



## SHREM FINANCIAL PRIVATE LIMITED

**Four Laning of Wardha-Butibori section of NH-361 from  
Km.465.500 to Km.524.690 (design length 59.190 Km) under  
NH(O) in the State of Maharashtra on Hybrid Annuity Mode**

### TECHNICAL DUE DILIGENCE REPORT



**FEBRUARY, 2021**

**SUBMITTED BY**



**RUKY PROJECTS PRIVATE LIMITED**

**Hyderabad – 500 072**

**[www.rukyprojects.com](http://www.rukyprojects.com)**



---

**Four Laning of Wardha-Butibori section of NH-361 from  
Km.465.500 to Km.524.690 (design length 59.190 Km) under  
NH(O) in the State of Maharashtra on Hybrid Annuity Mode**

---

This document has been issued and amended as follows:

<b>Report No.</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
RU-DD Report-Wardha-Butibori	01	February 2021	Technical Due Diligence Report

RUKY Projects Private Ltd has prepared this report in accordance with the instructions of client, for the client's sole and specific use. Any other persons who use any information contained herein do so at their own risk.

RUKY Projects Private Limited  
#1403A, Manjeera Trinity Corporate, JNTU-HITEC City Road,  
Kukatpally, Hyderabad – 500 072, Telangana, India,  
+91 40 4855 7777 / 2304 4777  
[www.rukyprojects.com](http://www.rukyprojects.com)



## DISCLAIMER AND CONSENT FOR USE

This report has been prepared for the benefit of SHREM FINANCIAL PRIVATE LIMITED (SFPL), the investment Manager of Shrem InvIT (Trust), for and in connection with initial offer of units representing an undivided beneficial interest in the Trust. In Preparing this report, RUKY Projects Pvt Ltd has relied, in whole or in part, on data and information provided by SFPL and **DBL WARDHA BUTIBORI HIGHWAYS PRIVATE LIMITED** which RUKY Project Pvt Ltd has assumed to be accurate, complete, reliable and correct.

This report may be reproduced and included in the preliminary placement memorandum, placement memorandum and any other documents prepared in connection with the aforesaid initial offer of units of the Trust and may be made available for inspection in the manner specified therein. In connection with the report, the following details in relation to the Technical Consultant may be included in preliminary placement memorandum and the placement memorandum and any other documents prepared in connection with the aforesaid initial offer of units of the Trust.

Technical Consultant:  
RUKY PROJECTS PRIVATE LIMITED  
Flat No. 1403A, 14<sup>th</sup> Floor,  
Manjeera Trinity Corporate,  
JNTU-Hitech City Road, Kukatpally,  
Hyderabad – 500072  
[www.rukyprojects.com](http://www.rukyprojects.com)

Contact Person of Consultant: Mr. C Ramanaiah  
Email: [ramana\\_c@rukypjcts.com](mailto:ramana_c@rukypjcts.com)  
Tel: +91 40 4855 7777

## TABLE OF CONTENTS

<b>CHAPTER 1. INTRODUCTION .....</b>	<b>5</b>
1.1 General.....	5
1.2 The Project Data.....	6
1.3 Scope of Consultancy Services .....	7
<b>CHAPTER 2. PROJECT DESCRIPTION &amp; TECHNICAL DETAILS .....</b>	<b>8</b>
2.1 Salient Features of the Project.....	8
2.2 Typical Cross Section (TCS) Schedule .....	8
2.3 Road Side Drainage .....	15
2.4 Service Roads .....	15
2.5 Bypass/Realignment.....	16
2.6 Intersections.....	17
2.7 Grade Separated Structures and underpasses.....	18
2.8 Road Over Bridge (ROB) Road Under Bridge.....	18
2.9 Carriageway Details.....	18
2.10 Summary of Structures.....	18
2.11 Toll Plazas .....	19
2.12 Bus bays/Bus shelters.....	19
2.13 Other Project Facilities Provided as per Schedule C of CA.....	20
<b>CHAPTER 3. ROAD INVENTORY &amp; PAVEMENT CONDITION .....</b>	<b>21</b>
3.1 General.....	21
3.2 Road Inventory .....	21
3.3 Pavement Condition.....	21
<b>CHAPTER 4. INVENTORY AND CONDITION OF STRUCTURES .....</b>	<b>23</b>
4.1 General Assessment and Condition of the structures.....	23
4.2 Inventory of Structures .....	23
4.3 Details of Major Bridges .....	23
4.4 Details of Road Over Bridge (ROB) .....	24
4.5 Details of Minor Bridges.....	24
4.6 Details of Underpass .....	26
4.7 Details of Culverts: .....	27
<b>CHAPTER 5. REVIEW OF PAVEMENT DESIGN.....</b>	<b>31</b>
5.1 General.....	31
5.2 Pavement design crust thickness .....	31
5.3 Maintenance/ Overlay schedule .....	32
<b>CHAPTER 6. SAFETY AUDIT OF ROAD.....</b>	<b>33</b>
6.1 General.....	33
6.2 Existing Road Safety Audit.....	33
6.3 Conclusion .....	34
<b>CHAPTER 7. TOLL PLAZA &amp; HTMS .....</b>	<b>35</b>
7.1 General.....	35
7.2 Tolling Equipment and Control Room Equipment .....	35
7.3 Vehicles .....	36

<b>CHAPTER 8. SCHEDULE OF ANNUITY PAYMENTS.....</b>	<b>37</b>
8.1 Hybrid Annuity Model (HAM).....	37
8.2 Payment during Construction .....	37
<b>CHAPTER 9. OPERATION AND MAINTENANCE .....</b>	<b>39</b>
9.1 General.....	39
9.2 Inspection.....	39
9.3 Operations.....	39
9.4 Operation of Toll Plazas.....	40
9.5 Maintenance of Project road .....	40
9.6 Review of Test Reports.....	41
9.7 O&M Forecast .....	41
<b>CHAPTER 10. REVIEW OF CONCESSION AGREEMENT .....</b>	<b>43</b>
10.1 General: Scope of Work (Article 2).....	43
10.2 Letter of Award .....	43
10.3 Conditions precedent (Article 4) .....	43
10.4 Major Obligations of the Concessionaire (Clause 5.1) .....	43
10.5 Performance Security (Article 9) .....	44
10.6 Tests (Clause 13.3).....	44
10.7 Provisional Certificate (Clause 14.3) .....	44
10.8 Completion Certificate (Clause 14.4) .....	44
10.9 Commercial Operation Date (COD) (clause 15.1).....	44
10.10 Change of Scope (Article 16) .....	44
10.11 O&M Obligations of the Concessionaire (Clause 17.1) .....	44
10.12 Maintenance Requirements (Clause 17.2).....	45
10.13 Maintenance Manual (Clause 17.3) .....	45
10.14 Maintenance Programme (Clause 17.4).....	45
10.15 Damages for breach of Maintenance Obligations (Clause 17.8).....	45
10.16 Monthly status reports (Clause 19.1).....	45
10.17 Payment of Bid Project Cost (Article 23) .....	46
10.18 Change in Law (Article 35).....	46
<b>CHAPTER 11. INSURANCE .....</b>	<b>47</b>
11.1 Details of Insurance:.....	47
<b>CHAPTER 12. CONCLUSION.....</b>	<b>48</b>
12.1 General.....	48
12.2 Pavement Condition.....	48
12.3 Condition of Structures .....	48
12.4 Project Facilities .....	48
12.5 Road safety.....	48
12.6 Maintenance .....	48
12.7 Epilogue:.....	48

#### LIST OF FIGURES

Figure 1.1: Project Location Map.....	5
Figure 2.1: TCS-1-TYPE-A3 TCS of 4-Laning By Concentric Widening with 4.0m Raised Median.....	9
Figure 2.2: TCS-2-TYPE-B Built - Up Section - Plain /Rolling Terrain with Service Roads .....	9

Figure 2.3: TCS-3-TYPE-A3 TCS of 4-Laning By Eccentric Widening (LHS) with 4.0m Raised Median .....	9
Figure 2.4: TCS-3A-TYPE-A3 TCS Of Reserve Forest Area with 45mt ROW .....	9
Figure 2.5: TCS-3B-TYPE-A3 (COS) TCS of 4-Laning By Eccentric Widening (LHS) with 4.0m Raised Median .....	10
Figure 2.6: TCS-4-TYPE-A3 TCS of 4-Laning By Eccentric Widening (RHS) with 4.0m Raised Median.....	10
Figure 2.7: TCS-5A-TYPE-A4 Four Lane For Bypass and Re-Alignment .....	10
Figure 2.8: TCS-6A Typical Four Lane Underpass Cross Section with Slip Roads In The Existing Road .....	10
Figure 2.9: TCS-6B Typical Four Lane Underpass Cross Section with Slip Roads In Bypass & Realignment .....	11
Figure 2.10: TCS-6D Typical Four Lane Underpass Cross Section with Service Roads .....	11
Figure 2.11: TCS-6D (COS) Typical Four Lane Underpass Cross Section with Service Roads .....	11
Figure 2.12: TCS-8 TCS Of Approach To Grade Separated Structure (Main Ramp) .....	11
Figure 2.13: TCS Of Ramp-2 (80R) 00+000 To 00+310 Ramp-2.....	12
Figure 2.14: TCS Of Loop-2(80R) 00+250 To 00+534 Loop-2 .....	12
Figure 2.15: TCS-9 TCS Of Approach to Road Over Bridge.....	12
Figure 2.16: TCS-10 TCS For Overlay on Existing Road .....	12
Figure 2.17: TCS Of Approach to Grade Separated Structure 00+000 to 00+250 (LOOP-1) (80R).....	13
Figure 2.18: TCS of Ramp-1 00+000 To 00+610 .....	13
Figure 2.19: Pictorial Diagram of TCS Lengths. ....	15
Figure 2.20: Representative Photographs of Project Facilities .....	20
Figure 3.1: Representative Photographs of Pavement Condition. ....	22
Figure 4.1: Representative Photographs of Overall view of the major bridge .....	24
Figure 4.2: Representative photographs of Minor Bridges.....	26
Figure 4.3: Representative photographs of underpasses .....	27
Figure 4.4: Representative photographs of Pipe Culverts .....	30
Figure 6.1: Representative photographs during Road Safety Audit .....	34
Figure 7.1: Photographs of Toll Plaza at Km. 511+000 .....	36

#### LIST OF TABLES

Table 1.1: Project Data.....	6
Table 2.1: Salient Features.....	8
Table 2.2: TCS Schedule .....	13
Table 2.3: List of Service Road locations.....	16
Table 2.4: List of Slip Road locations.....	16
Table 2.5: Realignment/ Bypass stretches.....	16
Table 2.6: List of Major Junctions .....	17
Table 2.7: List of Minor Junctions .....	17
Table 2.8: Summary of Carriageway Details .....	18
Table 2.9: Summary of Structures .....	18
Table 2.10: List of Bus shelters .....	19
Table 3.1: Road Inventory .....	21
Table 3.2: Pavement condition summary .....	21
Table 4.1: List of Structures .....	23
Table 4.2: List of Major Bridge .....	24
Table 4.3: Details of ROB .....	24
Table 4.4: Inventory of Minor Bridges .....	24
Table 4.5: Inventory of Underpass/Flyovers.....	26
Table 4.6: List of Slab/Box Culverts.....	27
Table 4.7: List of Pipe Culverts .....	28
Table 5.1: Rigid Pavement Design for Main carriageway .....	31
Table 5.2: Flexible Pavement for service road .....	31
Table 6.1: Referred IRC Publications.....	33
Table 6.2: Details of Road Furniture .....	33
Table 7.1: List of Equipment Toll Plaza and Control Room .....	35
Table 7.2: List of Vehicles.....	36

Table 8.1: Schedule of Payment Milestones .....	37
Table 8.2: Schedule of Annuity Payments .....	37
Table 9.1: Schedule and status of for Periodic Maintenance .....	41
Table 9.2: Proposed Plan for Future Operation & Maintenance Cost (In Crores) .....	42
Table 11.1: Insurance Details .....	47

**LIST OF ANNEXURES**

Annexure 1: Condition of Structures .....	50
Annexure 2: Condition of Culverts .....	52
Annexure 3: Operation & Maintenance cost .....	55
Annexure 4: Letter of Award .....	62
Annexure 5: Provisional Certificate .....	63
Annexure 6: Insurance .....	71
Annexure 7: Change of scope .....	76
Annexure 8: Project Photos .....	77

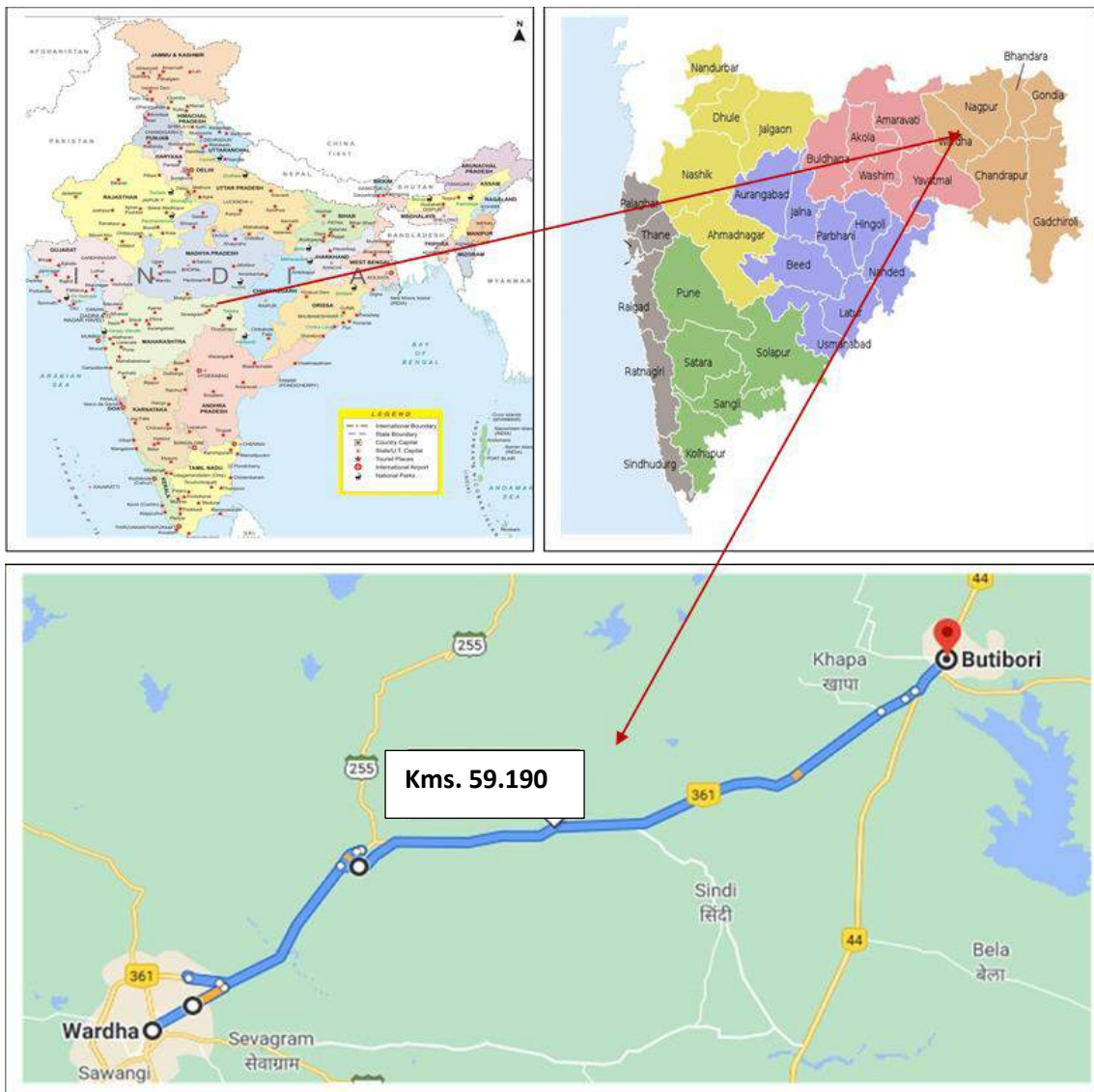


## CHAPTER 1. INTRODUCTION

### 1.1 General

DBL WARDHA BUTIBORI HIGHWAYS PRIVATE LIMITED (herein after referred to as the “**Concessionaire**”) had augmented the existing two lane road “Wardha Butibori section of NH361 in the State of Maharashtra, in accordance with the provisions of the Concession Agreement executed with National Highways Authority of India (herein after referred to as the “**Authority**”) on 9<sup>th</sup> June, 2017 on Design, Build, Operate and Transfer (DBOT) on Hybrid Annuity Mode (HAM).

The Project Highway starts at Km. 465+500 (Near Wardha) and ends at Km. 524+690 (at Butibori) on NH 361. It passes through settlements namely Salod, Seloo and Kelzar. Project location map is provided at **Figure 1.1**.



**Figure 1.1: Project Location Map**

SHREM INFRAVENTURE PRIVATE LIMITED (SIPL) acquired DBL WARDHA BUTIBORI HIGHWAYS PRIVATE LIMITED vide agreement dated 26.03.2018.



SHREM FINANCIAL PRIVATE LIMITED (SFPL). appointed RUKY Projects Pvt. Ltd. as consultant 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 annuity payments received and future schedule of annuity payments. etc.

## 1.2 The Project Data

**Table 1.1: Project Data**

S. No.	Particulars	Details
1	Name of the project	Four Laning of Wardha-Butibori Section of NH- 361 From Km. 465+500 to Km. 524+690 (Design Length Kms. 59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.
2	Road Type	National Highway
3	Name of the Authority	National Highways Authority of India
4	Name of the Concessionaire	DBL WARDHA BUTIBORI HIGHWAYS PRIVATE LIMITED
5	Name of the EPC Contractor	Dilip Buildcon Limited
6	Date of LOA	28.03.2017
7	Date of Agreement	09.06.2017
8	Design Length as per Schedule B of CA	59.190 Kms.
9	Project Lane Configuration	Four Lane
10	EPC Cost	Rs. 796.50Cr.
11	BPC Cost	Rs. 1,065.51 Cr.
12	Nature of contract	Hybrid Annuity Mode
13	Toll collected by	Authority
14	Operation Period	15 years from the Commercial Operation Date (COD)
15	Appointed date	30.11.2017
16	Concession End Date	19.11.2034
17	Construction Period	910 days from the Appointed Date
18	Schedule Completion Date	27.05.2020
19	Date of issuance of Provisional Certificate (COD)	20.11.2019
20	Bonus on early completion	Applicable as per Cl.23.5 of CA
21	Date of issuance of Completion Certificate	---
22	Annuity Amount	As per Cl.23.4 and Cl.23.6.3 of CA
23	Total Number of Annuities payable	30 Nos.
24	First Annuity Payment Date	20.05.2020
25	Total Number of Annuity Payments received as on date.	2 No.

### 1.3 Scope of Consultancy Services

The scope of work includes providing Technical Due Diligence of the Project Highway 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
- Carryout detailed assessment of pavement condition and propose maintenance plan along with BOQ.
- 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 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 Concession Agreement (CA) including Change of scope (COS) are listed in the following **Table 2.1.**

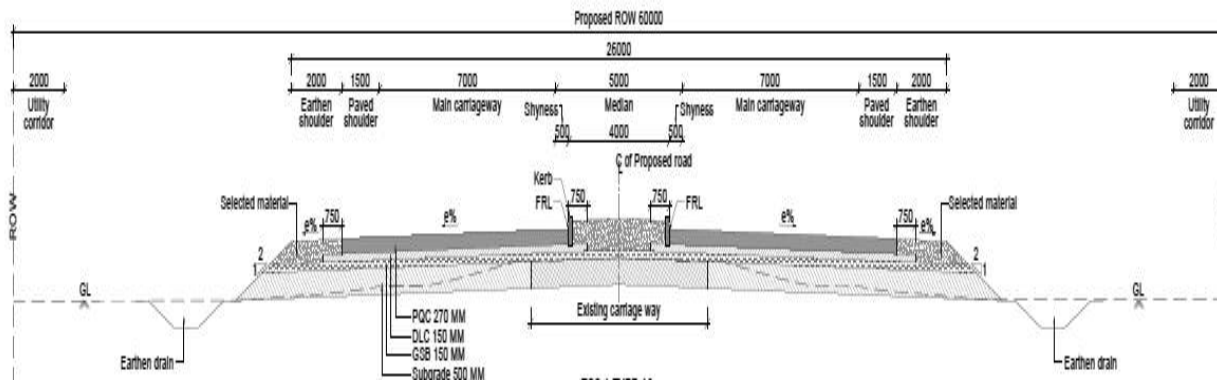
**Table 2.1: Salient Features**

S. No.	Particulars	As per CA	As COS	As per Site
1	Total Length of Main Carriageway 4 Lane with Rigid Pavement	59.190 Kms.		59.190 Kms.
2	Total length of Service Roads	8.800 Kms.		8.80 Kms.
3	Total length of Slip Roads	19.100 Kms.		19.10 Kms.
4	Toll Plazas	1 No.		1 No.
5	Bus Bays with Bus Shelters	28 Nos.		28 Nos.
6	Truck Lay Bays	2 Nos.		2 Nos.
7	Rest Areas	Nil		Nil
8	Major Junctions	Nil		9 Nos.*
9	Minor Junctions	26 Nos.		30 Nos.*
10	Vehicular underpasses	9 Nos.		9 Nos.
11	Light Vehicular underpasses	2 Nos.		2 Nos.
12	Pedestrian underpasses	1 No.		1 No.
13	Grade Separators	1 No.		1 No.
14	Major Bridges	2 Nos.		2 Nos.
15	Minor Bridges	15 Nos.	+1 Nos.	16 Nos.
16	ROBs	1 No.		1 No.
17	RUBs	1 No.		1 No.
18	Hume Pipe Culverts	65 Nos.		65 Nos.
19	Box / Slab Culverts	27Nos.	+1 No.	28 Nos.

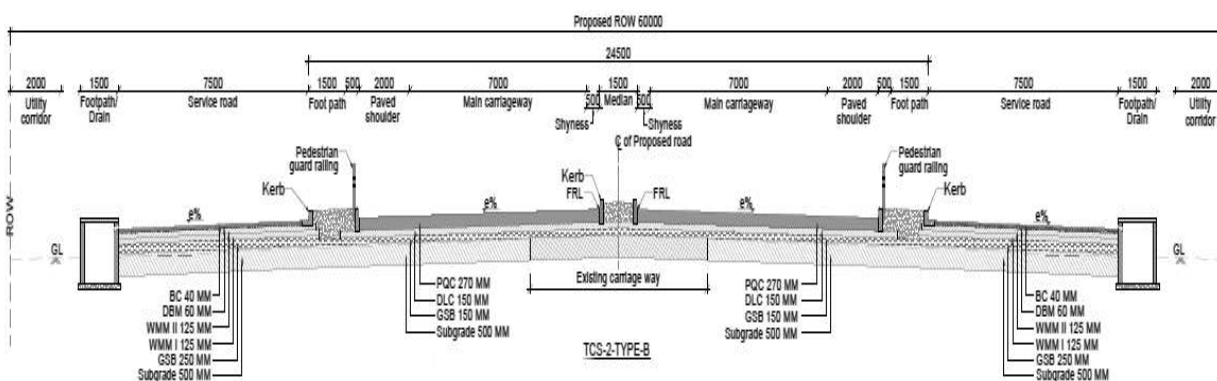
\*As per site requirement 9Nos. of Major junctions and 4Nos. of additional Minor junctions are developed

### 2.2 Typical Cross Section (TCS) Schedule

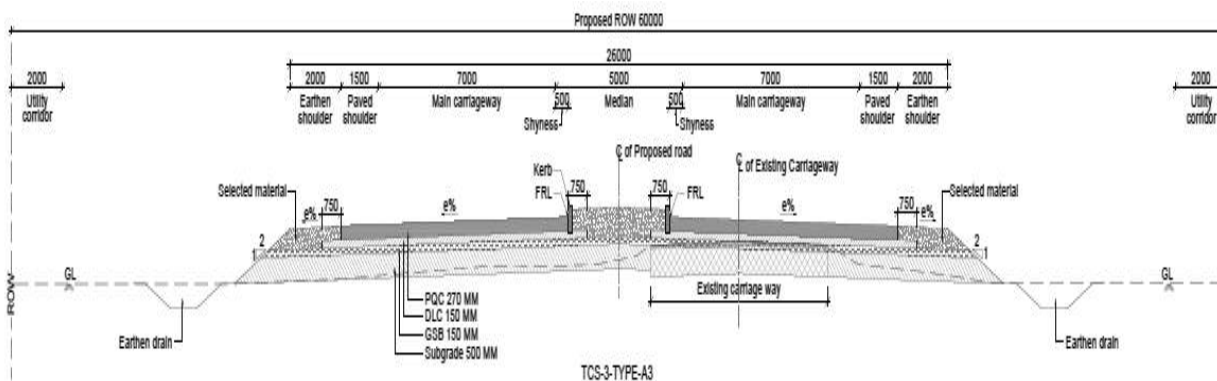
The Concessionaire has followed the Typical Cross Section Schedule, shown below as per Schedule B of the CA during the Construction.



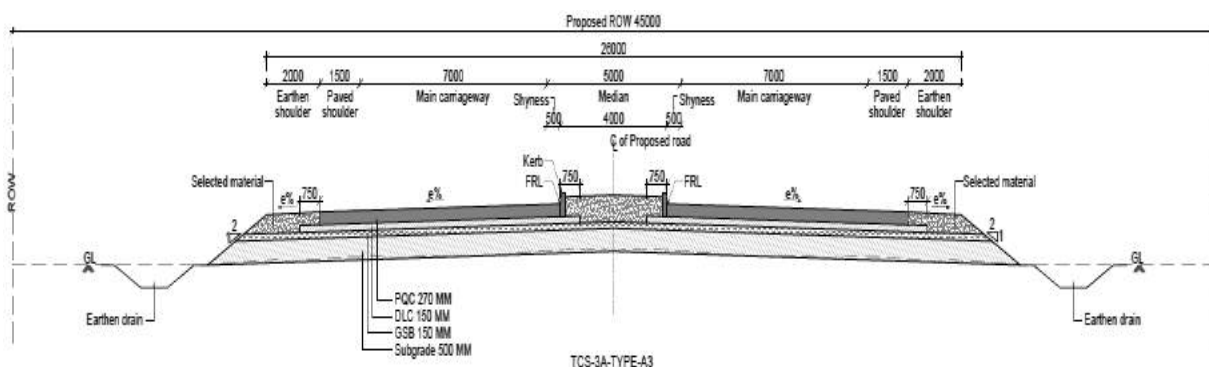
**Figure 2.1: TCS-1-TYPE-A3 TCS of 4-Laning By Concentric Widening with 4.0m Raised Median**



**Figure 2.2: TCS-2-TYPE-B Built - Up Section - Plain /Rolling Terrain with Service Roads**



**Figure 2.3: TCS-3-TYPE-A3 TCS of 4-Laning By Eccentric Widening (LHS) with 4.0m Raised Median**



**Figure 2.4: TCS-3A-TYPE-A3 TCS Of Reserve Forest Area with 45mt ROW**

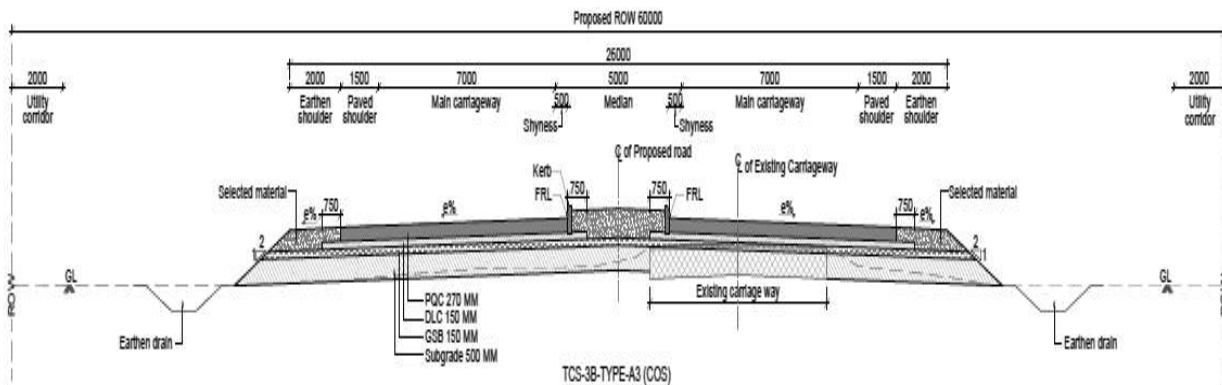


Figure 2.5: TCS-3B-TYPE-A3 (COS) TCS of 4-Laning By Eccentric Widening (LHS) with 4.0m Raised Median

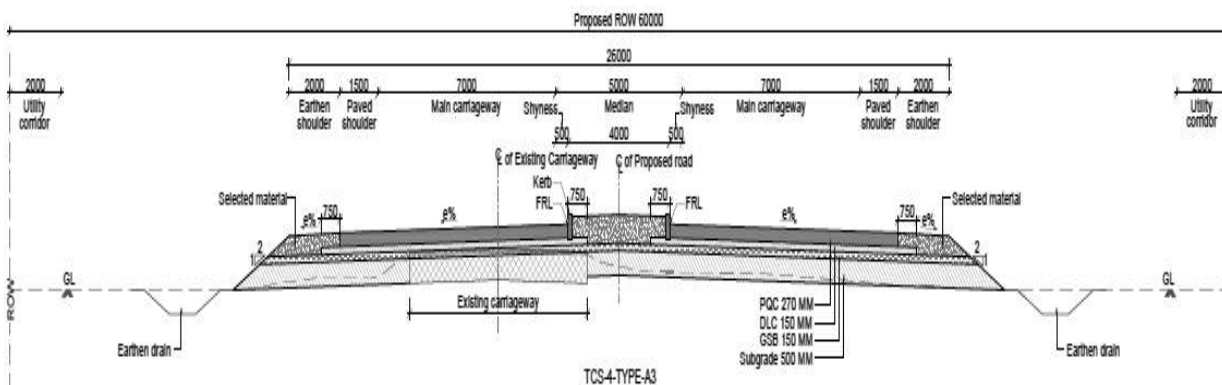


Figure 2.6: TCS-4-TYPE-A3 TCS of 4-Laning By Eccentric Widening (RHS) with 4.0m Raised Median

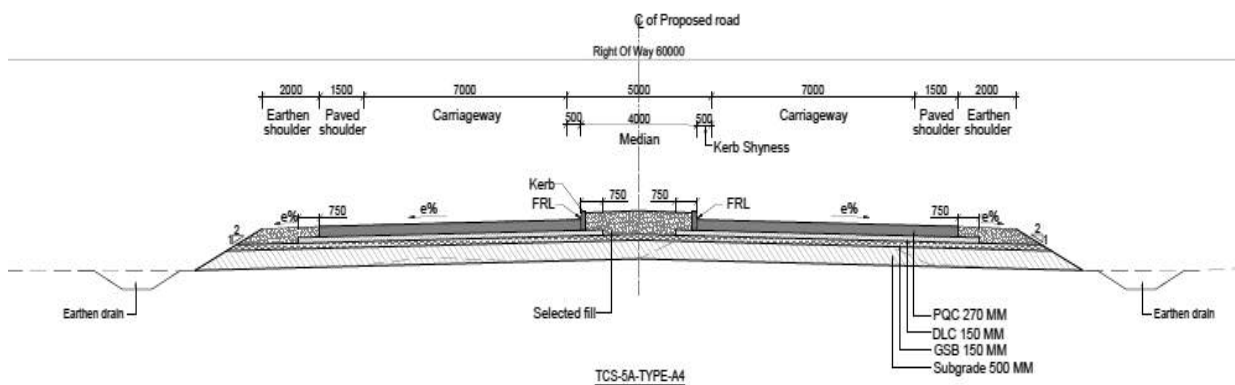


Figure 2.7: TCS-5A-TYPE-A4 Four Lane For Bypass and Re-Alignment

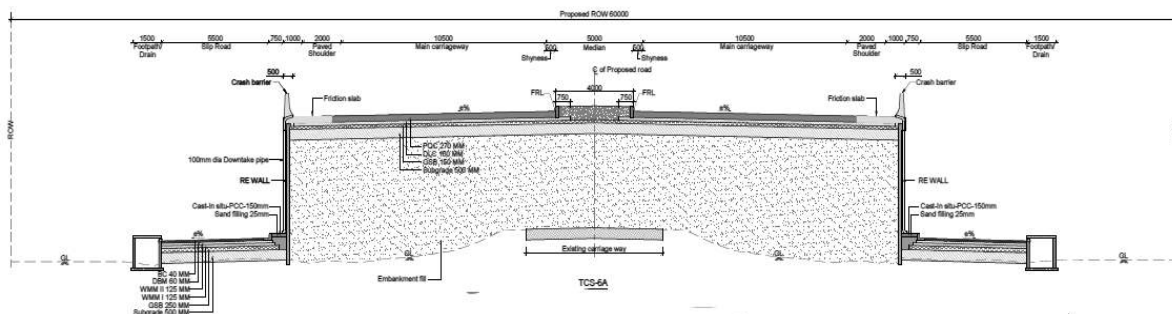
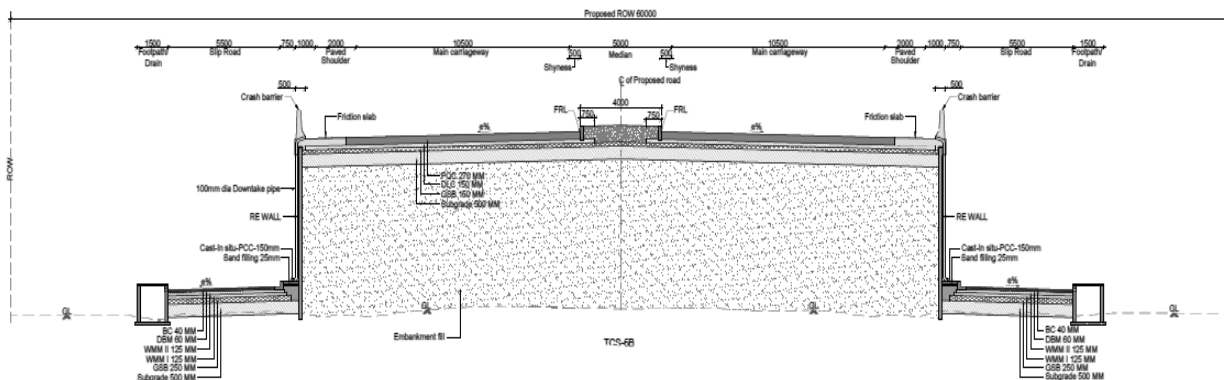
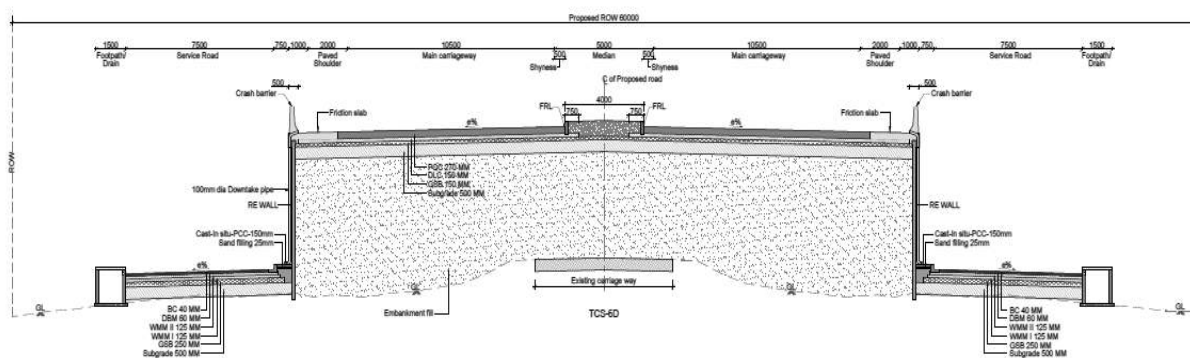


Figure 2.8: TCS-6A Typical Four Lane Underpass Cross Section with Slip Roads In The Existing Road

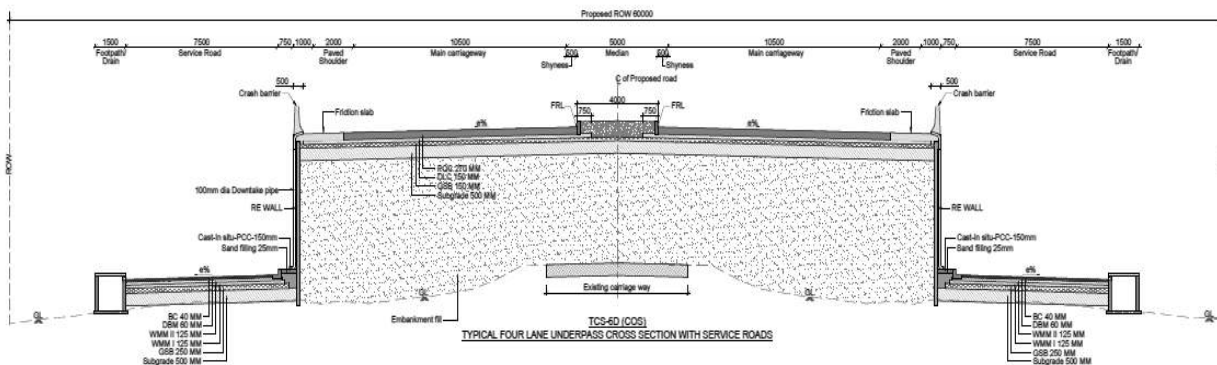




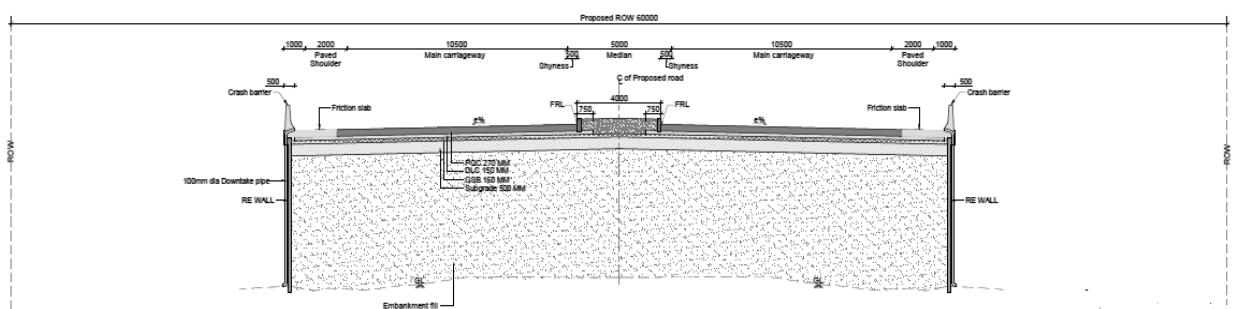
**Figure 2.9: TCS-6B Typical Four Lane Underpass Cross Section with Slip Roads In Bypass & Realignment**



**Figure 2.10: TCS-6D Typical Four Lane Underpass Cross Section with Service Roads**



**Figure 2.11: TCS-6D (COS) Typical Four Lane Underpass Cross Section with Service Roads**



**Figure 2.12: TCS-8 TCS Of Approach To Grade Separated Structure (Main Ramp)**

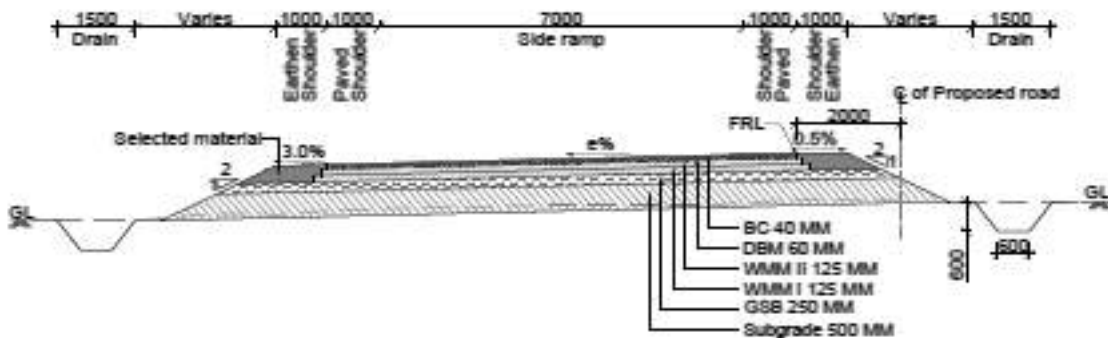


Figure 2.13: TCS Of Ramp-2 (80R) 00+000 To 00+310 Ramp-2

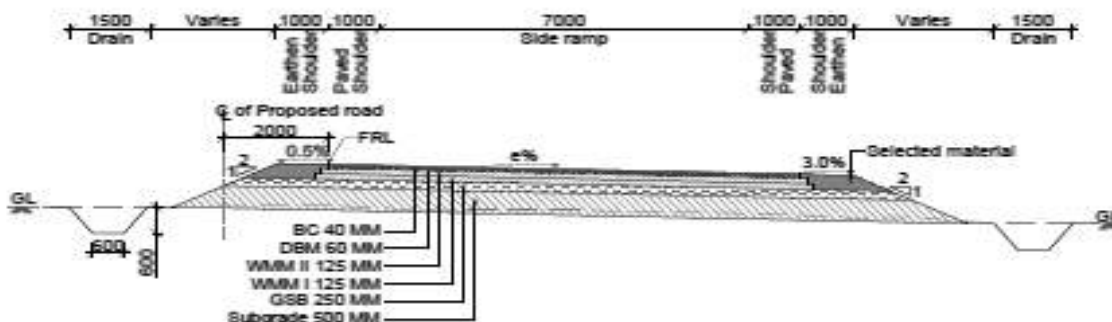


Figure 2.14: TCS Of Loop-2(80R) 00+250 To 00+534 Loop-2

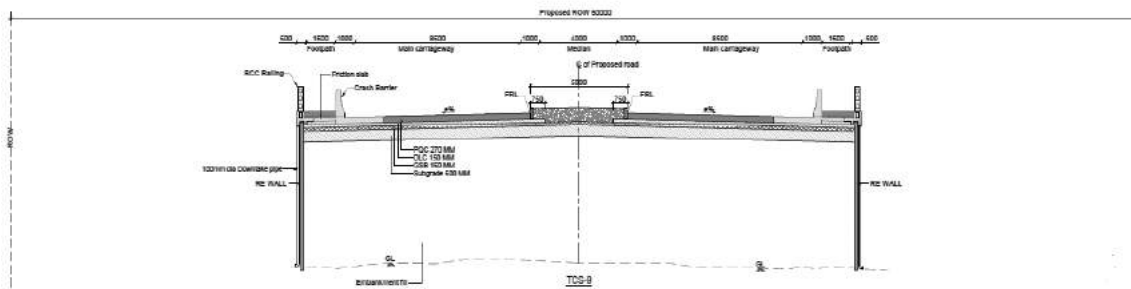


Figure 2.15: TCS-9 TCS Of Approach to Road Over Bridge

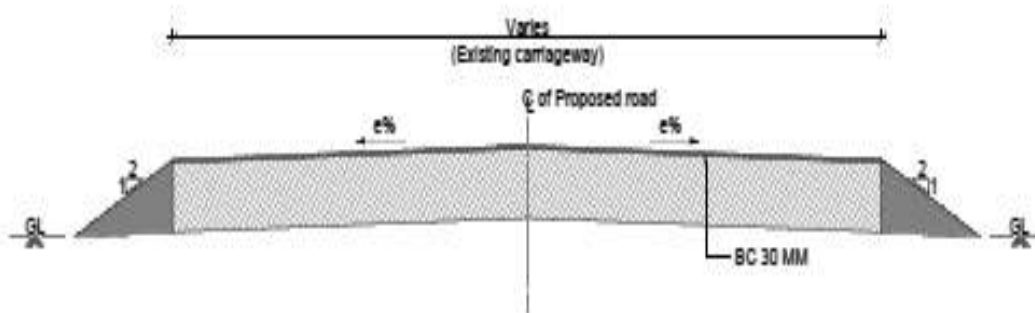
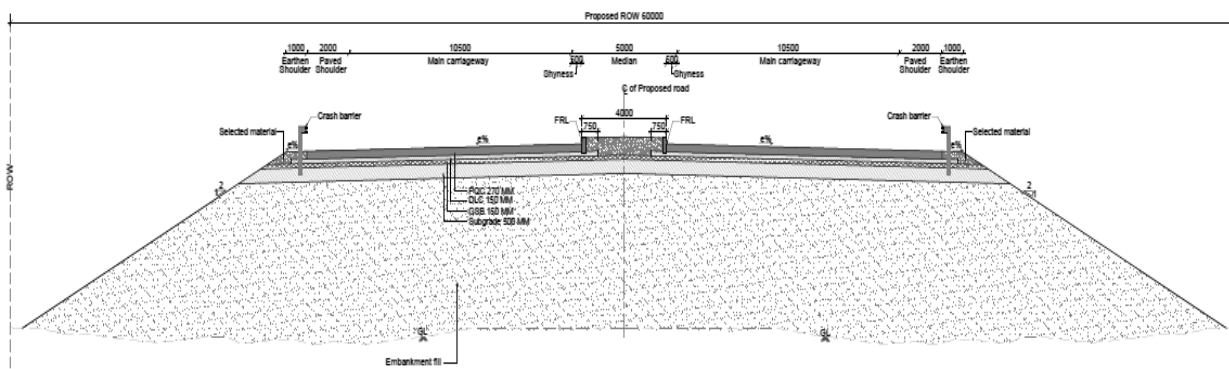
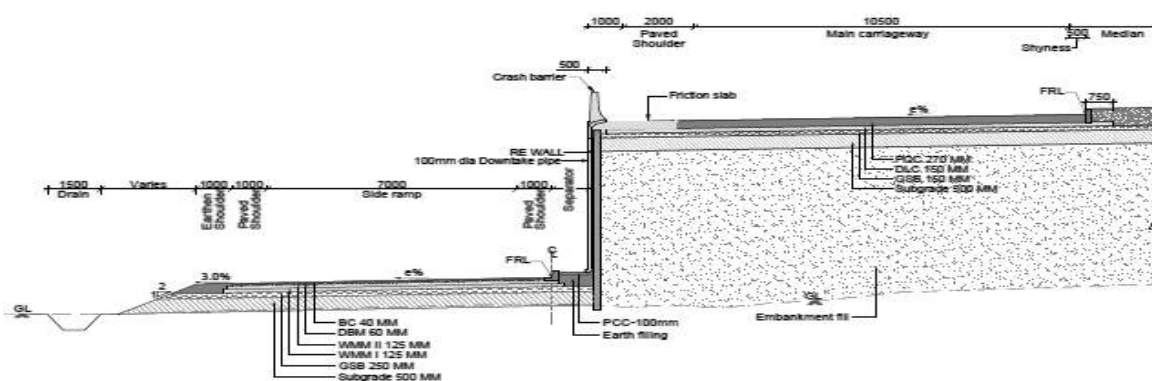


Figure 2.16: TCS-10 TCS For Overlay on Existing Road





**Figure 2.17: TCS Of Approach to Grade Separated Structure 00+000 to 00+250 (LOOP-1) (80R)**



**Figure 2.18: TCS of Ramp-1 00+000 To 00+610**

TCS Schedule is provided below.

**Table 2.2: TCS Schedule**

S.No.	Chainage		Length (Kms.)	TCS TYPE	Remarks
	From (Km.)	To (Km.)			
1	465+500	465+950	0.450	5	
2	465+950	466+775	0.825	6B	5.5m (SR)
3	466+775	467+525	0.750	5	
4	467+525	468+500	0.975	6B	5.5m (SR)
5	468+500	470+500	2.000	5	
6	470+500	472+130	1.630	9	
7	472+130	472+600	0.470	5	
8	472+600	472+900	0.300	5A	
9	472+900	473+390	0.490	3	
10	473+390	474+350	0.960	6A	5.5m (SR)
11	474+350	475+800	1.450	3	
12	475+800	476+270	0.470	6A	5.5m (SR)
13	476+270	476+620	0.350	6A	5.5m (SR)
14	476+620	478+100	1.480	6A	5.5m (SR)
15	478+100	481+490	3.390	3	
16	481+490	481+780	0.290	6B	5.5m (SR)

S.No.	Chainage		Length (Kms.)	TCS TYPE	Remarks
	From (Km.)	To (Km.)			
17	481+780	482+600	0.820	6B	5.5m (SR)
18	482+600	482+720	0.120	6B	5.5m (SR)
19	482+720	483+100	0.380	4	
20	483+100	483+570	0.470	5	
21	483+570	484+080	0.510	4	
22	484+080	484+460	0.380	1	
23	484+460	485+000	0.540	2	7.5(SR)
24	485+000	485+320	0.320	2	7.5(SR)
25	485+320	485+550	0.230	5	
26	485+550	485+600	0.050	4	
27	485+600	486+080	0.480	4	
28	486+080	486+240	0.160	5	
29	486+240	486+820	0.580	4	
30	486+820	490+590	3.770	3	
31	490+590	491+090	0.500	4	
32	491+090	491+620	0.530	5	
33	491+620	492+770	1.150	6B	5.5m (SR)
34	492+770	494+867	2.097	5	
35	494+867	495+927	1.060	4	
36	495+927	496+857	0.930	3	
37	496+857	499+567	2.710	4	
38	499+567	500+237	0.670	1	
39	500+237	500+427	0.190	3	
40	500+427	501+567	1.140	5	
41	501+567	502+617	1.050	6B	5.5m (SR)
42	502+617	503+477	0.860	5	
43	503+477	505+677	2.200	4	
44	505+677	506+617	0.940	5	
45	506+617	506+957	0.340	4	
46	506+957	507+237	0.280	6D	7.5m (SR)
47	507+237	508+157	0.920	6D	7.5m (SR)
48	508+157	508+437	0.280	6D	7.5m (SR)
49	508+437	509+027	0.590	3	
50	509+027	510+137	1.110	4	
51	510+137	511+247	1.110	3	
52	511+247	511+707	0.460	4	
53	511+707	513+337	1.630	1	
54	513+337	514+617	1.280	3	
55	514+617	514+717	0.100	6D	7.5m (SR COS)
56	514+717	515+017	0.300	6D	7.5m (SR)
57	515+017	515+087	0.070	6D	7.5m (SR)

S.No.	Chainage		Length (Kms.)	TCS TYPE	Remarks
	From (Km.)	To (Km.)			
58	515+087	515+117	0.030	3B	cos
59	515+117	515+227	0.110	3	
60	515+227	515+537	0.310	5	
61	515+537	516+757	1.220	3	
62	516+757	517+817	1.060	6A	5.5m (SR)
63	517+817	518+497	0.680	3	
64	518+497	519+197	0.700	3A	45m row
65	519+197	522+397	3.200	3	
66	522+397	523+817	1.420	6D	7.5m (SR)
67	523+817	524+690	0.873	8	

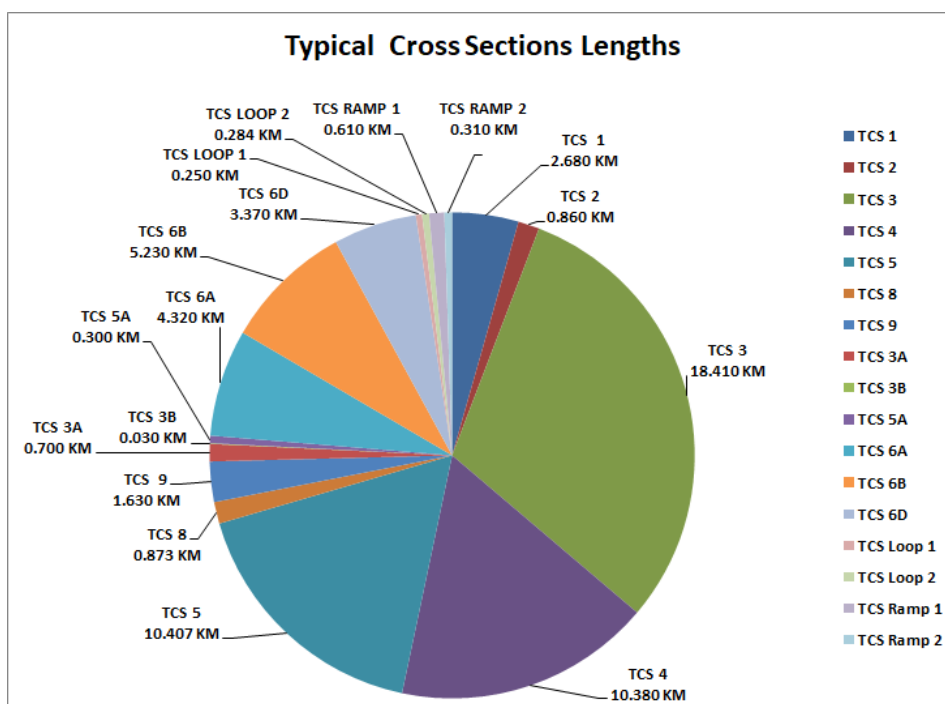


Figure 2.19: Pictorial Diagram of TCS Lengths.

### 2.3 Road Side Drainage

- To facilitate quick disposal of storm water from the Carriageway and to avoid accumulation of drainage from the Carriageway, side drains are constructed along the main carriage way on both flanks as specified in Schedule B of CA in strict adherence to the Standard Specifications set forth in Schedule D of CA.
- The Concessionaire has provided RCC covered drains with footpath in built up areas while earthen drains are constructed in open and rural areas.

### 2.4 Service Roads

Service Roads and Slip Roads are provided as per the provisions of Schedule B of the CA. The details are provided below.

**Table 2.3: List of Service Road locations**

S. No.	Design Chainage (Km.)		Length (Kms.)	Side	Carriageway width (m)
	From	To			
1	472+600	472+900	0.600	BHS	7.5
2	484+490	485+350	1.720	BHS	7.5
3	506+940	508+420	2.960	BHS	7.5
4	522+380	523+800	2.840	BHS	7.5
5	514+690	515+070	0.760	BHS	7.5
<b>Total</b>			<b>8.860</b>		

**Table 2.4: List of Slip Road locations**

S. No.	Design Chainage (Km.)		Length (Kms.)	Side	Carriageway width (m)
	From	To			
1	465+950	466+775	1.650	BHS	5.5
2	467+525	468+500	1.950	BHS	5.5
3	473+390	474+350	1.920	BHS	5.5
4	475+800	478+100	4.600	BHS	5.5
5	481+520	482+750	2.460	BHS	5.5
6	491+650	492+800	2.300	BHS	5.5
7	501+550	502+600	2.100	BHS	5.5
8	516+740	517+800	2.120	BHS	5.5
<b>Total</b>			<b>19.100</b>		

## 2.5 Bypass/Realignment

As per the provisions of Schedule B of the CA Realignment is provided at the following locations.

**Table 2.5: Realignment/ Bypass stretches**

S. No.	Design Chainage (Km.)		Design Length (Kms.)
	From	To	
<b>Realignment stretches</b>			
1	476+270	476+620	0.350
2	481+780	482+600	0.820
3	483+130	483+600	0.470
4	485+350	485+580	0.230
5	486+110	486+270	0.160
6	505+660	506+600	0.940
7	515+210	515+520	0.310
<b>Total</b>			<b>3+280</b>
<b>Bypasses stretches</b>			
1	465+500	472+900	7.400
2	491+130	494+850	3.720
3	500+420	503+460	3.040
<b>Total</b>			<b>14.160</b>

## 2.6 Intersections

As per provisions of Schedule B of the CA, 26 Minor Junctions are to be provided. However, as per site requirement additional 9 nos. of Major Junctions and 4 nos. of Minor Junctions are developed. Details are given below.

**Table 2.6: List of Major Junctions**

S.No.	Chainage (Km.)	Side	Type
1	468+026	BHS	Major
2	474+004	BHS	Major
3	477+589	BHS	Major
4	482+530	RHS	Major
5	492+205	BHS	Major
6	501+942	BHS	Major
7	507+659	RHS	Major
8	517+059	RHS	Major
9	523+004	LHS	Major

**Table 2.7: List of Minor Junctions**

S.No.	Chainage (Km.)	Side	Type
1	465+860	RHS	Minor
2	466+361	BHS	Minor
3	472+750	BHS	Minor
4	475+610	LHS	Minor
5	478+700	BHS	Minor
6	480+190	LHS	Minor
7	481+820	RHS	Minor
8	485+410	RHS	Minor
9	486+157	LHS	Minor
10	487+404	RHS	Minor
11	487+483	LHS	Minor
12	489+400	RHS	Minor
13	491+250	LHS	Minor
14	492+900	BHS	Minor
15	494+650	LHS	Minor
16	496+340	RHS	Minor
17	496+369	LHS	Minor
18	497+364	LHS	Minor
19	498+350	RHS	Minor
20	498+550	RHS	Minor
21	500+494	LHS	Minor
22	503+194	LHS	Minor
23	505+125	RHS	Minor

S.No.	Chainage (Km.)	Side	Type
24	506+401	RHS	Minor
26	512+746	LHS	Minor
26	513+395	RHS	Minor
27	513+966	LHS	Minor
28	514+960	BHS	Minor
29	522+480	LHS	Minor
30	523+892	RHS	Minor

## 2.7 Grade Separated Structures and underpasses

As per the provisions of Schedule B of the Concession Agreement 1 no. of Pedestrian Underpass, 2 nos. of Light Vehicular Underpass, 1 no of Grade separator and 9 nos. of Vehicular Underpass structures are provided in the Project Corridor. Details are provided in **Chapter 4**.

## 2.8 Road Over Bridge (ROB) Road Under Bridge

One ROB is constructed and one RUB is retaining as per provisions of Schedule B of the CA.

## 2.9 Carriageway Details

Summary of Carriageway Details is given below:

**Table 2.8: Summary of Carriageway Details**

S.No.	Description	Flexible (Kms.)	Rigid (Kms.)
1	Service Roads	8.860	---
2	Slip Roads	19.100	---
3	4 Lane Rigid Pavement	---	59.190
4	Total Length	27.960	59.190
<b>TYPE OF ALIGNMENT</b>			
5	Widening	---	35.353
6	Realignment	---	10.707
7	Flyover approaches	---	13.13
8	Total Length of the Project	---	59.190

## 2.10 Summary of Structures

Summary of Structures as per provisions of schedule B of the CA is given below.

**Table 2.9: Summary of Structures**

S.No.	Description	Major Bridges	Minor Bridges	Pipe Culverts	Box/Slab Culverts	Underpass	Grade separator	RUB/ ROB
1	Retained							1(RUB)
2	Widening	2	10	45	12			
3	Reconstruction			9	3			
4	New		5	11	12	VUP-09	1	1(ROB)

S.No.	Description	Major Bridges	Minor Bridges	Pipe Culverts	Box/Slab Culverts	Underpass	Grade separator	RUB/ROB
						LVUP-02 PUP-01		
5	Improvement							
	<b>Total</b>	<b>2</b>	<b>15</b>	<b>65</b>	<b>27</b>	<b>12</b>	<b>1</b>	<b>2</b>

### 2.11 Toll Plazas

- One Toll Plaza is provided on the project road at Km. 510+865, which comprises of Eight lanes.
- The width of each toll lane is provided 3.2 m, except for the lane for over dimensioned vehicles, where it is 4.5 m.
- Between each toll lane of the toll plaza, traffic islands are constructed to accommodate tollbooth.
- Protective barriers of reinforced concrete and traffic impact attenuators are placed in the front of each island to prevent out of control approaching vehicles crashing into the tollbooth.
- The canopy is provided for weather protection to toll operators, drivers and facilities. The canopy is designed aesthetically pleasing with cylindrical support columns located at traffic island so that there is no restriction on visibility and traffic movement.
- Total 8 Nos. toll booths are provided in toll plaza.
- Toll Plaza is updated to ETC Lane system as per the Change of Scope Order issued to the Concessionaire.
- List of tolling equipment provided at site is furnished in the Detailed Report.

### 2.12 Bus bays/Bus shelters

As per provisions of Schedule C of the CA bus shelters are provided at 28 locations. Details are provided below.

**Table 2.10: List of Bus shelters**

S.No.	Chainage (Km.)	Side	S.No.	Chainage (Km.)	Side
1	472+850	LHS	1	472+850	RHS
2	477+830	LHS	2	477+415	RHS
3	478+570	LHS	3	478+850	RHS
4	479+940	LHS	4	480+350	RHS
5	485+100	LHS	5	485+120	RHS
6	487+290	LHS	6	487+190	RHS
7	489+450	LHS	7	489+200	RHS
8	498+797	LHS	8	498+797	RHS
9	505+250	LHS	9	505+170	RHS
10	506+572	LHS	10	506+197	RHS
11	508+147	LHS	11	507+885	RHS
12	509+947	LHS	12	510+207	RHS
13	513+417	LHS	13	513+480	RHS
14	514+727	LHS	14	514+727	RHS



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

- Roadside furniture: Sign Boards Kilometer stones, Road Marking and object/hazard markers are provided in accordance with IRC-SP: 84-2014.
- Traffic safety devices: W Beam Crash barriers, parapet walls are provided as per the provisions of Schedule C of CA.
- Landscaping: Provided at Toll Plaza location and being maintained
- Tree Plantation: Median plantation and Avenue plantation on both sides of the Project Corridor is provided all along the way and is being maintained.
- Medical Aid Post: Provided at Toll Plaza location and is operational
- Highway Lighting: Highway lighting is provided at Toll Plaza, Bus bays and Truck Lay bays and is functional.



**Bus Stop at Km. 489+450**



**Bus Stop at Km. 498+797**



**Km. 466+000**



**Km. 467+200**



**Km. 524+723**



**Km. 508+800**

**Figure 2.20: 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 in the sections provided below

#### 3.2 Road Inventory

Inventory of the project road was carried out physically and the same is summarized in the following Table 3.1. Few representative photographs are presented below.

**Table 3.1: Road Inventory**

S.No.	Features	Remarks
1	Terrain	Plain rolling Terrain
2	Land Use	Agriculture and forest
3	Four lane length	59.190 Kms.
4	Earthen shoulder	1.0 m to 1.5m Width on site
5	Junctions	39 Nos.
6	Toll Plazas	At Km. 510+865
7	Sign boards	Sign boards are provided as per Highway requirements
8	Road Markings	Lane markings are provided as per Highway requirement
9	Bus Bays /shelters	28 Nos.
10	Highway Lighting	Provided as per requirement
11	Avenue plantation	Provided

#### 3.3 Pavement Condition

Pavement condition survey was carried out on the project road. The criteria adopted for the classification of condition of the pavement is as per of IRC 83-2018.

**Table 3.2: Pavement condition summary**

Chainage From (Km.)	Chainage To (Km.)	Length (Kms.)	Condition
465+500	524+690	59.190	Good



**Km. 474+004**



**Km. 475+623**



**Km. 517.889**



**Km. 521+775**

**Figure 3.1: Representative Photographs of Pavement Condition.**

## CHAPTER 4. INVENTORY AND CONDITION OF STRUCTURES

### 4.1 General Assessment and Condition of the structures

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

### 4.2 Inventory of Structures

There are 02 Nos. of Major Bridges, 16 Nos. of Minor Bridges, 1 No of ROB, 12 Nos. of Underpasses (02-LVUP, 09-VUP & 01-PUP), 01 Nos. of Grade separator, 65 Nos. of Pipe culverts and 28 Nos. of Slab/ Box culverts are there along this project road.

**Table 4.1: List of Structures**

S.No.	Type of Structure	Numbers
1	Major bridges	02
2	Minor Bridge	16
3	VUP	09
4	LVUP	02
5	PUP	01
6	Grade separator	01
7	ROB	01
8	Pipe culverts	65
9	Slab/ Box Culverts	28

The Super Structure of Major bridges is of RCC Girder/ Solid slab resting on RCC wall type Piers and Abutments with open foundation. The Super Structure of Minor bridges is of RCC solid slab/RCC Girder and the substructures are of PCC/RCC conventional wall type supported on open foundations. Detailed inventory and condition survey of bridges are given in **ANNEXURE 1**. The culverts observed along the project road are mainly of two types viz. pipe culverts and RCC slab/box culverts. Condition of most of the culverts is fair except in few locations. Detailed inventory and condition survey of culverts are given in **ANNEXURE 2**.

### 4.3 Details of Major Bridges

The total length of the Major bridge at Km. 485+730 is 186.0m with 8 spans. The superstructure consists of RCC/PSC I Girder. Each Pier and Abutment is regular RCC wall type. Open foundations have been constructed for all Piers and Abutments. Superstructure is seated on Elastomeric bearings. Expansion joints are of Strip seal type. RCC crash barriers have been provided on both sides of the deck.

The total length of the Major bridge at Km. 493+285 is 120.0m with 4 spans. The Superstructure consists of PSC I Girder. Each Pier is regular RCC circular type Abutment is of RCC wall type structure. Open foundations have been constructed for all Piers and Abutments. Superstructure is seated on Elastomeric bearings. Expansion joints are of Strip seal type. RCC railings have been provided on both sides of the deck.



**Table 4.2: List of Major Bridge**

S.No.	Chainage (Km.)	Span (Nos.x m)	Total Length of Bridge (m)
1	485+730	2x16.5+6x25.5	186.0
2	493+285	4 x 30.0	120.0

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



**Km. 485+730**



**Km. 493+285**

**Figure 4.1: Representative Photographs of Overall view of the major bridge**

#### 4.4 Details of Road Over Bridge (ROB)

The total length of the ROB at Km 471+516 is 181m with 5 spans. The superstructure consists of PSC Girder & Composite girder. Each pier and whereas abutment is regular RCC wall type abutment. Pile foundations have been constructed for all piers and abutments. Superstructure is seated on Elastomeric bearings. Expansion joints are of Strip seal/pot ptf type. RCC railings have been provided on both sides of the deck.

**Table 4.3: Details of ROB**

S.No.	Chainage (Km.)	Span (Nos. X m)	Total Length of Structures (m)
1	471+516	1x30+1x46+2x37+1x31	181.000

#### 4.5 Details of Minor Bridges

There are 16 minor bridges in the project stretch. The type of superstructure for minor bridges is RCC Box type and the substructure is PCC/RCC conventional wall type supported on open foundations. Expansion joints are buried type/Strip seal and bearings are of tar paper/ elastomeric bearings. RCC crash barriers are provided for most of the structures.

**Table 4.4: Inventory of Minor Bridges**

S.No.	Chainage (Km.)	Span (m)	Total Length of Bridge (m)	Description
1	465+694	1x9.0	9.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
2	486+333	2x5	10.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous

S.No.	Chainage (Km.)	Span (m)	Total Length of Bridge (m)	Description
				wearing coat.
3	487+508	2x4	8.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
4	492+957	2x7.498	15.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
5	493+146	2x6.62	13.600	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
6	494+908	5x5.7	11.400	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
7	496+447	6x5.5	33.0	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
8	498+461	3x6.7	13.400	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
9	501+114	1x7	7.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
10	503+867	2x4.5	9.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
11	506+324	3X7.0	21.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
12	508+587	2x6.62	13.200	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
13	509+467	1x6	6.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
14	509+764	2x5.375	10.700	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
15	513+568	4x6	24.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.
16	514+512	1x8	8.000	It has RCC Box structure. It has RCC crash barrier/Railing, bituminous wearing coat.



**Km. 487+508**



**Km. 501+114**

**Figure 4.2: Representative photographs of Minor Bridges.**

#### 4.6 Details of Underpass

There are 12 Underpasses (02-LVUP, 09-VUP & 01-PUP) and one Grade Separator in the project stretch. The type of superstructure for underpass/Flyover is RCC/PSC I Girder/RCC Box type and the substructure is PCC/RCC conventional wall type supported on open foundations. Expansion joints are buried type/Strip seal and bearings are Tar paper and elastomeric bearings. RCC crash barriers are provided on all structures.

**Table 4.5: Inventory of Underpass/Flyovers**

S.No.	Chainage (Km.)	Types	Span (Nos.Xm.)	Total Length of Bridge (m)	Description
1	466+365	LVUP	1x10.5	10.500	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
2	468+026	VUP	2x12	24.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
3	474+004	VUP	1x12	12.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
4	476+24	VUP	1x10.5	10.500	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
5	477+589	VUP	1x12	12.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
6	482+200	VUP	2x12	24.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
7	492+205	VUP	1x12	12.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
8	501+942	VUP	1x12	12.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
9	507+659	VUP	1x12	12.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
10	514+960	PUP	1x7.0	7.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
11	517+059	VUP	2x12	24.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
12	523+004	VUP	2x12	24.000	It has RCC Box structure. It has RCC crash barrier, bituminous wearing coat.
13	524+723	Grade Separator	2x30	60.000	It has RCC/PSC Girder type. It has RCC crash barrier, bituminous wearing coat, Strip seal expansion joints.





**PUP at Km. 466+365**



**VUP at Km. 468+026**



**VUP at Km. 482+200**



**VUP at Km. 524+723**

**Figure 4.3: Representative photographs of underpasses**

#### 4.7 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 way cleaning is required. In general, the condition of all the structures is found satisfactory. Details of the same are given the following sections. Detailed inventory and condition survey of culverts are given in **ANNEXURE 2**.

##### 4.7.1. Slab/Box Culverts

There are 28 Nos. of slab/Box culvert in the project stretch. The details of the culverts are as given below.

**Table 4.6: List of Slab/Box Culverts**

S.No.	Chainage (Km.)	Span (m)	Vent Size (m)
1	0+137	1 x 5.7 x 6.06	6.060
2	466+374	1 x 2 x 2.1	2.100
3	466+830	1 x 6 x 4.1	4.100
4	468+722	1 x 4 x 2.5	2.500
5	469+960	1 x 4 x 2.3	2.300
6	470+924	1 x 6 x 6	6.000
7	475+623	1 x 3.5 x 3.75	3.750
8	484+799	1 x 5 x 3.6	3.600

S.No.	Chainage (Km.)	Span (m)	Vent Size (m)
9	488+350	1 x 4 x 1.9	1.900
10	490+354	1 x 4 x 3.8	3.800
11	491+471	1 x 3 x 1.15	1.150
12	499+390	1 x 3 x 1.5	1.500
13	501+590	1 x 3 x 1.5	1.500
14	502+433	1 x 5 x 1.8	1.800
15	502+513	1 x 4 x 2.6	2.600
16	504+073	1 x 2 x 1.7	1.700
17	504+329	1 x 4.5 x 3.27	3.270
18	505+878	1 x 4.5 x 3.32	3.320
19	512+201	1 x 4.2 x 3.16	3.160
20	514+600	1 x 5.3 x 4.024	4.024
21	517+899	1 x 2.5 x 2.75	2.750
22	519+164	1 x 2.5 x 2.18	2.180
23	519+421	1 x 4.7 x 3.03	3.030
24	519+784	1 x 2.0 x 2.26	2.260
25	520+430	1 x 1.8 x 2.1	2.100
26	520+915	1 x 3 x 4.02	4.020
27	521+098	1 x 2 x 2.17	2.170
28	521+775	1 x 5.1 x 3.373	3.373

#### 4.7.2. Condition of the Slab/Box Culverts:

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

#### 4.7.3. General Description of the Pipe Culverts

There are 65 Nos. of pipe culverts in the project stretch. The details of the culverts are as given below.

**Table 4.7: List of Pipe Culverts**

S.No.	Chainage (Km.)	No. of RowsXDia(m)	S.No.	Chainage (Km.)	No. of RowsXDia(m)
1	0+081	2x1.2	33	489+25	1x0.9
2	0+164	2x1.2	34	490+06	1x0.9
3	0+566	2x1.2	35	491+67	1x1.2
4	468+06	1x1.2	36	493+952	1x1.2
5	472+649	1x1.2	37	494+31	1x1.2
6	473+32	2x0.9	38	495+38	1x1.2
7	473+645	2x1.2	39	495+668	2x1.2
8	474+957	1x1.2	40	495+887	1x0.9
9	475+119	2x0.9	41	497+354	1x1.2
10	475+977	1x0.9	42	497+865	1x1.2

S.No.	Chainage (Km.)	No. of RowsXDia(m)
11	476+439	1x0.9
12	476+706	2x1.2
13	477+092	1x0.9
14	477+306	1x0.9
15	477+561	1x0.9
16	477+713	1x1.2
17	478+01	2x1.2
18	478+154	2x1.2
19	478+45	2x1.2
20	478+974	2x0.9
21	479+164	1x1.2
22	479+572	2x0.9
23	480+054	1x0.9
24	481+047	2x1.2
25	481+643	1x0.9
26	482+904	2x1.2
27	483+229	2x1.2
28	483+546	1x0.9
29	484+39	4x1
30	484+69	1x0.9
31	485+263	1x0.9
32	485+424	1x0.9

S.No.	Chainage (Km.)	No. of RowsXDia(m)
43	497+994	1x0.9
44	500+786	1x1.2
45	501+06	1x1.2
46	501+98	1x1.2
47	506+843	1x1.2
48	507+091	2x1.2
49	508+277	2x0.9
50	510+623	3x1.2
51	511+482	1x0.9
52	513+89	1x1.2
53	514+142	4x1.2
54	515+669	1x1.2
55	516+135	1x0.9
56	516+914	2x1.2
57	517+435	4x1.2
58	518+518	1x0.9
59	520+579	1x0.9
60	522+016	2x1.2
61	522+279	4x1.2
62	522+503	1x0.9
63	522+559	1x1.2
64	523+656	1x1.2
65	524+207	2x1.2

#### 4.7.4. Condition of the Pipe Culverts

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



**Km. 501+060**



**Km. 501+060**



**Km. 489+250**



**Km. 524.207**

**Figure 4.4: Representative photographs of Pipe Culverts**

The culverts are in fair condition and can be retained in the present condition with following repairs/rehabilitation measures.

- Chocked culverts must be cleared.
- Debris and garbage near outside the vents must be removed.

## CHAPTER 5. REVIEW OF PAVEMENT DESIGN

### 5.1 General

Review of Pavement design report includes providing insights on design life of pavement, crust thickness, pavement condition and CA provisions.

### 5.2 Pavement design crust thickness

The Pavement Design shall be carried out in accordance with Indian Roads Congress guidelines. The pavement is designed in accordance with IRC: 58 -2015 “Guidelines for the Design of Plain Jointed Rigid Pavements for highways”, IRC: SP 84 -2014, IRC: 15-2011 “Construction Concrete Road (FOURTH REVISION)” and relevant clauses of schedule B of the EPC agreement. Pavement crust thickness for main carriageway as per pavement design report summarized below.

**Table 5.1: Rigid Pavement Design for Main carriageway**

Description	Design/Adopted Parameters
CBR of sub grade	7 %
Two-way commercial traffic volume per day	3622
Design life in years	30
Pavement Quality Concrete (PQC) – (mm)	270
Dry Lean Concrete (DLC) – (mm)	150
Drainage Layer (GSB) - (mm)	150
Diameter of Dowel Bar (mm)	36
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)	580

As per schedule D, (**Annexure-I**), clause 2, pavements for Slip road/Service road shall be flexible pavement and designed as per provision of design manual IRC: SP: 84:2014. The design traffic in case of service road shall be ten million standard axles as per Cl: 5.5.5 of IRC: SP: 84:2014. The crust composition shall be designed in accordance with the IRC: 37. “Guidelines for the Design of Flexible Pavements”.

**Table 5.2: Flexible Pavement for service road**

S.No.	Description/ Pavement layer	Design/Adopted Parameters
1	Sub Grade CBR (%)	8 %
2	Design Life (Years)	15 years for non-bituminous
3	Design Traffic (MSA)	10 MSA
4	Surface course (BC)	40mm
5	Binder course (DBM)	60 mm
6	Base course (WMM)	250 mm
7	Sub Base course (GSB)	200 mm

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.

### **5.3 Maintenance/ Overlay schedule**

Periodic Maintenance includes Profile corrective course overlaid with the periodic renewal of the wearing course of BC for service roads. The detail maintenance schedule is summarized below.

**Routine maintenance** - Every year

**Periodic Renewal for Flexible Pavement for Service Roads** – Proposed on or before 2027 and 2033.

**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 is a 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 (CRRI) 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). 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 Code No.	IRC Code Name
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 Existing Road Safety Audit

During the site visit it is observed that all safety items are provided as shown in the following Table 6.2.

**Table 6.2: Details of Road Furniture**

S.No.	Item Description	Status	Condition	
1	Sign Boards	<ul style="list-style-type: none"> <li>• Chevron Signs</li> <li>• Village sign boards</li> <li>• Information Boards</li> <li>• Other Sign Boards</li> <li>• Gantry Sign Boards</li> </ul>	Available as per site requirement	Good
2	Road Marking	Studs & Lane marking	Available as per	Good



S.No.	Item Description		Status	Condition
			site requirement	
3	Metal Beam Crash Barriers	At High embankments & Bridge Approaches	Available as per site requirement	Good
4	Median Kerb	Along the Project Highway	Provided as per IRC SP:84-2014	Good
5	Road studs & Solar Blinkers	Along the Project Highway	Provided as per IRC SP:84-2014	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.



**Km. 482+020**



**Km. 482+200**



**Km. 496+477**



**Km. 505+878**

**Figure 6.1: Representative photographs during Road Safety Audit**

### 6.3 Conclusion

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

## CHAPTER 7. TOLL PLAZA & HTMS

### 7.1 General

There is one toll Plaza on the project road at Km510+865. The width of each toll lane is provided 3.2 m, except for the lane for over dimensioned vehicles, where it is 4.5 m. between each toll lane of the toll plaza, traffic islands is constructed to accommodate tollbooth. Protective barriers of reinforced concrete and traffic impact attenuators is placed at the front of each island to prevent out of control approaching vehicles crashing into the toll booth. The canopy is provided for weather protection to toll operators, drivers and facilities. The canopy is designed aesthetically pleasing with cylindrical support columns located at traffic island so that there is no restriction on visibility and traffic movement. Total 7 Nos. toll booths are provided in toll plaza.

Toll Plaza is updated to ETC Lane system as per the Change of Scope Order issued to the Concessionaire.

### 7.2 Tolling Equipment and Control Room Equipment

List of equipment provided at toll plaza and control room is given below.

**Table 7.1: List of Equipment Toll Plaza and Control Room**

S.No	Particulars	Quantity
1	Toll plaza Building	1
2	Toll Booths	7
3	Electrical Room	1
4	Generator Room	
5	Generators	1
6	ETC RFID Transiver near pay axis mounted on canopy	12
7	Electronic Enclosure	8
8	Lane Controller with industrial PC	8
9	AVC including sensor loop detector	10
10	Used fare display with mounting pole	10
11	Automatic Barrier Gate	9
12	Overhead Lane Status	10
13	Customized Industrial Grade Keyboard	8
14	Thermal receipt Printer	8
15	Barcode Reader with Stand	8
16	Violation light & alarm (on Existing Pole) and Foot switch in Booth	1
17	Booth CCTV camera with Voice Recording	10
18	Intercom slave Unit in booth	8
19	Medium speed weight in Motion	10
	Control Room	
1.	Plaza Servers in Hot standby Configuration	1
2.	Static Weight Bridge	2
3.	Network Printer	1
4.	8 port Network switches (Layer 1)	12

S.No	Particulars	Quantity
5.	28 Port Network Switch( Layer 2)	2
6.	Internet router for Connection to the CCH	1
7.	UPS system as require for Complete Hybrid ETC Toll Plaza System	3
8.	55" LED Display for CCTV Monitoring	1
9.	Network Video Recorder (NVR) for CCTV recording	1
10.	CCTV Cameras for plaza building surveillance (server from, control room, Cash Up Room Admin)	5
11.	Intercom Master Unit in Control room-10 Channel (For<=8 Lanes)	1

### 7.3 Vehicles

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

**Table 7.2: List of Vehicles**

S.No.	Vehicle Type	Toll Plaza
1	Patrol Vehicle	1 No.
2	Ambulance	1 No.
3	Crane	1 No.



**Figure 7.1: Photographs of Toll Plaza at Km. 511+000**

## CHAPTER 8. SCHEDULE OF ANNUITY PAYMENTS

### 8.1 Hybrid Annuity Model (HAM)

Hybrid annuity model is the PPP model which allows the payment of 40% of the Project cost during construction period based on progress milestones set forth by Authority to Concessionaire and Payment of 60% to the Concessionaire Biannually with the Interest during the balance concession period.

### 8.2 Payment during Construction

As per the provisions of Article 23 of the Concession Agreement, 40% of the Bid Project Cost adjusted with Price Index in accordance with Clause 23.2.3 of the CA, shall be paid during the Construction Period. Amount payable during construction period shall be paid in five equal installments upon achieving the following Project Milestones.

**Table 8.1: Schedule of Payment Milestones**

S.No.	Project Milestone No	Criteria for releasing the Payment
1	Project Milestone I	On Achievement of 10% of Physical Progress
2	Project Milestone II	On Achievement of 30% of Physical Progress
3	Project Milestone III	On Achievement of 50% of Physical Progress
4	Project Milestone IV	On Achievement of 75% of Physical Progress
5	Project Milestone V	On Achievement of 90% of Physical Progress

During the Operation Period, remaining 60% of the balance Completion Cost shall be paid in 30 Annuities each Annuity payable biannually. Each Annuity amount shall be based on the percentages of the balance Completion Cost mentioned in 23.6.3 of the Concession Agreement. During the Operation Period following payment components are payable.

- Annuity Payment as per the Annuity Payment Schedule provided in 23.6.3 of the Concession Agreement.
- Interest on the balance amount to be paid at an interest rate equal to the applicable Bank Rate Plus 3%.
- O&M Payment as a lump sum amount as per Clause 23.7.1 of the Concession Agreement.

Details of Annuity payments are as below.

**Table 8.2: Schedule of Annuity Payments**

S.No.	Following the COD	% of Completion Cost remaining to be paid on COD	Annuity Due date	Annuity Paid date
1	Annuity No 1	2.10%	18.05.2020	21-May-20
2	Annuity No 2	2.17%	18.11.2020	3-Dec-20
3	Annuity No 3	2.24%	18.05.2021	
4	Annuity No 4	2.31%	18.11.2021	
5	Annuity No 5	2.38%	18.05.2022	
6	Annuity No 6	2.45%	18.11.2022	
7	Annuity No 7	2.52%	18.05.2023	
8	Annuity No 8	2.60%	18.11.2023	

S.No.	Following the COD	% of Completion Cost remaining to be paid on COD	Annuity Due date	Annuity Paid date
9	Annuity No 9	2.68%	18.05.2024	
10	Annuity No 10	2.76%	18.11.2024	
11	Annuity No 11	2.84%	18.05.2025	
12	Annuity No 12	2.93%	18.11.2025	
13	Annuity No 13	3.02%	18.05.2026	
14	Annuity No 14	3.11%	18.11.2026	
15	Annuity No 15	3.20%	18.05.2027	
16	Annuity No 16	3.30%	18.11.2027	
17	Annuity No 17	3.40%	18.05.2028	
18	Annuity No 18	3.50%	18.11.2028	
19	Annuity No 19	3.61%	18.05.2029	
20	Annuity No 20	3.72%	18.11.2029	
21	Annuity No 21	3.83%	18.05.2030	
22	Annuity No 22	3.94%	18.11.2030	
23	Annuity No 23	4.06%	18.05.2031	
24	Annuity No 24	4.18%	18.11.2031	
25	Annuity No 25	4.25%	18.05.2032	
26	Annuity No 26	4.25%	18.11.2032	
27	Annuity No 27	4.44%	18.05.2033	
28	Annuity No 28	4.71%	18.11.2033	
29	Annuity No 29	4.75%	18.05.2034	
30	Annuity No 30	4.75%	18.11.2034	



## CHAPTER 9. OPERATION AND MAINTENANCE

### 9.1 General

As per Article 17 of CA, the Concessionaire will operate and maintain the Project roads 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 behavior of various elements. These inspections also indicate if there is any need 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 each accounting year.

### 9.3 Operations

#### 9.3.1. 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.

- i. Permitting smooth and uninterrupted flow of traffic during normal operating conditions.
- ii. carrying out preventive and periodic maintenance of the Project road;
- iii. undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices;
- iv. Undertaking major maintenance such as resurfacing of pavements, repairs to structures, and repairs and refurbishment of tolling system and other equipment;
- v. Functioning of the lighting system;
- vi. Functioning of the Patrolling System



- vii. Functioning of rescue and medical aid services
- viii. Ambulance as and when required
- ix. Functioning of the Project Facilities
- x. Administrative, Operational and Maintenance Base Camp
- xi. Truck Lay byes
- xii. Pickup Bus stops / Bus Bays
- xiii. protection of the environment and provision of equipment and materials therefor;
- xiv. Operation and maintenance of all communication, control and administrative systems necessary for the efficient operation of the Project road
- xv. complying with Safety Requirements in accordance with Article 18.

#### **9.4 Operation of Toll Plazas**

There are four 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.

- i. Preventive Maintenance
- ii. Routine Maintenance
- iii. Periodic Maintenance
- iv. Special repairs

##### **9.5.1. 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.

The flexible pavement as well as rigid pavement are in good condition and hence does not require any immediate or preventive interventions.

##### **9.5.2. 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.

### 9.5.3. 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 9.1: Schedule and status of for Periodic Maintenance**

Description	Schedule of Major Maintenance	Status of Major Maintenance
1 <sup>st</sup> Periodic Maintenance	2027	Planned to execute
2 <sup>nd</sup> Periodic Maintenance	2034	Planned to execute

The details of Routine Maintenance and Periodic/Major maintenance are enclosed in **ANNEXURE 3**

### 9.5.4. Special Repairs

The group of activities performed to restore the roadway following damage due to natural calamities such as heavy floods, sandstorms, 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,

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

## 9.6 Review of Test Reports

### 9.6.1. 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.

Further it is to be noted that during O&M period, the roughness value shall not exceed 2750 mm/Km in accordance with schedule k (a)(ii), on review of documents, no NCRs were noticed pertinent to riding quality.

## 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 3**.

**Table 9.2: Proposed Plan for Future Operation & Maintenance Cost (In Crores)**

Year	Routine maintenance	Incidental maintenance	Periodic / Major maintenance	Operational Expenses	Total cost per year
2020	2.009	2.122		2.80	6.93
2021	2.069	2.185		2.88	7.14
2022	2.131	2.251		2.97	7.35
2023	2.195	2.318		3.06	7.57
2024	2.261	2.388		3.15	7.80
2025	2.328	2.459		3.24	8.03
2026	2.398	2.533		3.34	8.27
2027	2.470	2.609	22.89	3.44	31.41
2028	2.544	2.688		3.54	8.78
2029	2.621	2.768		3.65	9.04
2030	2.699	2.851		3.76	9.31
2031	2.780	2.937		3.87	9.59
2032	2.864	3.025		3.99	9.88
2033	2.950	3.116	29.53	4.11	39.70
2034	3.038	3.209		4.23	10.48
2035	1.998	2.110		2.78	6.89
<b>Total</b>	<b>39.355</b>	<b>41.569</b>	<b>52.42</b>	<b>54.81</b>	<b>188.15</b>

## CHAPTER 10. REVIEW OF CONCESSION AGREEMENT

### 10.1 General: Scope of Work (Article 2)

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

- Operation and Maintenance of the Project Highway 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;
- collection of Fee from the Users of the Project; subject and in accordance with the provisions of the Concession Agreement;
- performance and fulfillment of all other obligations of the Contractor in accordance with the provisions of this Agreement and matters incidental thereto or necessary for the performance of any or all of the obligations of the Contractor under this Agreement

### 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 4**.

### 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 Concession Agreement

#### 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 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 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 fulfill 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 Concession Agreement

### 10.5 Performance Security (Article 9)

- The Concessionaire shall submit the Performance security to the Authority within 30 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 30% of the Total Project Cost.

### 10.6 Tests (Clause 13.3)

For determining that the Project, conforms to the Maintenance Requirements, the Independent Engineer shall require the Concessionaire (Concessionaire shall in turn require the Contractor) to carry out, or cause to be carried out, tests specified by it in accordance with Good Industry Practice. One half of the costs incurred on such tests, and to the extent certified by the Independent Engineer as reasonable, shall be reimbursed by the Authority to the Concessionaire

### 10.7 Provisional 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 after determining the tests on completion successful the Independent engineer shall issue the Completion Certificate in the form set forth in Schedule J of CA. Provisional Certificate is enclosed as **ANNEXURE 5**

### 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.

### 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 that were initiated during construction period and consented by the HAI are provided in **ANNEXURE 7**.

### 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 unauthorized 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 CA (The “**Maintenance Requirements**”).

#### **10.13 Maintenance Manual (Clause 17.3)**

No later than 90 (ninety) 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.
- 2% (two percent) of the performance security, and
- 0.1% (zero decimal 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 Payment of Bid Project Cost (Article 23)**

The Authority agrees to pay 40% of the Bid Project Cost in five installments against the achievement of Project Milestones specified in Clause 23.4 of the Concession Agreement and the amount shall be adjusted with Price index.

Remaining balance completion cost shall be paid as per the % of balance completion cost biannually from the date of COD. Percentage of amounts payable for each Annuity is specified in 23.6.3 of the Concession Agreement.

#### **10.18 Change in Law (Article 35)**

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 26.1 of the 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. Copies of Insurance Policies are enclosed as **ANNEXURE 6**

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 Property
			From	To	
Fire Industrial All Risk Policy	The Oriental Insurance Co Ltd	171200/11/20 21/227	22.11.2020	21.11.2021	Roads, including service Roads, structures, Bridges, underpasses etc.
Standard Fire & Special Perils Policy	The Oriental Insurance Co Ltd	171200/11/20 21/228	26.11.2020	25.11.2021	Four Laning of Wardha-Butibori section
Electronic Equipment Insurance Policy	Oriental Insurance Company Ltd	171200/44/20 21/36	08.09.2020	07.09.2021	Electronic equipment provided for Road and Bridges stretch Wardha to Butibori
Employees Compensation Insurance Policy	HDFC ERGO General Insurance Co Ltd	31142033841 08600000	02.05.2020	01.05.2021	All Categories employees 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 Pavement condition for the overall project is good. RCC drains are constructed in Built up locations and earthen drains in rural locations which facilitates, effective drainage system along the project road. Shoulder condition is fair.

### 12.3 Condition of Structures

General condition of Bridges is good. Major structural defects were not noticed. General condition of Culverts is good. Vegetation growth is observed in vent ways of Box and Hume Pipe culverts and they are being cleared during regular maintenance period.

### 12.4 Project Facilities

One Toll Plaza is constructed at Km. 510+865 and the same 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 well. Highway lighting is provided at toll plaza locations and the same is found functional.

### 12.5 Road safety

Pavement marking is in fair condition and number of sign boards are provided as per IRC SP 84-2014. The condition of sign boards & other road appurtenances like metal beam crash barriers is fair.

### 12.6 Maintenance

- Routine maintenance is being carried out by O&M contractor effectively, based on documents reviewed, time to time observations made by client/Authority are being complied and no outstanding NCR's are to be attended as on date.
- Major maintenance (MM) /Periodic maintenance is scheduled in the year 2027.

### 12.7 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: Condition of Structures**

S.No.	Chainage (Km.)	Type of Structure	Substructure	Superstructure	Wearing coat	Bearings	Quadrant Pitching	Toe wall	Aprons
1	465+694	Minor Bridge	Good	Good	Good	-	Good	Good	-
2	486+333	Minor Bridge	Good	Good	Good	-	Good	Good	-
3	487+508	Minor Bridge	Good	Good	Good	-	Good	Good	-
4	492+957	Minor Bridge	Good	Good	Good	-	Good	Good	-
5	493+146	Minor Bridge	Good	Good	Good	-	Good	Good	-
6	494+908	Minor Bridge	Good	Good	Good	-	Good	Good	-
7	496+447	Minor Bridge	Good	Good	Good	-	Good	Good	-
8	498+461	Minor Bridge	Good	Good	Good	-	Good	Good	-
9	501+114	Minor Bridge	Good	Good	Good	-	Good	Good	-
10	503+867	Minor Bridge	Good	Good	Good	-	Good	Good	-
11	506+324	Minor Bridge	Good	Good	Good	-	Good	Good	-
12	508+587	Minor Bridge	Good	Good	Good	-	Good	Good	-
13	509+467	Minor Bridge	Good	Good	Good	-	Good	Good	-
14	509+764	Minor Bridge	Good	Good	Good	-	Good	Good	-
15	513+568	Minor Bridge	Good	Good	Good	-	Good	Good	-
16	514+512	Minor Bridge	Good	Good	Good	-	Good	Good	-
17	485+730	Major Bridge	Good	Good	Good	-	Good	Good	-
18	493+285	Major Bridge	Good	Good	Good	-	Good	Good	-
19	468+026	VUP	Good	Good	Good	-	Good	Good	-
20	474+004	VUP	Good	Good	Good	-	Good	Good	-
21	477+589	VUP	Good	Good	Good	-	Good	Good	-
22	482+200	VUP	Good	Good	Good	-	Good	Good	-
23	492+205	VUP	Good	Good	Good	-	Good	Good	-
24	501+942	VUP	Good	Good	Good	-	Good	Good	-

S.No.	Chainage (Km.)	Type of Structure	Substructure	Superstructure	Wearing coat	Bearings	Quadrant Pitching	Toe wall	Aprons
25	507+659	VUP	Good	Good	Good	-	Good	Good	-
26	517+059	VUP	Good	Good	Good	-	Good	Good	-
27	523+004	VUP	Good	Good	Good	-	Good	Good	-
28	466+365	PUP	Good	Good	Good	-	Good	Good	-
29	476+240	PUP	Good	Good	Good	-	Good	Good	-
30	514+960	PUP	Good	Good	Good	-	Good	Good	-
31	471+516	ROB	Good	Good	Good	-	Good	Good	-
32	524+723	Grade separator	Good	Good	Good	-	Good	Good	-



**Annexure 2: Condition of Culverts**

**Box Culverts**

S.No.	Chainage (Km.)	Condition	Return wall	Quadrant pitching	Toe wall	Parapet wall
1	0+137	Good	Good	Fair	Good	Good
2	466+374	Good	Good	Fair	Good	Good
3	466+830	Good	Good	Fair	Good	Good
4	468+722	Good	Good	Fair	Good	Good
5	469+960	Good	Good	Fair	Good	Good
6	470+924	Good	Good	Fair	Good	Good
7	475+623	Good	Good	Fair	Good	Good
8	484+799	Good	Good	Fair	Good	Good
9	488+350	Good	Good	Fair	Good	Good
10	490+354	Good	Good	Fair	Good	Good
11	491+471	Good	Good	Fair	Good	Good
12	499+390	Good	Good	Fair	Good	Good
13	501+590	Good	Good	Fair	Good	Good
14	502+433	Good	Good	Fair	Good	Good
15	502+513	Good	Good	Fair	Good	Good
16	504+073	Good	Good	Fair	Good	Good
17	504+329	Good	Good	Fair	Good	Good
18	505+878	Good	Good	Fair	Good	Good
19	512+201	Good	Good	Fair	Good	Good
20	514+600	Good	Good	Fair	Good	Good
21	517+899	Good	Good	Fair	Good	Good
22	519+164	Good	Good	Fair	Good	Good
23	519+421	Good	Good	Fair	Good	Good
24	519+784	Good	Good	Fair	Good	Good
25	520+430	Good	Good	Fair	Good	Good
26	520+915	Good	Good	Fair	Good	Good
27	521+098	Good	Good	Fair	Good	Good
28	521+775	Good	Good	Fair	Good	Good

**Hume Pipe Culverts**

S.No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
1	0+081	Good	Good	Good	-
2	0+164	Good	Good	Good	-
3	0+566	Good	Good	Good	-
4	468+060	Good	Good	Good	-
5	472+649	Good	Good	Good	-
6	473+320	Good	Good	Good	-

S.No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
7	473+645	Good	Good	Good	-
8	474+957	Good	Good	Good	Good
9	475+119	Good	Good	Good	Good
10	475+977	Good	Good	Good	Good
11	476+439	Good	Good	Good	Good
12	476+706	Good	Good	Good	-
13	477+092	Good	Good	Good	-
14	477+306	Good	Good	Good	Good
15	477+561	Good	Good	Good	Good
16	477+713	Good	Good	Good	Good
17	478+010	Good	Good	Good	Good
18	478+154	Good	Good	Good	Good
19	478+450	Good	Good	Good	Good
20	478+974	Good	Good	Good	Good
21	479+164	Good	Good	Good	Good
22	479+572	Good	Good	Good	Good
23	480+054	Good	Good	Good	Good
24	481+047	Good	Good	Good	Good
25	481+643	Good	Good	Good	Good
26	482+904	Good	Good	Good	Good
27	483+229	Good	Good	Good	Good
28	483+546	Good	Good	Good	-
29	484+390	Good	Good	Good	-
30	484+690	Good	Good	Good	Good
31	485+263	Good	Good	Good	-
32	485+424	Good	Good	Good	Good
33	489+250	Good	Good	Good	Good
34	490+060	Good	Good	Good	-
35	491+670	Good	Good	Good	-
36	493+952	Good	Good	Good	-
37	494+310	Good	Good	Good	Good
38	495+380	Good	Good	Good	Good
39	495+668	Good	Good	Good	Good
40	495+887	Good	Good	Good	-
41	497+354	Good	Good	Good	-
42	497+865	Good	Good	Good	-
43	497+994	Good	Good	Good	Good
44	500+786	Good	Good	Good	Good
45	501+060	Good		Good	Good
46	501+980	Good	Good	Good	Good

S.No.	Chainage (Km.)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
47	506+843	Good		Good	Good
48	507+091	Good	Good	Good	Good
49	508+277	Good	Good	Good	Good
50	510+623	Good	Good	Good	Good
51	511+482	Good	Good	Good	Good
52	513+890	Good	Good	Good	Good
53	514+142	Good	Good	Good	Good
54	515+669	Good	Good	Good	Good
55	516+135	Good	Good	Good	Good
56	516+914	Good	Good	Good	Good
57	517+435	Good	Good	Good	Good
58	518+518	Good	Good	Good	Good
59	520+579	Good	Good	Good	Good
60	522+016	Good	Good	Good	Good
61	522+279	Good	Good	Good	Good
62	522+503	Good	Good	Good	Good
63	522+559	Good	Good	Good	Good
64	523+656	Good	Good	Good	Good
65	524+207	Good	Good	Good	Good

Project: Four Laning of Wardha-Butibori Section of NH- 361 From Km.465.500 to Km.524.690 (Design Length Km.59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.

**Annexure 3: Operation & Maintenance cost**

S.No.	Item		Unit	No	Frequency per year	Quantity	Rate (Rs)	Amount (Rs)	Remarks
1	General Cleaning in Carriageway & Shoulders Rural area	Monthly	Kms.	57.790	12	4	350	9,70,872	04 Nos of Labour
2	General Cleaning in Carriageway & Shoulders Urban area	Twice in a month	Kms.	1.4	24	4	350	47,040	04 Nos of Labour
3	Watering in Median Plants	Once in Week	Km.	59.19	52	1	1939	59,68,009	01 Nos of Labour
4	Watering in Avenue plants	Once in Week	Km.	57.79	52	58	1939	58,26,850	
5	Median Maintenance (Grass cutting and plant trimming )	Once in Month	Km.	57.79	12	12	21000	2,52,000	02 Nos of Labour - 2 x 350 = 700 x 30 = 2,52,000
6	ROW Cleaning	Half yearly	Km.	41.433	2	10	350	2,90,031	10 Nos of labour per KM (70% of the Project length)
7	Cleaning of Culverts	Half yearly	Nos.	93	2	3	650	3,62,700	3 Nos of Labour along with JCB or Excavator
8	Road Furniture Cleaning	Quarterly	Km.	57.79	4	2	350	1,61,812	02 Nos of Labour
9	Maintenance of Bus shelters	Monthly	Nos.	28	12	2	350	2,35,200	2 Nos/ Bus shelter/month
10	General Cleaning in Building & Facilities	Daily	Nos.	5.00	12	60	350	12,60,000	02 Nos of Labour for 30 days
11	Bridges	Half yearly	Nos.	18	2	4	350	50,400	04 Nos of Labour for removal of vegetation/Structure
13	Carriageway Maintenance (Pot Holes etc.)	Yearly	Sqm.	15	1	350	124	6,50,535	2.5% of CW area considered 22.0x1000x2.5%
								<b>1,60,75,449</b>	

Project: Four Laning of Wardha-Butibori Section of NH- 361 From Km.465.500 to Km.524.690 (Design Length Km.59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.



**TECHNICAL  
DUE DILIGENCE REPORT**

S.No.	Item		Unit	No	Frequency per year	Quantity	Rate (Rs)	Amount (Rs)	Remarks
	<b>EQUIPMENT SUPPLY</b>								
1	TRUCK TIPPER 6-8 CUM CAPACITY	Monthly	Nos.		12	1	400000	4,00,000	(2000000 is the cost of vehicle, considering 20% Rental per year) including maintenance
2	Water Tanker Cap 12 KL for Median	Monthly	Nos.	57.790	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	5,00,000	(2500000 is the cost of vehicle, considering 20% Rental per year) including maintenance
5	Grass cutter	Monthly	Nos.	57.790	12	3	12000	34,674	(12000/year)
6	Manhoise/ Skyscraper	Monthly	Nos.		12		4,00,000	4,00,000	(2000000 is the cost of vehicle, considering 20% Rental per year) including maintenance
7	Bikes	Monthly	Nos.	57.790	12	4	2500	1,15,580	Per Supervisor/Per Month
8	Building Maintenance	Yearly			12	1	25000	3,00,000	25000/ month
9	Toll plaza AMC	Yearly	Nos.		12	1	100000	12,00,000	100000/month
								<b>29,50,254</b>	
1	Patrolling vehicle	Monthly	Nos.	12		1	300000	300000	(1500000 is the cost of vehicle, considering 20% Rental per year) including maintenance
2	Ambulance	Monthly	Nos.	12		1	240000	240000	(1200000 is the cost of vehicle, considering 20% Rental per year) including maintenance (1 Ambulance/toll plaza)

Project: Four Laning of Wardha-Butibori Section of NH- 361 From Km.465.500 to Km.524.690 (Design Length Km.59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.



**TECHNICAL  
DUE DILIGENCE REPORT**

S.No.	Item		Unit	No	Frequency per year	Quantity	Rate (Rs)	Amount (Rs)	Remarks
3	Tow away trucks and Crane	Monthly	Nos.	12		1	400000	400000	(2000000 is the cost of vehicle, considering 20% Rental per year) including maintenance
4	Consumables for Medical Aid Post and Ambulance	Monthly	Nos.	12		1	5000	60000	5000 Per month for per set (Per set - Per toll plaza)
5	Consumables for Route Patrolling & Crane	Monthly	Nos.	12		1	5000	60000	5000 Per month for per set (Per set - Per toll plaza)
								<b>10,60,000</b>	
<b>Routine Maintenance Cost (Rs.)</b>								<b>2,00,85,703.00</b>	

**Incidental cost for 1 year**

S.No.	Item		Unit	No	Frequency	Quantity	Rate (Rs)	Amount (Rs)	Remarks
1	Road marking	Half yearly	Sqm.	1	1	2646	516	13,65,336	33 % of Total Project length on B/S for 1 year
2	Carriageway Maintenance (Pot Holes etc)	Yearly	Sqm.	1	1	192	168	32,256	2% of Flexible Pavement (changed quantities to only Service road portion)
3	Maintenance of Earthen Shoulder	Half yearly	Cum.	1	3	1775.7	225	11,98,598	10% of total Shoulder length throughout the project
4	Sign Board	Quarterly	Km.	1	4	83	4000	13,28,000	5 % of Total sign boards per half year (considered 1650 Nos)
5	MBCB	Monthly	RMT.			1250	2400	30,00,000	5% of Total qty per year - (considered 2400 per number)



Project: Four Laning of Wardha-Butibori Section of NH- 361 From Km.465.500 to Km.524.690 (Design Length Km.59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.



**TECHNICAL  
DUE DILIGENCE REPORT**

S.No.	Item		Unit	No	Frequency	Quantity	Rate (Rs)	Amount (Rs)	Remarks
6	Mile Stone (KM Stone/ HM Stone / ROW stone etc.)	Quarterly	Nos.	59.19	4	15	2250	1,35,000	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.	59.19	1	2367.6	250	5,91,900	2 % of total Kerbings per year
9	Electrical Poles	Yearly	Nos.	1244	1	37	55000	20,35,000	3 % of total poles per year
10	Replacement of Rigid pavement Panels	Yearly	Ls.	1	1	2663.55	4000	1,06,54,200	Considered 1% of the total volume
11	Providing Reinforced cement concrete crash barrier at the edges of the bridge structures constructed with M-40 grade concrete with HYSD-Fe 500 TMT reinforcement concrete per Rmt conforming to IRC:21 and fixing with dowel bars 16 mm dia to old concrete using epoxy grout as per drawing and Technical Specifications and as directed by the Engineer.	Yearly	RMT.	7321		219.636	3985	8,75,249	3% of Length replacement in every 5 years (Quantity to be estimated)
<b>Total amount for 1 Year</b>								<b>2,12,15,539</b>	

Project: Four Laning of Wardha-Butibori Section of NH- 361 From Km.465.500 to Km.524.690 (Design Length Km.59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.



**TECHNICAL  
DUE DILIGENCE REPORT**

**Operational Expenses**

S.No.	Particulars	Amount
1	Man Power	₹ 93,00,000
2	Fuel for Generator & Vehicles	₹ 92,76,000
3	Electricity	₹ 79,20,000
4	Stationary	₹ 1,00,000
5	Replacement of Electrical Fixtures	₹ 7,77,215
6	Refurbishment of Toll Plaza Equipment	₹ 6,00,000
Total Amount		₹ 2,79,73,215

**Major Maintenance Summary**

Description	Due date	Base cost	Esc Period	Escalation Rate per Year	Cost of MMR on due date @ 5% Escalation	In crores
Date of Estimation	20-11-2019					
<b>1st Major Maintenance - Highway</b>	01-06-2026	18,42,83,544	6.50	3.0%	<b>22,02,18,835</b>	<b>22.02</b>
<b>1st Major Maintenance - Structures</b>	01-06-2026	72,51,708	6.50	3.0%	<b>86,65,791</b>	<b>0.87</b>
<b>2nd Major Maintenance - Highways</b>	01-06-2032	19,49,15,944	12.50	3.0%	<b>26,80,09,423</b>	<b>26.80</b>
<b>2nd Major Maintenance - Structures</b>	01-06-2032	1,98,52,260	12.50	3.0%	<b>2,72,96,857</b>	<b>2.73</b>
				<b>Total</b>	<b>₹ 52,41,90,906</b>	<b>52.42</b>

**Major Maintenance BOQ**

BoQ Item No.	Description	Unit	Quantity	Rate	Amount	Quantity	Rate	amount
	<b>Pavement (Asphalt &amp; Concrete)</b>							
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	3,19,658.33	14.00	44,75,217	3,19,658	14.00	44,75,217
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	9,589.75	7,682.00	7,36,68,460	9,590	7,682.00	7,36,68,460
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	88,785.75	250.00	2,21,96,438	88,786	250.00	2,21,96,438
4	Texturing of Rigid pavement (considering 50% for 7 years)	Sqm	5,81,630.00	130.00	7,56,11,900	5,81,630	130.00	7,56,11,900
5	Earthen shoulder @ service roads	cum	2,798.00	250.00	6,99,500	2,798	250.00	6,99,500
	<b>Total</b>				<b>17,66,51,514</b>			<b>17,66,51,514</b>

Project: Four Laning of Wardha-Butibori Section of NH- 361 From Km.465.500 to Km.524.690 (Design Length Km.59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.



**TECHNICAL  
DUE DILIGENCE REPORT**

BoQ Item No.	DESCRIPTION	Unit	Quantity	Rate	Amount	Quantity	Rate	Amount
	<b>Junctions, Traffic Signs Marking and Other Appurtenances</b>			-			-	
1	Providing and laying of <b>cement concrete kerb without channel</b> (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. - <b>Consider 5% for construction period.</b>	Rmt		380.00		27,980	380.00	1,06,32,400
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	8,017.50	516.00	41,37,030	8,018	516.00	41,37,030
3	Road Studs	Nos	4,660.00	750.00	34,95,000	4,660	750.00	34,95,000
	<b>Total</b>			-	<b>76,32,030</b>			<b>1,82,64,430</b>
	<b>Grand Total</b>				<b>18,42,83,544</b>			<b>19,49,15,944</b>

**Annexure 4: Letter of Award**



**भारतीय राष्ट्रीय राजमार्ग प्राधिकरण**  
(सड़क परिवहन और राजमार्ग मंत्रालय)  
**National Highways Authority of India**  
(Ministry of Road Transport and Highways)  
जी-5 एव 6, सेक्टर-10, द्वारका, नई दिल्ली-110075  
G-5 & 6, Sector-10, Dwarka, New Delhi-110075

दूरभाष / Phone : 91-11-25074100/25074200  
फैक्स / Fax : 91-11-25093507 / 25093514

NHAI/Tech/02/SFC/War- But /2016/ 97364

28<sup>th</sup> March 2017

To,

**M/s Dilip Buildcon Limited**  
Plot No. 5, inside Govind Narayan Singh Gate  
Chuna Bhatti, Kolar Road  
Bhopal - 462 016  
Phone No.: 09300948396  
Fax: 0755 4029998  
Email: db@dilipbuildcon.co.in; dilipb\_99@rediffmail.com

**(Kind Attention: Mr. Kundan Kumar Das, AGM – Business Development)**

**Subject:** Four Laning of Wardha-Butibori Section of NH-361 from km 465.500 to km 524.690 (design length 59.190 km) under NH (O) in the State of Maharashtra on Hybrid Annuity Mode - **Letter of Award - Reg.**

**Ref:** 1. Your Proposal submitted on 23.02.2017  
2. Opening of Financial proposal on 22.03.2017

Sir,

With Reference to NHA's Request for Proposal for "Four Laning of Wardha-Butibori Section of NH-361 from km 465.500 to km 524.690 (design length 59.190 km) under NH (O) in the State of Maharashtra on Hybrid Annuity Mode" and considering you proposal in this regard submitted on 23.02.2017 vide reference no. (i), NHA hereby accepts your proposal quoting Bid Project Cost of **Rs. 1065.51 crore (Rupees One Thousand Sixty Five Crore and Fifty One Lakh Only)** and first year O&M of **Rs. 3.00 Crore (Rupees Three Crore Only)** as included in Appendix- 1B of your document and declares you as the "Selected Bidder" as per the provisions of RFP Documents.

2. In accordance with the clause 3.8.4 of the RFP document, you are requested to sign the duplicate copy of the LOA and return the same as your acknowledgement within 7 (Seven) days of the receipt of the LOA. Thereafter you are required to execute the concession Agreement within 45 (Forty five) days from the date of issue of LOA as specified in Clause 1.3 of RFP.

3. Further, As per RFP document, you are required to incorporate a Special Purpose Vehicle solely for the purpose of domiciling the project (the "Concessionaire"). The Concessionaire For due and faithful performance of its obligations during the Concession Period shall furnish a Performance Security by way of irrecoverable and unconditional Bank guarantee of **Rs 53.28 Crores (Rupees Fifty Three Crore Twenty Eight Lakh only)** within a period of the 30 days from the date of signing of the Concession Agreement. Till the time the Concessionaire provides NHA with the performance Security the Bid Security shall remain in full Force and Effect (refer Clause 4.1.2 and Clause of Article 9 of RFP).

4. You are required to comply with all the terms and conditions set forth in the RFP Documents. In case of any default on your part, you shall be liable for action as stated in the Bid Documents.



(Ashish Asati)  
General Manager (Tech)  
(Maharashtra Division)

**Annexure 5: Provisional Certificate**



Letter No. LION/IE-0217/2019/NHAI-DBL-WB/7394

Date: 20.11.2019

To,  
The Authorized Signatory,  
DBL Wardha Butibori Highways Private Limited,  
Reg. Office: Plot No.5,  
Inside Govind Narayan Singh Gate,  
Chuna Bhatti, Kolar Road,  
Bhopal-462016 (MP).  
Email- [db@dilipbuildcon.co.in](mailto:db@dilipbuildcon.co.in), [dbl.butibori@gmail.com](mailto:dbl.butibori@gmail.com)

Sub : Four Laning of Wardha - Butibori Section of NH-361 from Km.465.500 to Km 524.690 (Design Length-59.190 Km) under NH (O) in the State of Maharashtra on Hybrid Annuity Mode.  
Issuance of Provisional Completion Certificate under Clause 14.3 of Concession Agreement. Reg.

**Ref:**

1. Concession Agreement dtd: 09.06.2017.
2. Concessionaire Lr. No. WBHPL/IE/D&D/2019/1378; dtd: 20.07.2019.
3. Concessionaire Lr. No. WBHPL/IE/D&D/2019/1408; dtd: 02.08.2019.
4. Inspection of IE dated: 07.08.2019 & 09.08.2019.
5. This office Lr. No. LION/IE0217/2019/NHAI-DBL-WB/6875; dtd: 14.08.2019.
6. Concessionaire Lr. No. WBHPL/IE/D&D/2019/1428; dtd: 22.08.2019.
7. Inspection of IE dated 22.08.2019.
8. Concessionaire Lr. No. WBHPL/IE/D&D/2019/1436; dtd: 26.08.2019
9. Concessionaire Lr. No. DBL/WBHPL/IE/2019/1506; dtd 04.10.2019.
10. PD Letter No. NHAI/PIU/YTL/NH-361/WB/RSC/2278; dtd: 14.10.2019.
11. Inspection of IE date: 21.10.2019 and 22.10.2019.
12. This office Lr. No. LION/IE0217/2019/NHAI-DBL-WB/7263; dtd: 23.10.2019.
13. Inspection of IE date: 12.11.2019.
14. RO-Nagpur Lr. No. NHAI/RO-NAG/4/7/W-B/IE/PCOD/2019-20/2104 dtd: 15.11.2019
15. Inspection of IE date: 19.11.2019.

**Dear Sir,**

The Concession Agreement for the above project was signed between M/s DBL Wardha Butibori Highways Private Limited (hereinafter referred as "Concessionaire") and National Highways Authority of India (hereinafter referred as "Authority") on 09.06.2017 and the Appointed Date was declared as 30.11.2017.

2. As per clause 14.3.2 of the Concessionaire Agreement wherein mentioned "The Parties hereto expressly agree that a Provisional Certificate under this clause 14.3 may, upon request of the Concessionaire to this effect, be issued for operating part of the Project, if the Concessionaire has completed construction of 100% of the Site made

Corporate office : \* LION TOWER \*, Plot No. 97, Elegant Estate, Near Mother Teresa School, Behind Petrol Pump, Kolar Road, Bhopal - 462042 (M.P.)  
Tele / Fax : +91 755 2879499 E-mail : [corporate@liongroup.in](mailto:corporate@liongroup.in), [info@liongroup.in](mailto:info@liongroup.in)  
Website : [www.liongroup.in](http://www.liongroup.in)





*part, and the rights and obligations of the Concessionaire for and in respect of such completed part of the Project shall be construed accordingly”.*

3. Hence, in view of above and according to clause 14.3.2 of the CA, the status of work in Pre-COD sections in accordance to schedule-B, C & D of CA is herein under:

S.No.	Section (km)		Side	Length (km)	Remark
	From	To			
<b>Existing Carriage Way</b>					
1	465+500	467+525	BHS	2.025	This section is considered in Pre-COD. Balance work highlighted in <u>Punch List-A</u>
2	472+900	507+200	BHS	34.300	This section is considered in Pre-COD. Balance work highlighted in <u>Punch List-A</u>
3	508+320	514+660	BHS	6.340	This section is considered in Pre-COD. Balance work highlighted in <u>Punch List-A</u>
4	515+260	524+690	BHS	9.430	This section is considered in Pre-COD. Balance work highlighted in <u>Punch List-A</u>
<b>4-lane operational length (km) considered for Pre-COD</b>				<b>52.095</b>	
<b>Total length of Project Highway (km)</b>				<b>59.190</b>	

4. As per NHA Policy circular dated 21.12.2015, the Independent Engineer vide letter no. 7233; dtd: 23.10.2019, has submitted the proposal regarding concurrence for issuance of Provisional Completion Certificate under clause 14.3 of the Concession Agreement.
5. Further, the RO-Nagpur has inspection project highway on 12.11.2019 and vide letter no 2104; dtd: 15.11.2019 has issued requisite concurrence to IE with instructions to ensure baance items of list-C and compliance of observation of Safety Consultant.
6. Further, the Concessionaire has confirmed compliance and the Independent Engineer has inspected project highway on 19.11.2019 and observed that all the pending works are now satisfactorily completed by the Concessionaire.
7. In view of above, the Independent Engineer is of opinion that you are now eligible for issuance of provisional completion certification in accordance with article 14 of CA. Hence, the Independent Engineer is herewith issuing Provisional Completion Certificate (enclosed in Appendix-I) in pursuant to clause 14.3 of the Concession Agreement along with followings.
- The Project Highway has been constructed as per scope defined under Schedule B & C, in conformity with the technical specifications and standards set forth in Schedule-D of the Concession Agreement. The detailed summary against each item of the Schedule B & C is shown in Annexure-I. The List of minor outstanding works of Pre-COD section (forming “PUNCH LIST-A”) is attached as Appendix-II. As per clause 14.4.1 of the Concession Agreement, the works in PUNCH LIST-A have to be completed by the Concessionaire within 90 days of issuance of Provisional Certificate. Also, the list of outstanding works for section is not considered in Pre-COD, annexed as LIST-B of Appendix-II.
  - The Concessionaire has carried out all the tests successfully in accordance with clause 2 of schedule-I & clause 14.1 of the CA in presence of Independent Engineer and the representative of Authority. The Concessionaire vide letter no: DBL/WBHPL/IE/2019/1506; dtd:04.10.2019, has submitted test reports as



- annexed in Annexure-II (a), Annexure-II (b), Annexure-II (c), Annexure-II (d), Annexure-II (e) .
- c. The Environmental Audit as per the provisions of clause 2.9 of Schedule-I, has been conducted by Environmental Expert and found that Concessionaire has complied with the Applicable Law and Permits and the same confirms to Good Industry Practice. The Concessionaire vide letter no: DBL WBHPL/IE/2019/1430 ; dtd: 24.08.2019, has submitted Environmental Audit Report which annexed as Annexure-II (f).
- d. As directed by PD-Yavatmal vice letter no. 2278; dtd: 14.11.2019, the Safety Consultant M/s Design Aid has carried out Safety Audit during Pre-COD stage as per IRC SP-88-2009 and submitted Safety Audit report vide mail dtd: 06.11.2019 enclosed as Annexure-II (g) containing their observations to enhance safety on Pre-COD section of Project Highway. Further, the Concessionaire vide letter no. 1547; dtd: 11.11.2019, has submitted compliance report for the same. IE during visit 19.11.2019, has inspected project highway and observed that the Concessionaire has successfully complied all observations of the Safety Consultants pertaining to Safety of Road Users.
- e. The Independent Engineer has issued total 11 nos. of Non-Conformance Reports during the construction period and the Concessionaire has been satisfactorily complied and rectified all deficiencies highlighted in NCRs issued by the Independent Engineer. Accordingly, all NCRs were closed by the Independent Engineer. Copy of all NCRs with summary is annexed as Annexure-V.
- f. The Concessionaire has achieved Project Mile Stone-I, I & III well in advance before schedule date in accordance with Schedule-G of CA. (Refer Annexure-III).
- g. The Concessionaire has submitted the consolidated Change of Scope proposal for works completed / under progress / to be taken up and all COS proposals were reviewed by the Independent Engineer as per Article-16 of the Concession Agreement. The summary & Status of COS proposals with all correspondences are enclosed as Annexure-IV.
- h. The Concessionaire has mobilised incident management vehicles i.e. Ambulance, Patrolling Vehicle & Crane at toll plaza. It is pertinent to mention herein that the Concessionaire has undertaken to mobilise incident management vehicle as per NHA policy circular no. 12.19; dtd: 20.03.2018 within period of 90 days from issuance of Pre-COD.
- i. The Concessionaire has applied for electrical connections at all such locations where work is in progress by the Electricity Department. However, Concessionaire has undertaken for requisite lightening at completed section through DG set. (refer Annexure-VI)
- j. The integration of toll equipment checked and found in order. The toll plaza is now ready for operation as per IHMCL Guidelines. However, the Concessionaire has undertaken to ensure followings till & at time of handing over toll plaza to toll operation agency (appointed by NHA):
- To calibrate Static Weigh Bridge (SWB) & Medium Speed Weigh in Motion (MS WIM) by Weight & Measurement Department.
  - To keep watch and ward of equipment and system installed at the Toll Plazas. To conduct all requisite tests as per NHA Policy/Guidelines, once it introduced by the Authority.
- k. As per clause 17.3.1 of the Concession Agreement, the Concessionaire vide letter no: WBHPL/IE/ 2019/1422; dtd: 17.08.2019 has submitted Maintenance Manual which has been reviewed by IE. (Refer Annexure-VII)
- l. After issuance of Provisional Certificate, the Concessionaire shall ensure following with immediate effect:
- As per clause 17.1.2 of the Concession Agreement "The Concessionaire shall remove promptly from the Project Highway all surplus construction machinery and material, waste materials (including hazardous materials and waste water), rubbish and other debris (including without limitation, accident debris) and keep the Project Highway in a clean, tidy and orderly condition and in conformity with Applicable Laws, Applicable



Page 3 of 4

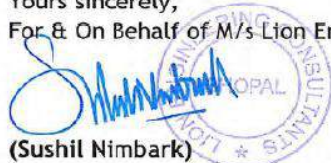


- Permits and Good Industry Practice. For Avoidance of doubt, it is to be agreed that the debris and material excavated shall be carried out and deposited at a place to decide in consultation with Authority/Independent Engineer”
- ii. In pursuant to Article-17 of the Concession Agreement, the Concessionaire, during the O&M Period, shall operate and maintain the project highway in accordance with Concession Agreement, applicable laws and applicable permits, and confirm to specification & standards and good industry practices.
  - iii. In pursuant to clause 10.5 of the Concession Agreement, “The Concessionaire, during Concession Period, shall protect the site from any and all occupations, encroachment or Encumbrance and shall not place or create nor permit any Contractor or other person claiming through or under the Concessionaire to place or create any Encumbrance or security interest over all or any part of the site or project assets or on any rights of the Concessionaire therein or under this Agreement, save and except as otherwise expressly set forth in the Concession Agreement.”
  - iv. As per clause 17.16 of the Concession Agreement, “The Concessionaire shall not undertake or permit any form of commercial advertising, display or hoarding at any place on the site.
  - v. The Concessionaire shall ensure traffic regulation on the Project in accordance with Applicable Laws, and subject to the supervision and control of the State authorities [or a substitute thereof] empowered in this behalf under Applicable Laws.
  - vi. All obligations pertaining to operation & maintenance of the project highway as per relevant provisions of the Concession Agreement.

Therefore, in the view of the above and as per the provisions of clause 14.3 of the Concession Agreement, the Independent Engineer herewith issuing Provisional Completion Certificate to the Concessionaire (annexed as Appendix-I) with effective from 20.11.2019.

Thanking you and assuring our best services at all times, we remain

Thanking You,  
Yours sincerely,  
For & On Behalf of M/s Lion Engineering Consultants,

  
(Sushil Nimbark)

Sr. Chief General Manager (Tech/BD) cum Authorized Representative

**Encl:**

1. Appendix-I and II.
2. Annexure-I to VII.

**Copy for information:**

1. The Regional Officer, Narang Tower 1<sup>st</sup> Floor, Opposite to Office of Dy. Commissioner of Police Traffic (Nagpur City), Palm Road, Civil Lines. Nagpur-440001 Maharashtra Email: [ronagpur@nhai.org](mailto:ronagpur@nhai.org)
2. The Project Director, (K/a to Shri Prashant D. Mendhe), Project Implementation Unit (PIU), National Highways Authority of India (NHAI), Chandan Niveas, Plot No..13, Kolhe Layout Part-02, Dharwa Road, Yavatmal, Maharashtra-445001. Email- [yavatmal@nhai.org](mailto:yavatmal@nhai.org)  
[nhaiyavatmal@gmail.com](mailto:nhaiyavatmal@gmail.com)
3. The Team Leader, M/S Lion Engineering Consultants, Wardha (M.H.) for information Email: [lecmhwardhabuttibori@gmail.com](mailto:lecmhwardhabuttibori@gmail.com)
4. The Executive Director, M/S LEC-Bhopal (MP), Email: [ed@lionsgroup.in](mailto:ed@lionsgroup.in)

### PROVISIONAL CERTIFICATE

1. We, M/S Lion Engineering Consultants, Bhopal, acting as the Independent Engineer under and in accordance with the Concession Agreement dated 09<sup>th</sup> June-2017, for development and operation of the Four Laning of the Wardha-Butibori section of NH-361 from km 465.500 to km 524.690 (design length 59.190 km) under NH(O) in the State of Maharashtra on design, build, operate and transfer (the "Hybrid Annuity") basis through *DBL WARDHA BUTIBORI HIGHWAYS PRIVATE LIMITED*, hereby certify that the Tests specified in Article 14 and Schedule-I of the Agreement have been undertaken for the project section of Existing NH-361 from Km. 465+500 to km 467+525, km 472+900 to km 507+200, km 508+320 to km 514+660 and km 515+260 to km 524+690 of the Project to determine compliance thereof with the provisions of the Agreement.
2. Construction Works forming part of the project/section of the project that were found to be incomplete and/or deficient have been specified in the Punch list-A 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 (LIST-B) have been delayed as a result of reasons attributable to Authority or due to Force Majeure and the Provisional Certificate cannot be withheld on this account. Though the remaining incomplete works have been delayed as a result of reasons not attributable to the Concessionaire. We are satisfied that having regard to the nature and extent of such incomplete works, it would not be prudent to withhold commercial operation of the section Km. 465+500 to km 467+525, km 472+900 to km 507+200, km 508+320 to km 514+660 and km 515+260 to km 524+690 of the project, pending completion thereof.
3. In view of the foregoing We are satisfied that the Section from Km. 465+500 to km 467+525, km 472+900 to km 507+200, km 508+320 to km 514+660 and km 515+260 to km 524+690 of the Project can be safely and reliably placed in commercial service of the users thereof, and in terms of the Agreement, the section of the Project is hereby provisionally declared fit for entry into operation on this the 20<sup>th</sup> day of November 2019.

**ACCEPTED, SIGNED, SEALED  
AND DELIVERED**

For and on behalf of  
**CONCESSIONAIRE by:**



(Kundan Kumar Das, Authorized Signatory)  
(Plot No.5, Inside Govind Narayan,  
Singh Gate Chuna Bhatti, Kolar Road,  
Bhopal (MP)-462016)

**SIGNED, SEALED AND  
DELIVERED**

For and on behalf of  
**INDEPENDENT ENGINEER By:**



(Sushil Nimbark, Sr. CGM,  
Authorized Representative)  
(Plot No.97, Elegant State, Near  
Mother Teresa School,  
Kolar Road, Bhopal (MP)-462042)



APPENDIX-II		
Name of Project- "Four Laning of Wardha-Butibori Section of NH-361 from Km 465.500 to km 524.690 (design length 59.190 km) under NH (O) in the State of Maharashtra on Hybrid Annuity Mode".		
PUNCH LIST A		
Work To Be Completed In 90 Days After Issuance Of Provisional Completion Certificate)		
Sr. No.	Work	Status of Work
1	Median Plantation	In Progress
2	Turfing	In Progress
3	Geo green Elanket	In Progress
4	Highway Lightning	In Progress
5	Rain water harvesting structures as per IRC:SP-42 & MOEF Guideline	Not Started
6	Submission of as built drawings	To be submitted
7	Avenue Plantation as per IRC:SP-21	In Progress
8	Boundary pillars, km/hec:ometer/5th km stone to be provided as per IRC provisions	In Progress
9	Landscaping & other finishing work in toll plaza campus.	In Progress
10	Numbering of structures.	In Progress
11	Highway Mini-Nest cum Toilet Block at Toll Plaza	In Progress
12	Installation of Static Weigh-Bridge	In Progress
13	Finishing work in building block of truck lay bye.	In Progress
14	2 Nos Residential quarters at toll plaza	In Progress
15	Tree guard for Avenue plantation	In Progress
16	Communication System and Advance Traffic Management System (ATMS) as per clause 12.11 & 12.12 of IRC-SP-84	In Progress
17	Clearing of ROW	In Progress
18	Construction of Earthen Drain	In Progress
19	Slope Protection Work & bed Work for Cross drainage structures	In Progress
20	Down take pipe at RE wall approach portal for drain off MCW rain water.	In Progress
21	Overlaying in existing road stretche of bypasses (Salod, Selod & Kelzar)	In Progress
22	One more coat of Kerb Painting	To be started



<b>APPENDIX-II</b>			
<b>Name of Project- “Four Laning of Wardha-Butibori Section of NH-361 from Km 465.500 to km 524.690 (design length 59.190 km) under NH (O) in the State of Maharashtra on Hybrid Annuity Mode”.</b>			
<b>LIST-B</b>			
<b>(Balance works are not forming part of Pre-COD)</b>			
Sr. No.	Details of work	Reason for not consider in Pre-COD	Balance work
1	Km 470+500 to km 472+130	Delay in GAD Approval of ROB from Railway Authorities	ROB A1-P1, P1-P2, P2-P3 span slab, construction of approach RE wall and other Miscellaneous works as per CA.
2	km 507+200 to km 508+320 (Selcoh Village)	Delay in handing over of land	Construction of Left hand side VUP, Construction of approach RE wall, and partially both side service road, Bus Bay and other Miscellaneous works as per CA.
3	km 514+660 to km 515+260 (Asola Village)	Land Not Available	Construction of Left hand side PUP, Construction of approach RE wall, both side service road, Bus Bay and other Miscellaneous works as per CA.
4	Km 467+525 to Km 470+500	Stretch is not operational	Minor finishing works are balance
5	Km 472+130 to Km 472+900	Stretch is not operational	Minor finishing works are balance
6	Construction of Highway Mini-nest at both side of Toll plaza	COS work	Construction of Highway Mini-Nest is in progress





## DBL WARDHA BUTIBORI HIGHWAYS PRIVATE LIMITED

(CIN No. : U45309MP2017PTC043164)

Date: 19.11.2019

### AUTHORIZATION

NOW KNOW YE ALL AND THESE PRESENT WITHNESSTH THAT pursuant to his Authorization executed by Mr. Bharat Singh Director, DBL Wardha Butibori Highways Private Limited, (hereinafter referred to as "the Company") in favour of Mr. Kundan Kumar Das, S/o Mr. B.Das, presently residing at MIG - 127, Sector 3 - D, Saket Nagar, Bhopal - 462024 (M.P.), who is working as Authorized Signatory/Representative with the Company (hereinafter referred to as "the authorization holder") for the project of **Four Laning of Wardha-Butibori Section of NH-361 from Km 465.500 to Km 524.690 (design length 59.190 km) under NH (D) in the state of Maharashtra on Hybrid Annuity Mode**. By virtue of resolution passed in the meeting of board of directors of Company held on dated 19<sup>th</sup> November 2019, I am authorized to delegate any or all acts things and deeds mentioned in the board resolution and hereby authorize Mr. Kundan Kumar Das, to represent the Company to cause, to be done all or any of the following acts, deed, matter and things on behalf of the Company in the matter mentioned as under

- a. To appear, represent, depose and record statement, make and move application in capacity of Authorized Signatory/Representative, for and on behalf of the company and authorized to make sign, execute verify and register various applications, papers, documents, statements, agreements and certificates on company's behalf and authority to deposit amount incidental thereto and as may be required to submit before the lawful authority such as Mining, Revenue, Collectorate, PWD, MoRT&H, NHAI, Railway, Forest, Other Administrative Office(s) & Other Government Department (individually "Authority" and "collectively 'Authorities'") incidental to the project.
- b. Authority to collect and/or submit Provisional Certificate/Completion Certificate or produce/receive the Provisional Certificate/Completion Certificate, documentary evidence, measurement book, bill payment and/or to receive from the departments having authority in relation to the project viz. PWD, MoRT&H, NHAI, Collectorate, Mining, Forest & Other Government Department

Provided that this authorization shall cease to have effect or bind the Company from the date it is revoked or when the authorization holder will cease to be associated with the Company, whichever is earlier.

In witness whereof I Bharat Singh, Director for DBL Wardha Butibori Highways Private Limited, have executed these presents on this 19<sup>th</sup> day of the November 2019 at Bhopal  
And I Kundan Kumar Das authorization holder do hereby agree and accept the aforesaid.

Signed & delivered by


  
Bharat Singh  
(Director)

Agreed & accepted

  
Kundan Kumar Das  
(Authorized Signatory)

**Annexure 6: Insurance**

This Document is Digitally Signed

  
 Signer: ATUL JERATH  
 Date: Fri, Nov 6, 2020 14:07:53 IST  
 Location: NOIDA  
 Reason: Signing Policy for OICL

**ELECTRONIC EQUIPMENT INSURANCE POLICY SCHEDULE**

Policy No : 171200/44/2021/36	Prev Policy No :
Cover Note No : ER1700203536	Cover Note Dt : 08/09/2020
Insured's Code : 101443189	Issuing Office Code : 171200
Insured's Name : DBL Wardha Butibori Highways Pvt Ltd (GSTIN: 27AAGCD1481M1ZD)	Issuing Office Name : CBU Vadodara (GSTIN: 24AAACT06)
Address : SLPL, Doctors Colony, Samaj Ekta Ghuhnirman Society, Gomalwada, Nagpur, Nagpur, Maharashtra	Address : 1st FLOOR, KIRTI TOWER, TILAK ROAD VADODARA
Tel /Fax /Email : / / 0 / NA	Tel /Fax /Email : 0265-2427075 / 0265-2436654 / 171200@orientalinsurance.co.in

**Agent/Broker Details**

Dev.Off.Code :

Agent/Broker : LC0000000179 (1149)UNISON INSURANCE BROKING SERVICES P LTD

Address : 601-602 ,6TH FLOOR AURAM NR VASNA,HP PETROL PUMP MARKAND DESAI RAOD VADODARA 390015 GUJARAT INDIA,MOB NO 9898295111 PHONE NO 0265-2252274,BARODA,GUJARAT,396007

Tel/Fax/Email : 0265-2252274/0265-2357445/0265-2356033/

Period of Insurance : FROM 00:00 ON 08/09/2020 TO MIDNIGHT OF 07/09/2021

Collection No & Dt : DC\_IND 3214000844 - 17/09/2020 GST INVOICE NO :2419487401 UIN :0

Gross Premium : 19,821 GST : 3,568 Stamp Duty : 1 Total : 23,389

**RISK DETAILS**

Section I : EEI - EQUIPMENT

Sum Insured : 4,40,48,544

1 Location of the Risk : AS PER LIST ATTACHED  
Road and bridge stretch connecting from Wardha to Butibori  
MAHARASHTRA - 440002

Sl No.	Description of Items	Manufacturer Name	Year of Annual Manufacture	Maintenance Contract	Identification No.	Escalation %	Sum Insured
1	AS PER LIST	AS PER LIST	2018		AS PER LIST		4,40,48,544

Deductible / Excess for : AS PER LIST ATTACHED

**Excess :**

- (a) For equipment with value upto Rs. 1 lakh
  - 1) For PC : 5% of claim amount subject to minimum of Rs.2500/-
  - 2) For Equipment other than PC :
    - (i) Equipment (other than Winchester Drive and/or Hard Disc)- 5% of claim amount subject to a minimum of Rs.1000/-
    - (ii) Winchester Drive and/or Hard Disc-10% of claim amount subject to a minimum of Rs.2500/-
- (b) For equipment with value more Rs. 1 lakh -
  - 1) Equipment (other than Winchester Drive) - 5% of claim amount subject to a minimum of Rs.2,500/-

Place : - For and on behalf of  
Date : 17/09/2020 The Oriental Insurance Company Limited


This is an electronically generated document (Policy Schedule).The Policy document duly stamped will be sent by post.

In case of any query regarding the Policy please call Toll Free No. 1800 11 8485 and 011 33208485.

Authorised Signatory

CIN: U66010DL1947GOI007158 All the Amounts mentioned in this policy are in Indian Rupee Page 1 of 2  
IRDA Regn. No. 556 - Now you can buy and renew selected policies online at www.orientalinsurance.org.in

This Document is Digitally Signed

  
 Signer: ATUL JERATH  
 Date: Fri, Nov 27, 2020 12:11:59 IST  
 Location: NOIDA  
 Reason: Signing Policy for OICL

**FIRE INDUSTRIAL ALL RISK POLICY SCHEDULE**

Policy No : 171200/11/2021/227 Cover Note No : 1700001712017 Insured's Name : 101443189 - DBL Wardha Butibori Highways Pvt Ltd (GSTIN: 27AAGCD1481M1ZD) Address : Plot no. 5, Inside Govind Narayan Singhgate, Chunabhatti, Kolar Road, Bhopal - 462016, M.P.  WARDHA 442001	Prev Policy No : 171200/11/2020/449 Cover Note Dt : 22/11/2020 Issuing Office : 171200 - CBU Vadodara (GSTIN: 24AAACT0627R2Z4) Address : 1st FLOOR, KIRTI TOWER, TILAK ROAD VADODARA  GUJARAT 390001
Tel /Fax /Email : / / 0 / NA Dev.Officer :	Tel /Fax /Email : 0265-2427075 / 0265-2436654 / 171200@orientalinsurance.co.in BROKER : LC0000000179 (1149)UNISON INSURANCE BROKING SERVICES P LTD

Period of Insurance: FROM 00:00 ON 22/11/2020 TO MIDNIGHT OF 21/11/2021

Collection No & Dt : DC_LIND 3214001185 - 26/11/2020	GST INVOICE NO :2419662549	UIN :0
Gross Premium : 64,77,790	GST : 11,66,002	Stamp Duty : .5 Total : 76,43,792

Co Insurance Details :

S.No	Co Insurer Name	Share %
1	CBU Vadodara	60.00
2	Go Digit General Insurance Limited	20.00
3	BAJAJ ALLINZE GEN INSURANCE	20.00

SECTION I : IAR - STANDARD FIRE AND SPECIALS PERILS SECTION

Location of the Risk : Maintenance of Roads, Bridges  
 Four lanning of Wardha - Butibori Section of NH-361 from Km.465+500 to Km.524+690 (Design Length 59.190) under NH(O) in the in the State of Maharashtra on Hybrid Annuity mode

Deductible :

Risk Description : Roads

Block Description : 1

SMI Description	Nature of Stock	Sum Insured
Bridges	Roads Incl Service Road, Structures, Bridges (Major, Minor, Railway, River Incl all Other Bridges) , Underpasses, Culverts, drainages, Utilities, Slabs Box, Causeways, Machineries(Full desc.-As per annexure)	218,74,62,313
Roads	Roads Incl Service Road,	

Place :  
 Date : 26/11/2020



IRDA-REGNO-556

For and on behalf of  
 The Oriental Insurance Company Limited

This is an electronically generated document (Policy Schedule).The Policy document duly stamped will be sent by post.

In case of any query regarding the Policy please call Toll Free No. 1800 11 8485 and 011 33208485.

Authorised Signatory

CIN: U66010DL1947GOI007158 All the Amounts mentioned in this policy are in Indian Rupee

Page 1 of 4

IRDA Regn. No. 556 - Now you can buy and renew selected policies online at [www.orientalinsurance.org.in](http://www.orientalinsurance.org.in)



Project: Four Laning of Wardha-Butibori Section of NH- 361 From Km.465.500 to Km.524.690 (Design Length Km.59.190) under NH (O) in the state of Maharashtra on Hybrid Annuity Mode.

This document is digitally signed

  
 Signer: ATUL JERATH  
 Date: Fri, Nov 27, 2020 12:52:09 IST  
 Location: NOIDA  
 Reason: Signing Policy for OICL

**STANDARD FIRE & SPECIAL PERILS POLICY SCHEDULE**

<b>Policy No</b> : 171200/11/2021/228 <b>Cover Note No</b> : - <b>Insured's Name</b> : 101443180 - DBL Wardha Butibori Highways Pvt Ltd (GSTIN: 27AAGCD1481M1ZD) <b>Address</b> : Plot no. 5, Inside Govind Narayan Singhgate, Chunabhatti, Kolar Road, Bhopal - 462010, M.P.  WARDHA 442001 <b>Tel /Fax /Email</b> : / / 0 / NA	<b>Prev Policy No</b> : 171200/11/2020/450 <b>Cover Note Dt</b> : <b>Issuing Office</b> : 171200 - CBU Vadodara (GSTIN: 24AAACT0027R2Z4) <b>Address</b> : 1st FLOOR, KIRTI TOWER, TILAK ROAD VADODARA  GUJARAT 390001 <b>Tel /Fax /Email</b> : 0265-2427075 / 0265-2430654 / 171200@orientalinsurance.co.in
--	---

**Agent/Broker Details**

**Dev.Off.Code** :

**Agent/Broker** : LC0000000179 (1149)UNISON INSURANCE BROKING SERVICES P LTD

**Address** : 801-802 ,6TH FLOOR AURAM NR VASNA,HP PETROL PUMP MARKAND DESAI RAOD VADODARA 390015 GUJARAT INDIA,MOB NO 9898295111 PHONE NO 0265-2252274,BARODA,GUJARAT,396007

**Tel/Fax/Email**

**Period of Insurance** : FROM 00:00 ON 26/11/2020 TO MIDNIGHT OF 25/11/2021

**Collection No & Dt** : DC\_IND 3214001185 - 20/11/2020      **GST INVOICE NO** :2410004477      **UIN** :0

**Gross Premium** : 5,03,404      **GST** : 1,01,413      **Stamp Duty** : .5      **Total** : 6,04,817

**Co Insurance Details** :

S.No	Co Insurer Name	Share %
1	CBU Vadodara	00.00
2	BAJAJ ALLINZE GEN INSURANCE	20.00
3	Go Digit General Insurance Limited	20.00

**RISK DETAILS**

1 **Location of the Risk** : Four lanning of Wardha - Butibori Section of NH-361 from Km.405+500 to Km.524+000 (Design Length 50.100) under NH(O) in the in the State of Maharashtra on Hybrid Annuity Mode

MAHARASHTRA  
 WARDHA  
 442001  
 WARDHA

**Risk Description** : Roads

**SCHEDULE OF PREMIUM**

<b>TOTAL PREMIUM</b>	5,03,404.00
<b>ADD IGST</b>	1,01,413.00
<b>Total</b>	<b>6,04,817.00</b>

Date : 26/11/2020                  For and on behalf of The Oriental Insurance Company Limited

This is an electronically generated document (Policy Schedule).The Policy document duly stamped will be sent by post.

In case of any query regarding the Policy please call Toll Free No. 1800 11 8485 and 011 33208485.

Authorized Signatory

GIN: U00010DL1047GOI007158 All the Amounts mentioned in this policy are in Indian Rupee      Page 1 of 3  
 IRDA Regn. No. 550 - Now you can buy and renew selected policies online at www.orientalinsurance.org.in

## HDFC ERGO General Insurance Company Limited



May 06, 2020

**DILIP BUILDCON LIMITED**

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



Dear Customer,

**Sub: Employees Compensation Insurance Policy No: 3114203384135700000**

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](http://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

3114203384135700000

Page 1 of 13

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

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

Registered & Corporate Office:  
1st Floor, HDFC House, 185 - 186 Backbay Redevelopment,  
H. T. Parekh Marg, Churchgate, Mumbai - 400 020

Customer Service Address:  
D-301, 3rd Floor, Eastern Business District (Magnet Mall),  
LBS Marg, Bhandrup (West), Mumbai - 400 076

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

## HDFC ERGO General Insurance Company Limited

Certificate of Insurance cum Policy Schedule



Policy No. 3114203384135700000

Employees Compensation Insurance



Insured Name		DILIP BUILDCON LIMITED (PAN Number:AACCD6124B)		Business	OTHERS	
Correspondence Address		PLOT NO. 5, GOVIND NARAYAN SINGH GATE, CHUNA BHATTI, BHOPAL, MADHYA PRADESH, BHOPAL, MADHYA PRADESH, 462016.				
Mobile		Phone		E Mail		Policy Issuance Date
						06/05/2020
Period of Insurance	From Date & Time	02/05/2020 00:01 AM		To Date & Time	01/05/2021 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

3114203384135700000

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 7: Change of scope**

S. No	Description	Value of COS Approved (Rs in Crores)	Status of the work at site	Status of COS
1	Change in the Span arrangement of the ROB resulting increasing in length of the ROB at Km.471+516 as per the GAD approved by the Railway Authorities.	17.44 Cr approved by NHAI Competent Authority	Completed	Ref: NHAI letter No150990 dated 13.03.2020
2	Additional Minor Bridge at Km.465+700 for Canal Crossing. Minor Bridge is nor proposed in Schedule B	0.43 Cr approved by NHAI Competent Authority	Completed	Ref: NHAI letter No150990 dated 13.03.2020
3	Additional Box Culvert at Km.0+150 on Ramp 2. Minor Bridge is nor proposed in Schedule B	0.602 Cr Recommended by the IE	Completed	IE has resubmitted the proposal to the Authority vide letter No.6464 dated 13.06.2019, complying the comments made by the Authority. Proposal is under scrutiny with the Authority.
4	Highway Mini nest	1.51 Cr approved by NHAI Competent Authority	Completed	Ref: NHAI letter No.1646 dated 19.09.2019
5	Implementation of Hybrid ETC & installation of Medium Speed Weigh in Motion	0.42 Cr approved by NHAI Competent Authority	Completed	Ref: NHAI letter No.2243 dated 30.11.2019

**Annexure 8: Project Photos**











