



SHREM FINANCIAL PRIVATE LIMITED

Four Laning of Tuljapur-Ausa (including Tuljapur Bypass) section of NH-361 from Km.0.000 to Km.55.835(Existing Chainage Km.416.000 to Km.470.000) under NHDP Phase -IV 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



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TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION	4
1.1 General.....	4
1.2 The Project Data	6
1.3 Scope of Consultancy Services	7
CHAPTER 2. PROJECT DESCRIPTION & TECHNICAL DETAILS	8
2.1 Salient Features of the Project.....	8
2.2 Typical Cross Section (TCS) Schedule	8
2.3 Road Side Drainage	13
2.4 Service Roads (Ref.4.8 of Schedule B).....	13
2.5 Bypass/Realignment.....	14
2.6 Intersections.....	14
2.7 Grade Separated Structures and underpasses.....	16
2.8 Road Over Bridge (ROB)	16
2.9 Carriageway and Pavement Details.....	16
2.10 Summary of Structures.....	17
2.11 Toll Plazas	17
2.12 Bus bays/Bus shelters/Truck lay bye.....	18
2.13 Other Project Facilities Provided as per Schedule C of CA.....	19
CHAPTER 3. ROAD INVENTORY & PAVEMENT CONDITION	20
3.1 General.....	20
3.2 Road Inventory	20
3.3 Pavement Condition.....	21
CHAPTER 4. INVENTORY AND CONDITION OF STRUCTURES	23
4.1 General Assessment and Condition of the structures.....	23
4.2 Inventory of Structures	23
4.3 Details of Minor Bridges.....	23
4.4 Details of Underpass	25
4.5 Details of Culverts:	26
CHAPTER 5. REVIEW OF PAVEMENT DESIGN.....	29
5.1 General.....	29
5.2 Pavement design crust thickness	29
5.3 Maintenance/ Overlay schedule	30
CHAPTER 6. SAFETY AUDIT OF ROAD.....	31
6.1 General.....	31
6.2 Existing Road Safety Audit.....	31
6.3 Conclusion	33
CHAPTER 7. TOLL PLAZA & HTMS	34
7.1 General:.....	34
7.2 Tolling Equipment and Control Room Equipment	34
7.3 Vehicles	35
CHAPTER 8. SCHEDULE OF ANNUITY PAYMENTS.....	37
8.1 Hybrid Annuity Model (HAM).....	37

8.2	Payment during Construction	37
CHAPTER 9.	OPERATION AND MAINTENANCE	39
9.1	General.....	39
9.2	Inspection.....	39
9.3	Operations.....	39
9.4	Maintenance of Project road	40
9.5	Review of Test Reports.....	41
9.6	O&M Forecast	42
CHAPTER 10.	REVIEW OF CONCESSION AGREEMENT	43
10.1	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
CHAPTER 11.	INSURANCE	47
11.1	Details of Insurance:.....	47
CHAPTER 12.	CONCLUSION	48
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 1.2: Project Start and End Locations	7
Figure 2.1: (TCS-1) 4-Laning by Concentric Widening with 4.0m Raised Median	9
Figure 2.2: (TCS-2) Built-Up Section-Plain /Rolling Terrain with Service Roads.....	9
Figure 2.3: (TCS-3) 4-Laning by Eccentric Widening (LHS) with 4.0m Raised Median	9
Figure 2.4: (TCS-4) 4-Laning by Eccentric Widening (RHS) with 4.0m Raised Median	10
Figure 2.5: (TCS-5) Typical Cross Section of 4-Laning for Bypass and Realignment.....	10
Figure 2.6: (TCS-6C) Four Lane Underpass Cross Section with Slip Roads in Bypass & Realignment	10

Figure 2.7: (TCS-6D) Four Lane Underpass Cross Section with Service Roads in Bypass & Realignment	11
Figure 2.8: (TCS-7) 4-Lane Carriage Way (Both Side Cutting)	11
Figure 2.9: Pictorial Diagram of TCS Lengths	13
Figure 2.10: Representative photos of Truck lay bye & Bus bay	19
Figure 3.1: Photographs of the Road Project.....	21
Figure 3.2: Representative Photos of Pavement Condition.....	22
Figure 4.1: Representative photos of Minor Bridges.....	25
Figure 4.2: Representative photos of underpass	26
Figure 6.1: Representative photos during road safety audit	32
Figure 7.1: Toll Plaza @ KM. 35+200	36

LIST OF TABLES

Table 1.1: Project Data.....	6
Table 2.1: Salient Features.....	8
Table 2.2: TCS Schedule	11
Table 2.3: Service road/ Slip Roads as per Schedule-B of CA.....	13
Table 2.4: Bypass/Realignment as per Schedule B of CA.....	14
Table 2.5: List of Major and Minor Intersections.....	14
Table 2.6: Carriageway and Pavement Details	17
Table 2.7: Summary of Structures	17
Table 2.8: Summary of Bus bays/Bus shelters/Truck lay bye	18
Table 3.1 Road Inventory	20
Table 3.2: Pavement condition summary	21
Table 4.1: List of Structures	23
Table 4.2: Inventory of Minor Bridges	23
Table 4.3: List of Underpass in the Project Road	25
Table 4.4: List of Slab/Box Culverts.....	27
Table 4.5 List of Pipe Culverts	27
Table 5.1: Rigid Pavement Design for Main carriageway	29
Table 5.2: Flexible Pavement for service road	29
Table 6.1: Referred IRC Publications.....	31
Table 6.2: Road safety Items.....	32
Table 7.1: List of Equipment at Toll Plaza and Control Room	34
Table 7.2: List of Vehicles.....	35
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 Bridges	49
Annexure 2: Condition of Culverts.....	51
Annexure 3: Operation & Maintenance cost	54
Annexure 4: Letter of Award	61
Annexure 5: Provisional Certificate	62
Annexure 6: Insurance	64
Annexure 7: Change of Scope	70
Annexure 8: Project Photos	72

CHAPTER 1. INTRODUCTION

1.1 General

DBL Tuljapur Ausa Highways Limited (herein after referred to as the “Concessionaire”) had augmented the existing 2 lane Highway between Tuljapur and Ausa (including Tuljapur Bypass) from Km.0+.000 to Km.55+835 to 4 laning on Hybrid Annuity Mode, entered in to the Concession Agreement dated 1st May 2017 between DBL Tuljapur Ausa Highways Limited (“**Concessionaire**”) and National Highways Authority of India (“**Authority**”).

Project starts at Km.0+.000 (Tuljapur) and terminates at Km.55+835 (Ausa Town). Project is 4 lane and is awarded under Hybrid Annuity Mode. Project location map is provided at Figure 1.1.

SHREM INFRAVENTURE PRIVATE LIMITED (SIPL) acquired DBL TULJAPUR AUSA HIGHWAYS LIMITED vide agreement dated 26.03.2018

SHREM FINANCIAL PVT LTD (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.

Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.



Figure 1.1: Project Location Map

1.2 The Project Data

Table 1.1: Project Data

S. No.	Particulars	Details
1	Name of the project	Four Laning of Tuljapur-Ausa Section of NH-361 From Km.0+000 to Km. 55+835(Existing chainage Km.416+000 to Km.470+000) under NHDP Phase IV in the state of Maharashtra onHybrid annuity Mode.
2	Road Type	National Highway
3	Name of the Authority	NHAI
4	Name of the Concessionaire	DBL Tuljapur Ausa Highways Limited
5	Name of the EPC Contractor	Dilip Buildcon Limited
6	Consultant (Independent Engineer)	Lion Engineering Consultants
7	Date of LOA	17.02.2017
8	Date of Agreement	1 st May 2017
9	Design Length as per Schedule B of CA	67.428 Km including Tuljapur Bypass
10	Actual Length Constructed	67.428 Km including Tuljapur Bypass
11	Project Lane Configuration	Four Lane
12	EPC Cost	Rs.650.000 Cr
13	Bid Project Cost	Rs.911.070 Cr
14	Concessionaire TPC	Rs.546.642 Cr
15	NHAI support during construction	Rs.364.428 Cr
16	Nature of contract	DBFOT (Hybrid Annuity Model)
17	Toll collected by	Authority
18	Concession Period	Construction Period of 910 days Operation Period of 15 years
19	Appointed date	22 nd November 2017
20	Concession End Date	17.11.2034
21	Construction Period	910 days from the Appointed Date
22	Schedule Completion Date	20 th May 2020
23	Date of issuance of Provisional Certificate (Commercial Operation Date)	18 th November 2019
24	Bonus on early completion	Applicable as per Cl.23.5 of CA
25	Date of issuance of Completion Certificate	Yet to be received
26	Annuity Amount	As per Cl 23.4 and 23.6.3 of CA
27	Total Number of Annuities payable	30 Nos.
28	First Annuity Payment Date	18.05.2020
29	Total Number of Annuity Payments received till Jan 2021	2 No.



Project Start: Km. 0+000



Project End: Km. 55+625

Figure 1.2: Project Start and End Locations

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.
- Review of latest BI test report
- Carrying out inventory & condition survey of all elements of road like embankment slope, plantation, road furniture, tolling system etc., of the project.
- Carrying out inventory & condition survey of all structures (Major Bridges, Minor Bridges, ROB, RE Wall, Flyovers, VUPs, PUPs, Culverts etc.), suggest any rehabilitation & maintenance requirements along with BOQ.
- Carryout out road safety audit on Project highway and provide suggestions for improvement.
- Assess and Provide BOQ and cost estimate for routine & periodic maintenance including O&M.
- Review of punch list items, NCR's to identify any uncompleted works as on date of submission of report.
- Review of validity of insurance and statutory compliances related to Project.
- Review of correspondences exchanged between parties on contract related issues and claims etc.
- Submission of detailed report on technical due diligence of the project.

CHAPTER 2. PROJECT DESCRIPTION & TECHNICAL DETAILS

2.1 Salient Features of the Project

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

Table 2.1: Salient Features

S. No	Particulars	As per CA	As per COS	As per Site
1	Total Length of Main Carriageway 4-Lane with Rigid Pavement including	67.428 Kms.	---	67.428 Kms.
2	Total length of Service Roads	18.85 Kms.	---	18.85 Kms.
3	Total length of Slip Roads	0.96 Kms	---	0.96 Kms.
4	Toll Plazas	1 No.	---	1 No.
5	Bus Bays with Bus Shelters	34 Nos.	---	35* Nos.
6	Truck Lay Bays	1 No.	---	1 No.
7	Rest Areas	1 No.	---	1 No.
8	Major Junctions	8 Nos.	---	8 Nos.
9	Minor Junctions	46 Nos.	---	49* Nos.
10	Vehicular underpasses	4 Nos.	---	4 Nos.
11	Light Vehicular underpasses	3 Nos.	---	3 Nos.
12	Pedestrian underpasses	3 Nos.	---	3 Nos.
13	Over Passes	1 No.	---	1 No.
14	Minor Bridges	19 Nos.	+ 1 Nos.	20 Nos.
15	Hume Pipe Culverts	72 Nos.	---	72 Nos.
16	Box / Slab Culverts	17 Nos.	---	17 Nos.

- Total 49 Minor Junctions are developed as per site requirement
- Total 35 Nos of Bus Shelters are developed as per site requirement.

2.2 Typical Cross Section (TCS) Schedule

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

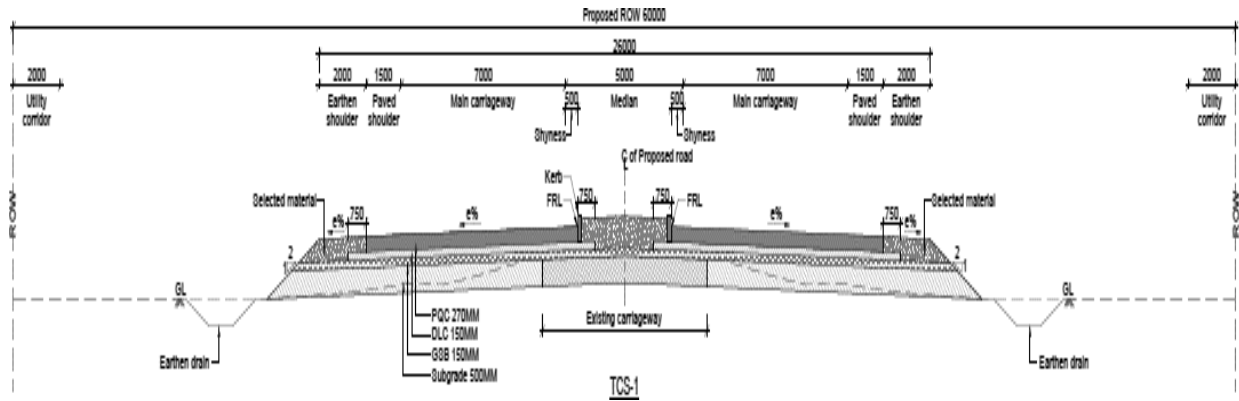


Figure 2.1: (TCS-1) 4-Laning by Concentric Widening with 4.0m Raised Median

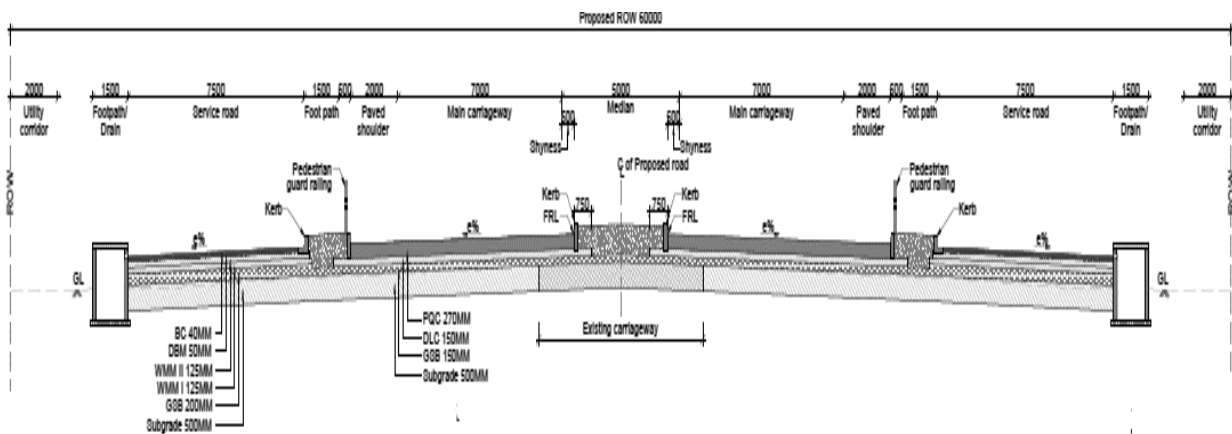


Figure 2.2: (TCS-2) Built-Up Section-Plain /Rolling Terrain with Service Roads

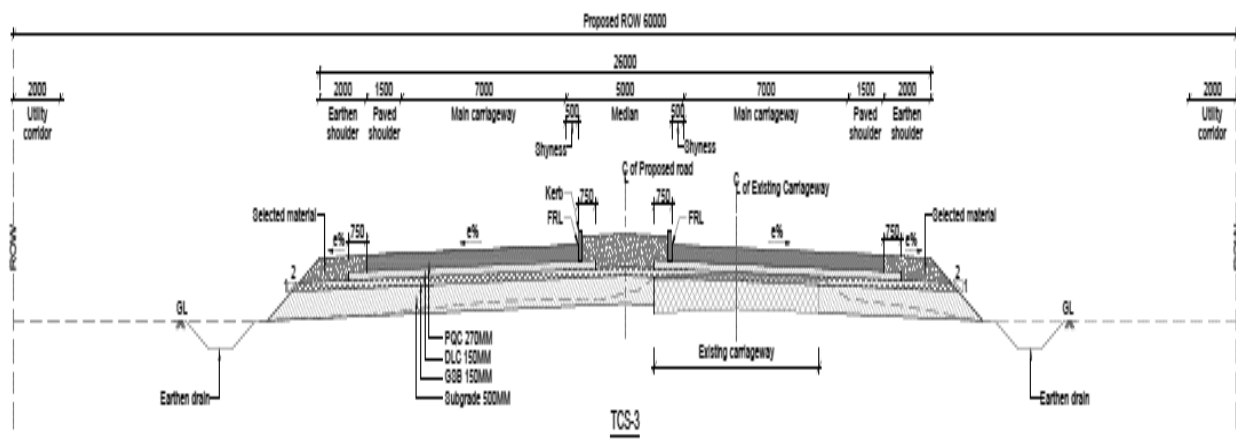


Figure 2.3: (TCS-3) 4-Laning by Eccentric Widening (LHS) with 4.0m Raised Median

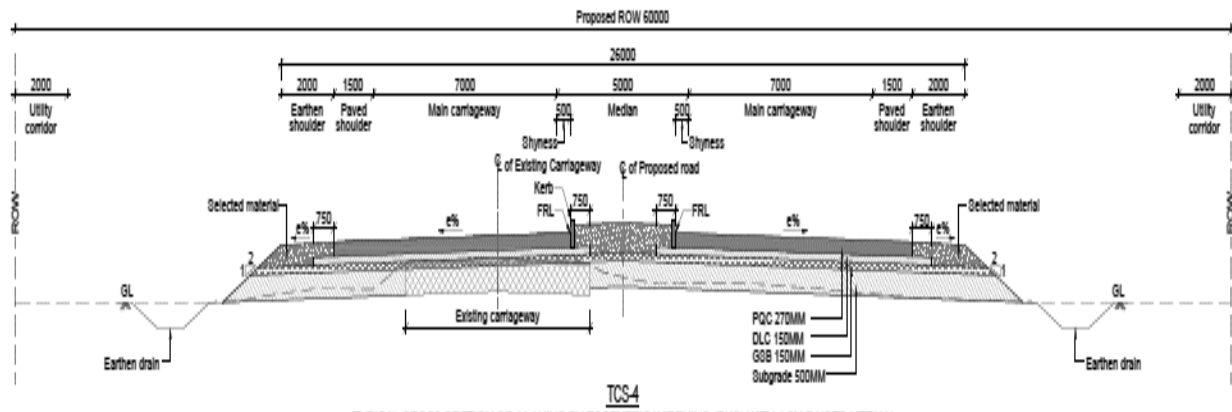


Figure 2.4: (TCS-4) 4-Laning by Eccentric Widening (RHS) with 4.0m Raised Median

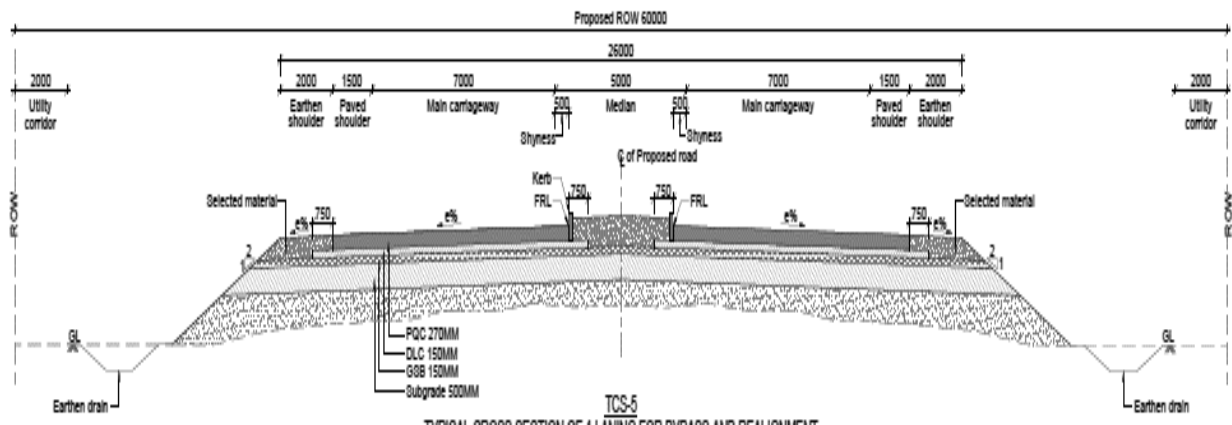


Figure 2.5: (TCS-5) Typical Cross Section of 4-Laning for Bypass and Realignment

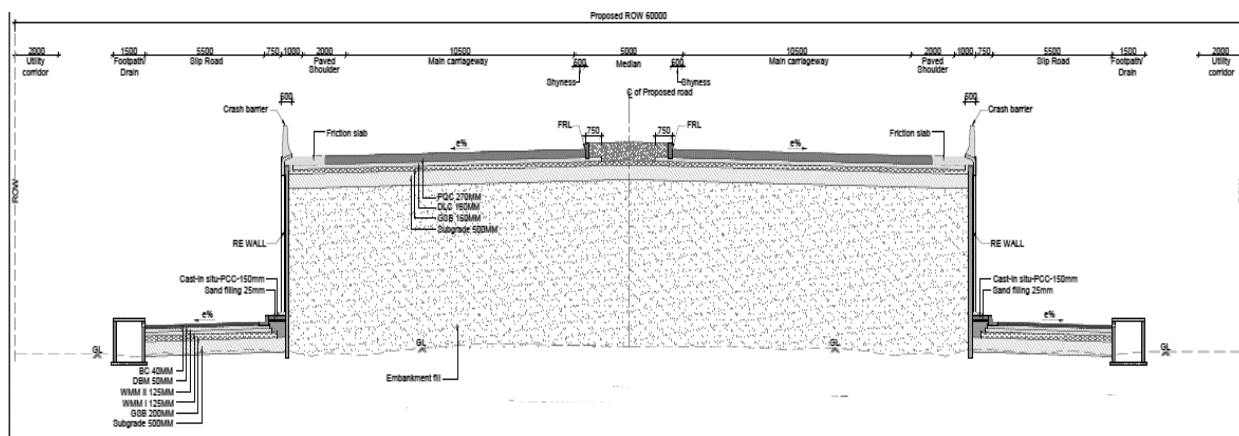


Figure 2.6: (TCS-6C) Four Lane Underpass Cross Section with Slip Roads in Bypass & Realignment

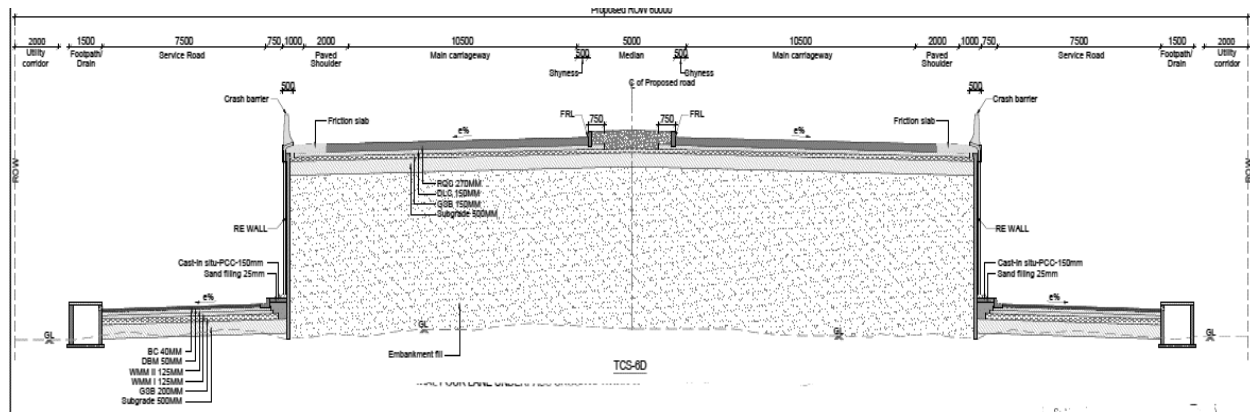


Figure 2.7: (TCS-6D) Four Lane Underpass Cross Section with Service Roads in Bypass & Realignment

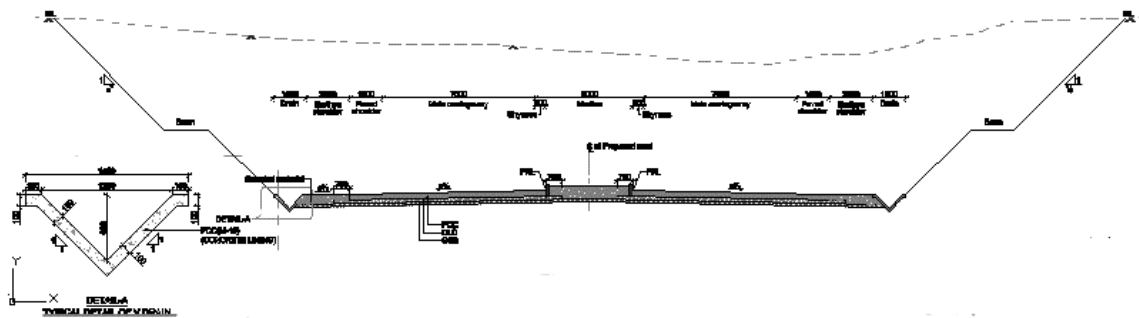


Figure 2.8: (TCS-7) 4-Lane Carriage Way (Both Side Cutting)

TCS Schedule is provided below.

Table 2.2: TCS Schedule

S. No.	From Chainage (Km.)	To Chainage (Km.)	Length (Km)	Type of TCS
1	0+000	1+180	1.180	2
2	1+180	1+410	0.230	3
3	1+410	1+490	0.080	4
4	1+490	1+810	0.320	1
5	1+810	4+580	2.770	3
6	4+580	4+900	0.320	1
7	4+900	5+560	0.660	3
8	5+560	5+780	0.220	2
9	5+780	6+380	0.600	6C
10	6+380	6+410	0.030	2
11	6+410	11+690	5.280	4
12	11+690	11+940	0.250	2
13	11+940	12+080	0.140	3
14	12+080	16+030	3.950	4
15	16+030	16+620	0.590	2

S. No.	From Chainage (Km.)	To Chainage (Km.)	Length (Km)	Type of TCS
16	16+620	20+660	4.040	4
17	20+660	20+850	0.190	2
18	20+850	21+460	0.610	6C
19	21+460	21+810	0.350	2
20	21+810	22+950	1.140	4
21	22+950	24+290	1.340	1
22	24+290	25+340	1.050	4
23	25+340	25+570	0.230	5
24	25+570	26+190	0.620	4
25	26+190	26+560	0.370	5
26	26+560	29+150	2.590	4
27	29+150	29+470	0.320	2
28	29+470	30+070	0.600	6C
29	30+070	30+280	0.210	2
30	30+280	33+510	3.230	4
31	33+510	34+130	0.620	2
32	34+130	38+200	4.070	3
33	38+200	38+540	0.340	1
34	38+540	41+230	2.690	3
35	41+230	41+630	0.400	1
36	41+630	41+700	0.070	2
37	41+700	42+410	0.710	6C
38	42+410	42+630	0.220	2
39	42+630	43+030	0.400	1
40	43+030	44+630	1.600	3
41	44+630	45+470	0.840	2
42	45+470	48+680	3.210	4
43	48+680	49+110	0.430	6C
44	49+110	50+100	0.990	4
45	50+100	51+025	0.925	6C
46	51+025	54+850	3.825	4
47	54+850	55+310	0.460	6C
48	55+310	55+710	0.400	4
49	55+710	55+835	0.125	1
TULJAPUR BYPASS				
50	0+000	5+200	5.200	5
51	5+200	5+760	0.560	7
52	5+760	10+060	4.300	5
53	10+060	10+540	0.480	6D
54	10+540	11+593	1.053	5

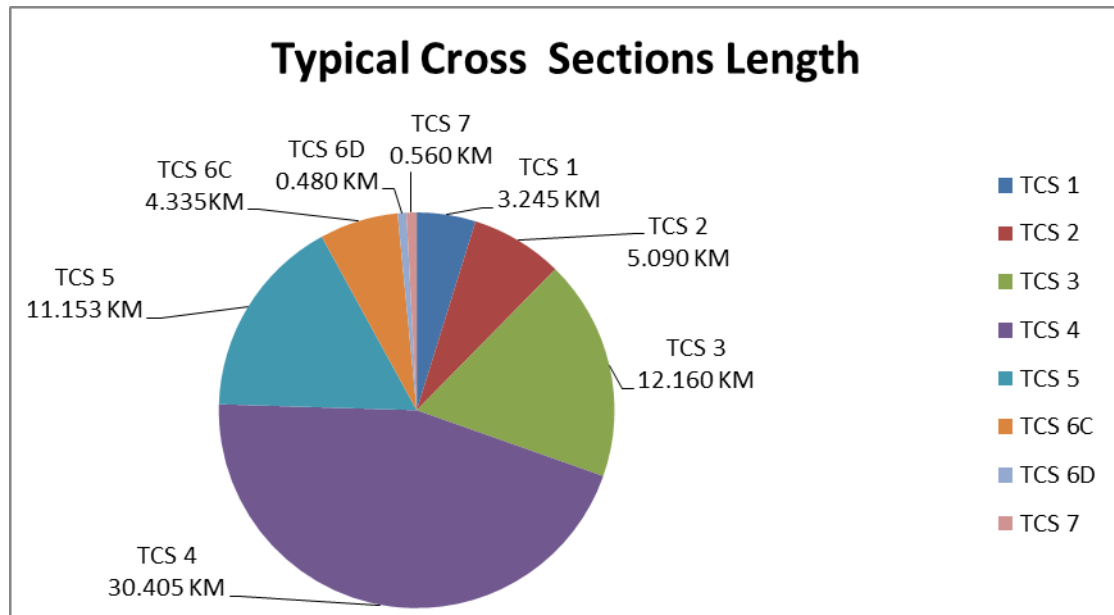


Figure 2.9: Pictorial Diagram of TCS Lengths

2.3 Road Side Drainage

- To facilitate quick disposal of water from the Carriageway and to avoid accumulation of drainage from the Carriageway, RCC 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 in open and rural areas.

2.4 Service Roads (Ref.4.8 of Schedule B)

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

Table 2.3: Service road/ Slip Roads as per Schedule-B of CA

S. No	From (Km)	To (Km)	Side	Length (km)	Village Name
1	0+000	1+180	Both	1.180	Tuljapur
2	5+560	6+410	Both	0.850	Kakramba
3	11+690	11+940	Both	0.250	Khandala
4	16+030	16+620	Both	0.590	Takwiki
5	20+660	21+810	Both	1.150	Karajkeda
6	29+150	30+280	Both	1.130	Ujjaini
7	33+510	34+130	Both	0.620	Ashiv
8	41+630	42+630	Both	1.000	Belkund
9	44+630	45+470	Both	0.840	Sindala
10	48+680	49+110	Both	0.430	Sivilli Mode

S. No	From (Km)	To (Km)	Side	Length (km)	Village Name
11	50+100	51+025	Both	0.925	Borphal
12	54+850	55+310	Both	0.460	Ausa
13			Total	9.425	Total=2x9.425=18.850
Tuljapur Bypass					
14	10+060	10+540		0.480	Slip Road(Approach to VUP
			Total		0.480x2=0.960

2.5 Bypass/Realignment

Following are bypass / realignments proposed on the project road as per provisions of Schedule B of CA.

Table 2.4: Bypass/Realignment as per Schedule B of CA

S. No.	From (Km)	To (Km)	Length (km)	Remarks
1	0.000	11.593	11.593	Bypass
1	25.340	25.570	0.230	Re-alignment
2	26.190	26.560	0.370	Re-alignment
3	54.910	55.170	0.260	Re-alignment

2.6 Intersections

As per provisions of Schedule B of CA, 8 Major Junctions and 46 Minor Junctions are provided. However, total 49 Nos. of Minor Junctions are developed as per site requirement. Details are given below.

Table 2.5: List of Major and Minor Intersections
Major Intersections

S. No.	Design Chainage (Km.)	Type of Junction	Side	Leads to	Remarks	Schedule Chainage
Main Highway						
1	0+000	T-Junction	LHS	Osmanabad & Solapur		0+000
2	21+152	X-Junction	Both	Osmanabad & Lohara		21+160
3	28+025	T-Junction	LHS	Osmanabad		28+070
4	41+033	T-Junction	LHS	To Sugar factory		41+090
5	55+810	T-Junction	RHS	Jawli		55+835
Tuljapur Bypass						
6	0+450	T-Junction		Tuljapur Bypass start point		0+450
7	8+370	T-Junction	Both	Tuljapur/Ausa		8+370
8	11+592	T-Junction		Tuljapur Bypass end point		11+593

Minor Intersections

S. No.	Design Chainage (Km)	Type of Junction	Side	Lead to	As per Schedule (Km.)
1	0+100	X -Junction	Left Right	To Tuljapur Bitumen Road	0+100
2	0+153	T -Junction	Right	To Bus Depo	0+168
3	0.300	T -Junction	Right	To Tuljapur	0+300
4	0.320	Staggered	Right	To Hangar gao	0+320
5	0.565	T -Junction	Right	To Mud Road	0+565
6	0.645	T -Junction	Right	To Agriculture market	0+645
7	2.458	X- Junction	Left Right	To Taduvala To Lake	2+458
8	2+950	X -Junction	Left Right	To Bavi To Malumbra	-
9	3+692	X- Junction	Left Right	To Taduvala To Hangar gao	3+700
10	4+824	T-Junction	Left	To Morda	4+825
11	5+810	Staggered	Right Left	To Lohara To Morda	5+845
12	5+916	T-Junction	Left	To Kakaramba	5+910
13	6+100	T-Junction	Left	To Kakaramba	6+028
14	9+014	T-Junction	Left	To Crusher	9+018
15	10+020	X-Junction	Right	To Wadagao	10+036
16	11+059	X-Junction	Left Right	To Field To Wadagao	11+066
17	11.350	T-Junction	Left	To Crusher	11+350
18	11+802	X-Junction	Left Right	To Khandala To Jawalgao	11+812
19	12+133	Y-Junction	Right	To Karla	12+118
20	17+132	X-Junction	Left Right	To Takwiki To Tormba	17+130
21	21.389	Y-Junction	Right	To Karechkea	21+389
22	22+343	Y-Junction	Left	To Hogao	22+330
23	22+919	T-Junction	Right	To Chotta Karachkers	22+910
24	24+056	X-Junction	Right	To Arni	24+042
25	25.636	T-Junction	Left	To Bandari	25+636
26	25+882	T-Junction	Left	To Bandari	25+900
27	27+870	Y-Junction	Right	To Kokashpur	27+900
28	29+751	X -Junction	Left Right	To Murud To Kamalpur	-
29	31+378	X -Junction	Left Right	To Field To Field	-
30	33+811	Y-Junction	Right	To Ashiv	33+850

S. No.	Design Chainage (Km)	Type of Junction	Side	Lead to	As per Schedule (Km.)
31	34+530	Y-Junction	Right	To Vangji	34+550
32	36+368	X-Junction	Left Right	To Kajoli chincholi To hincholi	36+400
33	38+326	T-Junction	Right	To Thausi	38+365
34	38+733	X-Junction	Left Right	To Taka To Hipper Gaon	38+788
35	40+143	staggered	Left Right	To Belkund To Fields	40+200
36	40.624	Y-Junction	Left	To Taka	40+624
37	42+016	T-Junction	Right	To Police stn (Mud)	42+238
38	43+064	X-Junction	Left Right	To Gulukeda To Bilagundu	43+118
39	44+692	Y-Junction	Left	To Sindah Thanda	44+743
40	44+894	Y-Junction	Left	To school	44+935
41	45+203	X-Junction	Left Right	To Elluri To Sindala	45+252
42	45+350	Y-Junction	Left	To Sindalavadi	45+345
43	45+445	Y-Junction	Left	To Sindala	45+486
44	47+552	T-Junction	Right	To Sindala	47+589
45	48+873	T-Junction	Left	To Osmanabad	-
46	50+524	T-Junction	Left	To Vill	50+550
47	50+735	Y-Junction	Left	Borphal	50+785
48	53+755	Staggered	Right Left	To Ujjini To Ausa	53+753
49	55+072	X-Junction	Left Right	To Ausa To Nagar Soga	55+110

2.7 Grade Separated Structures and underpasses

As per the provisions of Schedule B of the Concession Agreement 3 nos. of Pedestrian Underpass, 3 nos. of Light Vehicular Underpass and 4 nos. of Vehicular Underpass structures are provided in the Project Corridor. Details are provided in **Chapter 4**.

2.8 Road Over Bridge (ROB)

ROB is not proposed in the project road as per provisions of Schedule B of CA.

2.9 Carriageway and Pavement Details

Summary of Pavement Details is given below:

Table 2.6: Carriageway and Pavement Details

S. No.	Description	Flexible (km.)	Rigid (km.)
1	Service Roads	18.85	
2	Slip Roads	0.96	
3	4 Lane with Paved shoulder		67.428
4	Total Length	19.81	67.428
TYPE OF ALIGNMENT			
5	Widening		50.9
6	Realignment		11.153
7	Cutting		0.56
8	Approaches to Underpass		4.815
9	Total Length of the Project		67.428

2.10 Summary of Structures

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

Table 2.7: Summary of Structures

S No	Description	Major Bridges	Minor Bridges	Hume Pipe Culverts	Box/Slab Culverts	Under Passes/Overpasses
1	Retained					
2	Widening		11	29	1	
3	Reconstruction		4	27	7	
4	New		4	16	10	11
5	Improvement					
	Total	--	19	72	17	11

2.11 Toll Plazas

- There is one toll Plaza on the project road at Km. 35+200
- Toll Plaza comprises of each side of 3 Normal lanes one Extra widening lane and one Bike lane.
- 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 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.
- List of tolling equipment provided at site is furnished in the Detailed Report.

2.12 Bus bays/shelters/Truck lay bye

As per provisions of Schedule C of CA bus bays/shelters are provided at 34 locations and 1 also 1 Truck lay bye. Details are provided below.

Table 2.8: Summary of Bus bays/Bus shelters/Truck lay bye

S. No.	Design Chainage (Km.)	Side	Name of the Village
Bus bays/ Bus shelter			
1	4+590	LHS	Dineshwar Nagar
2	4+960	RHS	Dineshwar Nagar
3	5+750	LHS	Kakramba
4	6+050	RHS	Kakramba
5	12+400	LHS	Khandala
6	12+440	RHS	Khandala
7	16+280	RHS	Takwiki
8	16+430	LHS	Takwiki
9	21+580	RHS	Karajkheda
10	21+680	LHS	Karajkheda
11	24+310	RHS	Arni
12	24+350	LHS	Arni
13	25+200	RHS	Bhandari
14	25+210	LHS	Bhandari
15	29+300	RHS	Ujani
16	29+350	LHS	Ujani
17	33+620	RHS	Ashiv Village
18	33+680	RHS	Ashiv Village
19	36+140	LHS	Kojoli Chincholi
20	36+620	RHS	Chincholi
21	38+070	RHS	Thavasi Thanda
22	38+470	LHS	Thavasi Thanda
23	42+350	LHS	Belkund Village
24	42+350	RHS	Belkund Village
25	45+100	LHS	Sindala Village
26	45+110	RHS	Sindala Village
27	50+730	RHS	Bhorphal
28	51+200	LHS	Bhorphal
29	1+630	LHS	Sindphal
30	1+730	RHS	Sindphal
31	7+800	LHS	Tuljapur
32	7+975	RHS	Tuljapur
33	10+600	LHS	Dhakta Tuljapur

S. No.	Design Chainage (Km.)	Side	Name of the Village
Bus bays/ Bus shelter			
34	10+700	RHS	Dhakta Tuljapur
Truck Lay bye			
1	6+900	RHS	Kakramba



Km. 6+900 (Bypass) Truck lay bye



Km. 38+470 Bus bay

Figure 2.10: Representative photos of Truck lay bye & Bus bay

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 byes and is functional.

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. 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	67.428 km
4	Earthen shoulder	1.0 m to 1.5m Width on site
5	Junctions	57 Nos.
6	Toll Plazas	At Km.35+200
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	34 Nos.
10	Highway Lighting	Provided as per requirement
11	Avenue plantation	Provided





Km. 12+400



Km. 43+200



Km. 43+200



Km. 54+200

Figure 3.1: Photographs of the Road Project

3.3 Pavement Condition

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

Table 3.2: Pavement condition summary

From (km.)	To (km.)	Length (kms)	Condition
0+000	55+835	67.428	Good
0+000	11+593		



Km. 12+400



Km. 32+400



Km.38+200



Km. 48+400

Figure 3.2: Representative Photos 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

The details of structures along this project road are listed below.

Table 4.1: List of Structures

S. No.	Type of Structure	Numbers
1	Major bridges	-
2	Minor Bridge	20 Nos.
3	Underpasses	11 Nos.
4	Pipe culverts	72 Nos.
5	Slab/Box Culverts	17 Nos..

The minor bridges of superstructure are RCC solid slab/RCC Box type 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. Structural condition of most of the culverts is fair. Detailed inventory and condition survey of culverts are given in **ANNEXURE 2**.

4.3 Details of Minor Bridges

The details of minor bridges in the project stretch are listed below. The type of superstructure for minor bridges is RCC solid slab/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 4.2: Inventory of Minor Bridges

S. No.	Chainage(Km.)	Span	Total Length of Bridge (m)	Description
1	2+112	2x8.830	18.6	It has RCC Slab structure. It has RCC Railing, bituminous wearing coat, buried type expansion joints.
2	3+143	3x7.1	21.2	It has RCC Slab structure. It has RCC Railing, bituminous wearing coat, buried type expansion joints.
3	5+201	3x7.1	21.1	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
4	6+645	3x6.5	13.0	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
5	9+779	2x6	2.0	It has RCC Box structure. It has RCC

S. No.	Chainage(Km.)	Span	Total Length of Bridge (m)	Description
				Railing, bituminous wearing coat.
6	11+443	3x4.7	9.4	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
7	15+811	3x3.5	10.5	It has RCC solid slab superstructure supported on RCC wall type piers and abutment. Other features are RCC railing, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
8	25+707	4x10	40.0	It has RCC solid slab superstructure supported on RCC wall type piers and abutment. Other features are RCC railing, bituminous wearing coat, and Tar paper Bearings and buried type expansion joints.
9	27+12	2x6.5	13.0	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
10	28+845	6x9.1	54.5	It has RCC Slab Super structure and RCC Sub Structure. It has RCC Railing, bituminous wearing coat, buried type expansion joints.
11	33+187	2x15	30.0	It has RCC Slab structure. It has RCC Railing, bituminous wearing coat, buried type expansion joints.
12	44+396	1x8	8	It has RCC Slab structure. It has RCC Railing, bituminous wearing coat, buried type expansion joints.
13	46+051	2x9.2	18.4	It has RCC Slab structure. It has RCC Railing, bituminous wearing coat, buried type expansion joints.
14	50+284	2x8.5	17.0	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
15	54+674	2x5	10	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
16	2+143	4x7.50	30.0	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
17	7+188	2 x 7.5	15.0	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.
18	7+437	1X15.0	5.0	It has RCC I Girder It has RCC Railing, bituminous wearing coat, strip seal type expansion joints.
19	8+129	1x15	5.0	It has RCC I Girder It has RCC Railing, bituminous wearing coat, strip seal type expansion joints.
20	10+942	1X10.0	10.0	It has RCC Box structure. It has RCC Railing, bituminous wearing coat.



Km. 28+845



KM.54.674

Figure 4.1: Representative photos of Minor Bridges.

4.4 Details of Underpass

There are 11 Underpasses in the project stretch. The type of superstructure for underpass is RCC 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 4.3: List of Underpass in the Project Road

S. No.	Chainage(Km)	Structure Type	Span	Total Length of Bridge (m)	Description
1	6+100	LVUP	1x10.5	10.5	It has RCC Box structure. It has RCC Crash barrier, bituminous wearing coat.
2	21+152	VUP	1x20	20.0	It has RCC I Girder type. It has RCC crash barrier, bituminous wearing coat, Strip seal expansion joints.
3	29+751	VUP	1x20	20.0	It has RCC I Girder type. It has RCC crash barrier, bituminous wearing coat, Strip seal expansion joints.
4	42+016	PUP	1x7	7.0	It has RCC Box structure. It has RCC Crash barrier, bituminous wearing coat.
5	48+873	VUP	1x20	20.0	It has RCC I Girder type. It has RCC crash barrier, bituminous wearing coat, Strip seal expansion joints.
6	50+524	LVUP	1x10.5	10.5	It has RCC Box structure. It has RCC Crash barrier, bituminous wearing coat.
7	55+074	LVUP	1x10.5	10.5	It has RCC Box structure. It has RCC Crash barrier, bituminous wearing coat.
8	1+764	PUP	1X7.0X3.5	7.0	It has RCC Box structure. It has RCC Crash barrier, bituminous

S. No.	Chainage(Km)	Structure Type	Span	Total Length of Bridge (m)	Description
					wearing coat.
9	9+661	PUP	1X7.0X3.5	7.0	It has RCC Box structure. It has RCC Crash barrier, bituminous wearing coat.
10	10+305	VUP	1X12.0X5.05	12.0	It has RCC Box structure. It has RCC Crash barrier, bituminous wearing coat.
11	5+551 Overpass in Tuljapur Bypass		2x15.00x5.5	15.0	It has RCC I Girder type. It has RCC crash barrier, bituminous wearing coat, Strip seal expansion joints.



Km. 50+524



Km. 55+074

Figure 4.2: Representative photos of underpass

4.5 Details of Culverts:

The culverts observed along the project road are mainly of two types viz. RCC Slab/Box culverts and Pipe culverts. The condition of culverts is generally good. For some of the pipe culverts vegetation and vent cleaning is required. In general, the condition of all the structures is found satisfactory. The detailed condition of the same are given the following sections. Detailed inventory and condition survey of culverts are given in **ANNEXURE 2**

4.5.1. Slab/Box Culverts

There are 17 Nos. of slab/Box culvert in the project stretch. The details of the culverts are as given below

Table 4.4: List of Slab/Box Culverts

Sl. No.	Chainage (Km)	Span (m)	Vent Size (m)
1	10+170	1x5.1	1.6
2	16+840	1x4.5	2.47
3	20+250	1x4	4.1
4	36+330	1x4	1.5
5	39+300	1x4	1.5
6	39+800	1x4	2.47
7	40+920	1x4.5	3.4
8	42+100	1x1.5	5
9	1+462	1x3.0	2.0
10	3+838	1x3.0	1.5
11	4+007	1x4.0	1.5
12	4+215	1x40	4.0
13	5+113	1x4.0	4.0
14	6+846	1x3.0	2.0
15	6+944	1x3.0	2.0
16	6+955	1x3.0	2.
17	7+903	1x3.0	3.0

4.5.2. 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.

4.5.3. General Description of the Pipe Culverts

There are 72 Nos. of pipe culverts in the project stretch. The details of the culverts are as given below.

Table 4.5 List of Pipe Culverts

S. No.	Chainage (Km)	Span	S. No.	Chainage (Km)	Span
1	1+270	1x1.2	37	36.750	2x1.2
2	1+580	1x1.2	38	37.140	1x1.2
3	1+870	1x1.2	39	37.480	1x1.2
4	2+280	1x1.2	40	38.980	2x0.9
5	3+997	1x1.2	41	39.260	3x0.9
6	5+590	1x1.2	42	40.380	3x1.2
7	8+410	2x1.2	43	41.250	4x0.9
8	8+790	1x1.2	44	41.770	3x0.9
9	10+070	2x0.9	45	42.230	1x1.2
10	10+900	2x1.2	46	42.410	2x0.9
11	12+240	1x1.2	47	42+720	1x1.2

S. No.	Chainage (Km)	Span	S. No.	Chainage (Km)	Span
12	13+300	1x0.9	48	43+040	1x1.2
13	13+810	1x1.2	49	43+580	2x0.9
14	14+430	1x1.2	50	44+850	1x1.2
15	17+810	1x1.2	51	45+020	1x1.2
16	18+830	1x1.2	52	45+490	1x0.9
17	19+890	2x0.9	53	46+780	3x1.2
18	20+430	1x1.2	54	47+090	2x0.9
19	20+680	1x0.9	55	48+160	2x1.2
20	21+040	1x0.9	56	48+400	1x0.9
21	21+730	3x0.9	57	49+110	1x1.2
22	22+450	2x0.9	58	49+930	1x1.2
23	22+600	1x1.2	59	51+330	1x1.2
24	23+080	2x1.2	60	51+520	1x1.2
25	24+510	3x0.9	61	51+900	4x0.9
26	25+080	1x1.2	62	52+310	1x1.2
27	26+550	1x1.2	63	52+780	2x0.9
28	27+910	1x0.9	64	53+060	1x0.9
29	28+000	1x0.9	65	54+160	1x1.2
30	29+440	2x1.0	66	55+590	1x0.9
31	30+080	1x1.2	67	0+200(Bypass)	1x1.2
32	30+500	1x1.2	68	4+533	2X1.2
33	32+360	2x1.2	69	4+663	2X1.2
34	34+720	1x1.2	70	2+300	1x1.2
35	35+690	1x1.2	71	2+500	1x1.2
36	36+400	3x0.9	72	11+328	1x1.2

4.5.4. 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.

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	6 %
Two-way commercial traffic volume per day	1560
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 (%)	9 %
2	Design Life (Years)	15 years for non-bituminous
3	Design Traffic (MSA)	10 MSA
4	Surface course (BC)	40mm
5	Binder course (DBM)	50 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 – Next Periodic Renewal Proposed for Service road 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). Indian Road Congress (IRC) has published Special provision 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

6.2 Road Safety Audit

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

Table 6.2: Road safety Items

S. No.	Item Description		Status	Condition
Road Furniture				
1	Sign Boards	Chevron Signs	Available as per site requirement	Good
		Village sign boards	Available as per site requirement	Good
		Information Boards	Available as per site requirement	Good
		Other Sign Boards	Available as per site requirement	Good
		Gantry Sign Boards	Available as per site requirement	Good
2	Road Marking	Studs &Lane marking	Available as per site requirement	good
3	Metal Beam Crash Barriers	At High embankments	Available as per site requirement	good

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

Few observations on the road furniture in safety aspects for the project road are mentioned below:



Marking & OH marker at junction islands at Km.2+500



Separator Railing on Both sides at Km. 11+600



OH marker board before the Head wall at 45+100.



Sign Boards at Km.55+000 (end Point)

Figure 6.1: Representative photos 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 required during the maintenance period.

CHAPTER 7. TOLL PLAZA & HTMS

7.1 General:

There is one toll Plaza on the project road at Km.35+200. 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 at Toll Plaza and Control Room

S. No.	DESCRIPTION	UNIT	QTY
1	RACK42U	NOS	2
2	LASER PRINTER	NOS	1
3	USER FARE DISPLAY 2- LINES,12-CHARACTER	NOS	2
4	BOOTH MONITORING CAMERA IP HIKVISIONDS	NOS	10
5	32 CHANNEL NVR WITH 3 TB STORAGEHIK	NOS	1
6	RFID ETC TRANSCEIVER (ENTRY)	NOS	2
7	SOFTWARE - LANE LEVEL ETC	NOS	4
8	GI MODULAR BOX 8 WAY	NOS	6
9	GI MODULAR BOX 8 WAY	NOS	10
10	GI MODULAR BOX 6 WAY	NOS	3
11	GI MODULAR BOX 6 WAY	NOS	5
12	GI MODULAR BOX 6 WAY	NOS	10
13	GI MODULAR BOX 4 WAY	NOS	4
14	GI MODULAR BOX 4 WAY	NOS	10
15	10 KVA ONLINE UPS WITH 30 MINS BACKUP	NOS	2
16	6 KVA ONLINE UPS WITH 30 MINS BACKUP	NOS	1
17	OVERHEAD LANE STATUS LIGHT (OHLS)	NOS	10
18	TRAFFIC LIGHT (TMS & HTMS)	NOS	4
19	INCIDENT CAPTURE CAMERA (TMS & HTMS)	NOS	10
20	LICENSE PLATE IMAGE CAPTURE CAMERA	NOS	10
21	ELECTRONICS ENCLOSURE {TMS & HTMS}	NOS	10
22	CABLING NETWORKING FOR PLAZA, TMS & HTMS	NOS	1

S. No.	DESCRIPTION	UNIT	QTY
23	CABLE TRAY (TMS & HTMS)	NOS	70.5
24	OPERATOR MONITOR (TMS & HTMS)	NOS	8
25	CUSTOMIZED KEYBOARD (TMS & HTMS)	NOS	8
26	THERMAL RECEIPT PRINTER (TMS & HTMS)	NOS	8
27	MANUAL BOOTH CONTROLLER (TMS & HTMS)	NOS	8
28	INTERCOM SLAVE UNIT (TMS & HTMS)	NOS	8
29	BARCODE READER (TMS & HTMS)	NOS	8
30	CASHUP PC (TMS & HTMS)	NOS	1
31	AUDIT, POS, LSDU, REPORTS , WIM PC (TMS)	NOS	1
32	POS PRINTER - THERMAL (TMS & HTMS)	NOS	1
33	INTERCOM MASTER UNIT - 20 CHANNEL (TMS)	NOS	1
34	PLAZA SOFTWARE (TMS & HTMS)	NOS	6
35	PTZ CAMERAS (30X ZOOM) (TMS & HTMS)	NOS	2
36	PLAZA MONITORING CAMERA (TMS & HTMS)	NOS	5
37	JOYSTICK (TMS & HTMS)	NOS	1
38	CCTV MONITOR 42" (TMS & HTMS)	NOS	1
39	RFID ETC TRANSCEIVER WITH ACCESSORIES	NOS	8
40	RFID ETC TRANSCEIVER WITH ACCESSORIES	NOS	2
41	POS ETC RFID READER (TMS & HTMS)	NOS	1
42	LIGHT CURTAIN (OPTICAL SEPARATOR)	NOS	6
43	SWB PC (FOR RECONCILLATION & REPORTS)	NOS	2
44	METEOROLOGICAL DATA LOGGERS (TMS & HTMS)	NOS	1
45	IR BULLET CAMERA 3 MP - TMS	NOS	3
46	RFID TAG (TMS)	NOS	500
47	UPS 3 KVA (TMS & HTMS)	Nos	1
48	ONLINE UPS 1 KVA (TMS & HTMS)	EA	1
49	11KV 45KN DISC T&C COMPOSITE L ROD INSU.	NOS	3
50	11KV 45KN DISC T&C COMPOSITE L ROD INSU.	NOS	5
51	11KV 5KN PIN COMPOSITE POLYMER INSULATOR	NOS	40

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.



Toll Plaza



Toll Plaza Administrative Building

Figure 7.1: Toll Plaza @ KM. 35+200

CHAPTER 8. SCHEDULE OF ANNUITY PAYMENTS

8.1 Hybrid Annuity Model (HAM)

Hybrid annuity model is the PPP model in which Authority makes payment of 40% of the Bid Project cost during construction period based on progress milestones set forth in Concession Agreement. Payment of the balance 60% of the Bid Project Cost is made in form of bi-annual annuities with interest during the operational phase of concession.

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 Payments are due and payable every six months 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%, the Interest would be calculated on simple interest basis and no compounding of the same would be undertaken.
- O&M Payment is payable in two installments every year by adjusting the same with Price Index Multiple on the Reference Index Date preceding the due date of payment there of as per Clause 23.7.1 of the Concession Agreement.

Details of Annuity payments are as below.

Table 8.2: Schedule of Annuity Payments

Annuity No.	% of Completion Cost remaining to be paid on COD	Annuity Due Date	Annuity paid date
1	2.10%	16.05.2020	26.05.2020
2	2.17%	12.11.2020	04.12.2020
3	2.24%	16.05.2021	-

Annuity No.	% of Completion Cost remaining to be paid on COD	Annuity Due Date	Annuity paid date
4	2.31%	12.11.2021	-
5	2.38%	16.05.2022	-
6	2.45%	12.11.2022	-
7	2.52%	16.05.2023	-
8	2.60%	12.11.2023	-
9	2.68%	16.05.2024	-
10	2.76%	12.11.2024	-
11	2.84%	16.05.2025	-
12	2.93%	12.11.2025	-
13	3.02%	16.05.2026	-
14	3.11%	12.11.2026	-
15	3.20%	16.05.2027	-
16	3.30%	12.11.2027	-
17	3.40%	16.05.2028	-
18	3.50%	12.11.2028	-
19	3.61%	16.05.2029	-
20	3.72%	12.11.2029	-
21	3.83%	16.05.2030	-
22	3.94%	12.11.2030	-
23	4.06%	16.05.2031	-
24	4.18%	12.11.2031	-
25	4.25%	16.05.2032	-
26	4.25%	12.11.2032	-
27	4.44%	16.05.2033	-
28	4.71%	12.11.2033	-
29	4.75%	16.05.2034	-
30	4.75%	12.11.2034	-

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. Functioning of the Toll System including charging and collecting the fees from the road user in accordance with the CA.
- iii. carrying out preventive and periodic maintenance of the Project road;
- iv. undertaking routine maintenance including prompt repairs of potholes, cracks, joints, drains, embankments, structures, pavement markings, lighting, road signs and other traffic control devices;

- v. Undertaking major maintenance such as resurfacing of pavements, repairs to structures, and repairs and refurbishment of tolling system and other equipment;
- vi. Functioning of the lighting system;
- vii. Functioning of the Patrolling System
- viii. Functioning of rescue and medical aid services
- ix. Ambulance as and when required
- x. Functioning of the Project Facilities
- xi. Administrative, Operational and Maintenance Base Camp
- xii. Truck Lay byes
- xiii. Pickup Bus stops / Bus Bays
- xiv. protection of the environment and provision of equipment and materials therefor;
- xv. Operation and maintenance of all communication, control and administrative systems necessary for the efficient operation of the Project road
- xvi. complying with Safety Requirements in accordance with Article 18.

9.4 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

9.4.1. 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 is in good condition and hence does not require any immediate or preventive interventions.

9.4.2. 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.

9.4.3. 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 st Periodic Maintenance	2027	Planned to execute on service roads
2 nd Periodic Maintenance	2033	Planned to execute on service roads

9.4.4. 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,

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

9.5 Review of Test Reports

9.5.1. 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.

As per Schedule K of the CA, Roughness value shall not exceed 2750 mm in a KM. As the riding quality is good, the Independent Engineer has not directed the Concessionaire to conduct the BI Test.

9.6 O&M Forecast

The O&M costs were estimated based on various parameters of CA, design reports and 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	Operation Expenses	Total cost per year
2020	2.138	2.100		3.11	7.35
2021	2.202	2.163		3.21	7.57
2022	2.268	2.228		3.30	7.80
2023	2.336	2.295		3.40	8.03
2024	2.406	2.364		3.50	8.27
2025	2.479	2.435		3.61	8.52
2026	2.553	2.508		3.72	8.78
2027	2.629	2.583	29.70	3.83	38.74
2028	2.708	2.660		3.94	9.31
2029	2.790	2.740		4.06	9.59
2030	2.873	2.822		4.19	9.88
2031	2.959	2.907		4.31	10.18
2032	3.048	2.994		4.44	10.48
2033	3.140	3.084	34.95	4.57	45.75
2034	3.234	3.177		4.71	11.12
2035	2.108	2.071		3.07	7.25
Total	41.87	41.13	64.65	60.99	208.64

CHAPTER 10. REVIEW OF CONCESSION AGREEMENT

10.1 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. The Provisional Certificate copy given in **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 Percentage 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)

Increase in costs

If as a result of Change in Law, the Concessionaire suffers an increase in costs or reduction in net after-tax return or other financial burden, the aggregate financial effect of which exceeds the higher of Rs.2.20 Crore (Rupees two crore twenty lakhs) or 2%(two percent) of the total Annuity payments in any Accounting Year, the Concessionaire may so notify the Authority and propose amendment to this Agreement so as to place the Concessionaire in the same financial position as it would have enjoyed had there been no such Change in Law resulting in increased costs, reduction in return or other financial burden as aforesaid. Upon notice by the Concessionaire, the Parties shall meet, as soon as reasonably practicable as but no later than 30 (Thirty) days from the date of notice and either agree on amendments to this Agreement or on any other mutually agreed arrangement.

Reduction in costs

If as a result of Change in Law, the Concessionaire benefits from a reduction in costs or increase in net after-tax return or other financial gains, the aggregate financial effect of which exceeds the higher of Rs.2.20 crore(Rupee two crore twenty Lakhs) or 2% (Two percent) of the total Annuity Payment in any Accounting year, the Authority may so notify the Concessionaire and propose amendments to this Agreement so as to place the Concessionaire in the same financial position as it would have enjoyed had there been no such Change in Law resulting in decreased costs, increase in return or other financial gains as aforesaid. Upon notice by the Authority, the parties shall meet, as soon as reasonably practicable as but no later than 30 (thirty) days from the date of notice and either agree on such amendments to this Agreement or on any other mutually agreed arrangement.

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. Insurance copy is given in **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 the Property	Remarks
			From	To		
Standard Fire & Special Perils Policy	The Oriental Insurance Co Ltd	171200/11/2021/230	18.11.2020	17.11.2021	Road & Structure: Toll Building & Toll Booths, TMS, HTMS, Office & IT equipment, Electronic Equipment, Road Furniture, Fixtures, electrical Poles Lighting & Fittings, Sign boards & Safety Barrier	Endorsement issued for change in policy period.
Fire Industrial All Risk Policy	The Oriental Insurance Co Ltd	171200/11/2021/229	18.11.2020	17.11.2021	Maintenance of Roads, Bridges	Endorsement issued for change in policy period.
Electronic Equipment Insurance Policy schedule	Oriental Insurance Company Ltd	171200/44/2021/48	25.9.2020	24.9.2021	Electronic Equipment installed in the Project road	
Employees Compensation Insurance	HDFC Ergo General Insurance Co Ltd	3114203370090800000	24.3.2020	23.3.2021	All categories of Employees of the Contractor & sub-contractor engaged in the Project	

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

12.4 Project Facilities

Toll Plaza is constructed at Km.35+200 and is operational. Bus bays and truck laybys 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, bus bay and truck lay bye 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 scheduled in the year 2027 and 2033.

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

Annexure 1 : Condition of Bridges/Underpass

S.No	Chainage	Type of Structure	Substructure	Superstructure	Wearing coat	Bearings	Quadrant Pitching	Toe wall	Aprons
1	2.112	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
2	3.143	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
3	5.201	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
4	6.645	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
5	9.779	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
6	11.443	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
7	15.811	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
8	25.707	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
9	27.12	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
10	28.845	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
11	33.187	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
12	44.396	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
13	46.051	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
14	50.284	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
15	54.674	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
16	2.143	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
17	7.188	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
18	7.437	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
19	8.129	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
20	10.942	Minor bridge	Good	Good	Good	Fair	Good	Good	Fair
21	6.1	LVUP	Good	Good	Good	Fair	Good	Good	Fair
22	21.152	VUP	Good	Good	Good	Fair	Good	Good	Fair
23	29.751	VUP	Good	Good	Good	-	Good	Good	Fair

Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.



TECHNICAL DUE DILIGENCE REPORT

S.No	Chainage	Type of Structure	Substructure	Superstructure	Wearing coat	Bearings	Quadrant Pitching	Toe wall	Aprons
24	42.016	PUP	Good	Good	Good	-	Good	Good	Fair
25	48.873	VUP	Good	Good	Good	-	Good	Good	Fair
26	50.524	LVUP	Good	Good	Good	-	Good	Good	Fair
27	55.074	LVUP	Good	Good	Good	-	Good	Good	Fair
28	1.764	PUP	Good	Good	Good	-	Good	Good	Fair
29	9.661	PUP	Good	Good	Good	-	Good	Good	Fair
30	10.305	VUP	Good	Good	Good	-	Good	Good	Fair
31	5.551	Over Pass	Good	Good	Good	-	Good	Good	Fair

Annexure 2: Condition of Culverts

Condition of Box /Slab Culverts

S. No.	Chainage(Km.)	Condition	Return wall	Quadrant pitching	Toe wall	Parapet wall
1	10+17	Good	Good	Good	Good	Good
2	16+84	Good	Good	Good	Good	Good
3	20+25	Good	Good	Good	Good	Good
4	36+33	Good	Good	Good	Good	Good
5	39+30	Good	Good	Good	Good	Good
6	39+80	Good	Good	Good	Good	Good
7	40+92	Good	Good	Good	Good	Good
8	42+10	Good	Good	Good	Good	Good
9	1+462	Good	Good	Good	Good	Good
10	3+838	Good	Good	Good	Good	Good
11	4+007	Good	Good	Good	Good	Good
12	4+215	Good	Good	Good	Good	Good
13	5+113	Good	Good	Good	Good	Good
14	6+846	Good	Good	Good	Good	Good
15	6+944	Good	Good	Good	Good	Good
16	6+955	Good	Good	Good	Good	Good
17	7+903	Good	Good	Good	Good	Good

Hume Pipe Culverts

S. No	Chainage (Km)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
1	1+270	Good	Good	Good	Fair
2	1+580	Good	Good	Good	Fair
3	1+870	Good	Good	Good	Fair
4	2+280	Good	Good	Good	Fair
5	3+997	Good	Good	Good	Fair
6	5+590	Good	Good	Good	Fair
7	8+410	Good	Good	Good	Fair
8	8+790	Good	Good	Good	Fair
9	10+070	Good	Good	Good	Fair
10	10+900	Good	Good	Good	Good
11	12+240	Good	Good	Good	Good
12	13+300	Good	Good	Good	Good
13	13+810	Good	Good	Good	Good
14	14+430	Good	Good	Good	Fair
15	17+810	Good	Good	Good	Fair
16	18+830	Good	Good	Good	Good
17	19+890	Good	Good	Good	Good

S. No	Chainage (Km)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
18	20+430	Good	Good	Good	Good
19	20+680	Good	Good	Good	Good
20	21+040	Good	Good	Good	Good
21	21+730	Good	Good	Good	Good
22	22+450	Good	Good	Good	Good
23	22+600	Good	Good	Good	Good
24	23+080	Good	Good	Good	Good
25	24+510	Good	Good	Good	Good
26	25+080	Good	Good	Good	Good
27	26+550	Good	Good	Good	Good
28	27+910	Good	Good	Good	Good
29	28+000	Good	Good	Good	Good
30	29+440	Good	Good	Good	Fair
31	30+080	Good	Good	Good	Fair
32	30+500	Good	Good	Good	Good
33	32+360	Good	Good	Good	Not visible
34	34+720	Good	Good	Good	Good
35	35+690	Good	Good	Good	Good
36	36+400	Good	Good	Good	Fair
37	36+750	Good	Good	Good	Fair
38	37+140	Good	Good	Good	Fair
39	37+480	Good	Good	Good	Good
40	38+980	Good	Good	Good	Good
41	39+260	Good	Good	Good	Good
42	40+380	Good	Good	Good	Fair
43	41+250	Good	Good	Good	Fair
44	41+770	Good	Good	Good	Fair
45	42+230	Good	Good	Good	Good
46	42+410	Good	Good	Good	Good
47	42+720	Good	Fair	Good	Good
48	43+040	Good	Good	Good	Good
49	43+580	Good	Fair	Good	Good
50	44+850	Good	Good	Good	Good
51	45+020	Good	Good	Good	Good
52	45+490	Good	Good	Good	Good
53	46+780	Good	Good	Good	Good
54	47+090	Good	Good	Good	Good
55	48+160	Good	Good	Good	Good
56	48+400	Good	Good	Good	Good

S. No	Chainage (Km)	Hume Pipe	Head wall	Quadrant pitching	Toe wall
57	49+110	Good	Good	Good	Good
58	49+930	Good	Good	Good	Good
59	51+330	Good	Good	Good	Good
60	51+520	Good	Good	Good	Good
61	51+900	Good	Good	Good	Good
62	52+310	Good	Good	Good	Good
63	52+780	Good	Good	Good	Good
64	53+060	Good	Good	Good	Good
65	54+160	Good	Good	Good	Good
66	55+590	Good	Good	Good	Good
67	0+200(Bypass)	Good	Good	Good	Good
68	4+533	Good	Good	Good	Good
69	4+663	Good	Good	Good	Good
70	2+300	Good	Good	Good	Good
71	2+500	Good	Good	Good	Good
72	11+328	Good	Good	Good	Good

Annexure 3: Operation & Maintenance cost

Routine Maintenance cost for 1 year

S. No.	Item		Unit	No	Frequency per year	Quantity	Rate	Amount	Remarks
1	General Cleaning in Carriageways& Shoulders Rural area	Monthly	Km	58.003	12	4	350	9,74,450	04 Nos of Labour
2	General Cleaning in carriageway& Shoulders Urban area	Twice in a month	kms	9.425	24	4	350	3,16,680	04 Nos of Labour
3	Watering in Median Plants	Once in Week	Km	67.428	52	1	1939	67,98,630	01 Nos of Labour
4	Watering in Avenue plants	Once in Week	Km	58.003	52	58	1939	58,48,326	
5	Median Maintenance (Grass cutting and plant trimming)	Once in Month	Km	58.003	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	47.1996	2	10	350	3,30,397	10 Nos of labour per KM (70% of the Project length)
7	Cleaning of Culverts	Half yearly	Nos	150	2	3	650	5,85,000	3 Nos of Labour along with JCB or Excavator
8	Road Furniture Cleaning	Quarterly	Km	67.428	4	2	350	1,88,798	02 Nos of Labour
9	Maintenance of Bus shelters	Monthly	Nos	34	12	2	350	2,85,600	2 Nos/ Bus shelter/month
10	General Cleaning in Building & Facilities	Daily	Nos	3.00	12	60	350	7,56,000	02 Nos of Labour for 30 days
11	Bridges	Half yearly	Nos	27	2	4	350	75,600	04 Nos of Labour for removal of vegetation/Structure
13	Carriageway Maintenance (Pot Holes etc)	Yearly	Sq.m	15	1	550	124	10,23,000	2.5% of CW area considered 22.0x1000x2.5%
								1,74,34,482	
	EQUIPMENT SUPPLY							-	

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	67.428	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	2	250000	5,00,000	(2500000 is the cost of vehicle, considering 20% Rental per year) including maintenance
5	Grass cutter	Monthly	Nos	67.428	12	3	12000	40,457	(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	67.428	4	4	2500	44,952	Per Supervisor
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
								28,85,409	
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)
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)
								10,60,000	
								Routine Maintenance Cost per year	2,13,79,890.87

Incidental cost for 1 year

S. No.	Item		Unit	No	Frequency	Quantity	Rate	Amount	Remarks
1	Road marking	Half yearly	Sqm	1	1	16066.1655	516	82,90,141	33 % of Total Project length on B/S for 1 year
2	Carriageway Maintenance (Pot Holes etc)	Yearly	Sqm	1	1	212	168	35,616	2% of Flexible Pavement (changed quantities to only Service road portion)
3	Maintenance of Earthen Shoulder	Half yearly	Cum	1	3	2022.84	225	13,65,417	10% of total Shoulder length throughout the project
4	Sign Board	Half yearly	Nos	1	2	98	4000	7,84,000	5 % of Total sign boards per Half year (of 1950 Nos)
5	MBCB	Monthly	RMT			1297.5	2400	31,14,000	5% of Total qty per year - (considered 2400 per RMT)
6	Mile Stone (KM Stone/ HM Stone / ROW stone etc.)	Quarterly	Nos	67.428	4	17	2250	1,53,000	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	67.428	1	2697.1	250	6,74,280	2 % of total Kerbings per year
9	Electrical Poles	Yearly	Nos	0	1	0	55000	-	3 % of total poles per year
10	Replacement of Rigid pavement Panels	Yearly	Ls	1	1	1517.13	4000	60,68,520	Considered 1 % of the total volume per year
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	4318		129.528	3985	5,16,169	3% of Length replacement in every 5 years (Quantity to be estimated)
Total amount for 1 Year								2,10,01,143	

Operational Expenses

S.No.	PARTICULARS	Amount
1	Man Power	₹ 96,00,000
2	Fuel for Generator & Vehicles	₹ 99,72,000
3	Electricity	₹ 92,40,000
4	Stationary	₹ 1,00,000
5	Replacement of Electrical Fixtures	₹ 16,28,407
6	Refurbishment of Toll Plaza Equipment	₹ 6,00,000
	Total Amount	₹ 3,11,40,407

Major Maintenance BOQ



S. No.	DESCRIPTION	Unit	1st Cycle			2 nd Cycle		
			QUANTITY	RATE	AMOUNT	QUANTITY	RATE	AMOUNT
	Pavement (Asphalt & Concrete)							
1	Providing and applying tack coat with Rapid Setting Bitumen Emulsion using emulsion pressure distributor on the prepared bituminous/granular surface cleaned with mechanical broom, Ref. to Technical specification 503.			-			-	
(a)	On Bituminous surface @ 2.0 kg to 3.0 kg/10 sq.m.	Sqm	3,98,797.50	14.00	55,83,165	3,98,797.50	14.00	55,83,165
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	Cum	15,951.90	7,682.00	12,25,42,496	15,951.90	7,682.00	12,25,42,496

S. No.	DESCRIPTION	Unit	1st Cycle			2 nd Cycle		
			QUANTITY	RATE	AMOUNT	QUANTITY	RATE	AMOUNT
	conforming the IRC -111 and IRC 37.							
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	1,01,142.00	250.00	2,52,85,500	1,01,142.00	250.00	2,52,85,500
4	Texturing of Rigid pavement (considering 50% for 7 years)	Sqm	6,31,305.25	130.00	8,20,69,683	6,31,305.25	130.00	8,20,69,683
5	Earthen shoulder @ service roads	cum	1,981.00	250.00	4,95,250	1,981.00	250.00	4,95,250
	Total				23,59,76,093	-	-	23,59,76,093
	Junctions, Traffic Signs Marking and Other Appurtenances			-		-	-	
1	Providing and laying of cement concrete kerb without channel (M-20 Grade) over WMM foundation using kerb laying machine & proper curing complete, as per drawing & technical specification clause no.409, 1700 and as per the instructions of Employer's representative. - Consider 5% for construction period.	Rmt	-	380.00		19,810.00	380.00	75,27,800
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	1,485.75	516.00	7,66,647	1,485.75	516.00	7,66,647
3	Road Studs	Nos	1,650.00	750.00	12,37,500	1,650.00	750.00	12,37,500
	Total			-	20,04,147	-	-	95,31,947
	Grand Total				23,79,80,240	-		24,55,08,040

ABSTRACT FOR MAJOR MAINTENANCE

Description	Due date	Base cost	Esc Period	Escalation Rate per Year	Cost of MMR on due date @ 5% Escalation	In crores
Date of Estimation	18-Nov-19					
1st Major Maintenance - Highway	18-May-27	23,79,80,240	7.50	3.0%	29,15,25,794	29.15
1st Major Maintenance - Structures	18-May-27	45,24,680	7.50	3.0%	55,42,733	0.55
2nd Major Maintenance - Highways	11-May-32	24,55,08,040	12.50	3.0%	33,75,73,555	33.76
2nd Major Maintenance - Structures	11-May-32	86,78,356	12.50	3.0%	1,19,32,740	1.19
				Total	₹ 64,65,74,823	64.65

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 एवं 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/01/EFC/Tuljapur-Ausa/2014/MAH/95308		Duplicate Date: 17.02.2017
To M/s Dilip Buildcon Limited, Plot No-5 Inside Govind Narayan Singh Gate, Chuna Bhatti, Kolar Road, Bhopal - 462016 (MP) 0755-4029999 Email. db@dilipbuildcon.co.in		
Sub: Four Laning of Tuljapur - Ausa (including Tuljapur Bypass) Section of NH-361 from km 0.000 to km 55.835 in the State of Maharashtra on Hybrid Annuity Mode under NHDP Phase IV - Letter of Award - Reg.		
Ref: (i) Your RFP application submitted on 09.01.2017. (ii) Financial proposal opened on 25.01.2017.		
Sir, With reference to NHAI's Request for Proposal for "Four Laning of Tuljapur - Ausa (including Tuljapur Bypass) Section of NH-361 from km 0.000 to km 55.835 in the State of Maharashtra on Hybrid Annuity Mode under NHDP Phase IV" and considering your proposal in this regard submitted on 09.01.2017 cited under ref (i), NHAI hereby accepts your proposal quoting Bid Project Cost of Rs. 911.07 Cr. (Rupees Nine Hundred Eleven Crores Seven Lakhs Only) and First Year O&M Cost of Rs. 3.00 Cr. (Rupees Three Crores Only), as included in Appendix - 1B of your Bid Document, and declares you as the "Selected Bidder" as per the provisions of the 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 documents, 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 irrevocable and unconditional Bank Guarantee of Rs. 45.56 Crore (Rupees Forty Five Crores and Fifty Six Lakhs only) within the period of the 30 days from the date of signing of the Concession Agreement. Till the time the Concessionaire provides NHAI 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 DCA). 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.		
Yours faithfully  (Ashish Asati) General Manager (Tech) (Maharashtra Division)		

Annexure 5: Provisional Certificate



LION ENGINEERING CONSULTANTS

"Contributing to Building the Infrastructure of the Nation"

Letter No. : LION/IE-0317/2019/NHAI/DBL-TA/7385

Date: 18.11.2019

To,
The Authorized Signatory,
DBL Tuljapur Ausa Highways Limited,
Reg. Office: Plot No.5,
Inside Govind Narayan Singh Gate,
Chuna Bhatti, Kolar Road,
Bhopal-462016 (MP).
Email- db@dilipbuildcon.co.in, tuljapurbillingplanning@dilipbuildcon.co

Sub : Four Laning of Tuljapur -Ausa (Including Tuljapur Bypass) Section of NH - 361 from km 0.000 to km 55.835 (Existing Chainage: km 416.000 to km 470.000) under NHDP Phase - IV 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: 01.05.2017.
2. Concessionaire Lr. No. DBLTAHL/SPV/2019/1198; dtd: 25.07.2019.
3. Concessionaire Lr. No. DBLTAHL/SPV/2019/1209; dtd: 01.08.2019.
4. Inspection of IE dated. 02.08.2019 & 06.08.2019.
5. IE letter no. LION/IE0117/2019/NHAI-DBL-TA/6876; dtd: 14.08.2019.
6. Concessionaire Lr. No. DBLTAHL/SPV/2019/1254; dtd: 21.08.2019.
7. Inspection of IE dated 22.08.2019.
8. Concessionaire Lr. No. DBLTAHL/SPV/2019/1266; dtd: 23.08.2019.
9. This office Lr. No. LION/IE0117/2019/NHAI/DBL-TA/6913; dtd: 23.08.2019.
10. RO-Nagpur Lr. No. MHAI/RO-NAG/4/7/Tuljapur-Ausa/PCO/2019/1427; dtd: 29.08.2019.
11. This office Lr. No. LION/IE0117/2019/NHAI-DBL-TA/7224; dtd: 17.10.2019
12. Concessionaire letter no. DBLTAHL/SPV/2019/1354; dtd: 20.10.2019
13. Concessionaire letter no. DBLTAHL/SPV/2019/1373; dtd: 31.10.2019
14. IE Inspection dtd: 11.10.2019 & 13.10.2019.
15. IE Inspection dtd: 14.11.2019 to 16.11.2019.

Dear Sir,

The Concession Agreement for the above project was signed between M/s DBL Tuljapur Ausa Highways Limited (hereinafter referred as "Concessionaire") and National Highways Authority of India (hereinafter referred as "Authority") on 01.05.2017 and the Appointed Date was declared as 22.11.2017.

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 available to the Concessionaire up to 182 days from the Appointed Date. Upon issue of such Provisional Certificate, the provisions of Article 15 shall apply to such completed

Corporate Office : 1/150/1500001, Plot No. 01, Ring Road, Near Station, Gurgaon, Haryana
Regional Office : Mumbai | Gurgaon | Bhopal
Tel : 011-26102494 | Email : info@lionengr.com | www.lionengr.com
Website : www.lionengr.com

Page 1 of 5

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

S.No.	Section (km)		Side	Length (km)	Remark
	From	To			
Existing Carriage Way					
1	0+000	5+460	BHS	5.460	This section is considered in Pre-COD. Balance work highlighted in <u>Punch List-A</u>
2	6+500	54+820	BHS	48.320	This section is considered in Pre-COD. Balance work highlighted in <u>Punch List-A</u>
3	55+350	55+835	BHS	0.485	This section is considered in Pre-COD. Balance work highlighted in <u>Punch List-A</u>
4-lane operational length (km) considered for Pre-COD i.e. (1)+(2)+(3)				54.265	
Total length of Project Highway (km)				67.428	

4. As per NHAI Policy circular dated 21.12.2015, the Independent Engineer vide letter no. 6913; dtd: 23.08.2019, 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 vide their letter no 1427; dtd: 29.08.2019 has issued requisite concurrence with instructions to Independent Engineer to assure followings before Issuance of provisional certification:
- The following item including List-C shall be completed before issuance of PCOD:
 - Metal Beam Crash Barrier.
 - New Jersey Crash Barrier.
 - Casting of curbs including painting.
 - Finishing work around Toll Booths.
 - Road Marking and sign Boards.
6. Furthermore, the Concessionaire vide letter no. 1354; dtd: 20.10.2019, 1373; dtd: 31.10.2019 has confirmed compliance of pending works and requested for issuance of provisional completion certificate in pursuant to article 14 of CA. In this continuation, the Independent Engineer has inspected project highway on 14.11.2019 to 16.11.2019 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-J. 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-



Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.

Annexure 6: Insurance

This Document is Digitally Signed

Signer: ATUL JERATH
Date: Fri, Nov 6, 2020 14:30:20 IST
Location: NOIDA
Reason: Signing Policy in OICL

ELECTRONIC EQUIPMENT INSURANCE POLICY SCHEDULE

Policy No	: 171200/44/2021/48	Prev Policy No	:
Cover Note No	: ER1700203541	Cover Note Dt	: 25/09/2020
Insured's Code	: 101327032	Issuing Office Code	: 171200
Insured's Name	: DBL Tuljapur AUSA Highways Pvt Ltd (GSTIN: 27AAGCD0953Q1Z6)	Issuing Office Name	: CBU Vadodara (GSTIN: 24AAACT06)
Address	: Plot no. 5, Inside Govind Narayan Singhgate, Chunabhatti, Kolar Road, Bhopal - 462016, M.P.	Address	: 1st FLOOR, KIRTI TOWER, TILAK ROAD VADODARA GUJARAT 390001
Tel /Fax /Email	: 0265-2427075 / 0265-2436654 / 171200@orientalinsurance.co.in	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 : 001-002, 6TH FLOOR AURAM NR VASNA, HP PETROL PUMP MARKAND DESAI RAOD
VADODARA 390015 GUJARAT INDIA, MOB NO 9898295111 PHONE NO 0265-
2252274, BARODA, GUJARAT, 390007
Tel/Fax/Email : 0265-2252274/0265-2357445/0265-2356033/

Period of Insurance : FROM 00:00 ON 25/09/2020 TO MIDNIGHT OF 24/09/2021

Collection No & Dt : DC_IND 3214000997 - 07/10/2020 GST INVOICE NO : 2419552827 UIN : 0

Gross Premium : 29,261 GST : 5,267 Stamp Duty : 1 Total : 34,528

RISK DETAILS

Section I : EEI - EQUIPMENT

Sum Insured : 5,85,22,422

1 Location of the Risk : AS PER LIST ATTACHED
Road and bridge stretch connecting from Tuljapur
to AUSA

MAHARASHTRA - 413601

Sl No.	Description of Items	Manufacturer Name	Year of Annual Manufacture	Identification No.	Escalation %	Sum Insured
1	AS PER LIST	AS PER LIST	2018	AS PER LIST		5,85,22,422

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 : -

Date : 07/10/2020

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.

For and on behalf of

The Oriental Insurance Company Limited

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

Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.

FIRE INDUSTRIAL ALL RISK POLICY SCHEDULE

Policy No : 171200/11/2020/228	Prev Policy No : 171200/11/2020/441	
Cover Note No : 1700001712020	Cover Note Dt : 22/11/2020	
Insured's Name : 101327032 - DBL Tuljapur Ausa Highways Pvt Ltd (GSTIN: 27AAGCD09530126)	Issuing Office : 171200 - CBU Vadodara (GSTIN: 24AAACT0637R274)	
Address : Plot no. 5, Inside Govind Narayan Singhgate, Chunabhatti, Kolar Road, Bhopal - 462015, M.P.	Address : 1st FLOOR, KIRTI TOWER, TILAK ROAD, VADODARA, GUJARAT 390001	
	OSMANABAD 413601	
Tel/Fax/Email : / / / NA	Tel/Fax/Email : 0265-2427075 / 0265-2436654 / 171200@orientalinsurance.co.in	
Dev. Officer :	BROKER : LC0000000179 (1148)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 3214001192 - 30/11/2020	GST INVOICE NO :2419662554	UIN :0
Gross Premium : 53,41,090	GST : 9,61,396	Stamp Duty : .5
Total : 63,02,486		

Co Insurance Details :

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

SECTION I : IAR - STANDARD FIRE AND SPECIALS PERILS SECTION

Location of the Risk : Maintenance of Roads, Bridges
Four Laning of Tuljapur-Ausa Section of NH-361 From Km.0.000 to Km. 55.835 (Existing chainage Km.416.000 to Km.470.000) under NHDP Phase IV in the state of Maharashtra on Hybrid Annuity Mode

Deductible :

Risk Description : Roads

Block Description : 1

SMI Description	Nature of Stock	Sum Insured
Bridges		135,16,61,142
Roads		426,71,49,370

Cover Wise Details	Sum Insured	Premium
Fire Basic Cover	561,88,10,512	30,90,345.78

Place :
Date : 26/11/2020

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.

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

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For and on behalf of
The Oriental Insurance Company Limited

Authorized Signatory

Page 1 of 4

Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.

This Document is Digitally Signed



Signer: ATUL KUMAR
Date: Tue, Dec 1, 2020 11:33:53 AM
Location: NOIDA
Reason: Signing [Signature]

STANDARD FIRE & SPECIAL PERILS POLICY SCHEDULE

Policy No : 171200/11/2021/230	Print Policy No : 171200/11/2020/440
Cover Note No : -	Cover Note Dt : -
Insured's Name : 101327002 - DBL Tuljapur Ausa Highways Pvt Ltd (GSTIN: 27AAGC009530128)	Issuing Office : 171200 - CBU Vadodara (GSTIN: 24AAAC10627R224)
Address : Plot no. 5, Inside Govind Narayan Singhgala, Chunabhatti, Koler Road, Bhopal - 462016, M.P.	Address : 1st FLOOR, KIRTI TOWER, TILAK ROAD VADODARA GUJARAT 390001
OSMANABAD - 413601	
Tel/Fax/Email : / / / NA	Tel/Fax/Email : 0265-2427075 / 0265-2436654 / 171200@orientalinsurance.co.in

Agent/Broker Details

Div.Off.Code : -

Agent/Broker : LC3000000179 (1146)UNISON INSURANCE BROKING SERVICES P LTD

Address : 601-602 ,5TH FLOOR AURAM NR VASNA,HP PETROL PUMP MARKAND DESAI ROAD VADODARA 390015 GUJARAT INDIA,MOB NO 9982951111 PHONE NO 9285-2252274,BARDODA,GUJARAT,390007

Period of Insurance : FROM 00:00 ON 30/11/2020 TO MIDNIGHT OF 29/11/2021

Collection No & Dt : DC_U_INDOSH 3014001100 - 30/11/2020	GST INVOICE NO :2410664478	UIN :0
Gross Premium : 7,04,775	GST : 1,26,860	Stamp Duty : 5
Total : 8,31,635		

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

RISK DETAILS


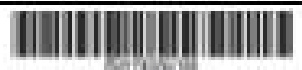
1 Location of the Risk : Four Laning of Tuljapur-Ausa Section of NH-361 From Km.0.000 to Km. 55.835 (Existing chainage Km.416.000 to Km.470.000) under NHDP Phase IV in the state of Maharashtra on Hybrid Annuity Mode.

MAHARASHTRA
OSMANABAD
413601
OSMANABAD

Risk Description : Roads

SCHEDULE OF PREMIUM

TOTAL PREMIUM	7,04,775.00
GST 18%	1,26,860.00
Stamp	5.00
Date : 30/11/2020	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.

CIN: U69010DL19470G01007158 All the Amounts mentioned in this policy are in Indian Rupee

Authorized Signatory

Page 1 of 3

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Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.

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**TECHNICAL
DUE DILIGENCE REPORT**

HDFC ERGO General Insurance Company Limited



March 26, 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: 3114203370090800000

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

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

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

Name of the Intermediary : GLOBAL INSURANCE BROKERS PVT LTD

Intermediary Code : 200113159601

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

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

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

Yours sincerely,

Authorised Signatory

3114203370090800000

Page 1 of 13

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

UN : IRDANI25P0017V02201112 | IRDAI Reg No.146 | CIN : U66030MH2007PLC177117

Registered & Corporate Office:
1st Floor, HDFC House, 155 - 156 Backbay Reclamation,
H. T. Park Marg, Churchgate, Mumbai - 400 020

Customer Service Address:
D-301, 3rd Floor, Eastern Business District (Magnet Mall),
LBS Marg, Bandrup (West), Mumbai - 400 075

Toll Free Number: 1800 2700 700
Telephone : +91 22 6636 3600 Fax: +91 22 6636 3659
Email : care@hdfcergo.com

Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.



**TECHNICAL
DUE DILIGENCE REPORT**

HDFC ERGO General Insurance Company Limited

Certificate of Insurance cum Policy Schedule

Policy No. 3114203370090800000

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	26/03/2020	
Period of Insurance		From Date & Time		24/03/2020 00:01 AM		To Date & Time		23/03/2021 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
3114203370090800000

Page 2 of 13

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

UIN : IRDAN125P0017V02201112 | IRDAI Reg No.146 | CIN : U86300MH2007PLC177117

Registered & Corporate Office:

Customer Service Address:

Toll Free Number: 1800 2700 700

Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.

HDFC ERGO General Insurance Company Limited



Details of Employees Covered

Description of work done by Employees	Declared Number of Employees	Declared Wages during the Period of Insurance	Place/Places of Employment
Road Paving, Tarring and Road Making-Road Paving, Tarring and Road Making-All categories of employees of DBL & Sub-contractor engaged in DBL - Highly Skilled, Skilled, Semi-Skilled, Unskilled, Engineers, Supervisors, Managers, Daily Labour Etc	200	48000000.00	Four Laning of Tuljapur-Ausa (Including Tuljapur Bypass) Section of NH - 361 from km 0.000 to km 55.835 (Existing Chainage: km 416.000 to km 470.000) under NHDP Phase - IV in the State of Maharashtra on Hybrid Annuity Mode

Premium Details (₹)

Basic Premium	72111.00
Integrated Tax 18%	12980.00
Total Premium	85091.00
GST Registration No: 24AABCL5045N1ZE. The contract will be cancelled ab initio in case; the consideration under the policy is not realized.	

List of Endorsements

Endt No	Description	Effective Date
EC_12_0003	Contractors Employees	24 March 2020
EC_12_0001	Medical Expenses	24 March 2020
WC-02-0008	Tariff Endorsement	24 March 2020
EC-13-0006	Insurance Contract	24 March 2020
EC-13-0005	Policy Schedule	24 March 2020
	<p>Warranted that there are no known losses and /or circumstances leading to losses (except for the claims and / or circumstances already reported to HDFC ERGO General Insurance Co. Ltd.</p> <p>This policy document is issued basis the information provided though request for quotation and/ or unsigned proposal form and / or other details provided by the insured / insurance intermediary and/ or through discussions and our final quote sheet issued to you enabling the insurer to decide the terms and conditions of insurance contract.</p> <p>Your are requested to inform us within 15 days of receipt of the policy</p>	24 March 2020

31142033700090800000

Page 3 of 13

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

UBN : IRDAN125/P0017V02201112 | IRDAI Reg No.146 | CIN : U86030MH2007PLC177117

Registered & Corporate Office:
1st Floor, HDFC House, 155 - 156 Backbay Reclamation,
H. T. Parekh Marg, Churchgate, Mumbai - 400 020

Customer Service Address:
D-301, 3rd Floor, Eastern Business District (Magnum Mall),
LBS Marg, Bandrup (West), Mumbai - 400 075

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

Annexure 7: Change of Scope

S No.	COS proposed Details	Date of first submission to IE	Current status	COS Amount	Expected/Actual Date of Approval	Status of Work at Site
1	Additional service road at VOP location (Bypass)	30.05.2018	COS with Financial implication recommended to Authority vide IE Lr NO.6556 dtd 26.06.2019	0.99 Cr	In progress	In progress
2	Change in Span Arrangement of minor bridge at Ch.7+437 and 8+129	18.05.2018	COS with Financial implication recommended to Authority vide IE Lr NO.6556 dtd 26.06.2019	2.19 Cr	In progress	Completed
3	Installation and implementation of ETC lane in each Toll lane and implementation of Median speed weigh in Motion with bending plate technology as per NHA circular	31.01.2019	COS with Financial implication recommended to Authority vide IE Lr NO.6560 dtd 26.06.2019	0.21 Cr	In progress	ETC is installed in all lines and 6 lines were operated by ETC Way in motion is installed but not in operational condition
4	Highway Nest (mini) with toilet blocks as per NHA circular	15.12.2018	COS with Financial implication recommended to Authority vide IE Lr NO.6569 dtd 26.06.2019	1.35 Cr	COS approved by Authority	Under construction

Four Laning of Tuljapur– Ausa (including Tuljapur Bypass) Section of NH-361 from Km.0.000 to Km.55.835 (Existing Chainage Km.416.000 to Km.470.000) in the State of Maharashtra under NHDP-IV on Hybrid Annuity Mode.



**TECHNICAL
DUE DILIGENCE REPORT**

S No.	COS proposed Details	Date of first submission to IE	Current status	COS Amount	Expected/Actual Date of Approval	Status of Work at Site
5	Provisional of Utility crossing pipes (17 Nos) of Tuljapur Bypass	09.02.2019	COS with Financial implication recommended to Authority vide IE Lr NO.6556 dtd 26.06.2019	0.41 Cr	In Progress	Completed
Total COS Amount (Excl. GST) – 5.15 Cr						

Annexure 8: Project Photos



