12	0	440000	-	(2200000 is the cost of vehicle, considering 20% Rental per year) including maintenance
3	Tractor Mounted Water tanker Cap 6 KL for RoW	Monthly	Nos		12		160000	-	(800000 is the cost of vehicle, considering 20% Rental per year) including maintenance
4	Mechanical Sweeper	Monthly	Nos		12		500000	-	(2500000 is the cost of vehicle, considering 20% Rental per year) including maintenance
5	Grass cutter	Monthly	Nos	5.3	12	0	12000	3,150	(12000/year)
6	Manhoise/ Skyscraper	Monthly	Nos		12		400000	-	(2000000 is the cost of vehicle, considering 20% Rental per year) including maintenance
7	Bikes	Monthly	Nos	5.3	12	0	2500	10,500	Per Supervisor/Per Month
8	Building Maintenance	Yearly			12	1		-	
9	Toll plaza AMC	Yearly	Nos		12	1	5000	60,000	5000/month

83,650

1	Patrolling vehicle	Monthly	Nos	12		1	10000	10000	
2	Ambulance	Monthly	Nos	12		2	10000	20000	
3	Tow away trucks and Crane	Monthly	Nos	12			5000	0	
4	Consumables for Medical Aid Post and Ambulance	Monthly	Nos	12		1	2500	30000	2500 Per month for per set (Per set - Per toll plaza)
5	Consumables for Route Patrolling & Crane	Monthly	Nos	12		1	2500	30000	2500 Per month for per set (Per set - Per toll plaza)

90,000

7,798,696.00

Incidental cost for 1 year

S. No.	Item		Unit	No	Frequency	Quantity	Rate	Amount	Remarks
1	Road marking	Half yearly	Sqm	1	1	2909	516	1,501,044	10 % of Total Project length on B/S for 1 year
2	Carriageway Maintenance (Pot Holes etc)	Yearly	Sqm	1	1	600	168	100,800	5% of Flexible Pavement
3	Maintenance of Earthen Shoulder	Half yearly	Cum	1	3	1791.24	225	1,209,087	5% of total Shoulder length throughout the project
4	Sign Board	Quarterly	Km	1	1	13	4000	52,000	2.5 % of Total sign boards per half year (considered 500 Nos)
5	MBCB	Monthly	RMT			37.5	2400	90,000	2.5% of Total qty per year - (considered 2400 per number)
6	Mile Stone (KM Stone/ HM Stone / ROW stone etc.)	Quarterly	Nos	119.42	4	30	2250	270,000	5 % of total stones per year (unable to understand the backup)
7	ROW Fencing (If available)	Quarterly	Km		4			-	10 % of total ROW fencing per year
8	Kerb	Yearly	Km	0	1	0.0	250	-	2 % of total Kerbings per year
9	Electrical Poles	Yearly	Nos	0	1	0	55000	-	3 % of total poles per year
10	Replacement of Rigid pavement Panels	Yearly	Ls	1	1	0.00	4000	-	Considered 1% of the total volume
Total amount for 1 Year								3,222,931	

Operational Expenses Statement

S. No.	PARTICULARS	Amount
1	Man Power	₹ 7,368,000
2	Fuel for Generator & Vehicles	₹ 9,456,000
3	Electricity	₹ 330,000
4	Stationary	₹ 10,000
5	Replacement of Electrical Fixtures	₹ 49,563
6	Refurbishment of Toll Plaza Equipment	₹ 60,000
	Total Amount	₹ 17,273,563

Summary of Major Maintenance Cost

Description	Due date	Base cost	Esc Period	Escallation Rate per Year	Cost of MMR on due date @ 3% Escalation	In crores
Date of Estimation	20-01-2021					
1st Major Maintenance - Highway	01-04-2022	18,69,28,904	1.20	3.0%	19,36,58,345	19.37
2nd Major Maitenance - Highways	01-04-2028	5,60,78,671	7.20	3.0%	6,81,91,664	6.82
2nd Major Maitenance - Highways	01-04-2029	13,08,50,233	8.20	3.0%	16,30,39,390	16.30
				Total	₹ 42,48,89,400	42.49

Major Maintenance BOQ

BOQ Item No.	Description	Unit	1st Cycle			2nd Cycle		
			Quantity	Rate	Amount	Quantity	Rate	Amount
	Pavement (Asphalt & Concrete)							
1	Providing and applying tack coat with Rapid Setting Bitumen Emulsion using emulsion pressure distributor on the prepared bituminous/granular surface cleaned with mechanical broom, Ref. to Technical specification 503.							
(a)	On Bituminous surface @ 2.0 kg to 3.0 kg/10 sqm.	Sqm	9,60,442.00	14.00	1,34,46,188	9,60,442.00	14.00	1,34,46,188
2	Providing and laying bituminous concrete using a batch type Hot Mix Plant using crushed aggregates of size (table 500-17), premixed with VG Grade Bitumen and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers, Pneumatic Tyre Rollers to achieve the desired compaction as per Technical specification clause No. 507 and mix design conforming the IRC -111 and IRC 37.	Cum		7,480.00			7,480.00	
	Providing and laying Semi dense bituminous concrete using a batch type Hot Mix Plant using crushed aggregates of size	Cum	12,005.53	6,800.00	8,16,37,570	12,005.53	6,800.00	8,16,37,570
	Micro Surfacing	Sqm	4,80,221.00	160.00	7,68,35,360	4,80,221.00	160.00	7,68,35,360
3	Repair of joint Grooves with Epoxy Mortar Repair of spalled joint grooves of contraction joints, longitudinal joints and expansion joints in concrete pavements using epoxy mortar or epoxy concrete)	MTRS		250.00			250.00	
4	Texturing of Rigid pavement (considering 50% for 7 years)	Sqm		130.00			130.00	

	Total				17,19,19,118			17,19,19,118
	Junctions, Traffic Signs Marking and Other Appurtenances							
1	Providing and laying of cement concrete kerb without channel (M-20 Grade) over WMM foundation using kerb laying machine & proper curing complete, as per drawing & technical specification clause no.409, 1700 and as per the instructions of Employer's representative. - Consider 5% for construction period.	Rmt		380.00			380.00	
2	Providing and laying lane markings of hot applied thermoplastic compound 2.5 mm thick including reflectorizing glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes,Ref. to Technical specification 803.	Sqm	29,088.73	516.00	1,50,09,786	9,088.73	516.00	1,50,09,786
3	Road Studs	Nos		750.00			750.00	
4	Kerb painting			250.00			250.00	
	Total				1,50,09,786			1,50,09,786
	Grand Total				18,69,28,904			18,69,28,904

Annexure 6: Letter of Award



MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LIMITED

(Govt. of M.P. Undertaking)
16-A, Arera Hills, Bhopal - 462 011
Tel.: (O) 0755-2765196, 205, 213, 216 (EPBX) Fax : 91-755-2572643
Website : www.mprdc.nic.in.

No. MPRDC/BOT/B-S-P/2013/ 264
Bhopal, dated 4 April, 2013

M/s Dilip Buildcon Ltd.,
E-5/99, Arera Colony,
Bhopal

**Sub: Development of Betul Sarni-Junnardeo-Parasia (SH-43)
Road on BOT (Toll +Annuity) basis.**

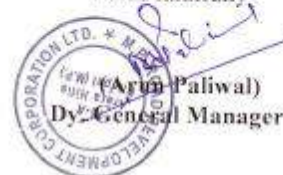
In response to your Pre-Qualification you have submitted Technical and Financial Bid for development of **Betul-Sarni-Junnardeo-Parasia (SH-43) Road on BOT (Toll +Annuity) basis**. In this connection, kindly refer to the clarification, addendum etc. issued from time to time before submission of the tender document.

Also refer to your bid documents containing an unconditional price bid of **Rs. 15,48,00,000.00 (Rupees fifteen crores forty eight lacs only)** as Annuity Amount payable in terms of Clause.25 of the Concession Agreement.

Pursuant to our acceptance of your tender and decision to award the work to you, we request you to send your acceptance and sign the Concession Agreement within the time stipulated in the Tender.

(Duplicate LOA to be returned after
acknowledgement)

Yours faithfully,



Connecting People Through quality infrastructure

Annexure 7: Provisional Completion Certificate

T E S

Theme Engineering Services Pvt. Ltd.
Sri Dhan Singh Sisodia, Itarsi road, Infront of oil mill, Back side
of Bajrang Mandir, Betul 460001, MP
Contact No. 07141238944
Email: tesplbtl@gmail.com

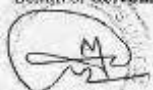
PROVISIONAL CERTIFICATE

1. I, **K.H. Waghmare** Team Leader (Theme Engineering Services Pvt. Ltd.), acting as Independent Engineer, under and in accordance with the Concession Agreement dated 20th May 2013 for **two** **laning of Betul-Sarni-Technadon-Parasia (SH-43) Road** from KM 0+000 to KM 124+100 on Build, Operate and Transfer (BOT), Toll+Annuity basis, through M/s **DBL BETUL-SARNI TOLLWAYS LIMITED**, hereby certify that the Tests specified in Article 14 and Schedule-I of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.

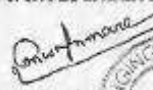
2. Constructions Works that were found to be incomplete and/or deficient have been specified in the Punch List appended hereto, and the Concessionaire has agreed and accepted that it shall complete and /or rectify all such works in the time and manner set forth in the Agreement. (Some of the incomplete works have been delayed as a result of reasons attributable to the MPRDC or due to force majeure and the Provisional Certificate cannot be withheld on this account. Through the remaining incomplete works have been delayed as a result of reason attributable to the concessionaire.) I am satisfied that having regard to the nature and extent of such incomplete works, it would not be prudent to withhold commercial operation of the Project Highway pending thereof.


3. In view of the foregoing, I am satisfied that the Project Highway can be safely and reliably placed in commercial service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby Provisionally declared fit for entry into commercial operation on this the 12th day of May 2015.

ACCEPTED, SIGNED, SEALED
AND DELIVERED For and on
behalf of **CONCESSIONAIRE** by:


T. K. SINHA
PROJECT MANAGER
M/s DBL BETUL-SARNI TOLLWAYS LIMITED, BHOPAL
VPO- Ghoradongri Dist- Betul (M.P.)

ACCEPTED, SIGNED, SEALED
AND DELIVERED For and on
behalf of **INDEPENDENT ENGINEER** by:


K. H. WAGHMARE
TEAM LEADER
THEME ENGINEERING SERVICES PVT. LTD.
c/o Sri Dhan Singh Sisodia, Itarsi Road, Infront of
Oil mill, Betul (M.P.)



Annexure 8: Completion Certificate

TES

Theme Engineering Services Pvt. Ltd.
Sri Dharm Singh Savdika, Ganes Road, Indore (M.P.) Road side
of Bajrang Mandir, Betul 490001 M.P.
Contact No. 07141218944
Email: tech@tesindia.com

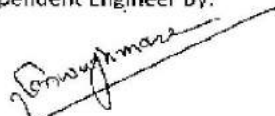
COMPLETION CERTIFICATE

1. I K.H. Waghmare, Team Leader (Theme Engineering Services Pvt. Ltd.), acting as Independent Engineer under and in accordance with the Concession Agreement Dated 20th May 2013 for Two Lanning of Betul –Sarni – Technadon – Parasia (SH-43) Road From Km 0+000 To KM. 124+100 on Build, Operate and Transfer (BOT), Toll + Annuity Basis, Through M/S DBL BETUL SARNI TOLLWAYS LIMITED, hereby certify that the Tests specified in Article 14 and Schedule – 1 of the Agreement have been successfully undertake to determine compliance of the Project Highway, can be safely and reliably in commercial service of the users therefore. Except Tiger Corridor area from km 75+500 to km 80+280, due to permission not obtained / given by Ministry of Environment, Forest and Climate Change, New Delhi for execution of project.
2. It is certified that in terms of the aforesaid Agreement, all works forming part of Two Lanning have been complete and the project highways is hereby declared fit for entry in to commercial operation on this the 11th November 2015. Except 4.780 Km (from km 75+500 to km 80+280), due to permission not obtained / given by Ministry of Environment, Forest and Climate Change (Forest Conservation division).

SIGNED, SEAL AND DELIVERED

For and on behalf of

Independent Engineer By:



K.H. WAGHMARE

Team Leader

Theme Engineering Services Pvt. Ltd

Head Office: B-29, Global Village, Jawahar Circle, Indore-473001, Ph. No. +91-841-2244925-26 Fax: 071-14 12124491
Email: tech@tesindia.com, tesindia.com, tesindia.com, tesindia.com Website: www.tesindia.com

Annexure 9: Insurance

पॉलिसी अनुसूची/ Policy Schedule - Civil Engineering Completed Risk

Policy Number:

321300441910001990

जारीकर्ता कार्यालय/Issuing Office

कार्यालय कोड/Office Code: 321300

**कार्यालय पता /Office Address: BHOPAL
DIVISION II B-8, Indrapuri, B H E L, Bhopal,
Madhya Pradesh - 462022.**

State Code: 23, Madhya Pradesh

GSTIN: 23AAACN9967E1ZB

Contact Number: 755 2682522

eMail: 321300@nic.co.in

Mobile Number:

व्यवसाय स्रोत/Business Source: 910355

वितरित चैनल/Sales Channel Code:

91035500000001

नाम/Name: Aspire Insurance Brokers Pvt

Ltd - HO Contact Number: 8291914810

सह दलाल कोड / Co Broker Code:

Customer Care Toll Free Number:

1800 345 0330

email:customer.support@nic.co.in

ग्राहक का नाम /Customer Name: DBL BETUL SARNI TOLLWAYS LTD

पता/ Address: PLOT NOS, INSIDE GOVIND NARAYAN SINGH GATE, CHUNA BHATTI,KOLAR ROAD, BHOPAL -462016, City: BHOPAL, District: BHOPAL, State: MADHYA PRADESH, PIN: 462016.

Cell: 9826292328

ग्राहक आईडी /Customer ID: 9701881841

पैन /PAN: AAECD6222A

फोन /Phone:

ई-मेल /E-Mail:

पॉलिसी: 27/03/2020 के 00:00 से 26/03/2021 की मध्य रात्रि तक प्रभावी /Policy Effective from 00:00 hours, on 27/03/2020 to midnight of 26/03/2021

प्रीमियम/ Premium	₹ 32,40,726.00	कवर नोट संख्या और तारीख/ Cover Note Number and Date	NA
CGST	₹ 2,91,665.00		
SGST/UTGST	₹ 2,91,665.00		
IGST	₹ 0.00		
केरला बाड उपकर/Kerala Flood Cess	₹ 0.00	प्रस्ताव संख्या और तारीख/Proposal Number and Date	8800200327087011 Dt. 27/03/2020
कम जीएसटी टैडीएस / Less:GST_TDS	₹ 0.00		
पुनर्प्राप्त योग्य स्टाम्प ड्यूटी /Recoverable Stamp Duty	₹ 0.00	रसीद संख्या और तारीख/Receipt Number and Date	321300811910007666 Dt. 27/03/2020
कुल /Total Amount	₹ 38,24,056.00	पहिली पॉलिसी संख्या और समाप्ति तिथि/ Previous Policy Number and Expiry Date	NA

(Rupees Thirty Eight Lakh Twenty Four Thousand Fifty Six Only.)

Location:Development of Betul-Sarni-Tekknadon-Junnardeo-Parasia (SH-43) Road on BOT (Toll+Annuity) Basis, Madhya Pradesh Betul, Betul, 460001.

Sr.No	Type of Risk	Description Of Risk	Earthquake Zone	Sum Insured of the risk(₹)	Excess(₹)
1	Roads	ROAD AND STRUCTURE Toll Building & Booths, TMS, HTMS, Office & it Equipment, Electronic	Zone IV	3,03,80,00,000.00	1,00,000.00
2	Roads	Equipment, Road Furniture, Fixtures, Electrical Poles Lighting & Fittings, Signboard & Safety Barrier	Zone IV	20,20,00,000.00	1,00,000.00

लागू खंडों, प्रमाणिकों एवं वारंटियों / Clauses, Endorsements and Warranties Applicable:Agreed Bank Clause, Terrorism Damage Exclusion Warranty, Riot, Strike, and Malicious Damage Clause, Policy is subject to following conditions : POLICY IS SUBJECT TO THE FOLLOWING CONDITIONS:

- 1.Excess applicable under the policy is: (a) Upto SI of Rs 500 Cr = 10% of Claim subject to Minimum of Rs 5 lacs & (b) SI above 500 Cr & upto 1500 Cr = 10% of Claim subject to Minimum of Rs 10 lacs. Entire Road package will be treated as One location for application of Excess.
- 2 Policy is Applicable for Roads & Road side structures & Toll plazas & Bridges & Flyovers on Land.
- 3.No Coverage for (Road) Transportation Tunnels
- 4.No Coverage for Marine Vessel Impact Damage.

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Page no: 1



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Employees Compensation Policy

HDFC ERGO General Insurance Company Limited



May 13, 2020

DBL BETUL SARNI TOLLWAYS LTD

PLOT NO. 5, GOVIND NARAYAN SINGH GATE,
CHUNA BHATTI, BHOPAL,
BHOPAL,
MADHYA PRADESH, 462016.



Dear Customer,

Sub: Employees Compensation Insurance Policy No: 3114203388063900000

We thank you for having preferred us for your *Insurance* requirements. We at HDFC ERGO General Insurance believe "*Insurance*" as not only to be an assurance to indemnify in the event of unfortunate circumstances, but one that signifies protection and support, which you can count on when you need it most.

The Insurance Policy enclosed herewith is a written agreement providing confirmation of our responsibility towards you that puts insurance coverage into effect against stipulated perils.

Please note that the policy has been issued based on the information contained in the proposal form and / or documents received from you or your representative / broker.

Name of the Intermediary : GLOBAL INSURANCE BROKERS PVT LTD

Intermediary Code : 200113159601

Where the proposal form is not received, information obtained from you or your representative /broker, whether orally or otherwise, is captured in the policy document.

If you wish to contact us in reference to your existing policy and /or other general insurance solutions offered by us, you may write to our correspondence address as mentioned below. Alternatively, you may visit our website www.hdfcergo.com. To enable us to serve you better, you are requested to quote your Policy Number in all correspondences.

Thanking you once again for choosing HDFC ERGO General Insurance Company Limited and looking forward to many more years of association.

Yours sincerely,



Authorised Signatory

3114203388063900000

Page 1 of 13

HDFC ERGO General Insurance Company Limited (Formerly HDFC General Insurance Limited)

UIN : IRDAN125P0017V02201112 | IRDAI Reg No.146 | CIN : U66030MH2007PLC177117

Registered & Corporate Office:
1st Floor, HDFC House, 165 - 166 Backbay Reclamation,
H. T. Parekh Marg, Churchgate, Mumbai - 400 020

Customer Service Address:
D-301, 3rd Floor, Eastern Business District (Magnet Mall),
LBS Marg, Bhandup (West), Mumbai - 400 078

Toll Free Number: 1800 2700 700
Telephone : +91 22 6638 3600 Fax: 91 22 6638 3699
Email : care@hdfcergo.com

HDFC ERGO General Insurance Company Limited

Certificate of Insurance cum Policy Schedule

Policy No. 3114203388063900000

Employees Compensation Insurance



Take it easy!



Insured Name	DBL BETUL SARNI TOLLWAYS LTD (PAN Number:AACCD6124B)	Business	OTHERS
Correspondence Address	PLOT NO. 5, GOVIND NARAYAN SINGH GATE, CHUNA BHATTI, BHOPAL, BHOPAL, MADHYA PRADESH, 462016.		
Mobile		Phone	
		E Mail	
		Policy Issuance Date	13/05/2020
Period of Insurance	From Date & Time	20/05/2020 00:01 AM	To Date & Time
		19/05/2021 Midnight	

LAW

The Policy covers Liability of the Insured under the following Law(s) shown as covered, subject to claim being otherwise admissible as per terms, conditions and exclusions of the Policy and subject to Limit of Indemnity as stipulated against each Law:

Sr. No.	Law	Limit of Indemnity
a.	Employee's Compensation Act, 1923 and subsequent amendments thereof prior to the date of issue of this Policy	Subject otherwise, to the terms, conditions & Exclusions of the Policy, the amount of liability incurred by the Insured
b.	Common Law	Subject otherwise, to the terms, conditions & Exclusions of the Policy, the amount of liability incurred by the Insured, but not exceeding:- a) Limit Per Employee for any number of accidents during Period of Insurance ₹. Unlimited b) Limit Per Accident for any number of Employees ₹. Unlimited c) Aggregate Limit for all accidents and claims arising there from during the Period of Insurance ₹. Unlimited

EC-13-0005

3114203388063900000

Page 2 of 13

HDFC ERGO General Insurance Company Limited (Formerly HDFC General Insurance Limited)


UIN : IRDAN125P0017V02201112 | IRDAI Reg No.146 | CIN : U66030MH2007PLC177117

Registered & Corporate Office:
1st Floor, HDFC House, 165 - 166 Backbay Reclamation,

Customer Service Address:
D-301, 3rd Floor, Eastern Business District (Magnet Mall),

Toll Free Number: 1800 2700 700
Telephone : +91 22 6638 3600 Fax: 91 22 6638 3699

Annexure 10: Change of Scope

 **MADHYA PRADESH ROAD DEVELOPMENT CORPORATION LTD**
(Govt. of M.P. Undertaking)
45 - A, Arera Hills, Bhopal - 462 011, Madhya Pradesh
Tel.: (O) 0755-2765205, 2527202 - 299 (PRL Line) Fax: +91-755-2572643
Website: www.mprdc.nic.in

CIN No.: U45203MP2004SGC01871

Letter No. /MPRDC/Betul-Sarni-Parasia/Ch of Sc, Bhopal dated.....

To,

General Manager,
MPRDC, Narmadapuram
Bhopal

**Sub:- Development of Betul-Sarni-Parasia Road Project on BOT Basis –
Reg.(Ref- Change of Scope)**

Ref:- TL of IE Letter Theme/MPRDC/Betul-Sarani/336 Dt 29.09.2015.

The Advisory Committee in its meeting held on dated 07.04.2016 has agreed for In-principle approval of the proposal of works under change of scope as forwarded by TL of IE through the letter under reference. Minutes of Advisory Committee meeting for change of scope, as approved by Managing Director MPRDC, are enclosed herewith.

Please refer T.O. letter no. 6168, dated 22.07.2015 (Copy enclosed), as per instruction of MD, MPRDC after in-principle approval of Change of Scope, Financial Implication of approved Change of Scope should be checked and certified by a Committee formed at the level of General Manager concerned. The Committee will be headed by General Manager (Field), IE, concern DM & AGM along with one member of MPRDC, HQ of the level of DGM.

You are requested to calculate the financial implication of all works under change of scope approved by MPRDC as per the as built drawings and actual work done on site & submit to this office upto 15.9.2016.


Encl.:-As above.

Sd/-
General Manager (BOT)
MPRDC, Bhopal

Endt. No. *8748* /MPRDC/Betul-Sarni-Parasia/Ch of Sc, Bhopal dated *1-9-16*

Copy to-

1. Divisional Manager, MPRDC, Narmadapuram. Please get the Financial Implications of approved Change of Scope from IE and submit to this office through General Manager.
2. Team Leader, M/s Theme Engineering Services Pvt. Ltd., Opposite Soya Mill, Hanuman Temple, Itarsi Road, Betul (M.P.) for information and necessary action.
- ✓ 3. M/s DBL Betul-Sarni Tollways Ltd., E-5/99, Arera Colony, Bhopal. Please submit the Financial Implications of Change of Scope through TL of IE immediately.


General Manager (BOT)
MPRDC, Bhopal

Connecting People Through quality infrastructure

Minuts of Meeting

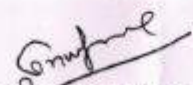
Meeting of advisory committee of MPRDC for change of scope for Development of Betul -Sarni- Tekhnadhon -Junnardeo -Parasiya -Road SH -43 On BoT Toll Annuity Basis in The State of Madhya Pradesh has been held in the office of MPRDC on dated 07/04/16. Following officials were presenting in the meeting:-


1. Shri A.S Chendke, Technical Advisor, MPRDC, Bhopal
2. Shri Anil Chansoria, Chief Engineer(BOT), MPRDC, Bhopal
3. Shri A.L.Suryavanshi, General Manager(BOT), MPRDC, Bhopal
4. Shri B.S. Meena, Divisional Manager, MPRDC, Bhopal
5. Shri K.H Waghmare, Team Leader, Independent Engineer, M/S Theme Engineering Services, Pvt.Ltd.
6. Shri Nitin Shrivastava, General Manager, Concessionaire, M.S DBL Bhopal

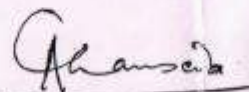
The change of Scope Recommended by Independent Engineer vide its letter no.Theme/MPRDC/Betul-Sarni/356 dated 29.09.2015 has been discussed by advisory committee. Item wise reason & recommendation of Team leader were checked & decision of advisory committee recorded as below:-

Development of Betul -Sarni- Tekhnadon -Junnardeo -Parasiya -Road SH -43 On Bot Toll Annuity Basis in The State of Madhya Pradesh										
Client :- Madhya Pradesh Road Development Corporation Limited Concessioner :- DBL Betul Sarni Toll Ways Limited Independent Engineer :- Theme Engineering Service Pvt. Ltd EPC Contractor :- Dilip Builders Ltd.										
Details of Concrete Pavement										
Item No.	Scheduled Chainage	Designed Chainage	Existing Detail as per Schedule - A	Development Proposal as per Schedule - B			Actual Construction By Concessionaire At Site			Reasons and Recommendation of Independent Engineer
				From	To	Length	From	To	Length	
1	38+640 To 40+000			N/A	N/A	N/A	38+640	40+000	1360	<p>The Concrete pavement (PQC) carriage way with 7 m width was available at different location. Cracks and settlement are noticed at many stretches it was in poor condition as per Chief Engineer (BOT) inspection note dated 27th April, 2014 para 2&3 the existing rigid pavement should be treated as DLC because of poor condition and new PQC should be laid over it. Hence concessionaire has constructed 2.624Km, rigid pavement with PQC in 10mtr width along with paved shoulder and 2.06 km with 7 m concrete pavement road over existing 7 m concrete base treated as DLC. Concrete pavement (PQC) length of 4.684 km is recommended as (+) change of scope. Flexible pavement of 4.684 Km will be (-) Variation.</p> <p>Committee agreed to consider Positive Change of Scope, as Recommended by IE that Concrete pavement (PQC) length of 2.624 km length in 10mtr width and 2.060 km length in 7 mtr width PQC, positive(+) ve Change of Scope and 4.684 Km for Flexible Pavement will be (-) ve Change of scope.</p>
2	40+950 To 41+800			N/A	N/A	N/A	40+950	41+800	850	
3	43+000 To 43+500			N/A	N/A	N/A	43+000	43+500	500	
4	45+410 To 46+120			N/A	N/A	N/A	45+410	46+120	710	
5	108+926 To 110+190			N/A	N/A	N/A	108+926	110+190	1264	
Total (Km)									4684	





K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia


Divisional Manager
MPRDC, Narmadapuram


CE (BOT)


T.A.


General Manager
M.P.R.D.C Bhopal

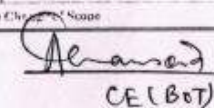
Development of Betul-Sarni- Tekhnadhen -Junnardeo -Parasiya -Road SH -43 On Bot Toll Annuity Basis in The State of Madhya Pradesh									
Client :- Madhya Pradesh Road Development Corporation Limited									
Concessionaire :- DBL Betul Sarni Toll Ways Limited									
Independent Engineer :- Thane Engineering Service Pvt. Ltd									
EPC Contractor :- Dilip Builders Ltd.									
Details of 2-Lane with Paved Shoulder									
Item No.	Scheduled Chainage	Existing Detail as per Scheduled A	Development Proposal as per Schedule - B			Actual Construction By Concessionaire At Site			Reasons and Recommendation of Independent Engineer
			From	To	Length	From	To	Length	
	0+900 to 1+350		0+900	1+350	450	0+000	0+150	150	<p>The Section 46+640 to 47+158, 47+358 to 48+330, and km 120+850 to 123+350 constructed and developed as two laning with Paved shoulder in available ROW. The section 103+670 to 101+670 is constructed and develop as 4 laning with paved shoulder instead of two laning with paved shoulder as decided in collector meeting Chhindwara on dated 12th Feb 2015 and Betul dated 31st Jun 2015. Hence it is recommended to consider additional length of paved shoulder about 1.760 km(+) change of scope.</p>
	3+400 to 4+000		3+400	4+000	600	0+530	1+150	620	
	20+650 to 21+300		20+650	21+300	650	3+400	4+000	600	
	37+100 to 38+300		37+100	38+300	1200	20+430	21+080	650	
	38+300 to 39+500		38+300	39+500	1200	34+730	37+930	1200	
	39+500 to 40+900		39+500	40+900	1400	37+930	38+640	710	
	69+750 to 70+500		69+750	70+500	750	40+000	40+530	530	
	70+500 to 70+700		70+500	70+700	200	46+640	47+158	518	
	85+800 to 86+450		85+800	86+450	650	47+338	48+330	992	
	87+750 to 88+800		87+750	88+800	1050	69+540	69+830	290	
	91+000 to 92+000		91+000	92+000	1000	69+830	70+030	200	
	93+200 to 93+950		93+200	93+950	750	86+120	86+770	650	
	94+850 to 95+950		94+850	95+950	1100	88+550	88+770	220	
	96+650 to 97+850		96+650	97+850	1200	88+770	89+040	270	
	99+400 to 100+500		99+400	100+500	1100	91+280	92+260	980	
	100+500 to 101+100		100+500	101+100	600	95+360	94+110	750	
	103+000 to 103+300		103+000	103+300	300	95+130	96+230	1100	
	103+300 to 104+600		103+300	104+600	1300	96+950	98+210	1260	
	107+400 to 107+900		107+400	107+900	500	99+640	100+740	1100	
	108+400 to 109+400		108+400	109+400	1000	100+740	101+340	600	
	109+400 to 109+500		109+400	109+500	100	103+670	104+730	1060	
	109+500 to 109+700		109+500	109+700	200	107+470	107+970	500	
	109+700 to 110+500		109+700	110+500	800	108+420	109+420	1000	
	110+600 to 111+550		110+600	111+550	950	109+420	109+520	100	
	111+550 to 112+700		111+550	112+700	1150	109+520	109+720	200	
	114+000 to 115+600		114+000	115+600	1600	109+720	110+520	800	
	115+700 to 116+000		115+700	116+000	300	110+520	111+570	1050	
	116+000 to 116+700		116+000	116+700	700	111+570	112+720	1150	
	118+200 to 119+100		118+200	119+100	900	114+000	115+660	1660	
	119+700 to 120+750		119+700	120+750	1050	115+760	116+060	300	
						116+060	116+760	700	
						118+070	119+160	1090	
						119+760	122+515	2755	
						122+515	123+350	835	
Total (Km)			24750			26510			1.760 km (+) Change of Scope

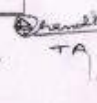


Team Leader (TES)
Betul, Sarni, Parasia

Divisional Manager
MPRDC, Narmadapuram

General Manager
M.P.R.D.C Bhopal


CE (BOT)


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ANNEXURE:IV

DETAIL OF BETUL-PARSIYA ROAD PROJECT (Four lane)

Item No.	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled A	Development Proposal as per Schedule - B			ACTUAL CONSTRUCTION BY CONCESSIONAIRE AT SITE			Reasons and Recommendation of Independent Engineer	Decision of Committee
				From	To	Length (km)	From	To	Length(mtr)		
1	46+630 to 48+630			46+630	48+630	2.0 (Sarni)	38+640	40+000	1360 (Bagdona)	There was a provision of four Lane of 2 km in Sarni town however land was not available so only 200mtr length constructed at sarni and remaining length 1360 mtr constructed in Bagdona town as four lanning according to the instruction of Collector Betul so There is a change in location only.	There was a provision of four Lane of 2 km in Sarni town however land was not available so only 200mtr length constructed at sarni and remaining length 1360 mtr constructed in Bagdona town as four lanning according to the instruction of Collector Betul so There is a change in location only.
							47+158	47+358	200 (Sarni)		
2	120+850 to 124+100			120+850	124+100	3.25 (Parasia)	98+210	99+190	980 (Dungariya)	There was a provision of four Lane of 3.25 km in Parasia town however land was not available so only 750 mtr length constructed at Parasia town and 980 mtr length constructed in Dungariya, and remaining 2000 mtr length constructed in Junnardeo as four lanning as per instruction of Collector Chindwara so There is a change in location only.	There was a provision of four Lane of 3.25 km in Parasia town however land was not available so only 750 mtr length constructed at Parasia town and 980 mtr length constructed in Dungariya, and remaining 2000 mtr length constructed in Junnardeo as four lanning as per instruction of Collector Chindwara so There is a change in location only.
							101+670	103+670	2000 (Junnardeo)		
							123+350	124+100	750 (Parasia)		
				Total (Km)	5.25		Total(Km)	5.29			

Sanjay K.H. VAWDWAR
Team Leader (TES)
Betul, Sarni, Parasia


[Signature]
Divisional Manager
MPRDC, Narmadapuram

[Signature]
General Manager
M.P.R.D.C Bhopal

[Signature]
CE (BOT)

[Signature]
TA

Development of Betul -Sarni- Tekhnadon -Junnardeo -Parasiya -Road SH -43 On Bot Toll Annuity Basis in The State of Madhya Pradesh							
Client :- Madhya Pradesh Road Development Corporation Limited							
Concessioner :- DBL Betul Sarni Toll Ways Limited							
Independent Engineer :- Theme Engineering Service Pvt. Ltd							
EPC Contractor :- Dilip Buildcon Ltd.							
Slab culvert Reconstruction							
Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
1	49+015	48+378	Slab span 1x3	Reconstruction as Slab Culvert span 1x3	Widening (lhs 6.3mtr) span 1x3 from 3mtr to 12 mtr.	The existing structure is in good condition hence widening of 1 span of 3 m, existing width 5.7 m is done to 12 m. Recommended (+)ve COS for Widening of 1 span 3 m from 5.7 m to 12 m and (-)ve COS For Reconstruction of slab culvert 1 span 3 m of 12 m width.	(+)ve COS for Widening of 1 span 3 m from 5.7 m to 12 m and (-)ve COS For Reconstruction of slab culvert 1 span 3 m of 12 m width, as recommended by I.E.
2	97+660	96+166	Slab span 1x2.5	Reconstruction as Slab Culvert span 1x4	Widening (rhs 6.7mtr) span 1x4 m from 5.3mtr to 12 mtr.	As per Site the existing structure is a brick masonry arch of 1x4.0 m span width 5.3 m and it is in good condition hence widening is Done from 5.3 m to 12 m. Recommended (+)ve Cos for Widening of 1 span 4 m from 5.3 m to 12 m and (-)ve COS for Reconstruction of a slab culvert 1 span of 4 m with 12 m width.	(+)ve Cos for Widening of 1 span 4 m from 5.3 m to 12 m and (-)ve COS for Reconstruction of a slab culvert 1 span of 4 m with 12 m width, as recommended by I.E.




Signature
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

Signature
Divisional Manager
MPRDC, Narmadapuram

Signature
General Manager
M.P.R.D.C Bhopal

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Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
3	99+450	NA	Slab span 1x2.0	Reconstruction as Slab Culvert span 1x3	As per site no C.D. work is needed	No such type of structure exist at site and there is no need of C.D. work hence reconstruction of Slab culvert Span 1X 3mtr with 12mt width will be (-)ve COS	Reconstruction of Slab culvert Span 1X 3mtr with 12mt width will be (-)ve COS as there is no need of any CD work, as recommended by I.E.
Extra Slab Culvert Reconstruction							
I	72+020	70+822	Rcc Solid slab 1x4.0, width 7.3 mtr	Retained	Reconstruction 1x4 mtr box, width 12mtr	Due to change of alignment for improving Geometrics, existing structure is abandoned. Concessionaire has constructed new culvert having 1 span of 4 mtr with 12mtr width Recommended as (+)ve change of scope for reconstruction of Slab Culvert 1X 4 mt span with 12mtr width.	(+)ve change of scope for reconstruction of Slab Culvert 1X 4.mt span with 12mtr width because of the provision as retained structure in schedule 'B', as recommended by I.E.



G. Waghmare
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia


[Signature]
Divisional Manager
MPRDC, Narmadapuram

[Signature]
General Manager
M.P.R.D.C Bhopal


[Signature]
CE (BOT)

[Signature]
TA


Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
2	96+565	95+067	There is no structure shown in the schedule but physically an arch stone masonry 1x2.5mtr culvert was existing there	Not shown in shedule	Reconstruction as Box culvert 2.5x4.2mtr, width 12mtr	There was an existing arch stone masonry 1x2.5mtr structure which was in a very poor condition hence reconstructed as box culvert 2.5x 4.2mtr in 12mtr width is constructed, recommended as (+)ve COS for reconstruction of Box culvert 2.5x 4.2 mtr width 12 mtr	Reconstructed as box culvert 2.5x 4.2mtr in 12mtr width will be (+)ve COS. constructed as new culvert because not provided in Schedule, as recommended by I.E.
Slab Culvert widening							
1	3+360	3+346	Slab 1x4.0, width 7.4 mt	Widening	Widening of existing slab culvert from 7.4mtr to 12 mtr and reconstruction of slab in 12 mtr width after dis mentling the existing slab of 7.4 mtr width.	Slab of the existing structure was in very poor condition.sub structure and other component in good condition Therefore existing slab is replaced in addition to the widening of structure from 7.4mt To 12mtr, recomended (+)ve change of scope.for reconstruction of slab span1x4mtr for 7.4mtr width.	(+)ve change of scope.for reconstruction of slab span1x4mtr for 7.4mtr width as the existing slab was in very poor condition, as recommended by I.E.



K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia



Divisional Manager
MPRDC, Narmadapuram




General Manager
M.P.R.D.C Bhopal


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Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
Extra Slab Culvert widening							
1	4+780	4+760	Rec Solid slab 1x4.0, width 8.5 Mtr	Retained with minor repairs	Widening (rhs 3.5mtr) from 8.5mtr to 12 mtr.	As per provision of IRC SP-73 2007 width should be 12.0 mtr. Structure is in good condition therefore slab culvert span 1x4mtr proposed under widening from 8.5mtr to 12.0mtr . Recommended (+) COS for widening of a slab culvert span 1x4mtr from 8.5mtr to 12mtr width.	As recommended by I.E (+) COS for widening of a slab culvert span 1x4mtr from 8.5mtr to 12mtr width because provided in the schedule as retained structure.
2	32+285	31+914	HPC 1x600 dia, width 7.5 mtr as per site width is 8.5mtr.	Reconstruct ion as HPC 1x1200 mm	Widening as slab culvert 1x4.1 (lhs 3.5mtr) from 8.5mtr to 12mtr.	Existing structure is a slab culvert 1x4.1mtr span and width 8.5mtr in good condition. As per provision of IRC SP-73 2007 width should be 12.0 mtr. Therefore proposed under widening, of Slab culvert span 1x4.1mtr from 8.5mtr to 12.0mtr , recommended (+)ve COS for widening of Slab culvert span 1x4.1mtr from 8.5mtr to 12mtr width and (-)ve COS for reconstruction of HPC 1row 1200mm.	As recommended by I.E (+)ve COS for widening of Slab culvert span 1x4.1mtr from 8.5mtr to 12mtr width and (-)ve COS for reconstruction of HPC 1row 1200mm, as in schedule B, it is reconstruction as HPC 1 Row 1200mm where as site it is found as slab culvert 1x4.1mtr width 8.5mtr in good condition.



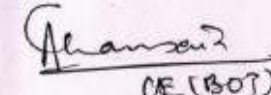
K.H. Waghmare
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia



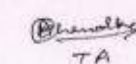
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Divisional Manager
MPRDC, Narmadapuram



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General Manager
M.P.R.D.C Bhopal



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AE (BOT)



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Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
3	33+890	33+523	Rec Solid slab 1x3.0, width 7.5 mtr as per site width is 8.5mtr	Retained with minor repairs	Widening 1x3.0 (rhs 3.5 mtr) from 8.5 mtr to 12mtr.	Existing structure is a 1x3mtr,width 8.5mtr slab culvert and in good condition. Hence widening is done from 8.5mtr to 12mtr .As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended under widening of slab culvert span 1x3mtr, from 8.5mtr to 12.0mtr width as (+)ve COS.	As recommended by I.E (+) COS for widening of slab culvert span 1x3mtr from 8.5mtr to 12mtr width as provided as retained structure in schedule-B.
4	34+000	33+635	Rec Solid slab 1x3.0, width 7.5 mtr as per site width is 8.5 mtr	Retained with minor repairs	Widening 1x3.0 (rhs 3.5 mtr) from 8.5 mtr to 12mtr.	Existing structure is a 1x3 mtr,width 8.5mtr slab culvert and in good condition.hence widening is done from 8.5mtr to 12mtr. As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+) COS under widening, slab culvert span 1x3mtr from 8.5mtr to 12.0mtr width.	As recommended by I.E (+) COS under widening, slab culvert span 1x3mtr from 8.5mtr to 12.0mtr width, as provided as retained structure in schedule-B



K.H. Waghmare
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia


[Signature]
Divisional Manager
MPRDC, Narmadapuram

[Signature]
General Manager
M.P.R.D.C Bhopal

[Signature]
OE (BOT)

[Signature]
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Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
5	34+600	34+228	Rcc Solid slab 1x3.0, width 7.5 mtr as per site width is 8.5 mtr	Retained with minor repaires	Widening 1x3.0 (rhs 3.5mtr) from 8.5mtr to 12mtr.	Existing structure is a 1x3.0,width 8.5mtr slab culvert and in good condition. Hence widening is done from 8.5mtr to 12 mtr.As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+) COS under widening slab culvert span 1x3mtr , from 8.5mtr to 12.0mtr width.	As recommended by I.E (+) COS under widening, slab culvert span 1x3mtr from 8.5mtr to 12.0mtr width, as provided as retained structure in schedule-B
6	34+800	34+441	Rcc Solid slab 1x5.9, width 7.5 mtr as per site width is 8mtr	Retained with minor repaires	Widening 1x5.9 (lhs 4.00mtr) from 8mtr to 12mtr	Existing structure is a 1x5.9,width 8.0mtr slab culvert and in good condition. Hence widening is done from 8mtr to 12mtr.As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+) COS under widening slab culvert span 1x5.9mtr, from 8.0mtr to 12.0mtr Width.	As recommended by I.E (+) COS under widening slab culvert span 1x5.9mtr, from 8.0mtr to 12.0mtr Width as provided as retained structure in schedule-B.
7	35+515	35+151	Rcc Solid slab 1x2.0, width 7.7 mtr as per site width is 9 mtr	Retained with minor repaires	Widening 1x2.0 (rhs 3.00mtr) from 9mtr to 12 mtr	Existing structure is a 1x2.0,width 9.0mtr slab culvert and in good condition. Hence widening is done from 9 mtr to 12 mtr.As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+) COS under widening slab culvert span 1x2mtr , from 9.0mtr to 12.0mtr	As recommended by I.E (+) COS under widening slab culvert span 1x2mtr , from 9.0mtr to 12.0mtr, as provided as retained structure in schedule-B



K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia


Divisional Manager
MPRDQ, Narmadapuram


General Manager
M.P.R.D.C Bhopal

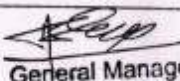
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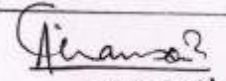
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Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
8	37+040	36+668	Rcc Solid slab 1x2.0, width 7.4 mtr as per site width is 8.5 mtr.	Retained with minor repaires	Widening 1x2.0 (rhs 3.50mtr) from 8.5mtr to 12mtr.	Existing structure is a 1x2.0,width 8.5mtr slab culvert and in good condition. Hence widening is done from 8.5mtr to 12mtr.As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+) COS under widening slab culvert span 1x2mtr , from 8.5mtr to 12.0mtr	As recommended by I.E (+) COS under widening slab culvert span 1x2mtr , from 8.5mtr to 12.0mtr, as provided as retained structure in schedule-B
9	38+825	38+455	Rcc Solid slab 1x3.0, width 7.4 mtr as per site width is 8.8mtr	Retained with minor repaires	Widening 1x3.0 (rhs 3.2 mtr) from 8.8 mtr to 12 mtr.	Existing structure is a 1x3.0,width 8.8mtr slab culvert and in good condition. Hence widening is done from 8.8 mtr to 12 mtr. As per provision of IRC SP-73 2007 width should be 12.0 mtr.Recommended (+) COS under widening slab culvert span 1x3mtr , from 8.8mtr to 12.0mtr	As recommended by I.E (+) COS under widening slab culvert span 1x3mtr , from 8.8mtr to 12.0mtr,as provided as retained structure in schedule-B.
10	39+710	39+342	Rcc Solid slab 1x2.0, width 7.4 mtr as per site width is 11.6 mtr	Retained with minor repaires	Widening 1x2.0 (B/S 3.7mtr) from 11.6 mtr to 19mtr because of four lanning.	As per site Existing structure is a slab culvert span 1x2mtr ,width 11.6 mtr and in good condition because of four lanning in this reach slab culvert span 1x2mtr is widened from 11.6mtr to 19.0mtr. Recommended as (+)ve COS for widening of slab culvert span 1x2mtr from 11.6mtr to 19.0mtr width	As recommended by I.E (+)ve COS for widening of slab culvert span 1x2mtr from 11.6mtr to 19.0mtr width, because of Four lanning as provided as retained structure in schedule-B.


K.H. WAGHMARE
 Team Leader (TES)
 3etul, Sarni, Parasia



 Divisional Manager
 MPRDC, Narmadapuram


 General Manager
 M.P.R.D.C Bhopal


 CE (BOT)


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Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
11	40+190	39+820	Rcc Solid slab 1x2.0, width 7.4 mtr as per site width is 12.5 mtr	Retained with minor repaires	Widening 1x2.0 (rhs 3.00mtr and lhs 3.5mtr) from 12.5 mtr to 19mtr because of four lanning.	As per site Existing structure is a slab culvert span 1x2.mtr,width 12.5mtr and in good condition because of four lanning in this reach slab culvert span 1x2mtr is widened from 12.5mt to 19.0mtr. Recommended (+)veCOS for widening of slab culvert span 1x2 mtr from 12.5mtr to 19mtr width.	As recommended by I.E (+)veCOS for widening of slab culvert span 1x2 mtr from 12.5mtr to 19mtr width, because of four lanning as provided as retained structure in schedule-B.
12	41+180	40+811	Rcc Solid slab 1x3.6, width 7.5 mtr as per site width is 8.7 mtr	Retained with minor repaires	Widening 1x2.5 (rhs 3.3mtr) from 8.7 mtr to 12 mtr.	Existing structure is a 1x2.5,width 8.7 mtr slab culvert and in good condition. Hence widening is done 8.7 mtr to 12 mtr.As per provision of IRC SP-73 2007 width should be 12.0 mtr.Recommended (+) ve COS under widening of slab culvert span 1x2.5mtr, from 8.7mtr to 12.0mtr .	As recommended by I.E (+) ve COS under widening of slab culvert span 1x2.5mtr, from 8.7mtr to 12.0mtr width, as provided as retained structure in schedule-B.
13	47+680	47+148	Not given	Not given	Widening slab culvert 2x2 (lhs 9.0mtr) from 10mtr to 19mtr because of four lanning	Existing structure is slab culvert span 2x2mtr,width 10.0mtr in good condition. Because of four lanning in this reach salb culvert span 2x2 mtr is widened from 10.mtr to 19mtr Recomendated (+) ve COS under widening slab culvert span 2x2mtr , from 10mtr to 19.0mtr width.	As recommended by I.E (+) ve COS under widening slab culvert span 2x2mtr , from 10mtr to 19.0mtr width, because of four lanning as not provided in schedule-B in any category.



K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

[Signature]
Divisional Manager
MPRDC, Narmadapuram

[Signature]
General Manager
M.P.R.D.C Bhopal

[Signature]
CE (BOT)

Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
14	48+315	47+899	Rcc Solid slab 1x1.5, width 7.2 mtr as per site width is 8 mtr	Reconstruct ion as HPC 2x1200 dia	Widening as slab culvert 1x5.8 (rhs 4.0mtr) from 8mtr to 12 mtr	Existing structure is slab culvert span 1x5.8mtr,width 8.0mtr in good condition.Hence widening is done from 8 mtr to 12 mtr.As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+) ve COS under widening slab culvert span 1x5.8mtr, from 8.0mtr to 12.0mtr width. And (-) ve COS for reconstruction of 2 rows of 1200mm HPC of 12mtr width.	As recommended by I.E (+) ve COS under widening slab culvert span 1x5.8mtr, from 8.0mtr to 12.0mtr width. And (-) ve COS for reconstruction of 2 rows of 1200mm HPC of 12mtr width, as provided in Schedule -B.
15	91+375	89+899	Rcc Solid slab 1x3.0, width 5.6 mtr as per site width is 6.2 mtr	Retained	Widening 1x3.0 (lhs 5.8mtr)) from 6.2mtr to 12 mtr	Existing structure is slab culvert span 1x3.0mtr ,width 6.2mtr in good condition. Hence widening is done from 6.2 mtr to 12 mtr.As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+)ve COS under widening slab culvert span 1x3mtr , from 6.2mtr to 12.0mtr width .	As recommended by I.E (+)ve COS under widening slab culvert span 1x3mtr , from 6.2mtr to 12.0mtr width ,as provided as retained structure in schedule-B.



K.H. Waghmare
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

[Signature]
Divisional Manager
MPRDC, Narmadapuram

[Signature]
General Manager
M.P.R.D.C Bhopal

[Signature]
General Manager
OE (BOT)
T.A

Item No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire	Reasons and Recommendation of Independent Engineer	Decision of Committee
16	99+350	97+846	HPC 1x1000dia as per site slab culvert 1x2.40mtr slab culvert width 6 mtr.	Retained	Widening as slab culvert 1x2.40mtr (lhs 4.0mtr and rhs 2.0mtr) from 6mtr to 12 mtr.	Existing structure is slab culvert span 1x2.40mtr width 6.0mtr in good condition. Hence widening is done from 6 mtr to 12 mtr. As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+)ve COS under widening slab culvert span 1x2.40mtr , from 6.0mtr to 12.0mtr width.	As recommended by I.E (+)ve COS under widening slab culvert span 1x2.40mtr , from 6.0mtr to 12.0mtr width, as provided as retained structure in schedule-B
17	100+400	98+881	HPC 1x1000 dia, Width 11.0 mtr as per site slab culvert 1x2.7 mtr slab culvert width 5.8 mtr	Retained	Widening as slab culvert 1x2.7 (b/s 3.7 and 2.5) from 5.8mtr to 12mtr	Existing structure is slab culvert span 1x2.7mtr ,width 5.8mtr in good condition. Hence widening is done from 5.8 mtr to 12 mtr. As per provision of IRC SP-73 2007 width should be 12.0 mtr. Recommended (+) ve COS under widening slab culvert span 1x2.7mtr, from 5.8mtr to 12.0mtr width.	As recommended by I.E (+) ve COS under widening slab culvert span 1x2.7mtr, from 5.8mtr to 12.0mtr width, as provided as retained structure in schedule-B



G. Waghmare
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia


X
Divisional Manager
MPRDC, Narmadapuram

A. Singh
General Manager
M.P.R.D.C Bhopal


A. Singh
CE (BOT)

B. Singh
TA

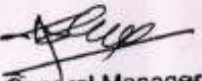
Development of Betul – Sarni – Junnardeo – Parasia – Road SH-43 On Toll Annuity Basis in The State of Madhya Pradesh							
Client :- Madhya Pradesh Road Development Corporation Limited							
Concessioner :- DBL Betul Sarni Toll Ways Limited							
Independent Engineer :- Theme Engineering Service Pvt. Ltd							
EPC Contractor :- Dilip Buildcon Ltd.							
S.No	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Reasons and Recommendation of Independent Engineer	Decision of Committee
1	21+450	21+106	2 Row 900	RC as 1 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 1 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of HPC 1 Row of 1200mm as not reconstructed
2	26+665	26+316	1 Row 900	RC as 1 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 1 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of HPC 1 Row of 1200mm as not reconstructed
3	46+925	46+675	slab 1 x 1.5	RC as 2 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 2 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of 2 rows of 1200mm HPC as not reconstructed
4	47+000	46+987	slab 1 x 1.5	RC as 2 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 2 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of 2 rows of 1200mm HPC as not reconstructed
5	48+315	48+215	slab 1 x 1.5	RC as 2 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 2 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of 2 rows of 1200mm HPC as not reconstructed
6	48+515	48+425	slab 1 x 1.5	RC as 2 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 2 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of 2 rows of 1200mm HPC as not reconstructed
7	48+660	48+605	slab 1 x 1.0	RC as 2 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 2 Row of 1200mm width 12mtr.	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of 2 rows of 1200mm HPC as not reconstructed



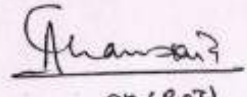
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia



Divisional Manager
MPRDC, Narmadapuram





General Manager
M.P.R.D.C Bhopal




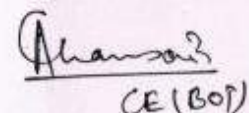
OE (BOT)

S.No.	Scheduled Chainage	Designed Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Reasons and Recommendation of Independent Engineer	Decision of Committee
15	72+875	71+224	1 Row 900	RC as 1 row 1200	Widening as 1 row 1200	existing structure is HPC of 1 row 1200mm width 7.4 mtr and is in good condition. Hence widening is done from 7.4 mtr to 12 mtr (-)ve COS for reconstruction 1 row of 1200mm HPC width 12 mtr and (+)ve COS for widening 1 row of 1200mm HPC from 7.4 mtr to 12.0mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction 1 row of 1200mm HPC width 12 mtr and (+)ve COS for widening 1 row of 1200mm HPC from 7.4 mtr to 12.0mtr
16	74+550	73+327	1 Row 900	RC as 1 row 1200	Widening as 1 row 1000	existing structure is HPC of 1 row 1000mm width 5 mtr and is in good condition. Hence widening is done from 5mtr to 12 mtr (-)ve COS for reconstruction 1 row of 1200mm HPC width 12 mtr and (+)ve COS for widening 1 row of 1000mm HPC from 5 mtr to 12.0mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction 1 row of 1200mm HPC width 12 mtr and (+)ve COS for widening 1 row of 1000mm HPC from 5 mtr to 12.0mtr
17	89+015	88+922	1 Row 900	RC as 1 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 1 Row of 1200mm width 12mtr.	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of 1 row of 1200mm HPC width 12mtr as not reconstructed
18	94+860	93+359	1 Row 900	RC as 1 row 1200	Widening as 1 row 1200	Existing structure is HPC of 1 row 1200mm Barrel Length 12.7 mtr and is in good condition. Barrel length is increased from 12.7 mtr to 15 mtr with formation width 12mtr. (-)ve COS for reconstruction 1 row of 1200mm HPC formation width 12 mtr, barrel length 15 mtr and (+)ve COS for widening 1 row of 1200mm HPC for barrel length 12.7 mtr to 15.0mtr with formation width 12 mtr because of high Embankment.	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction 1 row of 1200mm HPC formation width 12 mtr, barrel length 15 mtr and (+)ve COS for widening 1 row of 1200mm HPC for barrel length 12.7 mtr to 15.0mtr with formation width 12 mtr because of high Embankment.
19	100+950	99+443	1 Row 900	RC as 1 row 1200	Widening as 1 row 1200	Existing structure is HPC of 1 row 1200mm Barrel Length 12.4 mtr and is in good condition. Barrel length is increased from 12.4 mtr to 15 mtr with formation width 12mtr. (-)ve COS for reconstruction 1 row of 1200mm HPC formation width 12 mtr, barrel length 15 mtr and (+)ve COS for widening 1 row of 1200mm HPC for barrel length 12.4 mtr to 15.0mtr with formation width 12 mtr because of high Embankment.	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction 1 row of 1200mm HPC formation width 12 mtr, barrel length 15 mtr and (+)ve COS for widening 1 row of 1200mm HPC for barrel length 12.4 mtr to 15.0mtr with formation width 12 mtr because of high Embankment.
20	165+650	105+575	1 Row 1000	RC as 2 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 2 Row of 1200mm width 12mtr.	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of HPC 2 Row of 1200mm width 12mtr as not reconstructed

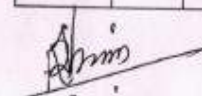

R.H. WAGHMARE
 Team Leader (TES)
 Betul, Sarni, Parasia



 Divisional Manager
 MPRDC, Narmadapuram

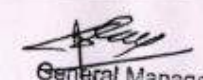

 General Manager
 M.P.R.D.C Bhopal

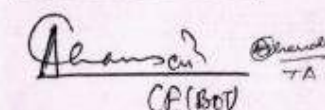

 CE (BOT)

Sl. No.	Chainage	Stationing	Existing Structure	Proposed Structure	Remarks	Remarks	Remarks
21	113+150	111+582	1 Row 1200mm HPC	RC as 1 row 1200	Retain	Existing structure is in good condition HPC 1 row 1200mm width 12mtr hence retained. (-)ve COS for reconstruction of 1 row 1200mm HPC width 12 mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction HPC 1 row of 1200mm width 12 mtr because it is retained; where as in schedule B it is under reconstruction as 1 row of 1200mm HPC.
22	117+450	116+241	1 Row 900	RC as 1 row 1200	RC as Minor Bridge span 1x6.1 Box type	To maintain and improve the Geometrics specially the verticle curves and heavy water supply pipe line, it is found suitable to have a minor bridge. As per site verification at this chainage there is a Arch culvert with the span arrangement as 1 x 3.6mtr. As per the hydraulic design minor bridge of 6.1 x 4.6 mtr box bridge is required. Because of the variation in provision of the agreement and site and as per the provision of hydraulic design, there is a (-)ve COS for reconstruction of HPC 1 row 1200mm reconstruction. It is certified that there is a position of minor bridge 1x10 mtr span at ch-99+100 which is not needed as per the site requirement and retained as HPC. This minor bridge considered and included under the Scope of Minor Bridge.	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of HPC 1 row 1200mm width 12 mtr.
23	120+425	118+801	1 Row 1200	RC as 1 row 1200	Retain	Existing structure is in good condition HPC 1 row 1200mm having width 12.0mtr hence retained. (-)ve COS for reconstruction of 1 row 1200mm HPC width 12 mtr	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction HPC 1 row of 1200mm width 12 mtr because it is retained.
24	122+159		1 Row 1000	RC as 1 row 1200	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work (-)ve COS for reconstruction of HPC 1 Row of 1200mm width 12mtr.	Committee agreed as recommended by IE to consider (-)ve COS for reconstruction of 1 row 1200mm HPC width 12 mtr as not reconstructed
widening HPC							
1	2	3	4	5	6	7	8
25	22+255	21+912	1 Row 900	Widening as 1 row 900	Proposed as Utility Duct	As per site condition, there is utility duct. With 12 mtr width hence widening is not done (-)ve COS for widening of 1 row of 900mm HPC	Committee agreed as recommended by IE to consider (-)ve COS for widening of 1 row of 900mm HPC
26	28+560	26+206	1 Row 1000	Widening as 1 row 1000	RC as 2 row 1200	Existing structure 1 row of 1000mm HPC width 7.5 mtr is not in good condition. hence reconstructed HPC 2 rows of 1200mm width 12mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC width 12 and (-)ve COS for widening for 1 row of 1000mm HPC from 7.5mtr to 12.mtr In schedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC width 12 mtr and (-)ve COS for widening for 1 row of 1000mm HPC from 7.5 mtr to 12mtr



A.T.L.


Divisional Manager
MPRDC, Narmadapuram


General Manager
M.P.R.D.C Bhopal


CP (BoT)

S.no	Scheduled Chainage	Chainage	Existing Detail as per Scheduled - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Remarks and Recommendation of Independent Engineer	Decision of Committee
27	30+375	30+008	1 Row 1000	Widening as 1 row 1000	RC as 1 row 1200	Existing structure 1 row of 1000mm HPC width 7.5 mtr is not in good condition.hence reconstructed HPC 1 rows of 1200mm formation width 12mtr and barrel length 16.25mtr (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 16.25 mtr and (-)ve COS for widening for 1row of 1000mm HPC from 7.5mtr to 12 mtr with barrel length 16.250mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 16.25 mtr and (-)ve COS for widening for 1row of 1000mm HPC from 7.5mtr to 12 mtr with barrel length 16.250mtr because of high embankment.
28	51+110	50+468	1 Row 900	Widening as 1 row 900	RC as 1 row 1200	Existing structure 1 row of 900mm HPC width 7.6 mtr is not in good condition.hence reconstructed HPC 1 rows of 1200mm formation width 12mtr and barrel length 17.6mtr (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 17.6 mtr and (-)ve COS for widening for 1row of 900 mm HPC from 7.6 mtr to 12 mtr with barrel length 17.6mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 17.6 mtr and (-)ve COS for widening for 1row of 900 mm HPC from 7.6 mtr to 12 mtr with barrel length 17.6mtr because of high embankment.
29	53+125	52+179	1 Row 900	Widening as 1 row 900	RC as 1 row 1200	Existing structure 1 row of 900mm HPC width 8.5mtr is not in good condition.hence reconstructed HPC 1 rows of 1200mm width 12 mtr (+)ve COS for reconstruction of 1 rows of 1200 mm HPC width 12mtr and (-)ve COS for widening for 1row of 900mm HPC from 8.5mtr to 12mtr In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 1 rows of 1200 mm HPC width 12 mtr and (-)ve COS for widening for 1row of 900mm HPC from 8.5mtr to 12mtr.
30	53+500	52+518	2 Row 900	Widening as 2 row 900	RC as 1 row 1200	Existing structure 2 row of 900mm HPC width 10.5 mtr is not in good condition.hence reconstructed HPC 1 rows of 1200mm formation width 12mtr and barrel length 19.2mtr (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 19.2 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 10.5 mtr to 12 mtr with barrel length 19.2 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 19.2 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 10.5 mtr to 12 mtr with barrel length 19.2 mtr because of high embankment.




K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

Divisional Manager
MPRDC, Narmadapuram

General Manager
M.P.R.D.C Bhopal

CE (BOT)

S.No.	Scheduled Chamunge	Designated Chamunge	Existing Detail as per Schedule - A	Development Proposal as per Schedule - B	Actual Utilization by Concessionaire at Site	Reasons and Recommendation of Independent Engineer	Position of Committee
31	53+800	52+750	1 Row 900	Widening as 1 row 900	RC 1 x 1200	Existing structure 1 row of 900mm HPC width 9.8 mtr is not in good condition.hence reconstructed HPC 1 rows of 1200mm formation width 12mtr and barrel length 21mtr (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 21 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 9.8 mtr to 12 mtr with barrel length 21 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 21 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 9.8 mtr to 12 mtr with barrel length 21 mtr because of high embankment.
32	54+870	53+890	1 Row 1000	Widening as 2 row 1000	RC 1 x 1200	Existing structure 2 row of 1000mm HPC width 8.7 mtr is not in good condition.hence reconstructed HPC 1 rows of 1200mm formation width 12mtr and barrel length 17.5 mtr (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 17.5 mtr and (-)ve COS for widening for 2 row of 1000 mm HPC from 8.7 mtr to 12 mtr with barrel length 17.5 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 17.5 mtr and (-)ve COS for widening for 2 row of 1000 mm HPC from 8.7 mtr to 12 mtr with barrel length 17.5 mtr because of high embankment.
33	56+600	55+750	2 Row 900	Widening as 2 row 900	RC 2 x 1200	Existing structure 2 row of 900mm HPC width 10 mtr is not in good condition.hence reconstructed HPC 2 rows of 1200mm formation width 12mtr and barrel length 21 mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 21 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 10 mtr to 12 mtr with barrel length 21mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 21 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 10 mtr to 12 mtr with barrel length 21mtr because of high embankment.




K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

Divisional Manager
MPRDC, Narmadapuram

General Manager
M.P.R.D.C Bhopal

CE (BOT)

Sl. No.	Scheduled Chainage	Designed Chainage	Existing Detail as per Schedule - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Reasons and Recommendation of Independent Engineer	Decision of Committee
34	56+950	56+018	3 Row 900	Widening as 3 row 900	RC 2 x 1200	Existing structure 3 row of 900mm HPC width 5.8 mtr is not in good condition, hence reconstructed HPC 2 rows of 1200mm formation width 12mtr and barrel length 16.25 mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 16.25 mtr and (-)ve COS for widening for 3 row of 900 mm HPC from 5.8mtr to 12 mtr with barrel length 16.25mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 16.25 mtr and (-)ve COS for widening for 3 row of 900 mm HPC from 5.8mtr to 12 mtr with barrel length 16.25mtr because of high embankment.
35	57+070	56+075	2 Row 900	Widening as 2 row 900	RC 2 x 1200	Existing structure 2 row of 900mm HPC width 7.4 mtr is not in good condition, hence reconstructed HPC 2 rows of 1200mm formation width 12mtr and barrel length 15 mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 15 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 7.4 mtr to 12 mtr with barrel length 15 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 15 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 7.4 mtr to 12 mtr with barrel length 15 mtr because of high embankment.
36	67+310	66+073	1 Row 1000	Widening as 1 row 1000	RC as 2 row 1200	Existing structure 1 row of 1000mm HPC width 7.4 mtr is not in good condition, hence reconstructed HPC 2 rows of 1200mm formation width 12mtr and barrel length 28.70 mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 28.70 mtr and (-)ve COS for widening for 1 row of 1000 mm HPC from 7.4 mtr to 12 mtr with barrel length 28.70 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 28.70 mtr and (-)ve COS for widening for 1 row of 1000 mm HPC from 7.4 mtr to 12 mtr with barrel length 28.70 mtr because of high embankment.
37	67+550	66+309	1 Row 900	Widening as 1 row 900	RC as 2 row 1200	Existing structure 1 row of 900mm HPC width 8.5 mtr is not in good condition, hence reconstructed HPC 2 rows of 1200mm formation width 12mtr and barrel length 26.25 mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 26.25 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 8.5 mtr to 12 mtr with barrel length 26.25 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 26.25 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 8.5 mtr to 12 mtr with barrel length 26.25 mtr because of high embankment.




WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

Divisional Manager
MPRDC, Narmadapuram

General Manager
M.P.R.D.C Bhopal

CE (BOT)

Sl. No.	Scheduled Chainage	Designed Chainage	Existing Data as per Schedule - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Reasons and Recommendation of Independent Engineer	Decision of Committee
38	67+640	66+390	1 Row 900	Widening as 1 row 900	RC as 2 row 1200	Existing structure 1 row of 900mm HPC width 6.8 mtr is not in good condition, hence reconstructed HPC 2 rows of 1200mm formation width 12mtr and barrel length 21.25 mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 21.25 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 6.8 mtr to 12 mtr with barrel length 21.25 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 21.25 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 6.8 mtr to 12 mtr with barrel length 21.25 mtr because of high embankment.
39	69+860	68+514	1 Row 900	Widening as 1 row 900	Retain	Existing structure is HPC 1 row of 900mm, width 12 mtr is in good condition, sufficient to accomodate the discharge Hence HPC 1 row 900mm retained (-)ve COS for widening of 1 row of 900mm HPC	Committee agreed as recommended by IE to consider (-)ve COS for widening of 1 row of 900mm HPC as structure is retained
40	70+250	69+045	2 Row 1000	Widening as 2 row 900	RC as 2 row 1200	Existing structure 2 row of 900mm HPC width 7.5 mtr is not in good condition, hence reconstructed HPC 2 rows of 1200mm formation width 12mtr and barrel length 18.70 mtr (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 18.70 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 7.5 mtr to 12 mtr with barrel length 18.70 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 2 rows of 1200 mm HPC formation width 12 mtr and barrel length 18.70 mtr and (-)ve COS for widening for 2 row of 900 mm HPC from 7.5 mtr to 12 mtr with barrel length 18.70 mtr because of high embankment.
41	83+190	81+706	1 Row 900	Widening as 1 row 900	RC as 1 row 1200	Existing structure 1 row of 900mm HPC width 10 mtr is not in good condition, hence reconstructed HPC 1 rows of 1200mm formation width 12mtr and barrel length 17.5 mtr (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 17.5 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 10 mtr to 12 mtr with barrel length 17.5 mtr because of high embankment. In shedule B proposed under widening	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of 1 rows of 1200 mm HPC formation width 12 mtr and barrel length 17.5 mtr and (-)ve COS for widening for 1 row of 900 mm HPC from 10 mtr to 12 mtr with barrel length 17.5 mtr because of high embankment.
42	99+750	-	1 Row 1000	Widening as 1 row 1000	As per site no C.D. work is needed	As per site condition there is no existing structure and further there is no need for C.D. work. Recommended (-)ve COS for widening to 12 mtr of 1 row of 1000mm HPC.	Committee agreed as recommended by IE to consider (-)ve COS for widening of 1 row of 1000mm HPC as recommended by IE.



K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

Divisional Manager
MPRDC, Nagmadapuram

General Manager
M.P.R.D.C Bhopal

CE (BoT)

S no	Scheduled Chainage	Designated Chainage	Existing Detail as per Schedule - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Reasons and Recommendation of Independent Engineer	Decision of Committee
HPC Retain to Widening							
43	62+750	61+566	1 Row 1000	Retain 1 row 1000	Widening as 2 row 1200	Existing structure 2 rows of 1200mm HPC width 7.7 mtr is in good condition.hence widening is done from 7.7mtr to 12 mtr with barrel length 21.5 mtr. (+) ve COS for widening 2 rows of 1200 mm HPC from 7.7mtr to 12mtr barrel length 21.5 mtr , because of high embankment	Committee agreed as recommended by IE to consider (+) ve COS for widening 2 rows of 1200 mm HPC from 7.7mtr to 12mtr barrel length 21.5 mtr , because of high embankment
44	86+400	85+127	1 Row 900	Retain as 1 row 900	Widening as 2 row 900	Existing structure 2 rows of 900mm HPC width 9.3 mtr is in good condition.hence widening is done from 9.3 mtr to 12 mtr with barrel length 21.80 mtr. (+) ve COS for widening 2 rows of 900 mm HPC from 9.3 mtr to 12mtr barrel length 21.80 mtr , because of high embankment	Committee agreed as recommended by IE to consider (+) ve COS for widening 2 rows of 900 mm HPC from 9.3 mtr to 12mtr barrel length 21.80 mtr , because of high embankment
45	88+500	87+024	1 Row 1000	Retain 1 row 1000	Widening as 3 row 1000	Existing structure 3 rows of 1000mm HPC width 9.6 mtr is in good condition.hence widening is done from 9.6 mtr to 12 mtr with barrel length 20.60 mtr. (+) ve COS for widening 3 rows of 1000 mm HPC from 9.6 mtr to 12mtr barrel length 20.60 mtr , because of high embankment	Committee agreed as recommended by IE to consider (+) ve COS for widening 3 rows of 1000 mm HPC from 9.6 mtr to 12mtr barrel length 20.60 mtr , because of high embankment
46	119+300	117+670	1 Row 1000	Retain 1 row 1000	Widening as 1 row 1000	Existing structure 1 rows of 1000mm HPC width 10 mtr is in good condition.hence widening is done from 10 mtr to 12 mtr with barrel length 17.50 mtr. (+) ve COS for widening 1 row of 1000 mm HPC from 10 mtr to 12mtr barrel length 17.50 mtr , because of high embankment	Committee agreed as recommended by IE to consider (+) ve COS for widening 1 row of 1000 mm HPC from 10 mtr to 12mtr barrel length 17.50 mtr , because of high embankment
47	120+030	118+392	slab 1 x 1	Retain as slab 1 x 1.0	Widening as 1 row 1000	Existing structure 1 rows of 1000mm HPC width 10 mtr is in good condition.hence widening is done from 10 mtr to 12 mtr with barrel length 18.75 mtr. (+) ve COS for widening 1 row of 1000 mm HPC from 10 mtr to 12mtr barrel length 18.75 mtr , because of high embankment	Committee agreed as recommended by IE to consider (+) ve COS for widening 1 row of 1000 mm HPC from 10 mtr to 12mtr barrel length 18.75 mtr , because of high embankment
HPC Retain to Reconstruction							
48	27+100	26+752	1 Row 1000	Retain as 1 row 1000	Reconstruction as 1 row 1200	Existing structure 1 row of 1000mm HPC width 9.6 mtr is not in good condition.hence reconstructed HPC 1 row of 1200mm width 12mtr . (+) ve COS for reconstruction 1 row of 1200 mm width 12mtr.	Committee agreed as recommended by IE to consider (+) ve COS for reconstruction 1 row of 1200 mm width 12mtr.
49	70+815	69+620	1 Row 1000	Retain as 1 row 1000	RC as 1 x 1200	Existing structure is HPC 1row of 1000mm width 10.0mtr but not in good condition hence reconstructed HPC 1row of 1200mm width 12 mtr (+)ve COS for reconstruction of HPC 1 row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of HPC 1 row of 1200mm width 12mtr


K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

Divisional Manager
MPRDC, Narmadapuram

General Manager
M.P.R.D.C Bhopal

CE (BOT)

S.No.	Schedule Chainage	Designed Chainage	Existing Detail as per Schedule A	Discrepancy and Proposed as per Schedule B	Actual Construction by Consultant at Site	Reasons and Recommendation of Independent Engineer	Decision of Committee
50	71+150	69+962	2 Rows 900	2 Rows 900 <i>Retained</i>	RC as 1 row 1200	Existing structure is HPC 2 rows of 900 mm width 9 mtr but not in good condition Hence reconstructed HPC 1 row of 1200 mm width 12mtr, which is sufficient to accommodate the discharge. (+)ve COS for reconstructed 1 row of 1200mm HPC width 12mtr	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction 1 row of 1200mm HPC width 12mtr
51	74+275	73+060	ree solid slab 1 x 4.6	Retain as ree solid slab 1 x 4.6	RC as 1 x 1200	Existing structure is 1 x 4.6 culvert width 9.60mtr but not in good condition hence reconstructed HPC 1 row of 1200mm width 12mtr. (+)ve COS for reconstruction of HPC 1 row of 1200mm width 12 mtr	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction of HPC 1 row of 1200mm width 12 mtr <i>OK AI</i>
Extra HPC- Reconstruction							
52	8+130	8+032	1 Row 900mm	RC as Minor Bridge span 1x10	RC as 1 row 1200	As per site condition 1x1200 dia HPC width 12mtr is sufficient to accommodate the discharge. Hence Reconstructed as HPC 1 row of 1200mm, width 12mtr, when compared with schedule B, it is (-)ve COS For Reconstruction of minor bridge span 1x 10mtr and (+) COS for reconstruction HPC 1 Row of 1200mm width 12 mtr.	Committee agreed as recommended by IE to consider (-)ve COS For Reconstruction of minor bridge span 1x 10mtr and (+) COS for reconstruction HPC 1 Row of 1200mm width 12 mtr as per hydraulics there is no need of minor bridge <i>AI OK</i>
53	11+425	11+400	Extra	Extra	RC as 1 row 1200	as per site condition , there is need of C.D. work which is not provided in schedule Hence constructed HPC 1 row of 1200mm width 12.00mtr. (+)ve COS for construction 1 row of 1200mm HPC width 12.0mtr	Committee agreed as recommended by IE to consider. (+)ve COS for construction 1 row of 1200mm HPC width 12.0mtr <i>OK AI</i>



K.H. Waghmare
K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia


[Signature]
Divisional Manager
MPRDC, Namadapuram

[Signature]
General Manager
M.P.R.D.C Bhopal

[Signature]
CE (BOT)

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Sl. No.	Scheduled Chainage	Designed Chainage	Existing Details as per Schedule - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Reasons and Recommendation of Independent Engineer	Decision of Committee
54	11+586	11+500	Extra	Extra	RC as 1 row 1200	As per site condition, there is need of C.D. work which is not provided in schedule Hence constructed HPC 1 row of 1200mm width 12mtr. (+)ve COS for construction 1 row of 1200mm HPC width 12mtr	Committee agreed as recommended by IE to consider. (+)ve COS for reconstruction 1 row of 1200mm HPC width 12mtr
55	21+000	20+608	Extra	Extra	RC as 2 row 1200	As per site existing structure is HPC 2 rows of 900mm width 7.1mtr not in good condition and not identified in Schedule- A or B. Hence reconstructed HPC 2 Rows of 1200mm width 12mtr (+) ve COS for reconstruction of HPC 2 rows of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (+) ve COS for reconstruction of HPC 2 rows of 1200mm width 12mtr
56	50+625	50+500	Extra	Extra	Reconstruction as 1 row 1200	Existing structure is HPC 1 row of 1200mm width 7.5mtr is not in good condition, not identified in Schedule - A or B. Hence reconstruction is done for HPC 1 row of 1200mm width 12mtr. (+) ve COS for reconstruction of 1 row of 1200mm HPC width 12mtr.	Committee agreed as recommended by IE to consider (+) ve COS for reconstruction of 1 row of 1200mm HPC width 12mtr.
57	101+050	100+600	Extra	Extra	RC as 1 row 1200	Existing structure is HPC with 1 row of 900mm width 8.5mtr not in good condition and not identified in Schedule- A or B. Reconstructed HPC 1 row of 1200 mm Width 12mtr (+) ve COS for reconstruction of HPC 1 row of 1200 mm width 12 mtr	Committee agreed as recommended by IE to consider (+) ve COS for reconstruction of HPC 1 row of 1200 mm width 12 mtr
58	102+585	102+070	Extra	Extra	RC as 1 row 1200	As per site condition there is no existing structure and further there is need for C.D. work which is not provided in Schedule-A or B. Hence reconstructed HPC 1 row of 1200mm width 12mtr. (+)ve COS for reconstruction of HPC 1 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (+) COS for construction of 1 row of 1200 mm HPC width 12 mtr.



K.H. WAGHMARE
Team Leader (TES)
Betul, Sarni, Parasia

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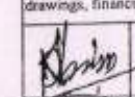


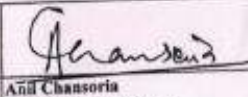

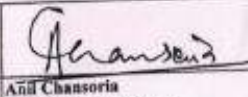

Divisional Manager
MPRDC, Narmadapuram

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General Manager
M.P.R.D.C Bhopal

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CE (BOT)

S.No	Scheduled Chainage	Designated Chainage	Existing Detail as per Schedule - A	Development Proposal as per Schedule - B	Actual Construction by Concessionaire at Site	Reason and Recommendation of Independent Engineer	Decision of Committee
59	118+385	118+205	Extra	Extra	RC as 1 row 1200	As per site condition there is no existing structure and further there is need for C.D. work which is not provided in Schedule-A or B. Hence reconstructed HPC 1 row of 1200mm width 12mtr. (+)ve COS for reconstruction of HPC 1 Row of 1200mm width 12mtr	Committee agreed as recommended by IE to consider (+) COS for construction of 1 row of 1200 mm HPC width 12 mtr.
60	121+385	121+360	Extra	Extra	RC as 1 Row 900mm	As per site condition due to under ground 600mm dia mtr. water supply pipe line going throw the shoulder area. It is found suitable to reconstructed HPC of 1row of 900mm width 12 mtr which is sufficient to accomate to discharge (+)COS reconstruction of 1row of 900mm HPC width 12 mtr.	Committee agreed as recommended by IE to consider (+)ve COS for reconstruction HPC 1row of 900mm width 12 mtr.
In Principle approval for change of Scope is Agreed and recommended by the committee for above works as per remarks of last column. Further it has been instructed to Independent Engineer and concessionaire to prepare drawings, financial implication and submit within 15 days time positively							
 Team leader Independent Engineer		 B.S. Meena Divisional manager MPRDC		 A.L. Suryavanshi GM (BOT) MPRDC		 Arun Paliwal GM (Finance) MPRDC, Bhopal	
				 Anil Chansoria Chief Engineer (BOT) MPRDC Bhopal		 A.S. Chendke Technical Advisor MPRDC Bhopal	

Annexure 11: Project Photos



